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The Treasurer’s Global Guide to Investing Cash 2014

From HSBC Global Asset Management, in association with The Association of Corporate Treasurers

Authored by WWCP

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Welcome to the fourth edition of *The Treasurer’s Global Guide to Investing Cash*. The Guide provides a comprehensive overview of the professional investment of corporate cash, describing the content and context of the development of investment policy, the factors that impact investment decision making, and the different money market and other investment instruments available in different countries around the world.

It is intended to be used by treasurers seeking a guide through the complexities of investment policy as well as to help validate the existing policies of those who have a strategy in place.

The Guide reviews the five principles of effective cash management:

1. Forecasting cash flows accurately
2. Managing cash flows effectively
3. Segmenting cash flows intelligently
4. Establishing an appropriate investment policy
5. Implementing effective investment management

Although there are chapters covering each stage in this process, the Guide focuses on how to establish an appropriate investment policy and on the effective implementation of that strategy.

This fourth edition has been comprehensively reviewed and rewritten to take account of the current global economic situation. However, the basic principle remains true when investing corporate cash treasurers face a trade-off between security, liquidity and yield. The regulatory environment that treasurers and providers both face adds increased complexity to the investment decision.

This edition contains 44 country profiles with detailed information for investment activity.

HSBC Global Asset Management and the Association of Corporate Treasurers (ACT) are delighted to have collaborated in this new edition of the Guide and hope that it will be a useful and practical reference both for those new to investing short-term liquidity and for those who already are familiar with the subject through their work and ACT qualifications.

**Peter Matza**  
Engagement Director, The Association of Corporate Treasurers

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On behalf of WWCP, I would like to extend my thanks to all of the above.

**Guy Voizey**  
Editor, March 2014
Introduction

Since the publication of the third edition of this guide three years ago, the outlook for the international economy has improved. Even so, the interest rate environment remains difficult for investors, as governments around the world continue to target economic policy to support economic recovery. Regulatory bodies around the world are engaged in an ongoing review of rules, seeking to avoid a repeat of the problems in the money market. Bank regulation, via Basel III, and changes to money market fund rules have already had an impact on bank and fund behaviour.

Notwithstanding this upheaval, the fundamental challenge for the investing treasurer remains the same: to reduce the risks associated with investing cash both in terms of the preservation of principal and the maintenance of liquidity. Although the core text of this book has been written with the corporate treasurer in mind, the principles of managing cash apply to treasurers in any business.

This book is based on the five principles of effective cash management, with each one forming the basis of a chapter of the book. Although there are chapters on every stage in the process, the focus is clearly upon the development of an investment policy and the implementation of any investment decision.

1. Forecasting cash flows accurately
   Understanding future cash flows allows the company to use internal funds more efficiently, reducing the reliance on external borrowing in many organisations. This also helps from an investment perspective. It reduces the need for precautionary balances to be held, in case of need, allowing the treasurer to plan the investment of funds until they are needed by the business to meet its matching obligations.

2. Managing cash flows effectively
   The next stage is to put in place an effective liquidity management structure, which will allow cash to be collected, pooled (if appropriate) and disbursed to cash-poor entities within the group. Such a structure is likely to improve the visibility of cash within the organisation, increasing the funds available to invest.

3. Segmenting cash flows intelligently
   With a clear understanding of cash flows, and an efficient liquidity management structure in place, the treasurer will be able to identify the levels of peak cash surplus and, more importantly, the expected timing and amount of lowest cash surpluses.

4. Establishing an appropriate investment policy
   With a clear view of how cash flows through the business, and a forecast of future cash balances, the treasurer needs to establish a clear investment policy appropriate to his company or group. This should establish clear overall objectives for short-term investment and detail how the treasury will seek to manage the risks arising. This policy should be pre-approved.

5. Implementing effective investment management
   With an investment policy in place, the treasury needs to establish a set of operating procedures to follow when taking an individual investment decision. These procedures should set out, in detail, the precise steps to be taken, from identifying the funds available to invest, through the process of selecting the appropriate instrument and counterparty, to dealing and final settlement, before outlining how to monitor the investment from settlement through to maturity.

The book concludes with four appendices. The first provides an explanation of the core money market instruments, including an analysis of their main characteristics and uses. The second is a guide to the most commonly used investment calculations. The third is a series of country profiles, being particularly useful as a reference source outlining the main instruments available in 44 different countries. The last is a glossary of investment terms.

This book will be invaluable for any treasurer who is new to the task of investing cash. At the same time, it will act as a validation tool for the treasurer who wants to review his or her organisation’s investment policy and procedures. We hope you enjoy your reading, and find the Guide as a whole to be a useful addition to the treasury library.

Cash in the new post-crisis world

Martin O’Donovan
Deputy policy and technical director, The Association of Corporate Treasurers

Since the onset of the financial crisis over six years ago, we have been through a credit and banking crisis, a sovereign debt crisis, the euro crisis and a major process of re-regulation of financial services. While the peaks of turbulence may be past, their consequences are still very much with us. And it is not all bad. When times were hard, the benefits of a well-managed professional treasury department became even more apparent. Efficient cash management and prudent investing became more important than ever.
Larger companies are now in the privileged position of bank or bond funding once again being readily available, even if more generally the banks’ capacities for making new loans have undoubtedly been restricted. Private-equity owned companies have always been acutely aware of the need for cash generation and tight controls on cash management. That lesson has been learnt across the board. Companies revised their cash forecasts, partly to see what levers could be pulled to save cash, and partly because these forecasts needed updating to reflect the prolonged downturn in the economy. Reducing gearing was the order of the day, new acquisitions were reined back, working capital came under the spotlight to be managed more tightly, and cash was allowed to build up to provide future financial flexibility. The lessons learnt from the financial crisis will have a long-lasting benefit in the fields of cash management, forecasting and investing.

Understanding the working capital cycle, and taking control of it, became a priority; in many companies it had been a neglected area. Making full use of the available accounts receivable and accounts payable technologies, getting on top of reconciliations, reducing administration and errors, tightening days’ sales outstanding, claiming supplier discounts and improving cash flow and its forecasting will all be a permanent legacy of those critical times.

Forecasting
Spare cash generated may be invested in suitable instruments, or may be used to pay down debt. Either way, stage one in the process is to revisit the cash forecasts and plans in order to be realistic in the new environment. Old assumptions may not apply. If we have all learned one thing from the credit crisis, it is that you should plan for the unexpected. All forecasts will need to be stress-tested with some extreme assumptions.

Managing
Whether wanting to reduce debt, or to use cash for investing, managing cash flows cannot be neglected. Companies are taking action to chase up debtors (or to help debtors and themselves in ‘supply chain finance’ initiatives) and collect the cash. They are looking to make more effective use of any pockets of cash around their group companies. Where small floats are left in subsidiary accounts, these are being reduced. Cash pooling systems are being tightened up, with more frequent repatriation of balances, or simply by bringing more companies into the system. For a large group, it is truly amazing how much cash can be generated as if from nowhere.

The crisis has reminded companies not to take access to funding for granted. If banks are somewhat less inclined to have fully committed credit facilities sitting unused, then treasurers have no choice but to pre-fund their needs; this can mean having both borrowings and cash on the balance sheet at the same time. Treasurers and their boards now regard a certain amount of inefficiency in pre-funding or over-funding, along with the cost of carry, as a cost that has to be borne. In the overall scheme of things, it is often thought a cost worth bearing.

Segmenting
Phase three is segmenting the funds, and here the new emphasis is on flexibility and therefore keeping investments more liquid, or invested for shorter periods. Now might be a good time to make opportunistic acquisitions, in which case a company does not want to be locked into long-term and inflexible deposits. Added to this, a shorter maturity presents less risk that the counterparty will get into financial trouble during the investment’s life.

The counter-argument is that, given how low interest rates have been, then perhaps it is reasonable to seek a yield pick-up by investing further down the maturity curve. Interestingly, this is not something that has been happening to any great extent. The logic is that flexibility and reducing credit risk trumps any small yield pick-up. This demonstrates that for non-financial companies, holding cash and generating income from it is not an end in itself, but rather the cash is there to be used more profitably in the business.

Low interest rates are a feature that has prevailed for far longer than might at first have been expected. To combat recession and encourage economic recovery, the authorities in the major economies have provided monetary stimulus using quantitative easing as the key tool to inject cash into the financial system. Central banks have, in a manner of speaking, been printing money in order to purchase government bonds, and thus depressing rates, even for the longer-term maturities. At the short-term end, interest rates have, for brief periods, even gone negative, meaning that the banks in effect have been charging a fee for holding customer deposits safe. When rates are low to start with, banks which are rated relatively safe can be swamped with deposits that they cannot profitably use for on-lending, so instead must discourage this via negative rates.

Perversely, the very banks that are low-risk and attractive to treasurers will very often not wish to gross up their balance sheets through taking deposits. The new Basel III leverage ratio can be a limiting factor on grossing-up for some banks, even pushing those banks to consider imposing limits on cash left in operational accounts.

Investment policy
An investment policy encapsulates how a company’s risk appetite translates into practical objectives and rules. Counterparty credit risk is no longer purely theoretical – it is a very real risk. If, pre-crisis, a company was prepared to mark a limit for a single A-rated bank, it is probably still happy to do business with such a counterparty. What has changed is that companies may have reduced the limit per bank, so as to force a greater degree of diversification of investments, or have introduced a new rule such as ‘no more than 10% of funds with any one name’, subject to exceptions for modest amounts. But companies operate in the real world, and the choice of well-rated banks open to them has diminished. Maybe companies have to accept dealing with lower-rated institutions? Reducing risk through diversification is an alternative, and the use of money market funds for easy diversification continues to be popular.
The counterparty limit that is set for a bank (which covers all forms of credit exposure, not just liquid funds investments) will usually be derived from an approach which starts with the credit ratings of the banks, supplemented by other information. Limits are set such that the expected loss from a credit event, while regrettable, would not be disastrous, since no policy can be designed to be event-free under all circumstances. An important step is to ensure that you know which legal entity within a bank group you are dealing with, and which has a rating. If you are dealing with more than one entity in a banking group, set an overall bank group credit limit as well as limits for individual legal entities (and even branches – see next section). But bank risk is about to become a lot more complicated and more highly dependent on the structure of the banking group involved.

Bank recovery, resolution and bail-in

The crucial role of banks in keeping any economy alive has meant that in recent times there has always been some form of implied state support for banks, particularly if those banks are large and systemically important for the jurisdiction concerned. This has been borne out in practice, as states stepped in to support or rescue their banking sectors. But sentiment has changed. It is no longer politically acceptable for governments just to pick up the bill for rescuing a bank. In some cases the sheer size of the banking sector as compared to its host state means it is not practical either. A failing bank traditionally can survive if it is recapitalised with new capital from its own shareholders, or in extremis from the government. The theme being explored now, and indeed beginning to be implemented, is to create a legal regime that will allow the cost of rescuing and recapitalising a failing bank, or shutting it down, to be placed back with the creditors of that bank. There needs to be a mechanism to share the pain, so as to allow the bank to survive and to protect retail depositors. If, for example, bond investors have lent the bank £100, then if the bond-holders’ claim is written down to £70, this creates £30 of new capital in the bank balance sheet. This is termed ‘bail-in’. It contributes to restoring the solvency of the bank, but of course does not generate any new liquidity. It must be hoped that with the bank’s stronger capital position, the market or central bank will be prepared to give access to liquidity.

The problem is to devise a fair set of rules around bail-in, and the starting point is an assumption that retail depositors should not suffer bail-in, or at least not up to certain limits. A bank that is funded heavily by retail deposits was normally regarded as safer than one heavily funded from the wholesale markets, on the presumption that retail deposits are stickier. In the event of a problem, wholesale funding will quickly be withdrawn and dry up, whereas retail money is slow to be withdrawn. In the new world of bail-in, the perverse result is that a bank with most of its funding from retail deposits will have to bail-in its few bond-holders and wholesale depositors to a far larger extent – so a disproportionate risk falls on wholesale depositors, making them even more like ‘hot money’, withdrawn at the first signs of trouble. This is aggravated if retail deposits or the guarantee scheme they benefit from are ranked above wholesale deposits in bank resolution.

Then, in a bank group there are further complications and risks from bail-in. Will the creditors being bailed-in be at the parent or holding company level, or at the operating subsidiary level? And will a problem with a sister subsidiary in a banking group, if it cannot be resolved within that subsidiary, trigger a bail-in in a solvent member of the group?

Foreign branches of banks raise particular problems. Will depositors be treated similarly to those at the home country branches? The home-country’s retail depositor insurance does not usually apply, but the host-country’s scheme may. Will the head office support wholesale depositors? Is the branch required by the host country to be ‘ring fenced’ from the rest of its legal entity with local capital and liquidity demanded? Enquiry has to be made individually for each foreign branch. Branch credit ratings (e.g. Fitch National Ratings) are only occasionally available.

The implications for investing corporate cash with banks, be it direct through deposits or indirectly via a money market fund, are very significant. Any credit assessment will need to build in consideration of the exact entity being dealt with, the make-up of its funding mix, the hierarchy of preference for the different funding providers, any ring-fencing and the entity’s relationship with and risk from other businesses in the same group, and any applicable local regulations.

If counterparty risk is a big concern, then mitigating this through taking collateral is a possibility. It sounds rather self-defeating for the bank to take a deposit and then give back an equivalent amount of collateral, but the point is that the collateral can be a longer-term asset that the bank wants to continue to hold and that can be put to good use supporting immediate liquidity. This form of secured deposit is known as a repo or repurchase agreement (strictly speaking, a reverse repo). It is beginning to be used by some larger companies, and is set to become more usual.

Implementation

Everyone, right down to the private investor with money in his bank account, is now acutely aware of the risk of default. The heightened risks and awareness mean that monitoring and reporting counterparty exposures has become a more frequent exercise for company treasury departments. Although most companies already keep track in real time as part of the dealing process, new end-of-day reports are being created for senior management, and along with other related information.

Conclusion

Experienced treasurers have always maintained that when it comes to investing temporary company cash, the priorities are security, liquidity and yield (SLY), in that order of importance. They have been proved right again and again, and this will continue to be the treasurer’s mantra, even if the practicalities of achieving it have become a lot more complicated.
Introduction

Under most circumstances, a proactive treasurer – able to plan where, when and how to make investments – may expect to achieve better results than a reactive treasurer, who is forced to respond to events.

Having an understanding of likely future cash flows, and therefore of likely future bank account balances, allows the proactive treasurer to plan the company’s borrowing and investment efficiently. With detailed forecasts, the treasurer is able to use internal funds (cash surpluses generated in one part of the business) to finance developments in cash-poor parts of the business. Efficient use of internal funds can reduce the level of more expensive external borrowing quite significantly in some organisations.

An understanding of when cash is likely to be needed by the business will also allow the treasurer to plan investments more efficiently. The company may find it needs to keep less precautionary cash in overnight accounts (although the treasurer may choose to keep cash in such accounts for other reasons); instead, the treasurer will be able to include longer-dated instruments when selecting appropriate alternative investments.

This chapter provides a brief outline of the main methods of cash flow forecasting, and how treasurers can best use them.

Different types of cash flow forecasts

Time horizons

The most basic cash flow forecast will allow the treasurer to know likely balances at the end of the current and next business days. However, in order to be useful to the proactive treasurer, a cash flow forecast should be able to predict balances over a series of time horizons.

Most companies will prepare cash forecasts on three levels: short-term (from the end of the current day up to a month or three months, depending on the nature of the cash flows in the business); medium-term (up to a year); and long-term (over a year).

Short-term forecast

A short-term forecast will generate end-of-day balance forecasts on a rolling basis from the current business day up to seven or 14 days (depending on the nature of the business). For periods up to about three months, the forecast may be generated on a weekly basis.
For an international company operating with a number of bank accounts denominated in different currencies, these short-term forecasts may be prepared for every (or most) bank account. For smaller companies, or for those operating in one country in one currency, it may be sufficient to prepare an aggregated forecast balance. This is especially appropriate if the company maintains an automated sweep between accounts, to avoid unnecessary overdraft interest.

Medium-term forecast
A medium-term forecast will usually take the form of a series of rolling monthly cash forecasts, from one month up to one year. From the investment perspective, it will allow the treasurer to identify the peaks and troughs of cash availability throughout the year. This will be useful when the treasurer is considering making investments for periods longer than a month.

Long-term forecast
A long-term forecast will mainly be used by the treasurer and finance director to plan corporate finance activity, such as arranging long-term bank facilities and bond issuance programmes or setting a target for the long-term debt–equity balance for the company. By its very nature, the long-term forecast cannot be as accurate as the short-dated forecasts. However, from an investment perspective, it will allow the treasurer to plan for the investment of the proceeds of a bond or rights issue, for example.

Techniques
There are a number of different techniques which can be used to forecast cash. Their suitability depends on the company’s ability to access the necessary information, the nature of the company’s business and the cash flows which arise, as well as the time period over which the forecasts are being made.

Sources of data
The first stage in generating any forecast is to identify the potential sources of data. These will include scheduled outgoings (such as payroll, interest payments and supplier payments) and expected incoming payments (such as payments for goods and services already supplied and contracted to be supplied). The analysis should also include the cash flow impacts of longer-term borrowings, such as the repayment of the principal of a bank loan, drawings down from commercial paper programmes and bond issues, and of other strategic activity, such as planned acquisitions or divestments.

For most forecasts, especially those with a longer time horizon, the treasurer may have to rely on predicted incoming payments (for example, from sales forecasts) and outgoings (for example, loan repayments based on forecast interest rates). This may require building data from a variety of sources, all of which are prepared differently.

Over time, as the information becomes more certain, this estimated data should be replaced by confirmed data in the various cash flow forecasts. At every stage, it is important the treasurer understands the reliability of the underlying data when planning future borrowing and investment. In particular, the treasurer needs to be aware of how changes in certain forecasts or market instruments (especially interest rates and key exchange rates) will affect the cash flow forecast.

Basis of forecast
Depending on the time horizon for the forecast, and the availability and reliability of the data available, the treasurer will need to assess the basis on which to build the forecast. Broadly speaking, there are two techniques for generating cash flow forecasts – for short-term forecasts, companies tend to use a receipts and payments method; for the longer term, once a receipts and payments approach becomes too inaccurate to be useful, forecasts can be generated using forecast balance sheets and income statements. Whichever method is adopted, the forecasts will be more useful if there is some assessment of their expected accuracy. To an extent this can be built up from experience in comparing forecasts to actual. Alternatively, a best case and worst case forecast could be created by flexing the source data used to build the forecast.

Another way of gauging the likely reliability of the cash forecasts is to produce the core forecast and then consider what levers are realistically available to speed up or slow down payments, within the time scales being considered.

Receipts and payments method
This technique uses a combination of information drawn from bank accounts (usually cleared funds, with the value date important to distinguish between the posting date and the date of access to funds) and from accounts receivable (receipts for goods and services provided, interest receipts generated by investments) and accounts payable (payroll, payments for goods and services received, interest payments due on bank and non-bank borrowings) systems and records.

Using this information, the treasury can build up a pattern of expected cash inflows and outflows for each bank account under its control and, together with the starting cleared funds balance, generate a series of expected balances over the time frame of the forecast.

The real challenge when building the forecast is to recognise the difference between the known and estimated data that is entered. Many forecasts rely on estimates both for the timing (the treasurer will not usually be certain when customer payments will be received) and for the value (the sales team may offer a price reduction for early payment) of receipts. Where estimates are made, these will need to be replaced with firm values when the information becomes known.

As the estimates are based on previous trading performance, the treasurer should be aware of the effects of the estimated data on the forecast, especially in poor trading conditions.
Balance sheet and income statement method

For longer-term forecasts (perhaps for beyond three months, depending on the company’s business), too little of the data used in generating a short-term forecast may be sufficiently accurate to provide a meaningful forecast. In these circumstances, treasurers tend to use data extrapolated from the balance sheet and income statement to generate a forecast cash flow at both group and operating company levels. This forecast will not be particularly accurate, as it will be based on expected sales and other projected accounting data. However, if prepared carefully, the treasurer will be able to predict the likely levels of any external and internal funding requirements, as well as the location and currency of any pools of surplus cash for investment.

Improving the communications between banks and their corporate clients

Ian Bryant,
Head of Client Integration Consulting, HSBC Global Payments & Cash Management

The way in which corporates communicate and integrate with their banks is one of the most significant issues confronting treasurers today. Connectivity is not simply the domain of technology experts; it is the key to effective cash management: cash flow forecasting, centralisation and visibility, automated reconciliation, cheaper and more secure payments, regulatory compliance and efficient control over collections. All require an effective communication channel between a corporate and its banks.

One of the primary challenges faced by corporates, whether working with multiple banks or as in some cases with a single bank, is the difficulty in connecting various banking systems, each of which uses its own format, to multiple internal systems which again use their own formats. To achieve this, corporates often need to expend significant resources, as do their banks and system vendors, to set up new interfaces whenever the corporate changes or adds banking relationships, or upgrades or replaces internal systems. This predicament is further exacerbated when corporates engage in mergers and acquisitions, as treasury may inherit an entirely new banking and systems infrastructure which needs to be integrated within the existing framework.

There would seem to be two possible solutions to the problem. First, it would be a great deal easier if internal systems, which generate information to transmit to the banks, or receive information from them, and the banking systems to which they connect, all used the same information format. That way, while a similar number of interfaces might still exist, these would be uniform, and new banks and systems could simply be plugged in to connect to each other. Indeed, a number of the large cash management banks have declared that bank connectivity and formats are no longer a competitive area, but now a collaborative area – one in which the banks are cooperating with IT vendors, standards bodies and corporates, to make bank-to-corporate connectivity easier and less costly for all parties. The ISO 20022 XML financial messaging standard has emerged as a flexible, versatile standard with widespread stakeholder and regulatory support.

Secondly, rather than establishing multiple interfaces between systems, an alternative would be to channel all financial messages through a common network to which all financial counterparties are connected. The past few years have seen significant progress in achieving both of these aims – standardisation by XML ISO 20022 and SWIFT connectivity. While the complexity of corporates’ connectivity requirements has never been greater, the solutions now available to manage these and optimise cash management have also never been more advanced or more convenient. The ability for a treasurer to send and receive information in a secure way with the company’s banks, directly to and from internal systems is crucial to every aspect of a treasurer’s role, so having the right connectivity solutions should be a priority.

The options are diverse but the opportunities are endless. SWIFT, once the domain of corporates with large cash flow volumes or numerous banking relationships, is now available to the medium-sized corporate. This has been made possible by the relaxing of the SCORE eligibility rules, the launch of Alliance Lite and the expansion of the SWIFT Service Bureau market. Bank independent connectivity is accessible to a far wider spectrum of corporates than ever before. The major cash management banks anticipate that their customers will increasingly seek to connect both to them and to other banks through SWIFT as the experiences of corporates with similar treasury and cash management challenges become more widely publicised.

Standardisation is the other related trend. Whatever the preferred way of communicating with banks, the process of connecting banking systems with corporates’ internal systems should be as straightforward as possible. The widespread agreement among banks, vendors, corporates and SWIFT on the use of XML ISO 20022 is a major advance in delivering plug-and-play communication between systems. In general, banks want to make it as easy as possible for customers to do business with them, by supporting recognised standards and promoting high levels of automation between all corporate systems.

It may be surprising to some corporates that there has been such a focus on collaboration between competitive organisations such as banks and software vendors. One of the key benefits for corporate of standardising their integration and/or connecting to their banks through SWIFT is that they achieve greater independence from their banks, i.e. they can change or add banks more easily than having to replace complex systems with multiple interfaces. For example, a treasurer would not have to factor in the costs of rebuilding a cash flow forecasting system when considering changing the company’s cash management bank. With common messaging standards, the only things which would change with a different bank are the source of data feeds and standard settlement instructions.

However, forward-looking banks recognise that the channels through which information and services are delivered are not the reason that customers choose to do business with them; rather, the range of cash management services, quality of customer service, value and geographic footprint are among the factors on which corporates base their decision to work with, or continue working with a given bank.
Forecasting cash flows accurately

Using the cash flow forecasts

The benefits of forecasting

Treasury’s ability to identify and manage cash depends on the quality of management information available to the department. Although a certain amount of information supports a centralised liquidity management system, this is, at best, real-time information about actual cash flows. In order to plan an investment strategy, treasury will need advance information of future cash flows and balances from a cash flow forecasting system.

Whether a company has net cash or is a net borrower, a comprehensive cash flow forecasting system allows it to ensure that any available surplus cash is used within the business before the company borrows from the external markets. An effective cash flow forecast also means companies will need fewer standby facilities to meet unexpected borrowing peaks. These standby facilities represent an additional cost.

Cash flow forecasts and balance reports also act as a general form of management reporting that provides a powerful indicator and control mechanism, especially when forecast figures are compared with actual results. (This applies for both short-term and longer-term forecasts.) For those companies that must operate within the terms of financial covenants (for example, a ratio of net debt to EBITDA, or a ratio of free operating cash flow to total debt), cash flow forecasts are an essential tool for compliance. Some companies, especially those financed by private equity, have very high debt ratios. As a result, they typically have to operate under very tight financial covenants, with cash flow being their most important indicator.

Although the focus of cash flow forecasting is usually to avoid unnecessary external borrowing, improving the process may allow treasury to take a longer-term view of investment decisions. For example, if treasury knew net cash might be positive for a period of a week or more, it would be able to invest in some longer-dated instruments, rather than reinvesting all surplus cash on an overnight basis every day, allowing the company to select from a wider range of instruments and potential counterparties.

In contrast, a company without an effective cash flow forecast will need to keep some funds accessible to meet any unexpected cash demands. From an investing perspective, treasury may have to rely on trends, rather than forecasts, when managing overnight cash.

Collection of information

The real difficulty in forecasting cash is the collection and collation of data from the group subsidiaries. In an ideal world, all group subsidiaries will use a common enterprise-wide resource planning (ERP) or similar system, which can record and process the same type of data in the same way, wherever the particular entity is in the world. This data can then be fed into the cash flow forecast automatically, creating forward-looking results which can be relied upon by the treasurer.
In reality, even in companies which employ ERP systems, it is not unusual for group entities to be using different ones (especially when the group has developed through acquisition). Even where they use the same ERP system, entities may well be using different versions, if its use has been rolled out over a period of time. Some entities, especially the smaller ones, may not use ERP systems at all, even if the rest of the group does. All in all, this makes it difficult to develop a consolidated cash flow forecast.

One solution is to use a web-based tool for collecting data from subsidiaries. Entities can enter their data via a web interface to the cash flow forecasting system from wherever they are in the world, and irrespective of the operating system they use. This approach also allows group treasuries to integrate new acquisitions into the cash flow forecast very quickly.

**Building a forecasting system**

Where there is no automated cash flow forecasting system, the treasurer will need to identify how best to build one. This needs a careful cost–benefit analysis. The benefits are likely to be greatest where more accurate information can be used to reduce external borrowing (perhaps by using cash surpluses generated by group subsidiaries more effectively) or to allow the treasurer to invest more funds for longer (reducing the cash which needs to be reinvested every night). These potential benefits must be evaluated against the costs of both building and operating a new cash flow system.

The need for accurate and complete cash forecasts will depend on how they are being used. If cash investments are being kept very short-term for credit risk reasons, then highly accurate short-term forecasts are not needed – the amounts being placed on deposit each day can be used to compensate for any errors in the forecast. If several of the group’s units are very small, their cash balances may be immaterial. Under these circumstances, those units need not be required to report their forecasts into the group forecast or, if they are, they may be asked to update their forecasts less frequently than the larger units.

Where a company uses a variety of incompatible operating systems, the treasurer may decide to build a forecasting system using spreadsheets. These have the advantage of being cheap to build. For smaller companies and groups without complex cash movements, a forecast using spreadsheets may be sufficient. However, spreadsheets are less useful for forecasting cash flows in more complex organisations, as they become difficult to create and more time-consuming to manage.

Depending how the treasurer intends to use the cash flow forecast, there will be a point at which the implementation of more advanced technology will begin to be cost-effective. Most ERP and treasury management (TMS) systems have cash flow forecasting modules which can interface with other systems throughout the business, such as the general ledger, bank reporting modules, and accounts payable and receivable (AP/AR) systems. Adopting techniques to improve the visibility of cash throughout the group will also help the treasurer develop more accurate cash forecasts, as these can be based on more accurate and timely data.

When such systems work as intended, data only needs to be entered into one module of the interlinked system, allowing the forecasts to be updated automatically and without risk of error. However, the implementation of such systems becomes more difficult and costly as the complexity of the organisation increases.

The forecast will include a degree of sensitivity analysis, allowing the company to model the effects of changes in a range of factors on its cash flow. Most sensitivity analyses would model the effects of changes in market interest and exchange rates and inflation on cash flows. They would also allow the treasurer to model other changes, such as in the timing of outgoing payments (a decision to move from a weekly to a fortnightly payment run, for example), to identify the impact on cash flows.

Finally, the treasury will want to improve the effectiveness of the cash flow forecast, by learning from variances between past forecasts and actual cash balances. By examining past performance, treasury will be able to identify trends which will allow the company to improve the accuracy of the forecasts over time.

**Opportunities for better investment**

From the perspective of short-term investment, treasurers who can deposit funds for longer periods (i.e. longer than overnight) are able to structure their portfolios more effectively. Although not a primary consideration, they may be able to benefit from better returns. Under normal market circumstances, the yield curve has a positive slope, meaning that the rates available increase as the periods for deposit increase.

However, knowing how cash flows in and out of the business is only the first step. Armed with the information about future cash flows, treasurers will want to implement an effective liquidity management system, allowing surpluses to be used to fund group entities with cash requirements, thus reducing the reliance on external borrowing, or, where the company is cash-rich, concentrating cash to particular locations where it can be invested more efficiently.
Introduction

One of the treasurer’s most important roles is that of marshalling the use of cash as effectively as possible. With ever more powerful tools available to give treasurers greater visibility over cash, the next challenge is to establish a liquidity management structure which gives treasurers the highest level of control over its movement. By improving the efficiency of the liquidity management structure and/or the quality of management information, a treasury will often be able to identify more cash which can be used within the business. This reduces the company’s exposures to third parties. It should also allow treasury to help the company to generate a better return on capital, without assuming any additional risk.

Understanding cash flow also helps treasury to finance the company as efficiently as possible, in both the short and the longer terms, by minimising reliance on external borrowings. This process is also critical in ensuring treasury has sufficient cash available, both in the right currencies and at the right time, to meet obligations as they fall due. This chapter looks briefly at the techniques companies can employ to maximise the use of cash.

The role of treasury in managing cash

The management of cash is central to the treasury’s role within any company. Put simply, the treasury department’s prime responsibility is to ensure that the company has sufficient cash to meet its obligations as they fall due. In addition, treasury should manage cash in such a way that it is able to support any corporate strategy agreed by the board, which may range from investing in research or making new acquisitions, to being able to demonstrate strong internal financial management when seeking external funding from banks.

To be able to do these things successfully, treasury needs to understand how cash is used by the business. The core tools here are cash flow forecasts, outlined in the previous chapter, and the various bank account balance statements and other reports which show actual results. These will show where cash is generated and collected, and when cash is needed to meet payment obligations, such as interest, supplier, tax and salary payments.

The next stage for the treasurer is to use this information to create a liquidity management structure so that cash may be moved within the company and used as efficiently as possible. This means, wherever possible, using any cash surplus balances to finance outgoing payments, before resorting to external borrowing to meet these obligations.
Any surplus cash can also be used to provide more formal intercompany loans to group entities with a borrowing requirement. Such loans should be provided, and be documented, using arm’s-length pricing. Any internal borrowers will benefit from a reduced cost of funds (although priced at arm’s length, the internal lender will not have to receive the same level of compensation for credit risk that a bank would charge). Because the funds are provided on an intercompany basis, the borrowers are not exposed to the risk that the bank will not renew the borrowing facility or the market may prevent a commercial paper programme being rolled over.

The liquidity management structure will direct cash to particular locations within the business, such as a centralised bank account held in the name of the group headquarters, or a regional treasury centre. It will also determine how much cash will remain with local subsidiaries, and therefore the degree to which local entities are responsible for investing surplus cash. This will include identifying the local subsidiaries which will remain outside the liquidity management structure, whether for strategic (the entity is about to be divested from the group) or regulatory reasons (local exchange controls make participation too difficult to achieve), or from a need to ring-fence (a project or joint venture subsidiary may have contractual obligations to maintain its separation from the group, or this might be imposed by a regulator, as is the case for some utilities companies).

Centralised versus decentralised companies

The focus of this book is on large (perhaps multinational) companies which have centralised their cash management to a greater or lesser degree. Centralised treasuries now have to assume the responsibility of managing pools of cash, often of significant size, which have been concentrated into a small number of locations.

The question of investing short-term surplus cash is just as important in smaller or decentralised companies. In these cases, responsibility for investing short-term cash is devolved to the operating companies. Security of the invested cash is just as important in these companies.

The costs of being a simultaneous borrower and depositor

There are a number of reasons for trying to avoid being a simultaneous external borrower and depositor, the most obvious being the differential between the cost of borrowing and the interest rate offered to depositors. Banks and other lenders will always need to add a margin to the base reference rate. When investing in money market instruments, there will always be a difference between the bid and offer rates (the rates at which an instrument is bought or sold) in the market.

When replacing external borrowing with intercompany loans, the borrowing entity will always be charged an arm’s-length rate, to avoid tax implications. However, within that constraint, treasury will be able to apply a slightly lower margin on any intercompany loans than what would be available from the external banking market.

Consider an A-rated company which has a bank facility that allows it to borrow at LIBOR + 100 basis points. Its deposits earn LIBID. LIBOR is 1.1% and LIBID is 0.85%.

The company has GBP 5 million of borrowings and GBP 6 million on deposit. Its annual cost of borrowing is GBP 105,000 and it earns GBP 51,000 in interest, a net cost of GBP 54,000.

If the company netted its positions, it would have GBP 1 million on deposit, earning annual interest of GBP 8,500.

There are also opportunity costs: without access to intercompany loans, group companies will have to arrange their own back-up funding, perhaps in the form of overdrafts or more formalised unused facilities, to cover unexpected cash shortfalls. These will be expensive to arrange, especially when calculated as a group expense, particularly if no group guarantees are available to the lenders.

Finally, if the group is a net borrower, central treasury will usually be able to arrange more preferential borrowing terms than the individual operating companies.

Besides cost efficiencies, there are other benefits. If a group can avoid grossing up both its borrowings and investments, it will minimise its counterparty credit exposure on the investments. In presentational terms, the group’s balance sheet will be stronger if the netting is effective for accounting rules. Thirdly, during periods when borrowing facilities are in short supply, increased borrowing lines may simply not be available.

However, a company may choose to be a simultaneous borrower and depositor. For example, a company may take a strategic decision to secure longer-term funding via, say, a bond issue. In such circumstances, the treasurer will then need to manage the additional funds.

Case Study
A US mining corporation with Latin American subsidiaries

A US mining corporation manages the development of new copper mines in Chile and Peru via a local subsidiary. The funds necessary to finance the exploration and development process were advanced from the corporate headquarters to the subsidiary at the beginning of the project. The subsidiary had two major issues to manage. First, because the development of mines can take three or four years, the subsidiary had to manage significant volumes of cash over this period. Second, because most exploration expenses are denominated in USD, the subsidiary decided to hold the funds in that currency.

However, because of the size of the local market, the subsidiary could not place USD on deposit with local banks without exposing itself to significant counterparty risk.

The solution was to place the funds in three separate USD-denominated money market funds. The use of money market funds gives the subsidiary the diversification it requires, which is enhanced via the use of different asset managers. The company is then able to draw down the funds when they are needed without having to manage an unnecessary foreign exchange risk at the same time.
Managing cash flows effectively

Together, these changes should have the effect of improving control of cash, reducing float, ensuring that the group benefits from the availability of the funds, and also maximising the number of days’ return on interest income.

Selecting an appropriate liquidity management structure

As we have seen, there are many factors to evaluate when considering the cost/benefit of implementing a liquidity management structure.

Other factors can also come into play, ranging from the countries in which the company operates, to the culture and future plans of the company itself. From an investment perspective this will determine:

- Whether cash is concentrated, and if so, where it is concentrated to
- Whether cash is concentrated physically or notionally (or via a hybrid structure)
- How frequently cash is concentrated
- How frequently cash is disbursed from the centre
- Whether cash remains with group entities; and
- The denomination of the concentrated funds

If treasury decides to implement a group-wide liquidity management structure, it is important that this reflects the nature of the company’s cash flows. Treasury should concentrate on managing the majority of the cash to reduce the associated risk. Almost by definition, cash balances can be transitory. There is little reward for treasury chasing small amounts of cash to ensure they are being efficiently used.

The liquidity management system will need to reflect three key factors:

- **The destination of any concentrated cash**
  Cash may be concentrated to particular locations. Depending on the company, cash may be pooled on a national, regional or global basis. It may also concentrate one or more currencies. This will also require a decision to be made about whether (or when) to translate cash in other currencies.

- **The frequency of the liquidity management cycle**
  Treasury will also want to determine how frequently (typically, daily or weekly) cash is concentrated to each location, and when regular disbursements are made. The cycle may work more frequently for some locations than for others.

The issues outlined above must be considered in the implementation of any liquidity management structure, particularly when considering the benefits of physical versus notional cash pooling. Some groups choose to implement a hybrid structure to overcome some of the intercompany/accounting reporting factors.

Managing the supply chain

In some companies, there may be clear and significant financial gains from the design and implementation of a major liquidity management structure. However, implementing a new liquidity structure is time-consuming, and can require significant expenditure on internal systems to make it work.

In other companies, there may not be major gains from a new liquidity management structure itself. However, implementing other related changes, such as the adoption of a new treasury management system to manage the structure, may provide significant benefits, justifying the expense of the whole project. For example, a new treasury management system may also offer greater visibility of cash throughout the business.

Cash management can also be improved without the adoption of a new liquidity management structure. Adopting more streamlined cash collection and disbursement policies may allow the company to gain greater control of its cash, and a reduction in float.

The company has greatest control over the timing of its disbursements. Although all outgoing payments must be made by particular dates, significant efficiency can be achieved by controlling the timing of external payments. Companies can decide to implement a weekly, fortnightly or monthly payment cycle, such that non-urgent payments, including salary and supplier payments, are only paid as part of a regular cycle. In addition, the company may also be able to negotiate improved payment terms with its suppliers; for example, discounts for early payment (although the treasury should assess whether it is in the company’s interests to take advantage of such discounts).

Managing outgoing payments more closely will allow the treasurer to forecast these transactions much more accurately. This will reduce the level of precautionary balances the company needs to hold in current accounts. With most electronic banking systems, treasury will be able to prepare a single payment file for submission every cycle. This will benefit the company, as it will be able to negotiate reduced fees for payment processing, and reconciliation will therefore be much simpler.

It is more difficult to control the collection process. However, treasury, working with the company’s sales team, may be able to improve the efficiency of the process, ensuring it gets control of the receivables as soon as possible. Techniques will vary according to the nature of the company’s business, but may include measures to ensure that invoices provide customers with exactly the information they require to ensure a speedy approval for payment. One of the most efficient techniques is the use of electronic bill presentment and payment. Where available, direct debits allow the payee to initiate the collection of cash from their customer’s bank account, giving the beneficiary certainty over the timing of receipts.
Managing cash flows effectively

These interest figures must be charged at an arm’s-length rate, to avoid concerns of thin capitalisation and transfer pricing on the underlying intercompany loan created by the cash flows. One way to do this is to establish a borrowing rate and a lending rate which both apply consistently across the pool, assuming all the entities have roughly similar financial strength. If any company is particularly weak, then its borrowing rate from the lead company should be correspondingly higher, to reflect the credit risk. This policy should be clearly documented and consistently applied, as tax authorities will often want to review this.

**Notional cash pooling structures**

In a notional cash pooling structure, cash is retained in accounts owned by the entities participating in the structure. However, the balances are notionally pooled by the bank for the purposes of calculating interest expense or income.

This is a commonly used liquidity management solution, and many permutations of the notional structure are available. In most cases, banks will require cross-guarantees from all participating entities before a notional cash pooling structure can be implemented. (Companies will need to ensure any cross-guarantees meet the jurisdiction’s thin capitalisation and transfer pricing requirements, and do not cause any breach of undertakings given in loan agreements).

Because cash is not physically transferred to the structure’s header account, banks will want some right to offset credit and debit balances. (This means they can effectively reduce the interest spread on balances of participating entities.) In some jurisdictions, where banks are not permitted to offset credit and debit balances for regulatory reasons, these structures may be difficult to implement.

Note that, in the case of cross-border notional pools, funds will physically remain in the country in which participating bank accounts are held. Treasurers will want to consider whether holding balances in particular locations represents too much of a country risk (as for example when overseas transfers of cash were blocked in Cyprus, in March 2013). With ongoing speculation about certain countries leaving the euro, managing this risk has moved higher up many groups’ agendas. If such a country did leave the euro, one risk would be that any euro-denominated cash balances held in that country would be converted into a new local currency, and promptly suffer a massive devaluation. Physical cash pooling minimises the impact of such an event.

Some groups have aimed to remove all euro balances from countries they consider to be at risk of leaving, particularly over weekends, on the assumption that an exit would happen at a weekend for practical reasons.

Cross-currency notional pooling is also sometimes available. Often called “interest optimisation”, this is where banks notionally translate aggregate currency positions into a single base currency. This allows debit and credit balances to be effectively covered without the need for any physical foreign exchange transactions. This solution enables treasury to do a draw-down for investment in one currency via a simple transaction. It also outsources the need for daily foreign exchange swaps for interest purposes.

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**The locations which remain outside the liquidity management structure**

Treasurers must also be aware of any bank accounts which are not included in a centralised liquidity management structure. The reasons for non-participation may vary. Local regulations often make pooling of non-resident funds difficult, and foreign exchange transactions will add further complications. Company culture may also be a factor. Treasurers must also determine how best to control those locations outside the structure. Can they manage funds centrally? Do they set guidelines for local management to follow? Or is the local entity able to manage the funds themselves? Even if an entity cannot participate in the group-wide structure, there will still be advantages to implementing a more efficient liquidity management structure in that country.

Treasurers must then assess the relative importance of individual cash pools to the company as a whole, to consider whether or not they are part of any concentration.

**Liquidity management techniques**

Every company has a process for managing its internal liquidity. Some companies decide, for cultural or regulatory reasons, to allow local subsidiaries to manage their own liquidity, with perhaps a quarterly or annual repatriation of cash or profits to the group headquarters. Other companies adopt a more centralised liquidity management structure controlled by the group headquarters or a treasury centre.

There is no ideal structure for all companies. In practice, large companies with entities in a number of locations around the world could select a number of different liquidity management structures, all of which could improve efficiency. In these circumstances, the most important element of any structure is flexibility. The company will not want to be forced to redesign its structure every time it makes an acquisition or expands its activities into a new territory.

There are two main techniques companies use to manage their liquidity centrally: physical cash pooling and notional cash pooling. It is quite common for a mixture of central and local techniques to be used within the same group, as the efficiency of the structure depends on external factors such as exchange controls and tax just as much as group cash flows.

**Physical cash pooling structures**

In a physical cash pooling structure, accounts held by the participating entities are linked to a central group bank account (usually, but not always, held in the name of a different group entity, known as the pool header or master account. On a periodic basis (perhaps daily or weekly), debit or credit balances are transferred to the header account. (Some companies transfer all surplus balances, returning the local account balance to zero; others transfer any balance above a threshold, which may be the local entity’s monthly outgoing payments).

The header account will either receive interest income or be charged interest expense by the company’s bank. The treasury department (or the department overseeing the liquidity management structure) records the cash transfer as a movement on intercompany accounts and then pays interest to the entities which transferred credit balances, and charges interest expenses to the entities which transferred debit balances.

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Managing cash flows effectively

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Hybrid structures

Notional pooling can be set up in conjunction with physical cash pooling to form a hybrid structure. Funds are physically transferred from multiple jurisdictions to a central location where the concentrated position is netted for interest purposes. Each entity opens a ‘mirror’ account in the central location (resident or non-resident, as applicable). Intercompany loan positions are not created since the funds remain under the ownership of each underlying entity.

However, because of the regulatory requirements, some countries which permit domestic notional cash pooling do not allow certain non-resident entities to participate in ‘cross-border’ notional cash pools. Moreover, tax authorities, especially in relatively high tax jurisdictions, will be concerned that companies use the structures to avoid withholding and other taxes. Double tax treaties can often be used to reduce or eliminate a tax liability. However, care should always be taken to ensure the tax residence status of participating entities allows the efficient operation of the appropriate double tax treaties.

Notional versus physical cash pooling

<table>
<thead>
<tr>
<th>Notional Pros</th>
<th>Physical Pros</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy of subsidiaries, as funds remain under the ownership of each underlying entity</td>
<td>Gross DR and CR cross-entity positions are netted for statutory reporting, as funds are physically transferred between entities</td>
</tr>
<tr>
<td>Ability to draw down one header account to invest (or repay debt) via a single transaction on both a single and cross-currency net position</td>
<td>There is no need to provide a cross-guarantee</td>
</tr>
<tr>
<td>Preferential pool pricing due to cross-guarantees and bank’s ability to ‘offset’ CR/DR balances for central bank regulatory net reporting for both single and cross-currency structures</td>
<td>Physical transfers mean that balances are removed from the risk of exchange or capital controls, as might happen in the event of a break-up of the euro area</td>
</tr>
</tbody>
</table>

*These pros are not applicable if implementing a hybrid structure in which funds are physically transferred into a notional pool where funds remain in the ownership of each underlying subsidiary.

<table>
<thead>
<tr>
<th>Notional Cons</th>
<th>Physical Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-guarantee required covering all subsidiaries up to the extent of funds held within the pool</td>
<td>Intercompany loans are created and require group tracking with potential withholding tax implications</td>
</tr>
<tr>
<td>External guidance required to analyse any impact of gross positions on group’s statutory financial reporting</td>
<td>Operational risk due to physical funds transfer</td>
</tr>
<tr>
<td>Bank appetite to implement a notional structure due to potential inflation of their own balance sheets</td>
<td>Not generally available on a cross-currency basis, requiring multiple currency spot and forward transactions for the group to invest surplus positions</td>
</tr>
<tr>
<td>Local tax implications need to be considered for each subsidiary’s country of incorporation</td>
<td>*Intercompany loans are not created if implementing a hybrid structure where, for example, funds are physically transferred cross-border from the subsidiary’s local account to a non-resident account in the subsidiary’s name in a central notional pool location.</td>
</tr>
</tbody>
</table>

Where ‘cross-border’ notional cash pooling is difficult, some entities choose to implement domestic notional cash pools, before physically pooling cash on a cross-border basis.

Whilst pooling arrangements are generally set up to manage working capital more efficiently, in many cases some longer-term balances are included in such arrangements. Care needs to be taken where there is a core debit or credit balance that does not fluctuate over the longer term, as this could justify using differential pricing according to the nature and characteristics of the loan and the respective counterparties. Moreover, if a long-term debit balance is characterised as a loan, it cannot be included in a pooling structure. To avoid this situation, treasurers should periodically settle their pooling structure. This also helps to simplify statutory reporting obligations and provides the opportunity to report balances net for their own statutory accounts.
Accounting issues

Although treasury management systems (and others used in the treasury department) are able to generate accounting entities, ensuring the liquidity management structure is accounted for appropriately remains a significant challenge. This is particularly the case when the liquidity management structure employs intercompany loans denominated in foreign currencies.

Under IAS 21, foreign exchange differences arising on intercompany loans are reported in the income (profit and loss) statement within the individual financial statements of the entity which has a functional currency different to the currency of the intercompany balance.

In the case of the consolidation of a monetary payable or receivable between two group companies, this is an internal balance which will be eliminated in the group balance sheet and therefore has no impact on group net assets (i.e. shareholder funds). However, unless there is a basis for taking any foreign exchange revaluation arising in the individual income (profit and loss) statement to group equity on consolidation, the result is a position where one side of the foreign exchange revaluation appears in the group income statement and the other (arising from the retranslation of the entity’s net assets) arises in group equity.

IAS 21.32 includes an exception which applies to intercompany loans that form part of the entity’s net investment in a foreign operation, defined to mean that settlement of the intercompany balance is not planned or likely in the foreseeable future (IAS 21.15). In this case, the foreign exchange difference on such loans must, on consolidation, be taken to equity. Long-term loans (including long-term central funding through the liquidity management structure to cash-poor group entities, or upstream deposits which are not forecast to be repaid) may be considered part of the net investment in the entity’s operations. This means that the foreign exchange arising on consolidation of that entity’s net assets into the group’s reporting currency, and the foreign exchange difference recorded in the individual income statements being consolidated, are both taken to group equity.

Thus, intercompany loans that form part of the entity’s net investment in a foreign operation and which net out in the balance sheet (and therefore do not affect consolidated net worth) do not create any effect on the consolidated income statement, which is clearly logical.

However, any liquidity management structure where the intercompany loans are fluctuating, and where evidence suggests that settlement is planned or likely to occur in the foreseeable future, will not benefit from the ability to take foreign exchange differences to equity. In these circumstances, the group would have to record a foreign exchange difference in the consolidated income statement, even though the currency exposures are purely internal and net out in arriving at net assets at the consolidated group level.
Tax issues

However a company decides to manage its liquidity, tax advisors should be consulted before a new liquidity management structure is implemented. Generally, two of the most important tax considerations will be ensuring that a deduction is available for any interest paid, and that any withholding taxes or other transaction taxes (VAT, stamp duty and capital taxes) are minimised.

From a tax perspective, the ideal location for the pool leader will often depend on the funds flows. For instance, whether the pool leader is likely to be receiving or paying funds to the pool participants will impact the withholding tax position. When companies choose to locate a cross-border cash pool away from the group treasury headquarters, they will often choose a country which either does not impose withholding tax on interest flows, or which benefits from a good double taxation treaty network to minimise the impact of withholding tax.

Although the extent of the proposed Financial Transaction Tax in Europe is still to be determined, broadly it is not anticipated that it will apply to cash pooling arrangements. Nevertheless, consideration should be given to this tax, as its scope is yet to be confirmed or enacted in most jurisdictions.

Groups are increasingly layering on additional services to their basic cash pooling structures, for example a ‘Payments on Behalf Of’ arrangement made more economic by initiatives such as the Single European Payments Area (SEPA). Further tax issues such as the VAT analysis of the pool leader providing such services to pool participants should be considered in respect of these types of arrangements.

Depending on the country, there could be a number of anti-avoidance tax provisions which would deny an interest deduction being taken for tax purposes. The most common of these concerns are thin capitalisation and transfer pricing. Thin capitalisation rules, as with transfer pricing rules, are used by many tax jurisdictions to counter tax avoidance through the payment of excessive interest to reduce taxable profits. Companies will need to make sure they comply with any thin capitalisation and transfer pricing rules in the relevant jurisdictions, as well as any other rules which could limit the tax deduction for interest. These rules could be subject to change, and treasury will need to keep them under review and regularly monitor their position, especially in light of the ongoing OECD Base Erosion and Profit Shifting ('BEPS') project.

Next steps

Assuming the implemented liquidity management structure is effective, the treasurer of a cash-poor company will have to fund the participating entities from an external source. For the cash-rich company, the treasurer will need to invest any surplus cash. In these circumstances, the challenge for the treasurer is to classify the cash available for investment, to identify the most suitable instruments to be used.
Chapter 3
Segmenting cash flows intelligently

Introduction

Utilising a full series of parent and subsidiary cash flow forecasts and an understanding of the mechanics of the business’s liquidity management system, the treasurer will be able to identify the levels of peak cash surpluses and, more importantly, the expected timings and size of lowest cash surpluses or deficits. This information allows treasury to project the amount of cash available for investment at various points into the future, together with the times when funds will be needed by the business.

Short-term cash surpluses generated by the business and recorded via a liquidity management system will typically be required by the group entities to finance ongoing activities. Such surpluses cannot usually be invested for more than a few days.

On the other hand, other surplus funds may be available for investment for longer periods. This may apply, for example, if a company has just sold a business unit or if it is simply in a cash generative stage.

By assessing the importance of the cash to the company’s daily business, treasury can determine how much risk and duration the company may reasonably assume within its investment portfolio. This will govern the type of instruments appropriate for investment in each circumstance. One way to do this is to classify the cash to be invested.

Cash can be classified in three ways:

- **Working capital**
  This is cash which will be needed by the business in the short term, such as overnight or within the next three months. This cash may not easily be replaced in the external markets, so security is important. By definition, liquidity is also vitally important.

- **Short-term predictable cash**
  This is cash which the company holds as it is already required by the business in the short term (within, for example, the next three to 12 months). It may be needed, for example, to meet interest payments for the following month (should sales revenues not be as strong as expected), or to fund dividend payments at a known point in the future, or to fund other known outward cash flows within, say, a 12-month period. Security again is important. Immediate liquidity is less important, although the company will want to be able to access the cash if it is needed in the future at the appropriate date.
Segmenting cash flows intelligently

Medium/long-term core cash

This is cash which is available to the business for the foreseeable future. It is not needed to fund existing projects. Ultimately, the board will need to decide whether to invest this core cash into a new project or to return it to shareholders. Treasury will need to manage this cash, but liquidity may not be as high a priority.

Figure 3.1.
Diagrammatic divisions of cash into working capital and short- and long-term cash.

Figure 3.1 shows how a company will have varying amounts of cash to invest over a period of time. Working capital is shown in red, short-term predictable cash is grey and medium/long-term cash is black.

Evaluating the nature of cash

Whether or not treasury decides to classify cash in this manner, before an investment decision can be taken, four factors need to be known:

- The location of the cash
- The currency in which it is denominated
- The amount of cash to be invested; and
- The dates when the cash is available and will again be required by the business

Location

Central treasury should be aware of all significant bank accounts in all locations, whether cash is subsequently centralised or not. In particular, treasury should be aware of all header accounts within the business’s liquidity management structure. This appraisal will include all central or regional group accounts, as well as in-country pooling/cash concentration arrangements. Even if the company has a centralised or semi-centralised liquidity management structure, some funds may remain in local accounts after this centralisation.

Treasury must also understand any regulatory or other factors, such as exchange controls, which may prohibit the movement of funds between bank accounts.

Currency

Treasury should also know the currency in which the significant bank accounts are denominated. For example, international companies often establish cross-border liquidity structures for their major operating currencies (typically the US dollar and the euro). At the same time, they will maintain local currency liquidity arrangements in countries where it is sensible to do so.

Treasury will have to decide whether it is possible and realistic to physically convert cash into another currency for investment purposes. In practice, cash would have to be available for investment for a number of days to make this worthwhile.

Some banks offer cross-currency cash pooling on a notional basis. This allows the company to pool different currencies together for liquidity management and investment purposes, with no requirement to swap out of the underlying currencies, and with any surpluses being made available in the chosen base currencies.

Amount

For every significant bank account, treasury will have a forecast daily balance. Cash flow forecasts usually become more detailed as the forecast date comes closer. For example, a cash flow forecast for tomorrow will be much more detailed and accurate than one for three months’ time.

Each day, treasury will need to update and confirm the cash flow forecast before making any investment decisions. The characteristics of an individual instrument will also determine which investment instrument is selected. For example, sweeps into interest-bearing accounts require the funds to be available at the time of the sweep, whereas a bond purchase will only require funds on settlement date.

Available investment period

A forecast of future balances over the next days and weeks will highlight when the cash will be required again by the business, and will provide treasury with the opportunity to invest in longer-dated instruments. It will also remove the need for treasury to reinvest all surplus cash on a daily basis. This absence of any requirement to reinvest funds will reduce the operational risks associated with investing, such as misrouted funds or accounting mistakes. However, treasurers will recognise that any decision to invest for a longer period will reduce liquidity and increase exposure to other market risks.

Classifying cash according to the company’s requirements

Using this information, the treasurer can characterise cash into one of the three categories outlined above – working capital, short-term predictable cash or medium/long-term cash.

By doing so, the treasurer will be able to identify when the cash to be invested is likely to be needed again by the business as a whole. For example, working capital may be needed by the business within a few days, so the treasurer will only want to invest this cash in instruments which are accessible overnight (or perhaps within a week).
On the other hand, medium/long-term cash may be invested in longer-dated instruments, as it will not be needed by the company within the next few months. In addition, because this cash is not needed by the company for daily business purposes, the treasurer may be permitted to assume a greater risk when investing the funds (usually in the form of increased duration and a loss of liquidity rather than security) in order to achieve a higher return on the investment.

Where a company forecasts stable levels of surplus medium/long-term cash, it may be appropriate to try to reduce cash levels to lessen investment risk. This requires a strategic, board-level decision to pay down debt or buy back shares from investors. Such a decision will diminish the company’s ability to take advantage of potential future opportunities, for example to fund acquisitions from cash. At times of abnormally low interest rates, a policy of keeping significant long-term cash will need to be reconsidered in the light of its impact on the company’s overall returns on capital. However, the company would need to set these considerations against the benefit of holding cash at a time when the availability of future funding is likely to be uncertain.

Treasurers can also treat the investment of short-term predictable cash differently to that of working capital. As with long-term cash, because the cash will not be needed for immediate business purposes, the treasurer may feel comfortable investing funds for a longer period (for example three months) to reduce reinvestment risk and, potentially, to achieve a slightly higher return. However, the impact of uncertainty in the money markets and concerns over counterparty risk means many treasurers have reviewed this approach, with a view to staying highly liquid.

Given these changed market conditions, many treasurers are no longer prepared to assume a liquidity risk on short-term predictable cash. The role of the treasury is essentially a conservative one – the treasurer needs to make sure any invested cash is available when it is needed by the company. Market uncertainty means many companies are electing to hold short-term predictable cash in short-term investment instruments to provide liquidity in the event, for example, that cash is urgently required by the business.

In addition, difficulties in the money markets have meant previously reliable secondary markets are no longer as liquid as before. The values of longer-dated instruments have become more volatile, as market rates seem to be influenced markedly by each piece of economic or political news. In many cases, to avoid having to withdraw at a loss, treasurers have been forced to hold instruments to maturity as they have been unable to sell them on in the hitherto but no longer liquid secondary markets.

As a result, it may now be more appropriate for treasurers to classify surplus cash for investment in one of two categories: as operating cash or as strategic cash.

### Operating cash

In most cases this will be cash likely to be required within a year (although this could vary from company to company). This will include working capital, as previously defined, short-term predictable cash, and additional cash which is expected to be needed within the next year. In effect, treasurers will want to prioritise the same objectives (security and liquidity) when investing both working capital and short-term predictable cash.

There are two significant reasons for this approach. First, many companies will want to have a larger proportion of any invested cash available on a precautionary basis, to try to reduce the immediate impact of any adverse changes in trading conditions. Although companies now perform more stringent credit checks when they can, wherever possible treasurers will want to ensure their companies are not reliant on income from short-term receivables to meet payment obligations. This may require an increase in both the level and proportion of any cash surpluses which can be accessed both on an overnight and on a monthly basis. This might also include the maintenance of a higher level of liquid cash reserves than in the past, to provide an extra degree of comfort to comply with any bank covenants which may refer to cash ratios (or in case a bank gets nervous and changes its conditions). This has the effect of increasing the proportion of cash held as ‘working capital’.

Secondly, treasurers need to consider the impact of International Accounting Standards (IAS 39) on the valuation and disclosure of investments. International Accounting and Financial Reporting Standards take a qualitative view of whether an investment should be disclosed as ‘cash’ and how that investment should be valued. For example, the extent that investments exhibit widening spreads, or any uncertainty of recovering principal, means that they are less likely to be disclosed as cash and valued at par.

### Strategic cash

The second category is the strategic or medium/long-term cash, for which liquidity is less important. This will be cash which the company cannot envisage using within (perhaps) the next year – the exact timeframe will be determined by individual company criteria, including both business activities and the level of funds held in a precautionary capacity.

From an investment perspective, liquidity and, occasionally, security are less important objectives. Since the company does not expect to use the funds in the foreseeable future, there is a greater pressure to prioritise yield when making the investment. This is because, as non-essential cash, the board will need to evaluate whether to hold the cash, use it to expand the business (whether through acquisition or research and development) or to return the cash to shareholders.
Figure 3.2 shows how the same cash surpluses can now be segmented into two, rather than three, categories. The treasurer would now view the cash in red as operating cash and the cash in black as strategic cash.

Case Study European multinational chemical company

With significant cash surpluses in the current low interest rate environment, the company has been under shareholder pressure to reinvest cash back into the real economy.

This company has an effective visibility over cash which allows it to segment its cash into working capital and longer-term strategic cash. It continues to keep its working capital cash in very short-term, highly liquid instruments, including AAA rated money market funds. However, it is prepared to sacrifice some liquidity when investing a portion of its longer-term strategic cash, especially because it has become more confident with the economic outlook.

For longer-term strategic cash, the company has outsourced its investment management under a mandate. The mandate requires the asset manager to replicate the counterparty risk profile used in a triple AAA money market fund. The asset manager selects counterparties on the company’s behalf and creates a model portfolio using the same approach to counterparty risk as it uses in its money market funds. This means, for example, that the company’s counterparties must all have an A1/P1 credit rating in order to preserve principal.

The company’s confidence in its visibility over cash means it is prepared to commit its strategic cash for longer than overnight. As a result, the mandate allows the asset manager to select longer-dated instruments, giving the company an investment portfolio with a much longer duration than is permitted under either the 2a-7 or European Commission rules for money market funds. Even so, most cash is invested in instruments with a maturity below one year.

This solution allows the company to invest its strategic cash for a slightly improved yield without compromising the security of principal. Outsourcing also gives the company an improved return without the cost of managing its own team of credit analysts.

Bank classification will also be important

Treasurers will also need to understand how banks view corporate deposits. Most importantly, Basel III draws a similar distinction when assessing the treatment of corporate bank deposits from a regulatory perspective. Under these rules, banks are likely to offer incentives to treasurers to deposit strategic cash for longer than 30 days. Treasurers may also have to document their categorisation of funds between operating and strategic cash to be able to place short-term operating cash in bank deposits. There is more detail on the implications of Basel III in Chapter 6.
Establishing an appropriate investment policy

Introduction
Besides having a clear view of how cash flows through the business and a forecast of future cash balances, the treasurer needs to establish an investment policy. This should establish overall objectives for short-term investment and detail how the treasury will seek to manage the risks which arise.

This chapter starts by examining how an investment policy fits with other company policies, including the treasury policy. It considers the different investment objectives which a company can pursue, before identifying the key sources of risk to those objectives. It then identifies the core components of any investment policy, before identifying how tax and regulations can affect the decisions that can be taken and how investments should be reported.

The chapter concludes with a sample investment policy to illustrate how these points can be put into practice.

The purpose and scope of an investment policy
Although the precise structure and content of an investment policy will vary from company to company, any such policy should play a central role in allowing the board to exercise control over the company’s activities in this area. At the same time, it will provide the treasury department with clear parameters within which it is permitted to operate, as well as a mechanism by which to change these parameters in the future.

In some companies, the investment policy will be constituted as part of a wider treasury policy document. In others, it will be a standalone policy, albeit with links to the treasury policy document. This may be appropriate if, for example, the policy is designed to cover longer-term investment decisions, such as the management of the company pension fund. However it is structured, the investment policy (especially a standalone document) must be consistent with other relevant documents. In particular, as one of the drivers of investment policy is credit risk, the investment policy must be consistent with any counterparty risk policies applicable to other financial instruments, such as swaps and foreign exchange deals.

Similarly, the level of detail contained in the investment policy must be comparable with other documents. Some companies have very detailed investment policies which cover the full range of activities, from setting investment objectives to dealing, while others have a straightforward investment policy covering the main issues in less detail, but which is supported by a more comprehensive guide to operating procedures drafted by the treasurer and agreed by the finance director.
Establishing an appropriate investment policy

The board should consider whether it is appropriate for the company to assume greater risks when investing cash for longer periods of time. In particular, it must decide whether treasury is permitted to put principal at risk in order to try to enhance the return on investment. Ultimately, a cash-rich company has to decide whether to reinvest in a future project, to retain cash because of the financial flexibility it confers, or to return the funds to shareholders.

To help the board adopt an appropriate policy, treasury should illustrate how different risk scenarios may affect the security, liquidity and yield of corporate investments. These illustrations should enable the board to validate its preferred risk policy and ensure that it reflects decisions taken in other areas.

**Delegating responsibility**

At the same time, the policy will delegate to treasury operational responsibility for executing investment strategy. The board will continue to be responsible for overseeing the implementation of the policy. Maintaining effective internal and external audit programmes is an important part of that process.

**Support for treasury**

A board-approved investment policy will also help the treasury department by giving it the authority to act within agreed parameters. The policy may include operating procedures which govern the day-to-day process of taking and implementing investment decisions, although these procedures are more likely to be set out in a separate document, also agreed at board level (possibly by a treasury committee, consisting of the finance director, the treasurer and perhaps a small number of others). Together, the policy and procedures will describe the limits of the treasury department’s authority, and establish how decisions are taken. They do not, and should not, determine what the individual decisions will be (although they may require that exceptional investment decisions, for example the investment of any funds in breach of limits detailed in the policy or procedures, are taken by the board).

The treasury department may also be able to use this board-level authority when it seeks to exert control over operating companies throughout the group. Once agreed, the act of approving the investment policy demonstrates the board’s view of its importance to the rest of the company. Being able to show board-level approval for the centralised management of cash investment or the establishment of an approved counterparty list may help the treasurer who needs to prevent an operating company investing cash with an unsuitable local deposit-taker or issuer.

**Review**

The investment policy should be reviewed by the treasury department from time to time, to ensure that it keeps abreast of market developments and industry practice, and remains fit for purpose. Any proposed changes should be submitted to the board for consideration.

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**Board level direction**

However detailed the policy is, in order to be effective it should be actively agreed by the board initially and again when any changes are made. This requires the treasurer or finance director to make a presentation to the board prior to the decision to adopt the policy.

This presentation should explain the main features of the policy and then provide the board with a series of alternative decisions representing different levels of risk, giving board members an opportunity to understand the potential implications of specific decisions. For example, when presenting the investment policy to the board, the treasurer could suggest a number of different approaches with alternative permitted instruments and limits, along with the potential implications for both security and liquidity of these decisions. Whilst the treasurer should make a recommendation, a range of different strategies, which are both more and less risk-averse than this recommended level, should be put forward within the presentation to highlight the potential risks and returns which the company could choose. These examples should include a statement of the key benefits and disadvantages of each alternative.

**Demonstrate control and understanding of risk**

The board has a responsibility to manage company assets in a way that enhances shareholder value. By approving an investment policy, the board demonstrates to shareholders that it has met that responsibility. By focusing on the efficient management of company assets, a formal investment policy will also impose discipline on the board.

All investment activities entail risk. All companies differ in their approach to, and their appetite for, risk. The board must demonstrate to shareholders (and other interested parties) that they understand the nature of the risks being assumed and the expected investment returns. The key point is for the directors to agree an investment policy which reflects the overall risk appetite of the company.

For example, shareholders in a capital-intensive mining business may expect their directors to take less risk when investing cash than, say, shareholders in a cash-rich software company might expect from their directors. This is because the risk appetite will usually be closely linked to the company’s future plans. A mining company will typically look to reinvest any earnings back into the company, so a loss of principal will affect the company’s growth prospects.

On the other hand, while a software company will also reinvest earnings in development, the overall development costs are usually much lower. In effect, the risk appetite is linked to the impact of a potential loss of principal.

A loss of principal would affect the future plans of the mining business more than those of the software company.
Objectives of investment

The agreed policy should reflect the company’s overall investment objectives, whilst recognising that the specific objectives of each investment decision will vary according to the circumstances in which they are taken. For example, if a company chooses to segment its cash (see Chapter 3), its investment objectives may vary according to the type of cash being invested.

The three, or two, core objectives

All investment decisions require a compromise to be made between the three core objectives of investment: security, liquidity and yield. For instance, achieving an enhanced yield requires an investor to accept a higher risk, in the form of either lower security or less liquidity. For this reason, treasurers looking to invest cash will usually focus on two core objectives: security and liquidity.

The investment policy should indicate whether compromise on security and liquidity is acceptable and, if so, outline the circumstances.

Security

In most cases, the preservation of the principal sum is the core investment objective. Working capital cash is central to the company’s operational activity and will be required to meet obligations arising on a daily basis. Any realised loss of principal will be a drain on profits and will mean that funds will need to be raised from an alternative source, which, at short notice, could be expensive or even impossible.

For long-term cash, such as funds set aside for future strategic acquisitions, daily access may not be required, and the company may therefore be prepared to sacrifice liquidity (i.e. instant access without any material impact on principal) for higher yield.

By identifying the importance of security, treasury will be able to select an instrument which matches this objective. For example, some instruments, such as bonds, may see the value of the invested principal fall or rise if sold before maturity. With other instruments, such as bank deposits, the principal is secure, as long as the counterparty itself does not fail.

The investment policy should indicate the circumstances when a compromise on the preservation of principal may be acceptable. Companies will differ in their view of this risk. Some will decide that the risk assumed when investing principal should be the same, whether investing overnight or for six months. Other companies will be prepared to assume additional risk when investing longer-term cash, but only if the risk/reward ratio is appropriate.

Liquidity

Invested cash must be accessible when it is needed. If not, the company may be forced to borrow from an external source, while simultaneously having surplus cash invested in an illiquid instrument.

Yield

When investing corporate cash, earning an enhanced return from the funds invested is almost always subordinate to the first two objectives. In principle, there is a trade-off between risk and return: the higher the risk, the higher the possible return. To earn a higher return, treasury would need to compromise on the requirements to ensure the preservation of principal and that sufficient liquidity is available.

The categorisation of cash is useful here too. Treasury may be permitted to invest long-term cash in riskier investments or in investments which restrict liquidity, in order to try to generate a higher overall return. The policy should indicate the circumstances in which this is acceptable. As an alternative, treasury (and the board) may consider other ways to reduce the amount of long-term cash available to invest. These include paying down debt and returning cash to shareholders.

Case Study A UK multinational with Chinese subsidiaries

The Chinese subsidiaries of a UK-headquartered MNC used to place their short-term cash surpluses in term and structured deposits offered by local cash management banks. Two years ago, the UK headquarters decided to include these subsidiaries in a new in-country cash pool in China, which successfully resulted in a greater cash balance being concentrated. However, because this balance was larger than the individual counterparty limit set by the group’s investment guidelines, the China head office could not place the entire balance with a single counterparty. The treasurer had to find new locations for that cash.

Again, treasury needs to identify how important liquidity is, before making an investment. The categorisation of cash into operating cash and strategic cash is useful. When investing operating cash, treasury will want to choose from the more liquid instruments. These allow investors access to funds without giving notice or, in the case of a non-bank deposit, without having to sell the instrument. Even when investing strategic cash, treasury must be mindful of the need to realise their cash investments should there be a sudden change in the market environment.

Depending on the amounts of cash held and the likely operating cash needs, it may be possible to create adequate liquidity whilst investing in non-liquid instruments, by including a range of maturities so that at appropriate intervals – say, every week – suitable amounts reach their maturity dates.

The investment policy should indicate how liquidity is to be achieved, by setting a maturity profile or specifying the proportion of cash which must be invested in liquid instruments. This profile or proportion will vary according to a number of factors, including the accuracy of the cash flow forecasting system, the size of the maximum daily cash outflows that might need to be met unexpectedly, and the amount of funds available for investment.
Establishing an appropriate investment policy

A major challenge for the treasurer is to set the priorities for each investment decision, as it is not possible to target all three core objectives at once. Targeting security, for instance, can only be achieved at the expense (at least) of some potential yield.

This is why characterising cash into two categories – operating cash and strategic cash – is helpful. When investing working capital cash, it is likely that the primary objective will be security. Companies cannot usually afford to risk the loss of any short-term surplus cash. This is less the case when investing longer-term cash, as the treasurer will have more time to arrange alternative funding arrangements should there be a loss of principal (although a degree of security will always be important). If the loss of principal is derived from market prices rather than a credit default then holding to maturity is a solution with longer-term cash.

Liquidity is usually a close second objective when investing operating cash. Working capital cash must be available to be recycled through the business. Information is important: the more uncertain treasury is about future cash requirements, the greater will be the importance of selecting liquid investments.

Again, liquidity is less important when investing longer-term cash, although the treasurer will not usually want all such cash invested for maturity at the same time. This is to avoid having to manage the reinvestment of significant funds at once. Instead, the company will usually want to retain a rolling programme of maturing investments over a specified time period (perhaps over six to 12 months), giving the opportunity to manage the duration of the portfolio over time. In particular, this allows the treasurer to gradually reduce the duration of the portfolio, for example if the board expects trading conditions to become more difficult, or if the company requires more cash for operational (rather than strategic) purposes. There are, of course, exceptions, such as in the event of the cash being held for a specific acquisition, or to meet a particular balloon payment requirement at a set time in the future.

Maximising the yield on short-term cash is not a priority. In most cases, treasury will only use yield to select between two alternative instruments with the same security and liquidity characteristics.

The following example illustrates how a company selected an investment instrument to match its risk appetite and meet its objectives.

Setting the priorities according to the character of the cash

Improvements to the cash flow forecasting or liquidity management systems may provide treasury with more funds to invest.

By implementing such improvements, treasury may be able to improve the company’s working capital and cash position without compromising the requirements of either liquidity or security.

Benchmarking yield

Any treasurer required to measure yield should do so against an appropriate benchmark. Recent controversy over the LIBOR setting process has highlighted how some market interest rates are not solely based on actual transaction pricing, but include a degree of judgement to compensate for any lack of actual trading volumes. Overnight Index Swap (OIS) rates are an alternative to LIBOR and are based on central bank interest rates (such as the Bank of England’s Bank Rate for GBP-denominated borrowings, or the Federal Reserve’s Fed Funds Rate for USD-denominated borrowings). For longer-term investments, LIBOR rates are based on very few actual transactions, but they nonetheless do serve as independent reference rates. For terms longer than one year, the mid swap rate such as that produced by ISDAfix is a common benchmark rate.

Overnight Index Swap (OIS) rate

An OIS is a fixed rate interest rate swap against a floating overnight rate index such as SONIA, EURONIA or EONIA or against central bank interest rates (such as the Bank of England’s Bank Rate for GBP-denominated borrowings or the Federal Reserve’s Fed Funds Rate for USD-denominated borrowings).

The two parties to the OIS agree to exchange the difference between the interest accrued at an agreed fixed interest rate for a fixed period (for example, three months) on an agreed notional amount, and the interest accrued on the same amount, by compounding the reference index daily over the term of the swap.

Settlement is made net, at an agreed date after maturity (in the sterling market settlement is on the maturity date) so the principal never changes hands.

The treasurer identified a local, RMB-denominated money market fund with an investment policy which would deliver the company’s objectives, namely the preservation of security and liquidity. The fund offered full transparency, providing detailed information on its investments on a regular and timely basis. The treasurer placed RMB 100 million with the money market fund to help the company diversify its counterparty risk.

Improvements to the cash flow forecasting or liquidity management systems may provide treasury with more funds to invest.

By implementing such improvements, treasury may be able to improve the company’s working capital and cash position without compromising the requirements of either liquidity or security.
Establishing an appropriate investment policy

Nature of risk
All financial decisions involve some risk. The board determines the company’s appetite for risk and this will be reflected in the investment policy. The challenge for treasury when investing corporate cash is to understand how risk arises so that it can be managed effectively to ensure the investment objectives are met. For example, treasury may be permitted to assume more risk when investing longer-term, strategic cash than operational cash.

For every investment decision, treasury’s task is to match risk to expected return. This applies equally whatever the investment objective. For example, if treasury’s objective is to maintain principal, treasury must understand counterparty risk and take action to manage it. If, on the other hand, the objective is an enhanced return, treasury should assess the risk of a loss of principal and decide whether the prospect of that potential return is justified.

Where does risk arise?
Credit risk
This is the risk that arises from the failure of a counterparty resulting in the loss of some or all of the invested principal. This applies whether the counterparty is a bank or, for example, a non-bank issuer of commercial paper.

In addition, where a treasury holds investments subject to credit rating limits (see below), there is an additional risk of a downgrade in the rating of an investment below the minimum investment criteria. In these circumstances, the downgrade may trigger a requirement to sell the investment (assuming this is possible) which may result in loss of principal as a result of the forced sale.

How credit ratings can help to manage credit risk
Credit ratings can help to manage credit risk, as they provide an indication of likely credit default.

The Bond Market Association (now the Securities Industry and Financial Markets Association) definition of credit ratings
“…Ratings are intended to measure the probability of the timely repayment of principal and interest on municipal securities. Ratings are periodically reviewed and may be amended to reflect changes in the issue or issuer’s credit position. The ratings may be affected by the creditworthiness of the issuer itself or from a credit enhancement feature of the security such as guarantor, letter of credit provider, and bond insurer. Some rating agencies provide both long-term and short-term ratings on variable rate demand obligations.”

A Mexican subsidiary of an MNC
To finance business expansion, the Mexican subsidiary of a US multinational company issued a bond to raise USD 700 million. Having raised the funds, the subsidiary needed to invest the cash until it was needed by the business. Prudent counterparty risk management meant that the subsidiary was not permitted to deposit the cash with a local cash management bank. Instead the subsidiary chose to place the bond issuance proceeds in a USD-denominated, Dublin-based money market fund. This solution allowed the subsidiary to meet two objectives. First, it maintained security of principal via the counterparty diversification offered by the fund. Second, it ensured no loss of liquidity, so that the subsidiary would be able to draw down funds when required.
Credit ratings provide a measure of the likelihood of default on financial obligations. They are an opinion on the relative ability of a financial obligor to meet its financial commitments, such as interest, repayment of principal, insurance claims or counterparty obligations. Ratings are intended to be easily understood measures which differentiate between debt instruments on the basis of their underlying credit quality. They are, therefore, focused on communicating the relative ranking of the default loss probability for a given fixed income investment in comparison with other rated instruments or financial obligors.

While recovery analysis plays an important role throughout the ratings scale, it becomes a more critical consideration for below investment-grade securities and obligations, particularly at the lower end of the non-investment-grade ratings scale. Rating agencies may publish a separate ‘loss given default’ rating for these credits.

Rating agencies gather and analyse information on instruments, issuers, obligors and various financial intermediaries. The agencies’ specialised focus on credit analysis and related research enables them to produce independent assessments of the creditworthiness of various investment options. Their methodologies are broadly similar and thus their ratings are generally comparable.

In the case of banks, rating agencies may provide a ‘standalone’ rating, as well as a rating which takes account of possible government support. Rating agencies may also publish an overall assessment of the willingness and ability of governments to support ‘their’ banks. Together with the ‘home country’s’ sovereign credit rating (for which ‘own currency’ and ‘foreign currency’ ratings are usually available), this can help in establishing limits for overall exposure to a country’s banks as well as the limit for any single bank.

The table on the next page summarises the international long-term credit rating scales of the three global rating agencies: Fitch Ratings, Moody’s, and Standard and Poor’s.

Rating agencies also assign short-term credit ratings to debt obligations that have original maturities of one year or less, such as commercial paper. The table below summarises the international short-term credit rating scales of the three agencies.

### International long-term credit ratings

<table>
<thead>
<tr>
<th>Fitch Ratings</th>
<th>Moody’s</th>
<th>S&amp;P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest quality/Best quality/Extremely strong</td>
<td>AAA</td>
<td>Aaa</td>
</tr>
<tr>
<td>Very high quality/High quality/Very strong</td>
<td>AA</td>
<td>Aa</td>
</tr>
<tr>
<td>High quality/Upper medium grade/Strong</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>Good quality/Medium grade/Adequate</td>
<td>BBB</td>
<td>Baa</td>
</tr>
</tbody>
</table>

### Non-investment grade

<table>
<thead>
<tr>
<th>Fitch Ratings</th>
<th>Moody’s</th>
<th>S&amp;P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speculative/Lower medium grade/Speculative – Less vulnerable</td>
<td>BB</td>
<td>Ba</td>
</tr>
<tr>
<td>Highly speculative/Low grade/More vulnerable</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Poor quality/Currently vulnerable</td>
<td>CCC</td>
<td>Caa</td>
</tr>
<tr>
<td>High default risk/Highly speculative/Currently highly vulnerable</td>
<td>CC</td>
<td>Ca</td>
</tr>
<tr>
<td>High default risk/Extremely poor/Imminent default</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>In default</td>
<td>D</td>
<td>C</td>
</tr>
</tbody>
</table>

Note: Fitch Ratings and Standard and Poor’s may append their ratings with ‘+’ or ‘–’ to denote relative status within major rating categories. Moody’s may append its ratings with ‘1’, ‘2’, or ‘3’ to denote relative status.
How rating agencies operate
As mentioned, all the rating agencies use similar methods to analyse creditworthiness. (All the agencies publish their methodologies on their websites.) In order to make the best use of credit ratings, it is important to understand how the agencies operate – to understand what the agencies consider when developing a credit rating and, just as importantly, what the ratings do not measure.

Usually, credit ratings are developed by one or more of the agencies following a request from an issuer (or sometimes a guarantor which has been asked to underwrite the issue). The purpose of the rating is to provide potential investors in the issue (typically commercial paper or a bond) with an assessment of the creditworthiness of the instrument. In most cases, issuers need ratings to meet the expectation of the particular market, although ratings can sometimes be a regulatory requirement too.

The analysis process is directed by specialist analysts employed by the agency (this may be country or industry-sector specific). The credit analysts will meet senior executives in the company which is preparing to issue the instrument. Analysts will also consult other sources, before making a recommendation to the agency’s rating committee. Once it is satisfied, the committee will approve the rating for publication. The agency will publish the rating (using a point on the respective scale outlined above) as well as a fuller rating report outlining the analysts’ conclusions. These conclusions are based on information in the public domain, the analysts’ knowledge of the market (including the issuers’ competitors), as well as information provided on a confidential basis by the company’s senior management.

Once issued, ratings continue to be monitored on an ongoing basis. The surveillance method will vary according to the nature of the issue being rated: most issues are formally reviewed once a year. During this process, the analysts will look at a range of market data, as well as assessing other company-specific data, such as cash flow forecasts or financial performance, industry or sector performance, competitor position and, very importantly, meet with management to review the company strategy. After a review, the agency will either affirm the rating (showing that the rating has been formally reviewed), or upgrade or downgrade the rating (if the circumstances warrant the change), or place the issue on credit watch (if the agency wants to perform additional analysis or monitor developments). If an issue is placed on credit watch, the agency may also indicate whether the likely next rating will be an upgrade or a downgrade.

In the meantime, issues with regular public reporting schedules will be assessed after each report (such as bonds issued by public companies) and additionally will be assessed after a material change in the business (such as a change in management, a major acquisition or a change in market conditions).

The major credit rating agencies also generate ratings for money market funds. (Standard and Poor’s uses the term ‘principal stability fund’ to refer to money market funds).

When rating these instruments, analysts will assess the quality of the underlying assets in the fund’s portfolio. The analysts use a variety of tools to try to model the probability of default of all the instruments held by the fund, to weight each one according to its value in the fund, and then to create an overall rating for the fund based on the weighted average of all the securities held by the fund. The analysts will also consider the quality of the fund’s own credit analysis as well as operational factors, before issuing the final fund rating. Because the composition of money market funds’ portfolios of short-term investments is crucial, funds will be monitored more frequently, even on a weekly basis.

Primarily in response to problems with redemptions on a small number of funds and principal losses on two funds in 2008, all three major credit rating agencies reviewed their methodologies for rating money market funds. These events heightened awareness of funds’ exposure to both market and liquidity risk (see below), especially with respect to any consequent impact on redemptions. Although the three agencies focus on the same issues, there are differences between their approaches.

As with published ratings of other instruments, understanding the methodology used by the agencies is only one component of the credit risk assessment of a money market fund. Potential investors should also read the accompanying reports, rather than simply rely on published ratings.

Note that under the most recent proposals from the European Commission, money market funds will be prohibited from paying for a credit rating. This will reduce the information available to money market fund investors, and may require some companies to change their investment policies to permit investment in money market funds.

Users and uses of credit ratings
The more prominent users of credit ratings include:

- Lenders that extend credit facilities to borrowers
- ‘Sell-side’ participants (e.g. investment banks)
- ‘Buy-side’ participants (e.g. institutional and corporate investors)
- Trade and commodity financiers that assess risk inherent in individual transactions; and
- Regulators (e.g. financial institution regulatory bodies determining the extent of credit risk associated with institutions’ assets and liabilities)

The more notable uses of credit ratings include:

- Defining investment eligibility
- Benchmarking default/acceleration triggers in various credit agreements
- Use in pricing grids by financial service providers
- Measuring performance on a risk-adjusted basis; and
- As the basis for indices which assess relative value
Establishing an appropriate investment policy

From an investment perspective, credit ratings help treasury to assess counterparty risk. The investment policy will set absolute and relative limits to the amount which can be invested with any one counterparty (see page 68 for examples). These limits may differ according to the nature of the counterparty. For example, higher limits may apply to the more strongly rated counterparties. It is vital that all counterparty limits are strictly adhered to. For a bank with several subsidiaries active in the market, the investor will want to set an appropriate limit for each subsidiary individually plus an overriding cumulative total for that bank group as a whole. It is important that the investor fully understands its exposure to a banking group. The aggregated maximum group exposure should also include any indirect exposures which may include, for example, support for A/B/C/P conduits.

Group-wide exposure in a decentralised environment

One difficulty for group treasury is managing group-wide exposure to a particular counterparty. As cash management becomes ever more centralised and large international banks merge, local operating entities are increasingly required to appoint a cash management bank from a smaller list of banks. This can be a danger if significant cash remains invested locally, perhaps for liquidity management or regulatory reasons. In these cases, these local pools of cash may be invested with different parts of the same banking group, giving rise to a significant exposure to this group. This can be best addressed when appointing the cash management bank, as the largest exposure is likely to arise from the local use of bank deposits. Treasury will also need to consider applying counterparty limits to those entities which invest more than a minimum amount. At the very least, treasury may require local entities to provide details of their short-term investment so that exposure across the group can be aggregated.

At the same time, treasury may also want to link individual counterparty limits to country limits. For example, if a group is already exposed to the Italian economy because of its business interests, it may prefer to avoid increasing this exposure by investing in instruments issued by Italian banks, regardless of the fact that they may have acceptable ratings. When setting country limits, care should also be taken to understand the quality of any bank deposit guarantee schemes or any indication of implicit government support for the local banking sector. Put simply, in the event of a counterparty bank failing, will the local bank guarantee scheme or government support be robust enough to be able to protect all investors’ capital? This question also applies to any counterparty to any derivative transaction which might be in place to hedge an underlying position.

Ratings offer investors a shorthand guide to risk, covering the spectrum of corporate, sovereign (including supranational and sub-national), financial, bank, insurance, municipal and other public finance entities and the securities or other obligations they issue, as well as structured finance securities backed by receivables or other financial assets such as money market and bond funds.
Establishing an appropriate investment policy

Whilst not solely driven by credit risk, both of these provide a quicker reflection of market and other events than credit rating agency actions. Both these indicators can be very volatile, so investors will attach the most significance to any large movements that are out of line with overall market moves. When considering a number of money market funds, the treasurer should assess the weighted average life of each fund. This provides a measurement of each fund’s sensitivity to changes in credit spreads and its ability to cope with an untoward level of redemptions. (This measurement is also useful for treasurers who manage their own investment portfolios.)

Larger investors should also set additional prudent limits, based on the size of funds they deposit with each counterparty. For example, a company may not want to deposit more than 5% (say) of the total assets contained in a money market fund or 5% of the tier one capital held by a bank.

In a similar fashion, a minimum degree of diversification can be imposed by requiring that, at any time, no more than 10% of the group’s investments be with any one name. However, this sort of ‘rule’ becomes impractical for small amounts where diversification might reduce the deal size to below practical market sizes.

As part of more detailed credit analysis, the underlying instruments should also be examined. For example, when investing in repos, the transaction is only as secure as the underlying collateral instrument. Money market fund investors will also want to understand the nature of the instruments that are bought by the fund. As discussed above, treasurers should also evaluate the quality of any guarantees that are relied on to protect the security of the investment. If the relevant issuers of the underlying collateral or guarantors are existing counterparties, a treasurer should ensure these exposures are included in any calculation of exposure to the relevant counterparty.

Whilst all these additional checks will help to reduce counterparty risk, the difficulty for many treasurers is finding the resources to perform them. In effect, the treasurer has two choices: to build a team in-house or to buy services from a third-party provider.

Few organisations other than the largest companies can justify the cost of building a team in-house. Even when an in-house team is available, it may only have the time to analyse the largest potential counterparties. Local investment decisions may still be taken on the basis of relationship, supported by credit ratings, and subject to overall counterparty limits.

The other alternative is to buy this additional credit analysis. One solution is to outsource either by investing in money market funds or to use specialist fund managers when investing short-term cash. In both instances, the fee paid by the company to the fund manager will include a charge for the credit risk analysis it performs. Evaluating the quality of a fund manager’s credit analysis team is an important part of the selection process when deciding to outsource.
A further alternative is to buy credit analysis from specialist consultants. This is a riskier strategy as, compared with fund managers, the consultants are not as accountable for their advice. It is incumbent on investors to understand the nature and scope of any advice given, which requires the investor to know how the consultants reach their conclusions.

Many companies that rely on credit ratings simply look to the ratings scales, as these are made freely available from the rating agencies through their websites. However, using the ratings scales without looking at the detailed commentaries the agencies provide is to miss a great deal of the information on which to make a reasoned judgement of the risks. Access to the full detail is normally only available through paid subscription to the rating service. To benefit from it will require a commitment of time and effort by the company’s in-house analyst.

The three main credit rating agencies have also developed market implied ratings. These are models which use market inputs, such as share prices and bond yields, to try to create more dynamic credit ratings than those outlined above. By using these market inputs, the implied ratings are constantly updated. Unlike the core ratings, the data is not freely available, but is only accessible via a subscription. As a result, these ratings may be too expensive for all but the largest corporate treasuries. As a proxy for these services, some companies now use CDS spreads or stock or bond market movements to identify warning signals, treating them as a trigger to cut limits or even remove a counterparty from their list.

Investors can use CDS spreads to measure market views of the perceived credit risk associated with a particular reference entity. A CDS is effectively a form of insurance, in which the seller pays out should a credit event affect the reference entity. The buyer pays a series of payments, known as the spread, over the life of the CDS contract. The payments will increase as the perceived credit risk of the reference entity increases. Although CDS contracts are arranged over the counter, there are a number of information providers which capture and publish pricing. Although this information may reflect changes in creditworthiness more quickly than credit ratings, it is also only as accurate as the models used to model the pricing. CDS spreads can also be affected by specific CDS trading activity in what is normally a very thin market, or by general market volatility. As with other tools, CDS spreads should not be used in isolation to model counterparty risk.

Although there are clear advantages to be gained from performing additional credit analysis, it is important to remember that these cannot fully protect a company against the risk of loss. This is why the adoption of strict counterparty limits remains critical, however good the credit analysis is believed to be.

**Liquidity risk**

This is the risk that funds will not be available when they are needed. In particular, treasury will want to avoid having to borrow in the external market while surplus cash is inaccessible in an investment with a notice period.

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**A good example of liquidity risk is the loss of USD 1,300 million sustained by Metallgesellschaft in December 1993 because of a stack and roll hedging programme that resulted in significant margin calls when oil became contango (i.e. forward prices exceeded spot prices) in 1993.**

The nature of the risk varies according to the instrument. Funds deposited in bank time deposits are inaccessible until the stated maturity date. On the other hand, cash invested in commercial paper can usually be realised before it matures, by selling it in the secondary market. An investor’s ability to do so depends on the quality of the paper and the state of the market.

For some investments, there is also a liquidity risk on the liability side. This is the risk that the counterparty cannot meet its redemption obligations. For example, in September 2008 the Reserve Primary Fund was unable to meet its redemption obligations in full, because of its overexposure to Lehman Brothers debt. Money market funds may be susceptible to such a liquidity risk if the investor profile is unbalanced. Investors will want to assess whether a fund is overdependent on a particular investor or type of investor, or a particular market.

Different types of investors have different seasonal cash requirements or liquidity needs. The liability liquidity risk will be lower in a fund with a spread of investors that is broad, in terms of both their market sector and their geographical spread. In general, investments made by pension funds or retail investors tend to be “stickier” than corporate cash investments. This is mainly because the funds have a longer-term perspective than companies investing their working capital. However, recent concerns over accounting rules have made company investment activity more volatile as corporate treasurers seek to redeem money market fund investments at quarter or month ends to ensure those investments are considered as cash by their auditors. The key task for the investor is to understand the liability profile of any fund or other counterparty before making an investment.

Another example of liquidity risk arose when institutional investors, including companies and local governments, with deposits in three Icelandic banks (Glitnir, Kaupthing and Landsbanki) lost access to their funds when the three banks were placed in receivership in October 2008. Many retail investors were covered by deposit insurance schemes, so they did not lose their invested principal (up to the limits of the schemes). However, they did lose the opportunity both to earn interest whilst the banks had been in receivership, and to reinvest their savings whilst the insurers administered the schemes. Although institutional investors expect to receive their invested principal, they have lost significant reinvestment opportunities.
Establishing an appropriate investment policy

With longer-term cash, treasury also has to consider the investment term. For example, if treasury knows that some cash will not be required by the business for three months, does it invest the cash in instruments which mature in three months’ time? Alternatively, treasury could decide to invest in a shorter-dated instrument and then reinvest on maturity. Treasury will be influenced both by the shape of the yield curve and forward starting rates (those implied in forward rate agreements – FRAs). Treasury may also form its own view of future interest rate movements.

Treasury will have to consider a number of factors. In most cases, the three-month interest rate will offer a higher return than the one-month rate. In this case, the yield curve (where yields are plotted against time – see Financial Calculations section and Figure A1) is said to be normal. An upward-sloping yield curve can arise because investors require a slightly higher rate for longer deposits, to compensate them for the loss of liquidity and for the higher credit risk. These effects are normally outweighed by the market’s expectations as to whether rates are expected to rise (with an upward slope) or to fall, in which case the slope will be negative.

Theoretically, if the market’s inbuilt expectations exactly match actual outcomes, then an investor will be indifferent between investing in a three-month deposit or in a series of three successive one-month deposits. Treasury will have to assess whether the three-month rate represents a sufficient return for the loss of liquidity and, more significantly, whether their expectations for the trend in rates are different from those implied by the forward starting rates shown on the yield curve.

Consider a company which has EUR 25 million surplus cash. Treasury knows it needs the cash to meet a payment in six months’ time. Assume the three-month LIBOR rate is 2.86% and the six-month LIBOR rate is 3.03%; the 3×6 forward rate is then 3.18% (see Appendix to calculate the 3×6 forward rate). The treasurer could invest the funds for six months and earn 3.03%, especially if he thinks interest rates are going to fall by more than the market expects. However, if he thinks the market expectation of future interest rates is too low, he could invest the funds for three months and look to reinvest at maturity. The 3×6 forward rate suggests the treasurer would need to earn a return greater than 3.18% on the second three months, to benefit from this strategy. In other words, if the treasurer thinks the three-month LIBOR rate will be above 3.18% in three months’ time, it could be beneficial to invest the funds for three months initially.

It is also possible to calculate forward rates for different terms, depending on the circumstances. There are risks associated with this strategy, notably that interest rates may not move as the treasurer expects. The treasurer must also decide whether to try to hedge this exposure. Hedging will add complexity to any transaction, both in terms of the calculation of the hedged position and then accounting for that hedge.

Institutional investors, whose principal may be insured or covered by a guarantee, must recognise that there is a residual liquidity risk, even if credit risk can be reduced or eliminated. It is also important to remember that, in the case of insurance or guarantees, this credit protection is only as valuable as the strength of the insurer or guarantor. In the case of bank deposits, this can include the financial strength of a government, as has been seen with recent problems in the eurozone.

To help manage liquidity risk, the investment policy will set constraints on the maximum maturity/duration of investment, or may even establish a ‘liquidity ladder’ (i.e. the proportion of funds that should be accessible overnight, with one week, etc.). For example, it may state that a certain proportion of cash must be invested in overnight deposits. Alternatively, it may state that a specific proportion of cash must be invested in instruments accessible within two days. If the policy permits investment in longer-term instruments, treasury should ensure that a certain minimum amount matures regularly (daily, weekly or monthly), in order to provide sufficient liquidity to meet unexpected cash outflows. This figure should be determined by the effectiveness of the cash flow forecasting system.

Market risk

This is the risk that adverse movements in the market affect the value of the investment or the expected returns on future cash surpluses. There are three main forms of market risk: interest rate risk, foreign exchange risk and credit valuation risk.

Interest rate risk

When investing, treasury will usually have to choose between instruments offering fixed and floating rate returns.

In general terms, when interest rates are falling, fixed rates are often attractive. When interest rates are rising, floating rates allow the investor to benefit from those increasing rates.

The difficulty for treasury is that the risk of making the wrong decision increases as the investment term increases. When investing operational cash, any changes in the interest rate during the few days of the investment will have a minimal effect, but interest rate risk becomes a significant issue when investing longer-term, strategic cash.

Some investment policies describe the proportion of investments which should be held in fixed-rate instruments. Others consider investment together with any company borrowing, so that a certain proportion of net debt must be carried at a fixed rate. The concept of weighted average maturity (WAM) helps a treasury to understand an investment portfolio’s sensitivity to interest rate movements. To reduce sensitivity to interest rates, an investment policy could state a maximum WAM. This is an important feature of money market funds: IMMFA (a trade association representing the European money market fund industry) requires its funds to operate with a maximum WAM of 60 days. (Note that when calculating WAM, it is the maturity of the instrument’s current rate fixing period that counts. Thus a floating rate note (FRN) might have, say, two years to its final repayment date but be 45 days from its next rate re-fixing date. It is the 45 days that goes into the WAM calculation. The final maturity of two years goes into other measures – the weighted average life (WAL) or weighted average final maturity (WAFM).
Establishing an appropriate investment policy

Establishing an appropriate investment policy

Foreign exchange risk
Investments may also be subject to foreign exchange risk. For example, investments are subject to an effective loss of principal if the investment currency depreciates against the group’s operating currency. However, if the company has a defined expected need to make a currency payment, then keeping cash in that currency is a form of hedging.

The investment policy will state in which currency or currencies investments can be made. If treasury has flexibility, it will need to consider the risks associated with investing in particular currencies.

For example, consider a French-based multinational group with an operating company outside the eurozone which is holding surplus cash for six months. Treasury could decide to invest locally, in instruments denominated in the domestic currency. This may increase counterparty risk and also, if the local market is small, liquidity risk (especially if the company is relying on selling the instrument in the secondary market).

As an alternative, treasury may decide to invest the cash in euro-denominated instruments, to take advantage of the wider range of available counterparties. In addition to the two sets of foreign exchange transaction costs, the local operating company is exposed to any depreciation of the euro over the next six months.

As with interest rate risk, the investment policy should also state whether a foreign exchange exposure can be hedged using derivatives. Under this strategy, the company could concentrate, and exchange into one currency, any surplus balances for investment purposes. However, the treasurer would also ensure the redeemed principal will be sufficient to meet local currency outgoings in the future by entering into an appropriate hedge transaction. This could fix the rate using a forward exchange agreement or protect against an adverse movement in the exchange rate by entering into an option contract. (Note there will be a counterparty risk associated with this transaction.)

Even if hedging using derivatives in these circumstances is not permitted, companies can use other strategies to protect against the impact of exchange rate movements. One such strategy would be to try to match assets and liabilities in different currencies, instead of converting all surplus cash into one or two currencies for investment purposes (which would leave the company exposed to exchange rate movements when converting the redeemed principal back to make, for example, local salary and tax payments). In this scenario, the company would choose to invest operating cash locally in local currency and only concentrate strategic cash to the centre for investment in the group currency. This has the advantage of reducing the exposure to foreign exchange movements, although it may increase counterparty and liquidity risks, depending on the state of the local money markets.
Credit valuation risk
In addition to the risk of default on an investment (credit risk), there is also a risk that the market value of an investment instrument will change during its life. A change in the perception of a counterparty's risk of failure is likely to affect the market value of the instrument. If the market perceives the risk of failure to have increased, the value of the instrument will fall (the credit spread for the instrument’s issuer will increase).

For short-term instruments, any changes in credit valuation are unlikely to be material. However, the impact can be more noticeable for longer-term investments. The credit valuation risk can be minimised within a money market fund (or across an investment portfolio) by ensuring that the weighted average life (WAL – also sometimes the weighted final maturity, or WAFM) of the portfolio is not too long. IMMFA requires compliant money funds to maintain portfolios with a maximum WAL of 120 days.

As long as a particular instrument does not fail, any credit valuation changes during its life will reverse by the final maturity when it is repaid at par. However, if cash needs trigger a disposal of an investment prior to its final maturity, a credit valuation market risk will exist. If a company chooses, for example, to invest in a high quality bond fund, it might be reasonably confident there will be no defaults on the underlying bond holdings. Over an extended time period, there should be minimal credit valuation losses. Over shorter periods, though, price changes in the bond fund from credit effects could be significant. For example, during 2010, funds of good quality government funds suffered short-term losses in value (which subsequently reversed) as various crises in sovereign credit risk spread through the markets.

Settlement risk
This is the risk that the counterparty does not fulfil its part of the contract. For example, an investor may want to realise an investment in a bond by selling it in the secondary market. The counterparty may take delivery of the bond, but not transfer funds to the investor.

An example of settlement risk is the failure of Germany’s Herstatt Bank in June 1974. Herstatt had taken various currency receipts, but failed to make corresponding US dollar currency payments by the end of its working day. Before it could open for business the following day, the bank had been closed down by the German regulator, leaving counterparties with unsecured claims against the insolvent bank’s assets. The settlement failure was so great that it, in turn, introduced liquidity risk – i.e. the counterparties with unsecured claims had difficulty obtaining enough liquidity to meet their own obligations. (Ultimately, Herstatt resulted in so much systemic risk that banking regulators took it as a cue to develop an international regime of banking regulation, commonly known as the Basel Accord.) This can be managed by the adoption of effective custody arrangements, maintaining accurate and timely records. The dematerialisation of many investment instruments has also reduced the associated settlement risk.

An efficient cash flow forecasting system can also help to reduce settlement risk. With a clearer view of the likely future peaks and troughs of available surplus cash, the treasurer is able to invest more funds for longer periods, rather than seeking to redeem and then reinvest funds on a daily basis. Where the cash flow forecast is less certain, the treasurer can elect to deposit funds with a money market fund, which can remain in the fund until the cash need arises.

Operational risk
Operational risks, especially in the form of personnel and systems risks, will also need to be managed when investing.

To protect against the risk of fraud and the risk of error, treasury should adopt an appropriate segregation of duties, including clear authorisation procedures. These duties should be assigned to appropriately trained individuals. This will typically be part of the group’s treasury policy.

An example of operational risk is the failure of Barings Bank Plc in February 1995. Barings lost GBP 872 million when a trader, Nick Leeson, took unauthorised proprietary derivatives positions on the Nikkei 225 and Japanese government bonds. Leeson was able to hide the large margin calls that arose as his derivatives positions lost money because Barings’ operational controls were weak. Other examples of operational risk are the losses sustained by Daiva Bank (USD 1,110 million in September 1995), Sumitomo Corporation (USD 1,800 million in June 1996), Alfi First Financial, a US subsidiary of Allied Irish Bank (USD 691 million in 2002) and, largest of all, Société Générale (EUR 4.9 billion in January 2008). All of these cases involved unauthorised trades that were concealed because of poor operational controls.

As treasury departments adopt increasingly complex and automated systems, the associated risks have increased. Systems should be subject to regular reviews. For example, the cash flow forecasting system should be reviewed for accuracy and improved if necessary. An automated dealing system should contain the same authorisation levels as a manual process. Back-up procedures should be in place and tested regularly.

Understanding risk
Being responsible for preserving cash, treasurers usually want to take a conservative approach when investing, although there are circumstances in which more risks might be taken.

Understanding risk does not mean the company becomes immune from loss; rather it allows the treasurer to structure an investment policy that matches the likely return to the risk taken. With a clear view of where risk arises, the treasurer can design an investment policy which allows the company to manage its exposure to loss.
Content of policy
An investment policy would typically deal with the following issues:

**Instruments**
The policy should indicate which investment instruments are acceptable. There is a full examination of the advantages and disadvantages of different types of short-term investment instruments in the Instruments section.

**List permitted instruments**
The policy should list the permitted instruments, and before adding an instrument to the list, each instrument should be considered carefully. Treasury must satisfy the board that any new instrument is appropriate. The full implications of any new investment instrument must be formally analysed and approved before any investment can be made. This consideration also allows treasury and the board to set limits to the tenor and weighting of each instrument when adding it to the list (see Maturity of instruments and the portfolio, below).

This strategy provides certainty and clarity to the treasury department, as they may only invest in permitted instruments. However, just because an instrument is on an approved list does not mean that it is necessarily less risky than an unlisted instrument. It can also be difficult to remove instruments from the list – not because of the demands on board time (such decisions are more likely to be devolved to a treasury committee of the board), but because of inertia.

**Currencies**
The policy should indicate whether there are any restrictions on the currency of the investment instrument.

This section could also include a statement on the circumstances, if any, in which foreign exchange derivatives can be used.

**Maturity of instruments and the portfolio**
The policy should state any limits on the maximum maturity of individual instruments or of the portfolio as a whole. It may also set limits for the proportion of cash which must be invested in different categories of asset. For example, a certain proportion may be required to be held in immediately available cash.

Given the process of investing corporate cash, companies will be wary of investing in long-dated instruments, even where there is a relatively liquid secondary market.

More precisely, treasury will need to ensure that it has sufficient liquidity to meet expected cash demands, plus a margin. When some surplus cash is expected to remain available for a longer period, treasury may feel able to invest in some slightly longer-dated instruments. If longer-dated instruments are used, the policy should require that a proportion of any investments must mature regularly. This will help to manage liquidity and reinvestment risk.

Where possible, the preferred maturity should be related to the information generated by the cash flow forecast.

**Interest rate management**
Companies differ in their sensitivity to changes in interest rates. The investment policy should also reflect the group’s approach to managing interest rate risk. This should ensure any investment decision is taken in the context of any policy to maintain a particular ratio between fixed and floating rates.

For example, the underlying business of a building company will be very sensitive to interest rates. As rates rise, the demand for new houses will drop. Such a company would not want to hold any surplus cash in fixed rate deposits for long periods. This is because, if interest rates rise, it will start to lose business as well as the opportunity to earn an increased return on the surplus cash. A better hedge would be to invest any surplus cash in floating rate instruments, as the increased interest income from higher interest rates will at least partially compensate for any loss of underlying business.

**Counterparties**
The investment policy will also need to identify a set of approved counterparties.

**Banks**
For many instruments, the company’s counterparty will be a bank. The policy will need to strike a balance between encouraging investment with more highly rated banks, whilst retaining a good spread of counterparties to prevent concentration risk.

To do this, the policy should set limits for the company’s maximum exposure to any one counterparty bank. These may vary according to each bank’s published credit rating, with greater limits for more highly rated banks.

Establishing a policy on the permitted bank counterparties has implications for the company’s bank relationship management. Banks which provide the company with credit lines may want to be rewarded with a higher counterparty limit than other similarly rated banks. Companies will want to consider whether such an approach is appropriate, given their existing exposure to those banks.

The policy will need to assess how to measure exposure to a particular banking group across the whole company, especially if a significant proportion of short-term investing takes place at a local level. Problems may arise if all local operating companies select the same banking group, as the company as a whole would be highly exposed to that group. Where the central treasury has the ability to do so, it should impose counterparty limits on all group subsidiaries. If not, the policy could require operating companies to provide information about their investing activity, which treasury could consolidate on a group-wide basis.
In these circumstances, treasuries also need to be wary of the differing standards of banking supervision and levels of government support for banks throughout the world. It may also be prudent to limit counterparty risk by jurisdiction as well as by entity.

Although the counterparty policy may be heavily dependent on ratings it is prudent to give the treasurer authority to make an immediate reduction in a bank’s limit or even to remove a name from the permitted list if signals reveal an increased risk. Triggers that can provide warning signals include press reports, ratings being put on negative alert for a possible downgrade, a sudden drop in share price, increases in CDS spreads over and above overall market changes, or a significant fall in the market implied ratings.

The counterparty limit itself should refer to the invested principal. If an investment is made with a bank at the limit of, for example, EUR 50 million any accrual of interest will cause the limit to be breached. A pragmatic approach is for counterparty limits to ignore accrued interest or any changes in the principal’s market value as market rates change, but, depending on materiality, a more sophisticated policy could be adopted.

Consider these alternative approaches to counterparty limits:

Example 1: counterparty limits
The investment policy of ABC Inc takes a detailed and prescriptive approach to counterparty limits:

‘The following counterparty limits shall be observed at all times against instruments with prescribed long-term and short-term credit ratings:

<table>
<thead>
<tr>
<th>Long-term credit rating:</th>
<th>AAA/AA+/AA+</th>
<th>AA+/AA/AA</th>
<th>AA+/AA/AA</th>
<th>A+/A/A+</th>
<th>A/A/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total counterparty limit (USD million):</td>
<td>400</td>
<td>350</td>
<td>300</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>Counterparty limit, per instrument (USD million):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US sovereign debt</td>
<td>400</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Non-US sovereign debt</td>
<td>350</td>
<td>300</td>
<td>200</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Bank deposits</td>
<td>325</td>
<td>275</td>
<td>175</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>200</td>
<td>175</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>FRNs</td>
<td>200</td>
<td>175</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>200</td>
<td>175</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Repos</td>
<td>200</td>
<td>175</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Money market funds</td>
<td>400</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>ABS</td>
<td>375</td>
<td>325</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Instruments not specified above can only be purchased with the express, written consent of the group treasurer.

The maximum maturity of any instrument shall be: three years in the case of US sovereign debt; two years in the case of non-US sovereign debt; three months in the case of bank deposits; one year in the case of certificates of deposit or commercial paper; three years in the case of floating rate notes with put options; three months in the case of repos; and five years in the case of asset backed securities.’
Example 2: counterparty limits

The investment policy of XYZ Inc. is much less prescriptive, and reads:

“This investment policy establishes global counterparty limits for the purposes of investing XYZ Inc.’s surplus cash.

Counterparty limits shall apply to cash investments (comprising all approved instruments converted to GBP using the daily Reuters rates).

Counterparty limits for cash investments are:

<table>
<thead>
<tr>
<th>Rating</th>
<th>GBP Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>750 million</td>
</tr>
<tr>
<td>AA</td>
<td>500 million</td>
</tr>
<tr>
<td>A</td>
<td>250 million</td>
</tr>
<tr>
<td>BBB</td>
<td>50 million</td>
</tr>
</tbody>
</table>

Cash investments with short-term ratings shall be subject to the counterparty limit of their corresponding long-term rating.

Investment in a money market fund is only permitted for those rated AA and above and shall not exceed more than 10% of the total value of the fund, and in any event shall not exceed GBP 750 million.

These counterparty limits may be multiplied by two times in the case of investments with global relationship banks.

The chief treasurer of global treasury in London has authority to make investments outside these counterparty limits, but only for specific, exceptional transactions (such as in an emerging market where there is no realistic alternative). Such investments shall be reported to the board, with an explanation of why the counterparty limit was felt to be inappropriate.

The chief treasurer of global treasury in London has authority to establish and impose regional counterparty limits, taking account of the needs of subsidiary companies and the markets in which they operate. The chief treasurer of global treasury in London will inform the board where those regional guidelines establish larger counterparty limits than those set out in this investment policy.”

Establishing an appropriate investment policy

The examples here only cover investing exposures. In addition, most companies will enter into foreign exchange and other transactions with banks, such as interest rate swaps or FRAs. The credit exposures from these instruments must in practice be consolidated with exposures from investments. The financial instrument exposures will normally be assigned some “risk weighting” other than 100%. For example, on a foreign exchange deal for GBP/USD three months forward, if the bank defaulted, the loss to the company would be equivalent to the movement in exchange rates during the three months which was no longer covered, and not the full principal. Depending on the expected volatility of the exchange rates, a credit risk of, say, 20% might be assigned to foreign exchange deals less than one year in maturity. Alternatively, rather than giving the exposure a percentage weighting, it could be based on the mark to market value of the instrument at any instant.

In the case of an FRA, a credit exposure may arise if interest rates move after the agreement is reached. If interest rates fall, the investor will be owed a payment on the FRA (to compensate for the fall in interest rates). Based on the volatility of interest rates one could create a rule of thumb that the credit exposure should be treated as, say, 3% multiplied by the period, multiplied by the notional amount, assuming that there is a 95% confidence limit that rates will not move by more than 3%. Alternatively, if we assume interest rates do not go negative, the maximum credit exposure could be calculated as the impact of a fall in interest rates to 0%.

Non-banks

For other instruments, notably commercial paper (CP), the company’s counterparty will be a corporate issuer. Again, as the company will be assuming counterparty risk when investing in such instruments, similar counterparty limits should be set.

Although most USCP and Euro CP issues are rated by one or more of the credit rating agencies, counterparty risk management in some local CP markets is often name driven. In such circumstances, the policy should set clear guidelines on approved counterparty issuers.

Where an issue is backed by assets or supported by credit lines, treasury should also consider the creditworthiness of the supporting assets.

Breach of limits

If a counterparty’s credit rating is downgraded, this may mean an instrument issued by this counterparty may exceed the applicable limits. The policy should consider what should happen in such a circumstance: the treasurer could seek to dispose of any liquid investments, possibly taking a loss, or there could be a derogation to hold the instrument until maturity, notwithstanding the breach. Theoretically, it is possible to hedge the credit position by buying a credit default swap; however the company will need to take its own view on the balance between risk and cost.

Breaches caused by carelessness or mistakes by staff will be taken very seriously in many companies and may lead to dismissal in the case of repeated occurrences.
Establishing an appropriate investment policy

Case Study EADS

EADS is a global leader in aerospace, defence and related services. In 2012, the group – comprising Airbus, Astrium, Cassidian and Eurocopter – generated revenues of EUR 56.5 billion and employed a workforce of over 140,000. As of 31 December 2012 the group reported a net cash position of EUR 12.3 billion. The clustering of revenues and trade payables (mainly due to aircraft manufacturing) may result in high volatility of the daily cash position. On the other hand, the high visibility of the order book allows for investments in maturities of up to seven years, which is fairly exceptional compared to other corporates.

More than 60% of EADS’ revenues are denominated in USD, with approximately half of such currency exposure naturally hedged by USD-denominated costs. The remainder of costs is incurred primarily in EUR, and to a lesser extent, in GBP. Thus, EADS manages a long-term hedge portfolio with a maturity of several years, hedging its USD net exposure. The size of the total hedge book amounted to USD 83 billion as of 31 December 2012. The derivative portfolio of EADS is uncollateralised, as significant appreciation of USD against EUR could force EADS to use a substantial portion of its cash for collateral, which would no longer be available for its operations or its industrial development. It could also create unsustainable funding needs. On the other hand, USD depreciation might result in additional credit risk, due to the investment of the collateral received.

The volatility of EADS’ cash position, credit exposure to banks due to cash investments and hedging activities, as well as the challenging market environment, drive the key objectives for the investment policy and strategy: capital preservation, high liquidity and wide diversification. The performance of the portfolio is subordinated to these key objectives.

Managing the cash requires robust processes and governance. The governance, the portfolio maturity constraints, the diversification principles, the liquidity criteria, the eligible types of market risks, instruments and the authorised risk budget are set by the investment policy. The counterparty credit risk limit policy, in connection with stress tests of the underlying collateral basket.

or of reverse repos and collateralised deposits which in turn require a careful understanding of the underlying collateral basket.

Deposits, money market funds, commercial papers, treasury bills, liquid bonds issued by sovereigns, agencies, highly rated corporates or banks, as well as covered bonds, are all eligible investments. Other asset classes such as equities, commodities, real estate, infrastructure or high yield are not authorised, as the return associated to the risk cannot be appropriately captured within a short- or medium-term investment horizon. The percentage of investments with a maturity of more than one year is limited to a certain percentage of the assets under management defined by the investment policy. EADS structurally underweights the allocation to financial institutions, as compared to typical market-weighted indices, to avoid additional exposure to banks on top of the exposure generated by its hedging activities.

In response to the European debt crisis, EADS increased the diversification of its investment portfolio, which reduced the allocation to financials (including money market funds), while also shortening the maturity profile (weighted asset maturity below one year) and strengthening the focus on highly liquid assets which can be sold in difficult market conditions. However, the ample liquidity supply by major central banks, the creation of the European Stability Mechanism, and the US budget compromise, have supported the recovery of capital markets and have led to all-time low interest rates in the eurozone and the United States. Nevertheless the macro-economic and political key risks remain: weakened prospects for global economic growth, unbalanced competitiveness in the eurozone, delivery on austerity plans as well as continued budget discipline in the eurozone, but also fiscal reforms to induce long-term debt sustainability in the United States. Despite a more constructive and slightly more optimistic sentiment, political interference or negative news flow may hamper the current recovery.

The succeeding regulatory and tax initiatives are going to add further complexity to the investment process for corporates. The current proposals aiming at the stabilisation of financial markets contain some elements which could lead, contrariwise, to market disruptions. The combination of interest rates close to zero, tighter regulation and financial transaction tax is a huge challenge in particular for money market funds. The likely response of corporates may be one of more segregated, completely unregulated mandates, or of reverse repos and collateralised deposits which in turn require a careful understanding of the underlying collateral basket.

The basic tool of cash and liquidity management will require significantly more sophistication, resources and attention than in the past, to cope with a fundamentally changing environment.
Tax and regulatory issues

Tax issues
In the context of investing corporate cash, tax impacts on decisions in two significant ways. First, as discussed in Chapter 2, multinational companies of all sizes are increasingly using cash pooling techniques, both domestically and on a cross-border basis. The tax regime in the jurisdiction in which the liquidity management structure is headed could affect how such a structure operates (e.g., physical versus notional pooling) and, consequently, the quantity of funds available to invest, or needed to be borrowed, in that location. In addition, the local tax and regulatory regimes in every country will also determine which of the group entities are permitted to participate in a cross-border structure and whether, if permitted, it is worthwhile for these entities to do so.

Second, whether or not any surplus cash to be invested has been concentrated via a liquidity management scheme, the return on the investment may also be affected by the prevailing tax regime. This section examines the main tax issues which arise when investing cash.

However, because tax rules are continuously changing, companies must ensure they understand the implications of any reforms on their business.

How tax issues arise when investing

When making an investment, the treasurer will need to consider the tax implications of the decision. The taxation treatment will primarily depend on the tax rules in the jurisdictions where the business operates and the entity classification of the participants (separate legal entities or branches). There are, however, many generic tax issues which are applicable to a number of jurisdictions.

Withholding tax
Many jurisdictions impose withholding tax, either on interest paid to resident companies or when interest is paid from one jurisdiction to another. The tax is so-named because the bank or party paying interest is obliged to deduct tax from the interest income when it is paid.

There may be various withholding tax rates for differing interest payments; a domestic rate applicable to general companies, a domestic rate for banks, a treaty rate or preferential rates or exemptions for payments of interest between related companies within the European Union (EU).

When applied to cross-border payments, withholding tax may be reduced or eliminated by use of relevant double tax treaties, which may require tax treaty clearance applications to be completed in order to benefit from a preferential treaty tax rate.

It is important that groups ensure they have procedures in place to ensure clearances are submitted on time and in the correct fashion. If this is not the case, such groups potentially expose themselves to tax, interest and penalties. In general, to benefit from a tax treaty it is necessary for the recipient to have a real business and beneficial ownership in that jurisdiction and not simply a ‘brass plate’ office, as the latter may lead to problems. Therefore, tax will often be considered in the context of the existing group structure, rather than introducing new entities which will require substance.

In some cases, where a double tax treaty does reduce or eliminate a withholding tax, the company may still find interest is withheld at source, so that a reclaim or tax credit will have to be sought at a later date. In these circumstances, the group as a whole will lose control of the withheld funds whilst they are being withheld. This has implications for both cash flow (as a result of the time delay) and administration (in terms of the costs of reclaiming the withheld funds). These additional costs should be considered when comparing the return from alternative investment instruments, as they affect the overall expected return. Clearly, where double tax relief is not available, the post-tax return should be compared.

Thin capitalisation

Thin capitalisation rules, which generally operate to restrict the level of interest that may be deducted for tax purposes, may apply when pooled cash surpluses are invested centrally. The tax authorities are concerned if equity capital is disproportionately low compared to debt levels. If a company receives excessive debt funding from affiliates, their profits will be largely sheltered by interest expense and this could result in a loss of tax take. These rules will need to be considered not only when the company establishes its liquidity management structure, but also on an ongoing basis, as these rules are rarely static.

Transfer pricing

Many tax jurisdictions have adopted transfer pricing legislation to protect against groups artificially diverting profits to low-tax jurisdictions or tax havens. In order to manage transfer pricing rules, the group must generally establish a clear policy so as to be able to demonstrate that interest earned on pooled funds is distributed between participating group entities on an arm’s-length basis (particularly important in the context of notional pooling). The header company will often need to demonstrate commercial terms and rates when reallocating any interest earned from any centralised investment activity between participating group entities. Where cash is invested centrally on behalf of all participating group entities, each entity will usually need to contribute towards the costs of any centrally provided services (such as counterparty credit management).
Establishing an appropriate investment policy

The EU Financial Transaction Tax (FTT) is a proposal to introduce a harmonised financial transaction tax in participating EU Member States (collectively referred to as the ‘FTT Zone’).

Although the legislation is targeted at ‘Financial Institutions’, the definition of a Financial Institution could mean that non-financial services entities, such as a group treasury company, may also constitute Financial Institutions and be liable to the FTT on certain financial transactions.

Depending on the outcome of the FTT proposals, consideration should be given as to whether activities of such entities could bring them within the scope of the rules in order to quantify any potential financial impact on the group treasury activities.

Anti-avoidance tax legislation

Groups implementing cash pooling and surplus cash management structures should always ensure that the purpose of any arrangements is driven by business and commercial requirements.

Generally, one would not expect the implementation of a centralised cash management structure to fall foul of anti-avoidance legislation that considers the business purpose of such arrangements (however, note the more common considerations such as thin capitalisation and transfer pricing rules discussed above). More careful consideration will be required where tax-favoured jurisdictions/entities are included or involved in any surplus cash management arrangements.

Source: Leo Humphries

Deloitte LLP

These decisions and all arrangements between entities should be clearly documented on every occasion, particularly where notional pooling is used with no actual physical movement of funds and no intercompany loans are created. Care will need to be taken to ensure all the required documentation is both contemporaneous and acceptable to all relevant fiscal authorities, so as to avoid interest and penalties on undeclared profits.

Foreign exchange

In some jurisdictions the taxation treatment of any foreign exchange differences on cash balances arising due to the individual financial statements of an entity having a functional currency different to the currency of the balance will follow the respective accounting treatment. However, this is by no means uniform and certain jurisdictions have specific tax rules relating to the translation of foreign exchange differences which will need to be considered to mitigate the risk of any potentially one-sided tax impact.

Controlled foreign company (CFC)

The definition of a CFC will depend on the legislation in the individual jurisdiction and can be complex. There may also be specific exemptions from the legislation. If an entity is deemed to be a CFC the taxation authorities may require income to be taxed on a real-time, rather than remittance, basis in the hands of its shareholders. The concern of the tax authorities in the shareholder’s country is typically that any interest income that is artificially earned in a low tax area may never be remitted back.

This is a potential high tax risk area, especially if the entity managing the investing process of any pooled funds is tax resident in a lower tax jurisdiction and is controlled by a company in a higher tax jurisdiction.

Selection of jurisdiction

When making an investment, the treasurer should consider the jurisdiction which governs the instrument. In most cases, this will be determined by the operational considerations, such as the preferred currency of investment and the state of the local secondary market for the specific investment instrument. However, the treasurer should also consider the tax treatment of particular investment instruments, which can vary significantly between jurisdictions. In particular, some instruments, such as government paper in some jurisdictions, do not attract withholding tax.

Consideration should also be given to a jurisdiction with little or no domestic withholding tax on interest or a comprehensive double tax treaty network. This may be considered desirable as it may reduce withholding tax obligations and, more importantly, result in minimal tax leakage to the group as a whole. However, in order to benefit from such treaties, sufficient substance in the relevant jurisdictions will be required.

The potential imposition of Stamp duty or other forms of taxes on financial transactions by certain jurisdictions should be carefully managed.

Source: Leo Humphries

Deloitte LLP
The Treasurer’s Global Guide to Investing Cash 2014

Establishing an appropriate investment policy

The regulatory environment

The legal and regulatory environment also influences the drafting of an investment policy and the investment decision-making process.

Regional treasury centres

Regional treasury centres (RTCs) often enjoy preferential tax treatment, subject to meeting certain regulatory conditions. Treasurers who make use of RTCs will therefore need to understand whether those regulatory conditions constrain the investment decision-making process.

Accounting rules

Accounting standards determine how investments should be disclosed in companies’ year end accounts. Treasurers typically prefer to hold assets for which their accounting disclosure mirrors their economic substance, particularly over the balance sheet date.

For example, International Financial Reporting Standards (IAS 7 para 6) allow holdings of constant net asset value money market funds to be disclosed as cash and cash equivalent assets (rather than as securities, as is common in a number of local country accounting standards) assuming the holding is short-term, highly liquid, readily convertible into cash and not subject to a significant risk of change in value from the initial amount of investment, enabling them to be held over a balance sheet date without fear of distorting a financial analyst’s understanding of a company’s accounts.

Highly regulated entities

Some treasurers work for highly regulated entities whose investment decisions are strongly influenced by regulatory considerations. For example, treasurers of banks and insurance companies are subject to capital adequacy and solvency regulations which can give rise to greater or lesser capital requirements depending on the type of investment that they hold. Similarly pension funds, local government agencies, insurance brokers etc. are subject to regulatory regimes which can influence their investment decision-making.

Decision-making and reporting responsibility

Finally, the investment policy must address individual responsibilities both for decision-making and reporting. This should not be too prescriptive. Treasury should not be required to go back to the board every time there is a change in personnel in order to change responsibilities.

However, the policy should set clear limits to the authority of the treasury department as a whole. It will also determine when the policy should be reviewed (e.g. annually) although this could be contained in a broader treasury policy document as well. Other occasions triggering an update may include a change in the finance director or treasurer, or the completion of a major acquisition or divestment.

Implementation of policy

In particular, the policy must determine responsibility for the implementation of the policy.

There are three main alternatives, which are not mutually exclusive:

- **Manage in-house**
  If investment is managed in-house, the investment policy must relate to other treasury policies to ensure appropriate internal treasury management, such as an adequate segregation of duties.

- **Automate**
  It is possible to automate the sweep of surplus cash into pre-determined instruments, such as deposit accounts and money market funds. As with other investments, automated sweeps should be subject to a maximum limit. These automated sweeps are most suitable for smaller balances, where the potential return would not justify manual intervention.

- **Outsource to a specialist investment manager or agency treasury**
  If a specialist investment manager or agency treasury is to be used, the policy should set out how those services will be used. This will determine how the manager is to be selected and how this activity will be overseen. Once the decision is taken to outsource some or all of the investment to a third party, the treasurer will need to set clear investment guidelines (including appropriate counterparty limits). The third party will then use these guidelines to manage the funds on a daily basis. Some companies use investment managers to manage ‘segregated funds’ or separately managed accounts. These allow the company to set the investment objectives, risk appetite and policy. The segregated fund manager will then manage cash for that company in line with the agreed policy.

  A significant reason for outsourcing is to take advantage of the investment manager’s credit analysis capabilities. Most companies do not have the resources to continuously monitor current and potential counterparties. This is often a significant factor in companies choosing money market funds.
Case Study US MNC with Belgian in-house bank

In 2010, this company evaluated its investment approach and decided there was no significant added value from the in-house management of short-term cash. It took the decision to end all active management of short-term cash and to place all surplus cash in money market funds instead.

Today, the company manages its short-term cash, on average about USD 3.5 billion, via an investment portal. The portal gives the company much-improved visibility over its investments. The treasury can track investments by fund and also aggregate positions across all funds. This means, for example, that the treasury can view its exposure to particular instruments, such as ABCP, as well as to particular countries or regions and ensure all specific counterparty limits are maintained.

The decision to end active management was driven by the desire to improve operational efficiency. Investing short-term cash is now a 15-minute task each morning, rather than a whole morning’s task each day. Despite this, there has been no significant impact on yield.

Using money market funds also allows the in-house bank to meet any requirement from the US corporate headquarters to repatriate cash. Such requests often come at relatively short notice to allow the headquarters to make acquisitions. Had the company chosen to outsource investment management via a mandate, it would have not had the same easy access to cash.

Low-duration mandates: a solution for managing longer-term cash surpluses

Liquidity funds are the obvious solution for investors who wish to delegate the credit analysis duty to a professional institution when placing their daily operational cash.

A liquidity fund can be an alternative to bank deposits, although the nature and the risks of these instruments differ greatly. A liquidity fund is an investment product which is not guaranteed but for which the credit risk is much more diversified than that of a single bank deposit, which is a bank liability instrument with a return known in advance, barring any impairment of the bank (see Comparing money market or ‘Liquidity’ funds to deposits, HSBC Global Asset Management, March 2012).

Assessing different cash investment horizons

Liquidity funds usually state their investment objective as being to maximise security and liquidity. But should an investor always target full liquidity for its cash? Not necessarily. When investors define their cash needs, there might be part of these assets that can be needed on a much longer horizon than a day or a month. This is known as ‘cash tranching’ (Figure 1).

1Liquidity funds are referenced here as UCITS/ESMA Short Term Money Market Funds, whose investment objectives are to seek preservation of capital and/or targeting an investment return that is in line with prevailing money market rates.

Figure 4.1: Segmenting cash (Source: HSBC Global Asset Management)

While the strategic cash usually has no anticipated use over the medium to long term, the core cash component is usually linked to forecasted drawdown requirements at particular points in time, mostly within the next 12 months, such as dividend payments or bond repayments.

Managing additional risk in core cash mandates

Liquidity funds are probably the most appropriate investment vehicles when placing working capital, the cash used in daily, weekly and monthly operations. High levels of liquidity and capital preservation are key for this highly fluctuating cash segment.

Would it be possible to transform the longer investment horizon of the core cash component into investment opportunities, i.e. into an expected return surplus over liquidity funds? As there is no free lunch in financial markets, higher expected returns are equivalent to an increase in investment risk. Let us examine which type of risks can be marginally increased when placing core cash (for example having an investment horizon of one year) compared with a starting point such as a liquidity fund.

The main investment risks liquidity funds are intended to minimise are:

- Credit risk (linked to a capital preservation investment objective)
- Liquidity risk (linked to the fund objective of serving all client redemptions on any day)
- Interest rate risk
Interest rate risk
The interest rate risk is linked to variability in an asset’s value stemming from unexpected swings in interest rates. Generally such swings are generated by unexpected central bank decisions on their key interest rates. This risk in liquidity funds can be measured by the weighted average maturity (WAM) of the fund’s investments, counting as maturity for this purpose the date of the next interest rate reset of each security. WAM is a proxy measure for duration. This risk is linked to the fact that the market value of securities fluctuates with the level of interest rates in the following way. Taking a Treasury bill as an example (where P is the price of the bill, i is the interest rate level, and t is the time remaining to the Treasury bill maturity expressed as a fraction of one year):

\[ P = \frac{100}{1 + i \times t} \]

Hence, as is widely known, a security's price declines when interest rates rise, and vice-versa. In order to minimise this risk, liquidity funds have a regulatory maximum WAM of 60 days.

When investing core cash, the investor does not need to sell any security before the investment horizon (provided cash needs have been correctly forecast at the inception). In this sense, an investor can allow for holding this Treasury bill until maturity without worrying about intermediate variations in the security’s price when the security is reimbursed at par. This holds true as long as other investors within the same investment vehicle do not massively redeem shares, forcing the investment vehicle to sell part of the securities in the fund and hence the need to realise a potential loss. This clearly shows that, when investing core cash, investors should segregate their investment from other investors in order to protect the investments from any forced sales before the investment horizon linked to the core cash segment.

In conclusion, when investing core cash, an investor can marginally increase the interest rate risk (measured by the WAM) if:
- The WAM is lower or equal to the core cash component investment horizon
- The investor holds segregated assets (i.e. is not invested in a pooled investment vehicle)

Liquidity risk
Financial markets are sometimes under strain and it might be difficult or impossible at such times to find a bidder for a money market security at a reasonable price (i.e. at a price close to the one stated by the formula above). This risk is known as liquidity risk and is generally triggered in a fund when investors redeem all together a large portion of the fund shares, forcing the sale of part of the fund assets. It is managed in liquidity funds by keeping minimum amounts of instruments in the fund maturing within stated timeframes. For example, 2a-7 (i.e. US domestic money market) and IMMFA (i.e. Constant NAV UCITS liquidity) funds are required to hold a minimum of 20% of their assets within a one week or shorter maturity. Highly secured and liquid Treasury bills can be counted in these ‘liquidity buckets’ even if they have a longer maturity, as these instruments are deemed to be liquid in all circumstances.

Similarly with what we have argued when managing the interest rate risk, when investing core cash, the investor does not need to sell any security before its investment horizon (provided cash need has been correctly forecast at the inception), provided other investor actions within the same investment vehicle do not force early asset sales. Hence, when investing core cash, an investor can marginally increase the liquidity risk (measured by liquidity bucket guidelines) if:
- Liquidity buckets reflect the core cash outflow schedule
- The investor holds segregated assets (i.e. is not invested in a pooled investment vehicle)

Credit risk
The credit risk is linked to the possibility that assets invested might be impaired, i.e. the probability that the nominal amount of a security is not repaid at par at maturity by the issuer. A good proxy for measuring this risk in liquidity funds is the weighted average life (WAL) of the instruments in the fund. For this purpose, the life of a security is its maturity date. In order to minimise the credit risk, liquidity funds have a regulatory maximum WAL of 120 days. However, managing credit risk cannot be marked down to an average maturity profile: issuer selection is key in this regard. That is why investment managers must have a well-resourced credit analyst team with a robust issuer selection process in order to avoid, as much as possible, credit impairments in liquidity funds. An important additional risk mitigation is achieved by internal diversification rules at the group issuer level, in order to limit the impact of a potential group issuer impairment on the fund net asset value.

Footnote:
2 When an instrument has a put option, i.e. an option at the hand of the fund requiring the issuer to reimburse the security at par at the put option date, the put option date can be used in the WAL calculation.
The Treasurer's Global Guide to Investing Cash 2014

Establishing an appropriate investment policy

When investing core cash, it is not obvious why investors would consider issuers that are not eligible to liquidity funds. Indeed, an investor might consider riskier names if the average surplus in yield is higher than the probability of impairment losses linked to these investments. This can be debated for a multi-year investment horizon such as that suited for the strategic cash, but is likely to be turned down for a one year or so investment horizon, especially in the current low interest rate environment. Hence, we would call for having a similar issuer selection list for liquidity funds as for core cash investments in order to appropriately follow individual issuer creditworthiness. This does not mean that credit risk will be identical in core cash solutions and in liquidity funds. Indeed, by simply allowing increased concentration risk (i.e. lower diversification target) and extended average maturities, the credit risk in some core cash solutions would be higher than in liquidity funds even if it is borne by the same issuers. Intuitively, everybody understands it is more risky to invest in a one-year note than in a one-day certificate of deposit issued by the same bank. In fact, on short tenors (e.g. one year or less), specialists generally agree that, for the same issuer, credit risk can be assumed to rise in direct proportion with instrument maturity, hence WAL being a proxy for measuring credit risk in liquidity funds.

To sum up, a core cash investor should evaluate its risk (particularly credit risk) tolerance and setting commensurate investment guidelines. A natural upper limit for WAL is the core cash investment horizon. On the investment management side, a natural upper boundary is the definition of slightly looser diversification and individual issuer maximum maturity guidelines and limiting investments to issuers eligible for liquidity funds. Hence, when investing core cash, an investor can marginally increase the credit risk (measured by WAL) if:

- Eligible issuers are similar to those allowed for liquidity funds
- The portfolio WAL is lower or equal to the core cash investment horizon

Assessing expected additional rewards vs. increased risk

Having given thought and established guidelines on different risk extension, what benefits can the investors expect? There is no easy answer, except back-and-forth model portfolios (with their respective expected returns) that would fall within these guidelines and which would be acceptable in terms of overall and specific risks to the investor. These simulations are obviously very time-dependent and can vary quite rapidly, especially in terms of specific issuer selection. Indeed, quality issuers are not always offering attractive prices every day on the markets.

We can attempt though to give an order of magnitude currency by currency on the general levels of premia offered against different risks. Let us take for example the sterling money market as at close of business on 2 May 2013 (Figure 4.2). The first step is to define a ‘risk-free’ asset as a reference point. This investment would be the shortest and the most liquid instrument issued by the most creditworthy borrower.

Although there is, again, no perfect answer, and although the crisis taught us there is no absolutely risk-free investment, one can assume the most suitable investment in sterling would be a UK Treasury bill or bond maturing the next business day. Unhappily, no such investment is offered regularly by the Debt Management Office (DMO) in the market, so the next best proxy is an overnight reverse repurchase agreement (or ‘repo’) with general collateral (i.e. UK Treasury bills and bonds) collateralised at 102%, which we would call the ‘less risky asset’. Such an investment is a one business day loan to a bank which is secured at all times with UK government securities kept at a third party (e.g. a clearing house) to a value of 102% of the nominal amount. If the counterparty bank fails during the day, the UK government collateral is seized and sold, with the view that the 2% collateral premium will suffice to cover transaction costs and potential negative variations in market prices.

As at 2 May 2013, the overnight repo traded at 0.45%, very close to Sonia (sterling overnight rate), which is an average overnight daily interest rate traded in sterling. If we assume (although this might not be true all the times) that the overnight repo rate will trade very closely with the Sonia level in the next 12 months, then the projected yield of the risk-free investment would be the Sonia swap curve. A Sonia swap is an agreement with a bank to exchange every day the differential interest rate set by Sonia (a floating rate) and a predetermined fixed-rate (the quotation rate). For example, the nine-month Sonia swap on 2 May traded at 0.37%, meaning an investor, by entering such a deal, would agree to exchange a fixed rate of 0.37% for the next nine months in exchange for a Sonia capitalised return. Hence 0.37% is the market expectation of the average Sonia level (which in our assumption is very close to the return of a rolling overnight repo) over the next nine months.

Starting from there, adding pure interest rate duration to this ‘less-risky asset’ would be an investment in a UK Treasury bill. Indeed, we can reasonably assume a UK Treasury bill bears minimal credit risk and liquidity risk, as history shows these bills can be sold with minimum market friction in almost any market circumstance. However, the market value of the bill will fluctuate day after day, depending on the general interest rate in the market. For example, the bill could lose part of its value in a snapshot if the Bank of England decides to raise its key rate by 1%, whereas the market anticipates no movement or lower rates at this stage. A nine-month UK Treasury bill was trading at 0.34% while the ‘less risky asset’ expected return was close to 0.37%, i.e. a 3bps discount in the duration premium.

Then, what could be similar to a UK Treasury bill investment, bearing similar duration and (minimal) credit risk but with a full liquidity risk? The best answer is a term repo of a similar maturity. Indeed, the repo agreement is non-transferable and, if we assume the over-collateralisation is high enough to equalise its credit risk, then investing in a repo vs. a Treasury entails a sole increase in liquidity risk. A nine-month term repo was trading at 0.46% when the corresponding maturity UK Treasury bill was yielding 0.34%, i.e. a 0.12% liquidity premium for a nine-month investment.
Next and final step: credit risk can be calculated as the difference in yield between the LIBOR curve and the government collateral (GC) repo yield curve. Indeed, LIBOR for a given maturity is the average interbank rate (i.e. non-transferable, illiquid instruments) between a panel of banks. This has the same liquidity and WAM and WAL profile as a GC repo, the only difference is the credit risk (banks vs. UK government equivalent risk). The nine-month LIBOR rate was standing at 0.74% when the GC repo rate was 0.46%, hence a 0.28% credit premium at nine-month maturity.

This calculation can be summed up as:

<table>
<thead>
<tr>
<th>Component</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-month LIBOR rate</td>
<td>0.74%</td>
</tr>
<tr>
<td>Less-risky asset rate</td>
<td>0.37%</td>
</tr>
<tr>
<td>+Duration premium</td>
<td>-0.03%</td>
</tr>
<tr>
<td>+Liquidity premium</td>
<td>+0.12%</td>
</tr>
<tr>
<td>+Credit premium</td>
<td>+0.28%</td>
</tr>
</tbody>
</table>

Of course, the above rates and calculations can only be estimates and might not exactly reflect ‘pure’ target investment returns and premia associated with different risks. First, certain instruments, like Sonia swaps, are not used extensively in the markets, so this might be reflected in their pricing. Even for more liquid instruments, bid-ask spreads and quotation timing can alter calculations. Second, there are short-term market technicalities which can distort the relative pricing of overnight GC repo and very short-term Treasury bills, whereas our assumption was that they are similar investments. Last but not least, LIBOR is not exactly a reflection of the purchase yields that can be achieved within low-duration mandates as LIBOR are offered (not bid) rates, they are non-transferable (unlike short-term securities held in mandates) and the average LIBOR bank panels could not be replicated in a mandate as some members might not be eligible to such solutions.

However these calculations help in assessing the order of magnitude of the expected returns associated with different types of risks according to the investment maturity. In particular, it highlights the fact that, in the current European (including UK) environment, the most highly remunerated risk is the six to 12 months credit risk, and that, conversely, the liquidity risk is poorly remunerated.

In conclusion, investing core cash definitely needs a good evaluation of the future outflows, of the investment horizon (which could be the date of the next sizeable future outflow), and of the credit risk quantum the investor is ready to take. Then a plausible investment solution seems to call for:

- A segregated mandate
- With a WAL and WAM lower or equal to the investment horizon
- And with liquidity bucket guidelines mirroring predicted cash outflows

The different risk parameters should be assessed against their likely additional expected returns over liquidity funds.

One caveat is that investing with segregated mandates requires relatively large investments in order to maintain a reasonable pricing power when acquiring the portfolio’s instruments.

Of course, should the investor need cash flows before the expected dates, then there is a much higher probability of a capital loss linked to the evolution of interest rates and/or market liquidity. That is why such a ‘low duration mandate’ solution can only be in the variable NAV form, illustrating greater market-linked variability of the assets value between the investment start date and the investment horizon date.

Source: Olivier Gayno
CIO Wealth & EMEA Liquidity, HSBC Global Asset Management (France)
Establishing an appropriate investment policy

Reporting requirements

The final element of the policy should include details on how investment activities will be reported and audited. This needs to be similar, in terms of detail, to the reporting and auditing of other treasury activities.

This section of the policy should outline the various reports which should be generated stating to whom and how frequently each report ought to be made, whilst also maintaining an appropriate segregation of duties. This means no individual should receive a report on an activity they performed. For example, in companies with large treasury organisations, it may be appropriate to send regular investment management reports to the treasurer on a daily or weekly basis, possibly as part of a regular set of reports. The finance director and other members of a board-level treasury committee should then receive monthly or quarterly reports as part of their overall review of treasury activity. In smaller organisations, where the treasurer is directly involved in daily investment decisions, management reports should be sent elsewhere, either to the finance director or perhaps a financial controller or accountant who is not directly engaged with treasury activity.

Checking deal confirmations is a key internal control. All deal confirmations received from the outside party should be promptly checked against the records generated from the treasury deal recording system. This check should be carried out by individuals outside the treasury department with suitable exception reporting and escalation procedures.

The company may also want to include a regular formal review and appraisal process. This may include a regular assessment of performance against specified market rates. Finally, there may also be reference to the audit process, although this should also be detailed in a more general treasury policy.

The purpose of the reporting requirements is to ensure there are appropriate checks in place on the treasury team as a whole.

Checklist for investment policy

Scope of policy

- The policy should state how it relates to other policies, including the treasury policy
- It could contain a brief explanation of the role of investment within the company
- It should state which entities are covered by the policy. In particular, does it only apply to central treasury or does it allow central treasury to instruct operating companies?
- It should identify the sources of corporate cash that are subject to the policy. Does the policy apply to all group investments or to short-term investments only?

Investment objectives

There should be a brief overview of investment objectives. This will be partially determined by the scope of the policy. It should cover the three core objectives:

Security
At what point is the company prepared to accept a risk to principal? Does the company draw a distinction between acceptable risk for working capital and for long-term cash?

Liquidity
The policy should set minimum standards for the liquidity of the portfolio. It may determine a minimum proportion of investments maturing within a certain period, e.g. a week, or it may direct a liquidity ratio relative to the cash flow forecast.

Yield
The policy may set benchmark figures for an acceptable yield. If so, this will usually be related to a market rate. It may also state whether a proportion of investments should be held in fixed rate instruments.

Investment guidelines

The policy should provide clear investment guidelines.

Instruments
The policy should state the names of approved investment instruments.

The policy should state which body has the authority to add or remove instruments from the approved list.

Currencies
The policy should state which body has the authority to add or remove instruments from the approved list.

The policy should state which body has the authority to add or remove counterparties from the approved list. It should also state who has the responsibility to set counterparty limits.

Tax
The policy should state how tax calculations should be included in any decision to invest.
Decision-making responsibility
The policy must state who has decision-making responsibility and refer to the company’s segregation of duties and policy on individual authorisation limits. The process for amending the policy will also need to be stated.

Breach of limits
The policy will specify exception reporting of breaches of limits, along with the sanctions imposed for such behaviours. A period will be specified in which to effect a remedy or (if a remedy is not possible) to provide explanation for any breaches caused by market movements.

Reporting
The policy should outline how treasury reports on its investment activities. This will include reference to any audit process and should contain reference to a regular investment appraisal.

Sample investment policy
This is a sample investment policy for use by a typical company. It has been written to reflect the level of detail an investment policy should contain and to provide a start for any treasurer who is looking to establish or review their company’s investment policy. It should not be adopted by any company in its current form; rather the treasury team should debate the points in the context of the company’s approach to risk before setting out the appropriate detail. Companies often debate how much detail should be included in the policy and how much should be kept back to include in the more detailed procedures. In this sample policy, the approach taken is to go for greater detail rather than just giving the main policy objectives.

When managing counterparty credit exposure, an integrated approach is required as exposures can arise from both investing and other financial instruments (such as foreign currency transactions and swaps). In this policy example, the exposures from other financial instruments have been ignored.

For the purposes of the illustration, the company is a European consumer goods manufacturer. It has production sites in five countries around the world and sells into about 50 countries. Cash is managed from three regional treasury centres; these are located in France, Singapore and the USA, although the policy is set by the group treasurer who is based in the company’s French headquarters. Wherever possible, cash is physically concentrated to pool accounts held in the name of the appropriate regional treasury centre, which also is responsible for managing the short-term investment process.

Scope of the short-term investment policy
This investment policy covers all investment of short-term operating cash, defined as cash with a maximum investment term of one year. It forms part of the group treasury policy and applies to all entities within the group.

Objectives of short-term investment
The primary objective is to ensure the preservation of principal when investing. Liquidity should also be maintained such that the group should seek to avoid having cash investments whilst it has any short-term external borrowing.

Yield should only determine an investment decision when deciding between two or more instruments which satisfy the first two objectives.

Instruments
The company can invest in the following investment instruments, subject to the counterparty and maturity limits set out below:
- Sovereign debt, which is listed on a regulated market or exchange
- Bank deposits, with banks which are approved by the relevant local regulator
- Certificates of deposit, issued by banks which are approved by the relevant local regulator
- Floating rate notes
- Commercial paper, issued by entities with a listing on a regulated market or exchange
- Repurchase agreements, on sovereign debt (as above); and
- Money market funds, managed under 2a-7 rules or within the IMMFA Code of Practice

Investment sub-limits by instrument type are given in the table on page 92 and are intended to ensure a degree of diversification and to minimise any systemic risk from problems over one instrument type.

Currencies
All funds invested by the treasury centres should be denominated in EUR or USD.

Funds invested locally should be in local currency or in USD- or EUR-denominated instruments.

Funds can be swapped into USD or EUR for the purposes of investment. Any swap should be for a maximum of one year.

Maturity of instruments and the portfolio
Investment decisions must be taken with the cash flow forecast in mind so that access to cash to meet forecast liquidity needs is not impaired. Short-term operating cash is defined as cash which is likely to be needed within the next year.

A secondary objective is to ensure that access to cash is not unduly restricted and to reduce the risk of being locked into an investment whilst the rating of the counterparty is deteriorating. Limiting maturities will help towards this objective. At all times, 50% of the invested cash should mature within three months, 25% within six months and 25% within one year.

In addition, the following maturity limits apply:
- Sovereign debt: the maximum maturity for any instrument is one year
- Bank deposits: the maximum maturity for any deposits is one year
- Certificates of deposit: the maximum maturity for a CD is one year
- Floating rate notes: FRNs may only be bought when the time to maturity is less than a year
- Commercial paper: any commercial paper must have a maximum maturity of three months
Establishing an appropriate investment policy

Counterparty limits for cash investments are:

<table>
<thead>
<tr>
<th>Long-term credit rating:</th>
<th>AAA/Aaa/AAA</th>
<th>AA+/Aa1/AA+</th>
<th>AA/Aa2/AA</th>
<th>AA–/Aa3/AA–</th>
<th>A+/A1/A+</th>
<th>A/A2/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total counterparty limit (EUR million):</td>
<td>400</td>
<td>350</td>
<td>300</td>
<td>200</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short-term credit rating:</th>
<th>A1/P1/F1</th>
</tr>
</thead>
</table>

| Counterparty limit, per instrument (EUR million): |
|-----------------|-----|-----|-----|-----|-----|
| Sovereign debt   | 350 | 300 | 200 | 100 | 10  | 5   |
| Bank deposits    | 325 | 275 | 175 | 75  | 50  | 25  |
| Certificates of deposit | 200 | 175 | 150 | 100 | 50  | 25  |
| FRNs            | 200 | 175 | 150 | 100 | 50  | –   |
| Commercial paper | 200 | 175 | 150 | 100 | 50  | –   |
| Repos           | 200 | 175 | 150 | 100 | 50  | –   |
| Money market funds | 400 | –   | –   | –   | –   | –   |

However, operating counterparty limits by instrument may be too restrictive an approach for many companies, in which case the above table need not be observed.

Cash investments, even if short term, shall be subject to the counterparty limit of their long-term rating. Where an entity only has a short-term rating then, if it is A1/P1/F1 or better, the limits applicable to AA–/Aa3/AA– will apply.

The group treasurer may propose additional country or sector limits to avoid undue concentration of risk or to mitigate risk from any perceived problem areas. These will need the approval of the board treasury committee.

In the event that a limit is exceeded because of a downgrade after the original investment was made, the group treasurer will review the risks and possible flexibility to come back within limit. Any investments remaining in excess of limit will be reported to the finance director as part of the monthly report.
Establishing an appropriate investment policy

Group counterparty risk management
In order to manage overall group exposures, the three treasury centres and other group entities with responsibility for short-term investment are permitted to invest with approved counterparties within sub-limits agreed with group treasury and which will be deducted from the central limits available. Locations that are able to view and report limit usage on a real-time basis will have the central limits available to them.

The three treasury centres must report all investment decisions to group treasury. Prior approval should be sought from group treasury for any investment decision which accounts for a quarter or more of the total counterparty limit outlined above.

The group treasurer in France, with the prior approval of the finance director, has authority to make investments outside these counterparty limits, but only for specific, exceptional transactions. Such investments must be reported to the board treasury committee, with an explanation of why the counterparty limit was felt to be inappropriate.

The group treasurer in France, with the prior approval of the finance director, has authority to establish and impose regional counterparty limits, taking account of the needs of subsidiary companies and the markets in which they operate. For example, limits may be allocated to the subsidiary of a bank which is itself not rated.

The group treasurer can reduce any limit if the specific counterparty risk worsens.

Tax
Investment decisions should be evaluated on a net tax basis.

Operating procedures
The group treasurer is has overall responsibility for group investment policy. Procedures for monitoring credit ratings or any changes to the perceived credit standing of counterparties, e.g. checking credit default spreads, will be put in place. Operating procedures must be in place and agreed by the group treasurer for all group entities permitted to manage short-term investment decisions. These procedures should set clear guidelines for the segregation of duties such that no one individual is able to authorise any deal that they have initiated. Each individual must have separate authorisation limits, capping their ability to transact. Procedures will also be implemented for the exchange of deal confirmations and the prompt checking of details by persons not involved with the dealing and recording.

Settlement (daylight) exposure
This policy does not specifically address the exposure that exists when moving funds between banks on a given day and which can be in excess of the limits in the table above. No separate daylight limits are imposed but instead the risks are mitigated by the following procedures:
- Only major money centre banks are used as a centralised clearing bank
- Treasury must approve the opening of all new bank accounts within the group and will consider size of expected transactions and creditworthiness

Reporting
All investment decisions should be reported to the group treasurer by the day after execution.

The group treasurer will prepare a monthly report for the finance director and the treasury committee members detailing the group’s short-term investment holdings. Any breaches of limits should be flagged. For every meeting of the board treasury committee, the group treasurer will prepare additional reports showing compliance with this group investment policy, with the group’s investment operating procedures and with any changes to the list of approved counterparties. Records should be kept to allow compliance with the policy and procedures to be audited on a regular basis.

All investment decisions should be appraised on an annual basis.
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Chapter 5
Implementing effective investment management

Introduction
With an investment policy in place, the treasury needs to establish a set of operating procedures to follow when taking individual investment decisions. These procedures should set out, in detail, the precise steps which should be taken, from identifying the funds available to invest, through the process of selecting the appropriate instrument and counterparty, to dealing and final settlement, before outlining how to monitor the investment from settlement through to maturity.

Standardising the processes is an important step in reducing the level of operational risk within the department, as it allows individuals to understand the limits of their authority (this is especially valuable for new team members). It also formalises the audit process by creating a trail, which helps to protect both the company and the team members.

This chapter identifies the main stages in the investment management process and outlines the procedures the treasury team should adopt at each point.

Identifying investment circumstances
The first stage in the investment management process is to identify the circumstances in which the investment is being made. This then allows the treasury team to select an investment instrument to match the objectives and risk appetite for the particular circumstances. The circumstances to consider include the currency in which the funds are denominated (and whether foreign exchange transactions are permitted), the time period for which the funds can be invested (and whether the company is comfortable with investing for that period), as well as the relative importance of security, liquidity and, if appropriate, yield as objectives.

The conditions in which each investment decision is taken will differ. However, it is likely that the treasurer will have access to a wider range of investment options if the cash to be invested is characterised as strategic cash, rather than operating cash (see Chapter 3).

Selecting the instrument
Having identified the circumstances of the investment, the next stage is to select the preferred instrument which best reflects the company’s objectives in this instance.
Implementing effective investment management

Characteristics
The investment policy should set out guidelines, including permitted instruments and counterparties, for specific circumstances. These may vary significantly, especially if the cash is characterised as being either operating or strategic cash. Given these constraints, the treasury team should identify all instruments which meet the company’s objectives and reflect the risk the company is prepared to assume. The shortlisted instruments should all reflect the company’s approach to both market and liquidity risk. The treasury team will then be mindful of credit risk when selecting the counterparty or issuer for the specific transaction.

It is possible that a combination of instruments (including, for example, a foreign exchange transaction) from a number of counterparties or issuers might offer a better solution than a single instrument.

Using economics to structure a money market portfolio
By understanding the link between risk and reward one can make better-informed investment decisions. The purpose of this article is to consider how the economic environment may affect the treasurer’s decision making.

Market risk
’Put your money in the bank and it’s as safe as houses’. That used to be the view commonly held by many people; while this is mostly true, one should always bear in mind that not even a bank deposit is a zero-risk investment (because the bank could go bust). This was brought home vividly in the financial turmoil of autumn 2008, when it was touch and go for a time whether the banking sector would survive.

Key considerations before investing in any institution are credit quality and capitalisation, as well as size (the ‘too big to fail’ argument gained credence with the events of 2008, but should not in any way be considered a guarantee). Bank deposits are the obvious place to invest cash, but there are other options too:
- Certificates of deposit (CDs) – a bank deposit that can be traded prior to maturity
- Commercial paper (CPs) – the corporate equivalent of certificates of deposit
- Floating rate notes (FRNs) – these are instruments where the rate of interest paid moves with interest rates in the market; and
- Other instruments such as money market funds (liquidity funds) which wrap such assets in an accessible way. All of these can be captured by the term ‘money market instruments’

The performance of these assets in 2008 showed that they are not homogeneous but should be treated on an individual basis. They all have some degree of risk associated with them, and although an investor does not need a fund manager to use these instruments, a good fund manager should be able to identify the best instruments, the potentially lowest risk and the highest return. This extra return can more than pay for the cost of the service.

Therefore, our base asset class is money market instruments that are relatively low risk and, compared to some other, racier, assets, offer a lower return. On the next rung of the risk/reward ladder lie bonds. Because equities tend to occupy the everyday mindset, many investors are not sure about bonds, even though they are a useful asset class that can give very good returns and, equally importantly, control risk. Put simply, bonds are an instrument that will pay a fixed amount (hence the term ‘fixed-income markets’) on a regular basis (the coupon); on maturity they normally have a price of 100 and pay back the principal. Bonds vary in maturity, but are usually issued with terms from one year to 50 years. They are a lower risk than equities because, other things being equal, they pay a fixed coupon year in, year out. This is a big stabilising influence on capital values which, like equities, change over time. Bonds will also pay back the investor when they mature – if this is so, this is another stabilising influence.

Within the bond arena, there are many subsets of bonds which can alter the risk/reward balance. Government bonds are debt instruments issued by governments to finance expenditure. Bonds issued by major developed countries (e.g. USA, UK, Germany, Japan) tend to be the most liquid and most highly rated. This is because the likelihood of a large developed government not being able to pay back the investor is small. However, with governments borrowing an increasingly large amount of money, one should not automatically assume that credit ratings will be maintained or that the market will look on all government bonds on a uniform basis. Other risks involved with such bonds come in the length of time you have to wait for your money to be repaid and price sensitivity.

Corporate bonds are bonds issued by corporate entities. The risk involved in investing in such bonds can be high, should that company go bankrupt (e.g. Enron). However, these bonds are generally rated by rating agencies, and this can give an indication of how reliable the company will be in paying back. High-yield bonds and emerging market bonds are considered some of the most risky bonds. High-yield bonds are bonds with a low rating, which by industry standards is anything below BBB. Emerging market bonds are usually either bonds issued by governments of what are considered to be ‘emerging’ countries, or corporate bonds issued by companies located in these countries. Because of the higher risk, yields from these bonds are generally higher than developed market government bonds. However, emerging market credit ratings have improved significantly in recent years, and many are now investment grade.

Where does the economic background fit in?
Investing in a rising market gives a great feeling of power and control, but when the market goes down is an entirely different matter. The key to avoiding such a scenario is to try to understand the economic and market environment at any point in time. In general, if an economy is growing strongly, companies are doing well and their profits are likely to be growing. This should be good for equities, other things being equal; but for bonds, the picture is reversed.
Bonds are ‘fixed-income’ instruments, usually paying a fixed coupon at regular intervals through their lives. A strong economy is usually associated with rising inflationary pressures, which will usually be bad for bonds because rising inflation will undermine the value of an instrument that pays a set (fixed) amount. This means we end up with the strange picture in which bond investors actually want bad economic news – rising unemployment and falling economic growth – because it lowers inflationary pressures and makes a fixed-income coupon worth more in real terms. That’s why bond investors, perhaps unfairly, could be said to be ‘doom and gloom investors’, praying for bad news.

There is, however, one type of bond that compensates investors for rising inflation. Known as inflation-linked or index-linked bonds, these instruments adjust their coupon and maturity payments according to changes in the consumer or retail price index.

**How does a fund manager choose which bonds to use in their portfolio and how does the economic environment affect their choice?**

The main influence on the price of a bond is the rate of interest. Put simply: if interest rates rise, so the price of the bond will fall, and the extent of that fall will depend on the duration of the bond. Interest rates are generally referred to as either going up or down, which would suggest that all rates move together. However, the rates on bonds with different maturities behave quite independently of each other. Short bond rates generally differ from long bond rates, and can move in the opposite direction. Therefore the movement of interest rates is important, as are the implications of those rates on the economy. Economists use a yield curve to capture the overall movement of interest rates. This plots the yields of, for example, US treasury bonds with different maturities.

**Figure 5.1. The general yield curve effect when an economy is growing.**

(Source: HSBC Global Asset Management)

In theory, short-dated bonds have a lower return (yield), as the risks associated with them are lower. Therefore the yield curve is often upward-sloping: as the length of the bond increases, so does the yield obtained on that bond and the risk of holding it. However, the curve may have periods where it is downward-sloping (inverted), because short-term interest rates may be higher than long-term. The slope of the yield curve changes over time as a result of interest rate expectations, market liquidity and market segmentation.

**How does an investor use the yield curve and economic data to decide where to position their portfolio?**

As a general rule of thumb, when an economy is experiencing growth levels that are higher than forecast, it will experience inflationary pressure, which in turn is likely to spark monetary tightening (higher interest rates). At the start of this type of economic environment the yield curve is likely to represent the shape depicted in Y1. As the government starts increasing the rate of interest to reduce inflationary pressures and to control the business cycle upswing, short bond yields will rise and short bond prices will fall, moving the curve to position Y2.

This could lead to a negative return when investing in a bond portfolio. However, if while the government were increasing interest rates you were positioned in a portfolio of cash, just like a bank account, the interest on your cash would rise in line with interest rates. Therefore, it can be crudely put that when an economy is showing signs of strong economic growth, it may be best to hold your investments in money market securities, while in times of economic decline, bonds should benefit more. As with all things, timing is key, and it is important to know when to shift exposure to the more relevant asset class.

The low interest rate environment of recent years has been very positive for most bonds. Looking forward, however, once interest rates begin to rise, the outlook is much less positive. In this type of environment it is probably preferable to hold more in money market instruments or to diversify some fixed income holdings into inflation-linked bonds.

**Conclusions**

The aim of any portfolio manager is for the client to end up with a portfolio that meets their return objectives, while exhibiting risk characteristics that the client finds acceptable.

Fundamentally, an investor’s appetite for risk will determine where they position their investment. If in times of rising interest rates the investor wishes to avoid falling bond prices, then a money market fund under the instruction of an experienced fund manager may be ideal, and could even add value above cash. Alternatively, if the investor feels more adventurous and as long as a year of under-performance can be borne just as well as a year of out-performance, there are potential rewards to be reaped by investing in short- to long-dated bonds, under the instruction of a carefully picked investment manager.

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There is more detail on the characteristics of individual instruments in the *Instruments* section.

**Precise instruments and markets**

It is important to recognise that not all investment instruments are available in all markets. For instance, some governments do not issue short-term debt instruments. In other locations, there are no local money market funds, although investors may be able to access international money market funds.

Where particular instruments are available, the liquidity of local markets also varies from one country to another.

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Consider a German company with EUR 1 million to invest for three months.

Invested locally, this would earn a return of 1.13%, or EUR 2825 over the three months.

Alternatively, the company could invest in US commercial paper (USCP) issued by Company M, which would pay an annual equivalent return of 1.6%. As USCP is denominated in US dollars, the German company would have to buy US dollars at the prevailing spot rate (EUR 1 = USD 1.2796) and then sell them three months forward (at EUR 1 = USD 1.2769).

The German company would invest USD 1,279,600 in Company M’s USCP. Over the three months, this would earn a return of USD 5118.40. The principal and the return (USD 1,284,718.40) would then be exchanged into EUR at the pre-agreed forward rate, giving EUR 1,006,122.95. This represents a return for the German company of EUR 6122.95 over the three months. This is an equivalent annual return of 2.45%, significantly above that available directly in euros.

In reality, such arbitrage opportunities may only exist between two less commonly traded currencies. When investing in a foreign currency, the treasurer may want to use the investment to hedge other open positions.

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The size of the respective local markets also affects the availability of instruments. For example, money market funds are popular in the USA, and, increasingly so, in Europe. However, local mutual funds differ in the investment approaches they follow, primarily as a result of local regulation and the instruments available in the local market. It is important that investors understand the nature of these approaches and recognise that different funds in the same market may have significantly different risk profiles. Moreover, money market funds outside the USA and the European Union (see Chapter 6 for information on regulatory requirements in these locations) may not be subject to the same restrictions as funds in those locations.

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Finally, some instruments have different terms and conditions depending on the market in which they are issued. Typical factors which vary include:

- **Interest**
  The calculation of interest payments varies from currency to currency. Most interest is calculated on a 360-day year basis, although there is some use of a 365-day year basis. (For detail, see *Financial Calculations* section).

- **Minimum investment period**
  Local banking regulations may prohibit the payment of interest on investments made for less than a minimum period.

- **Maximum investment period**
  Some instruments are issued subject to a maximum investment period. This is often due to local securities regulations. For example USCP offered for sale to the public is limited to a maximum maturity of 270 days, otherwise it would be required to be registered with the US Securities and Exchange Commission.

- **Tax liability**
  Tax liabilities vary in different locations. It follows that specialist tax advice is necessary before taking the decision to invest.

- **Investor eligibility**
  Finally, some investors may be prevented from investing, due to local restrictions. For example, in normal circumstances US investors are prohibited from investing in European money market funds. Some countries, including Russia, place restrictions on access to local bank accounts.

The availability of different instruments in selected markets is detailed in the *Instruments* section.

**Standalone or part of a portfolio**

In some cases, treasury will be able to take a standalone decision. This may be appropriate, for example, if a company has concentrated its cash to a single account.

At other times, treasury may have to take a wider perspective. An investment decision will have an impact on the group’s portfolio, especially if the group has significant sums of cash invested. Any large-scale investment, such as the management of the proceeds of a major corporate sale, will also have to be considered from the perspective of the impact on the group as a whole. When selecting appropriate investment instruments, treasury will have to model the impact of all potential instruments on the weighted average maturity (WAM) and duration of the portfolio as a whole. This is an important tool in modelling interest rate risk (see page 59). In all cases, care will need to be taken to ensure counterparty limits are not breached and that sufficient liquidity is available by ensuring different instruments mature at different times (see page 57 onwards for more on liquidity risk).
Counterparty mandates
As well as being included on the approved counterparty list, treasury must have appropriate mandates or contracts in place with a counterparty before the transaction is agreed.

- **Deal mandate**
  Any potential deposit with a bank must be covered by a bank mandate. This should detail the preferred method of transacting (whether via electronic banking or over the telephone), as well as a back-up process. It will also determine who is authorised to initiate deals on behalf of the company, including the terms of any automated sweeps. During any dealing or depositing process, it is important that treasury complies with the conditions of the mandate.

  Any bank dealing mandate should address the following details:
  - The group entities covered by the mandate
  - The transactions covered by the mandate, including limits on amounts
  - Individuals permitted to agree and confirm transactions, including any permission to give instructions by phone
  - Standard settlement instructions (to cover each group entity, one per currency)
  - Action required to agree and confirm a transaction outside the scope of the established mandate; and
  - Action required to change the mandate to include any changes to standard settlement instructions.

The Bank of England’s Non-Investment Products (NIPS) Code provides additional guidance on the relationship between participants in the foreign exchange, money and bullion markets. The NIPS Code states that ‘a dealing mandate should [not] attempt to transfer or outsource [the responsibility for the actions of their own staff] to a counterparty’.

(The full NIPS Code can be found at [www.bankofengland.co.uk](http://www.bankofengland.co.uk).)

There are differences between what a company might want from a mandate and what a bank is prepared to accept. As long as the core details are contained in the mandate, the key is for the company to retain control of its own internal processes and its standard settlement instructions.

- **ISDA (International Swaps and Derivatives Association) and similar documentation**
  If a company expects to enter into over-the-counter derivatives transactions, it is usually prudent to agree an ISDA master agreement with all potential counterparties. This agreement will reduce the time (and cost) taken to negotiate standard terms and conditions before every derivative transaction. It includes standard settlement instructions.

The International Foreign Exchange Master Agreement (IFEMA) is a standardised agreement between two parties for the exchange of currency. The International Foreign Exchange and Currency Option Master Agreement (IFXCO) is a similar document covering foreign exchange and currency option transactions. IFEMA and IFXCO were developed by the New York Federal Reserve Bank’s foreign exchange committee, the British Bankers’ Association, the Canadian Foreign Exchange Committee, the Tokyo Foreign Exchange Market Practices Committee (IFEMA) and the Japanese Bankers’ Association (IFXCO). The Global Master Repurchase Agreement (GMRA) is a standardised agreement for repurchase (repo) agreements.

In most cases, these mandates should be in place before a transaction is initiated. Standard documentation, such as the ISDA master agreement, makes it relatively straightforward to agree terms with a new potential counterparty. However, it is prudent to add counterparties to the approved list only once agreement has been reached.

In some cases, especially when investing strategic cash for a longer period, negotiating the counterparty mandate may be an integral part of the investment decision. This is especially likely to be the case when investment managers are appointed to manage a pool of funds for a particular period of time, such as in the use of a separately managed account.

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**Interview Stephen Webster, Group Treasurer, QinetiQ**

QinetiQ, a FTSE250 company, provides technical support and know-how to customers in the global aerospace, defence and security markets. It is a trusted partner to government organisations, predominantly in the UK and the USA, including defence departments, intelligence services and security agencies. In 2012, it generated revenues of GBP 1.47 billion.

QinetiQ has a centralised treasury operation, with four staff members working in Farnborough and a small regional office in the USA. Cash is concentrated at group level and these balances are then used to provide liquidity for the Group.

Over the last two to three years, QinetiQ has responded to difficult markets by successfully reducing its operating costs and working capital employed. This allowed the company to deleverage its balance sheet by paying down significant debt, and in both March 2011 and March 2012 QinetiQ repaid early term US debt. Given the structure of the group’s remaining debt, the company decided not to seek to pay down early any more long-term debt and, as a result, QinetiQ has quickly become a highly cash-rich company, with around GBP 250-300 million cash invested.

For Stephen Webster, QinetiQ’s Group Treasurer, managing this cash is now an even more important challenge. Webster’s main priority is to maintain security and he places great emphasis on managing counterparty risk. Some cash is placed on deposit with one of the group’s approved counterparty banks, subject to maximum limits determined by each bank’s credit rating. The QinetiQ treasury team produce consensus ratings developed from all three major rating agencies, as well as other measures including CDS spreads, tier one capital levels and bank size, to assess any changes in counterparty risk.
The company places the majority of its cash balances into AAA-rated money market funds. The group uses five approved money funds, with up to a maximum GBP 50 million invested in each fund. With growing cash balances, the group is currently using the five funds at close to these maximum levels. Webster explains his rationale for using money funds: ‘We like them because we are effectively outsourcing management of this cash to the fund. At the same time, because they are ring-fenced away from the sponsoring institution, we get some additional diversification of risk, although limited by virtue of the amount of bank paper held in these funds. Although returns on money funds have been falling over recent years, this is not a particular concern for us, as we do not chase yield.’

As QinetiQ’s cash balances continue to grow, Webster has established a collateralised triparty repurchase agreement in order to diversify the investments. He explains: ‘In many ways, the transaction is the same as a traditional short-term bank deposit, except that we get the bank to post collateral slightly in excess of the market value of the deposit to a Clearstream account which is held for QinetiQ in case of default by the bank. This structure has two benefits. First, this gives us economic exposure to the underlying eligible collateral asset: in our case we selected UK government gilts, but you could select any high grade asset, for example corporate bonds. This helps to diversify our portfolio, without the hidden costs of directly holding the asset. Second, the repo allows us to obtain the exact maturity profile we want, which would be difficult with direct investment in gilts.’

‘Very few other companies currently use triparty repos in the UK and therefore the ACT guide on repos published in November 2012 [www.treasurers.org/repos] was very helpful!’

Negotiating an agreement with QinetiQ’s bank has taken some time, even though Webster used the standard Global Master Repurchase Agreement (GMRA). He has also opened an account with Clearstream in Luxembourg: ‘Signing up to a Clearstream account is used the standard Global Master Repurchase Agreement (GMRA). He has also opened an account with Clearstream in Luxembourg: ‘Signing up to a Clearstream account is mainly because the paperwork is designed for very large organisations’, says Webster. ‘We have been mindful to structure our agreement to avoid the proposed eurozone financial transaction tax. We will use GBP-denominated collateral and as all parties to the transaction are in the UK or Luxembourg, it will not be liable for the FTT:

Webster suggests triparty repos require a minimum investment of about GBP 25 to 50 million: ‘The banks have a minimum size and because the costs of setting up and then running the Clearstream account and negotiating the GMRA, it does not make sense for smaller amounts. However for organisations with significant cash, it gives the opportunity to diversify into other assets and further reduce credit risk. As an aside, we earn a slightly better yield via this structure than if we invested simply in money market funds, due to current supply and demand factors.’

Dealing
Once the preferred instrument has been identified, the treasurer will have to invest with one of the company’s approved counterparties or in an approved issuer. Each treasury should have a set procedure which details the process from selection of instrument and counterparty/issuer, through to the post-trade administration.

Every time an investment decision is taken, it should be clearly documented. This provides protection for treasury (in case, for instance, a dispute arises later) and as a means to evaluate the decision itself.

Deal process
The deal procedures should be designed to be as standard as possible. If local entities invest their own surplus cash (typically in overnight deposits with local banks), they should do so following standard group-wide procedures.

Research transaction
The objectives for the investment having been determined, the treasury team must research all the instruments identified as suitable for the transaction. For more complex scenarios, this may require the analysis of a number of alternative potential instruments, to see which would best meet the company’s objectives. The decision must be based on the level of credit, liquidity and market risk the company is prepared to assume.

For larger amounts, the treasury team will want to consider the number of individual transactions which will need to be made. For funds to be invested for longer periods, the team could also select a number of instruments with a range of maturities, to reduce both liquidity and reinvestment risks.

Authorise transaction
Once the appropriate instrument(s) has been identified, an outline transaction should be authorised. Individual treasury team members will have their own deal limits, which may vary according to the instrument type. Any authorisation procedures should be followed carefully.

An automated sweep should also be subject to an authorisation procedure if it breaches a preset limit. Automated transactions should also be subject to regular and spot audit checks.

All transactions should be subject to a regular post-trade review. This should be performed by the internal audit department (or a similar group), and should assess whether all procedures have been followed and whether each transaction was appropriately authorised.

Quote
The dealing procedures should indicate how many quotes should be sought to identify the best, or a market benchmark, quote. This may depend on whether a published market rate is available. It will also state in which circumstances treasury can rely on data from a dealing platform or from its Reuters or Bloomberg screen. All quotes should be recorded so they can be reviewed in the event of a dispute. These records will be available to be used during the regular review of investment activity and performance. Some treasurers may also then use these reviews to evaluate bank relationships.
Implementing effective investment management

At their simplest, confirmations can be managed by an exchange of messages on a single bank dealer platform. Some treasury management systems can process SWIFT MT 300 message types, which permits real-time direct confirmations with counterparty banks. Most of the other treasury management system vendors have built interfaces to third party confirmation and matching systems. These interfaces allow corporate treasury confirmation matching systems to ‘read’ messages initiated by financial institutions, and vice versa.

It cannot be stressed enough how important this control is. It is impossible to devise a system that can ensure fraudulent or malicious deals are not initiated. (See page 64 for more on operational risk.) However, through prompt checking of confirmations, any errors or false deals can be detected swiftly, and steps taken to reverse or neutralise them. In the UK, the Bank of England Non Investment Product (NIPS) Code specifies that good practice is to exchange confirmations within two hours. The increased availability of electronic confirmation matching systems provides the opportunity for improved control.

Although the Bank of England NIPS Code does not apply to investment products officially, its dealing practices are equivalent to a market agreed best practice.

It sets out clear responsibilities for all market participants, including the importance of agreeing dealing principles and procedures. It recommends the necessary controls, including the need to have clear dealing mandates in place as part of the checks of counterparties. Finally, clear confirmation and settlement procedures should be agreed and followed, and there should be a mechanism to resolve discrepancies which are identified at the confirmation stage. The Code suggests the level of detail which should be included on foreign exchange and money market confirmations. The same level of detail is appropriate for all dealing transactions.

Settlement instructions

After confirmation, the deal should be prepared for settlement. Detailed settlement instructions should be part of any mandate or other contract. The back office should check that any changes to these instructions have been prepared by an authorised member of staff.

Equally, checks should be undertaken of any new or changed settlement instructions from the banks, to ensure they really have come from the bank. This could be through cross-reference to the bank’s website or by call-back to the bank to be sure the details are bona fide.

Maintaining current settlement instructions is an important tool in reducing settlement risk (see page 63).

Reconciliation

Once the transaction has been settled, the back office team must reconcile all the relevant documentation for accounting and audit purposes.

In today’s treasury, many of these activities can be automated. Most treasury management systems now include dealing modules, which permit payments to be initiated and then create accounting and management reports.

The Treasurer’s Global Guide to Investing Cash 2014

Implementing effective investment management

If the transaction is large relative to the particular market, treasury should avoid asking too many banks to quote, because of the possible impact upon that market. In these circumstances, treasury may choose to employ the services of an asset manager.

Agree transaction

Once the preferred quote has been identified, someone with appropriate authorisation should agree the transaction. The terms of the agreement must conform to the terms of the mandate or other contract. It must not breach counterparty limits. Although this suggests three separate authorisation stages, in practice these will often be completed by just one individual.

Many companies have been taking a more sophisticated view of counterparty limits in recent years. In the past, companies ranked their approved counterparties by yield. Many would then simply invest funds with the counterparty at the top of the list up to the limit, and then move to the second on the list, and so on. This course of action would introduce a, possibly unintended, bias towards poorer credit quality investments.

Today, they are taking a much less simplistic view. They want to understand much more about the counterparty, a bank’s exposure to particular markets or the contents of a money market fund portfolio, before deciding to invest. Investors are also not investing up to counterparty limits in every instance; rather they are looking to diversify their own exposures first.

The authorised dealer should produce a deal ticket, providing the full detail of the agreed transaction. This should include the details of any quotes as well as the relevant authorisations. These tickets are increasingly likely to be electronically.

Confirm transaction

Once the deal ticket has been produced, it should be passed to the back office for confirmation. It is here that there should be a clear segregation of duties. This means no one party to the deal agreement (dealer, or anyone who authorised the deal) should be involved in confirmations. In companies with a small treasury department, it may be necessary to use a member of the accounting (or another) department to perform confirmations.

To confirm a transaction, the back office will ensure the details of the agreement on the company deal ticket match those sent by the counterparty. For standard transactions, these are increasingly automated, either through the treasury management system or by using a dedicated deal-matching service. In these cases the deal is entered into the treasury management system (ideally as an automated feed from the dealing platform), which then automatically generates trade confirmation data. The confirmation matching system will receive this data and equivalent data from the counterparty financial institution. If the data matches, the system will send a report as evidence. If there are any discrepancies, the system will automatically identify them to the treasurer.

At their simplest, confirmations can be managed by an exchange of messages on a single bank dealer platform. Some treasury management systems can process SWIFT MT 300 message types, which permits real-time direct confirmations with counterparty banks. Most of the other treasury management system vendors have built interfaces to third party confirmation and matching systems. These interfaces allow corporate treasury confirmation matching systems to ‘read’ messages initiated by financial institutions, and vice versa.

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In today’s treasury, many of these activities can be automated. Most treasury management systems now include dealing modules, which permit payments to be initiated and then create accounting and management reports.
Where back office activity is automated, transactions should be subject to regular and spot manual checks to help to prevent fraud. Reconciliation is an important tool in reducing operational risk (see page 60).

For example, the German company investing in USCP (page 150) has worked to reduce headcount within the back office of the treasury department. When agreeing a spot foreign exchange transaction, the deal process is as follows:

The dealer will seek quotes. The company has access to one of the information screens, which records the current EUR/USD rate. It also participates in one of the foreign exchange portals. Both these systems provide the company with the current market rates. However, because of the complexity of the deal, the dealer also prefers to seek two voice quotes. This allows him to discuss the nature of the foreign exchange market with two bank dealers.

Once the quotes have been received, the dealer executes the transaction with the most competitive bidder either by telephone or through the foreign exchange portal. The deal is entered into the treasury management system, which then automatically confirms the trade with the bank. On receipt of information from the counterparty bank, the system carries out an automatic matching and exception reporting process.

The treasury management system also initiates the payment, permitting the payment of euros for settlement for, in this case, same-day value, since the USCP market operates on a same-day basis.

At the same time, the system also generates a deal report, which is part of the group treasurer’s end-of-day reporting. This also describes the treasury manager’s authorisation of the deal. The information is also used to update the cash flow forecast, on both the EUR and USD sides.

After settlement, another set of reports is generated, confirming the actual cash flows. The treasury management system will automatically create the cash book and accounting entries for posting to the company’s main accounting systems.

Automation in treasury

Increasing numbers of treasury activities can be automated through the use of a treasury management system; a system can either be installed locally or hosted by a systems provider, and accessed using a web browser. Treasury management systems, or other enterprise-wide resource planning (ERP) systems, provide significant advantages to treasurers at all levels of activity.

From an investment perspective, treasury management systems allow the treasurer greater visibility to cash balances, through cash flow forecasting modules; they manage the operation of group-wide liquidity management schemes; and they allow for the automation of much of the company’s investment activity.

They are particularly valuable for record-keeping and report generation, although care needs to be taken to ensure back-up systems and controls are in place. In addition, some systems can embed a level of additional controls, such as clear authorisation procedures, and ensure a clear audit trail exists for future reference. These must be checked and audited on a regular and irregular basis to reduce operational risk.

Using portals when investing

Portals are increasingly used by investors both to access information and to make money market investments. Some portals link only to money market funds, whereas there are others which provide access to a wider range of instruments, including bank deposits and commercial paper.

The benefits for the investor derive from the single point of access the portals provide. These reduce the time spent searching for and accessing information. This information can also be used when initiating a transaction, reducing the level of manual intervention in the deal process and, as a result, bringing a lower risk of fraud and error.

When using a portal to make investments, the same processes as outlined above should be followed. The exception will be that some stages will be automated, such as the recording of quotes and the deal transactions themselves. Importantly, rules about counterparty risk management should still be adhered to. Treasurers should only deal with counterparties if an appropriate mandate is already in place, and care should be taken to evaluate all the fund providers before entering into a transaction.

Investing in Money Market Funds in Emerging Markets – Spotlight on India and China

At HSBC Global Asset Management we believe we have a valuable perspective on money market and liquidity fund investing. Our clients have entrusted HSBC with over USD 400 billion in assets under management, including more than USD 60 billion in liquidity mandates. In addition, in order to best meet the short-term investment needs of our global client base, we are among the most global liquidity product providers as we operate in most of the major markets around the world, and offer money market funds in 11 currencies. This includes our global/international liquidity funds in Dollar, Euro, Sterling and Canadian Dollar. We also offer a range of domestic funds in both local and global currencies, providing solutions in Asia, Latin America, North America and Europe. In addition to our money market funds, we provide tailored portfolios as defined by our client’s requirements.

Recent years in the money markets have proved to be quite exciting and we have experienced recent and ongoing interest by investors to invest in money market funds in the emerging markets, including China and India.
As clients expand their investment and business activities into the emerging markets, they want to review what alternatives exist for the investment of their short term cash. For example, over recent years there has been an increase in the usage of money market funds by multinational corporates who have operations onshore in India and China. As in the developed markets, money market funds in the emerging markets offer investors another valuable option for the investment of their short-term cash, and offer many of the key benefits. But before investing, it is important for investors to understand how money market funds operate in each country, and how the funds operations differ from the developed market practices. This is particularly important to clients investing in countries with a less developed money market fund industry or countries where a client does not have their own local cash management expertise. This review should include:

- An overview on how the money market fund industry is organized in each country
- The types of investors who use the funds
- The types of investments they make
- A comparison of the funds between other cash investment alternatives, such as bank deposits, and indicative fees

For the foreseeable future we expect the trend of clients reviewing alternative in the emerging markets to continue, as client look to review and adopt best practices globally.

When considering investing in India and China for example there are a few things we feel are important for investors to know and so I would like to give a brief overview of both the Indian and Chinese markets.

India

The first Indian Liquid fund was launched back in 1997. Assets under management in the Liquid fund industry have grown steadily over time, but with periods of some volatility; for example, during the credit crisis of ’07 and ’08, there was some redemption activity seen from Liquid Funds in India.

Subsequently, the industry has gone through a number of changes, most significantly on the regulatory side, where SEBI, the regulator in India for Liquid Funds, has made a number of changes to the regulation of the industry. For example, the maximum tenure for any single asset within a Liquid Fund in India is now restricted to 91 days, which is significantly shorter than the limit that is most common in the Unites States and Europe of 397 days. The Funds are typically run with an average duration of around two months and that, again, is slightly shorter than what one would typically see in Liquid Funds in the US and Europe.

The industry has a long track record that has seen it managed through a number of periods of stress; again, for example, the credit crisis of ’07 and ’08, and more recently the sharp rise seen in Indian interest rates in the third quarter of Calendar Year 2013 following decisions made by the Central Bank of India to raise interest rates and drain liquidity to protect the currency.

Whilst the industry was not incident free during the credit crisis, the changes that regulator has made since to reduce the level of interest rate risk and credit spread risk has meant the industry was able to manage more recent market stresses.

Liquid funds in India are predominantly used by institutional investors who are looking to deploy their short-term surplus cash for periods ranging from overnight out to 90 days, so the typical investor base are multinational and local corporates, banks and financial institutions and public sector bodies. They are primarily considered by companies or investors with operations and surplus cash in India and the investing entity must have an onshore legal entity incorporated in India. Liquid Funds in India offer similar key benefits as Liquid Funds in other currencies around the world. They invest in a basket of short-term liquid instruments that targets a liquid and low duration portfolio, credit risk is actively managed with risks diversified across a broad range of issuers, liquidity is offered daily with next-day settlement and dividend income from the Fund is not taxable in India at the hand of the investor.

Looking at a typical fund strategy, the fund’s objective is to target a liquid and low duration portfolio with a maximum tenor for any single security of 91 days, and an even lower average duration. The Fund invests in a range of instruments including certificates of deposits, commercial paper, reverse repo agreements that are typically backed by Indian sovereign debt, deposits and other corporate debt or notes, – the traditional Liquid asset types.

In terms of costs or expense ratio, these are typically within a range between 5 basis points and 225 basis points, liquidity is on a next-day basis, and portfolio disclosures are typically available at monthly intervals and in case of some funds even at weekly intervals.
Implementing effective investment management

In summary, the Liquid Fund industry in India has a long track record going back to the late ‘90s, the industry has been managed through a number of periods of stress over that lifetime, and regulation has changed over recent years to reflect a changing risk profile and to constrain the risks that Liquid Funds can take in India. The funds are open to locally incorporated institutional investors; they bring the traditional benefit of a Liquid Fund of professional credit management, diversification, transparency, and liquidity, they invest in vanilla instruments and are priced competitively.

China

The industry in China is just over 10 years old, with assets under management as at the end of 2013 of around 883 billion Renminbi. This has grown from a standing start back in 2003 with now over 100 Money Market Funds in existence. The industry has experienced some volatility at times, primarily as a significant portion of the investor base are retail investors in China who use Money Market Funds to park cash whilst they are waiting to enter, or re-enter the Chinese equity market. However, over recent years there has been an increase in the usage of Money Market Funds by multinational corporates who have operations onshore in China.

We would describe the market as “Two Tier”: those funds provided by international asset managers and managed in a similar style to those offered in Europe and the United States, and Money Market Funds offered by local Chinese asset managers who follow the risk profile set out in local domestic regulation.

The international asset managers are primarily targeting multinational corporates with operations in China and, as we can see from the pie chart, multinationals that are head-quartered in the United States, the United Kingdom, Germany, France, and the Nordics are all current investors in Money Market Funds in China.

As in other markets for Money Market Funds around the world, Money Market Funds in China offer investors another option for the investment of their short-term cash. They are a valuable complement to bank deposits, or structured deposits in the case of China, or reversed repo transactions. As with other Money Market Funds around the world, Chinese Money Market Funds invest in a basket of short-term money market instruments that target a liquid and low duration portfolio. Some Money Market Funds in China are rated, and as with all Money Market Funds, they offer a diversified investment across a range of underlying assets within the portfolio. The funds in China offer next day liquidity, and they are looking to target a yield comparable to short-term money market interest rates.

Compared to the money markets in the United States and Europe, the range of issuers and asset types is lower in China. That being said, a typical Money Market Fund offered by an international manager would include investments in Chinese Government bonds, Central Bank notes, People’s Republic Bank of China bills, repurchase agreements backed by Chinese sovereign debt, deposits and other investments from the three agency banks that are 100% owned by the Chinese Government, deposits and other investments issued by the “big four” banks, which are partly owned by the Chinese Government are typical types of investments that you will see in a Money Market Fund.

One particularly interesting feature of the market for Money Market Funds in China is when one compares the returns of a Chinese Money Market Fund versus a bank deposit. The table here shows the average net return of all AAA-rated Money Market Funds of 3.43% as at the end of 2013. The table also shows bank deposit rates for next day liquidity, one week, three months, six months etc, and one can see a significant difference between the return offered by the Money Market Fund and the return offered by the bank deposit.

For cash surpluses longer than 6 months, local treasuries also look at other bank products such as structured deposit, wealth management products or segregated account products.

<table>
<thead>
<tr>
<th>Data as at the end of 28 02 2013</th>
<th>T+1 (next day)</th>
<th>1 week</th>
<th>1 month</th>
<th>3 month</th>
<th>6 month</th>
<th>9 month</th>
<th>1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank deposit</td>
<td>0.60%</td>
<td>1.01%</td>
<td>n/a*</td>
<td>1.95%</td>
<td>2.10%</td>
<td>n/a*</td>
<td>2.25%</td>
</tr>
<tr>
<td>(Net returns, after taking the 25% income tax)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Money Market Fund</td>
<td>3.41%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Average net returns of Triple A rated RMB MMFs)**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differential</td>
<td>2.81%</td>
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<td></td>
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<td></td>
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<tr>
<td>(in bps, on tax adjusted basis)</td>
<td></td>
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</tr>
</tbody>
</table>


*Currently Banks in China are not allowed to offer 1 month deposit and 9 month deposit.

**Three Triple A rated RMB MMFs are used to calculate the average net returns of RMB MMFs.
Implementing effective investment management

Reports
Treasury must pay close attention to the regular cash flow forecasts. This is important not only in developing the investment strategy, but also to allow treasury to plan the realisation of current investments to meet unexpected cash demands. The treasurer (or finance director in a smaller organisation) should receive a daily deal report, providing details of all the transactions performed on a particular day. Treasury should also receive regular reports on the performance of their current investment portfolio. These should cover:

- The value of, and return generated by, each investment
- A clear summary of maturing investments (both to ensure adequate cash flow and to manage reinvestment); and
- A counterparty report detailing the exposure to particular counterparties

These reports should be prepared in a timely fashion, to allow the treasury sufficient time to act if necessary.

Case Study A US MNC with European treasury centre
This US-headquartered multinational chemical company manages its international (non-US) cash management activities from its Swiss treasury centre. Its core structure is a USD-denominated cash pool, which has an average balance of USD 5 billion.

Historically, the company favoured its core bank relationships when placing this short-term cash. The treasury centre would tranche the cash, with most then placed on deposit with the core banks for terms from overnight up to 90 days. The remainder was invested in money market funds.

More recently, the company took the decision to invest a higher proportion of its cash in money market funds. On an operational basis, they have found money market funds easy to use, and this allows the company to manage its short-term cash through a team of only three Swiss-based dealers. The funds’ transparency, including the selection of plain vanilla instruments, has made it easy for the company to track its own exposures.

From a risk management perspective, the company is reassured by the size of the major AAA rated money market fund portfolios and the fact that the funds are ring-fenced from any sponsoring institution. The company’s policy is to limit its participation in any fund to 5% of that fund’s assets under management. Via a strict due diligence process, the company also made sure it understood each fund’s approach to investment. The company did not want to ‘chase yield’; instead, it selected funds with investment policies which reflect its core objectives of maintaining liquidity and security of principal.

This approach has allowed the company to generate significant cost savings, while also diversifying its investment portfolio. These factors more than compensate for any relative loss of yield which might have occurred.
Implementing effective investment management

However, the challenge for the treasurer is how to respond if a current counterparty is placed on credit watch or its rating is downgraded, especially if this action would lead to it being taken off the company’s counterparty list or suffering a reduction in the relevant counterparty limit.

If a counterparty is placed on credit watch or faces a rating downgrade, appropriate revisions to counterparty limits should be immediately applied. Action should be taken to reduce an exposure if a new limit results in breach. Depending on the remaining life of an investment, its size and the deemed risk, companies may decide to run any existing deposits through to their maturity. Equally, they may be forced to do this if the investment is not tradable or immediately liquid. The company’s investment policy should already have set parameters for dealing with the circumstance of a downgrade and consequential breach of limits.

No new investments should be placed with this counterparty before additional credit checks are made. This should continue at least until the credit rating is affirmed or changed. As well as following the rating agencies’ decisions, treasury teams should also analyse outlook reports and other documents to identify relevant trends. These should always be taken into account when reviewing the company’s counterparty list. It is important that treasurers should not rely only on changes in published credit ratings when reviewing their counterparty lists.

If, on the other hand, a counterparty fails (as in the case of the Icelandic banks in September 2008, see page 58), the position for an institutional investor is more complex. In some countries, certain deposits made by institutional investors are covered by deposit insurance schemes, although in most cases these are restricted to retail investors. (Even if these deposits are not restricted to retail investors, the thresholds are generally low, and so are largely irrelevant for an institutional investor. One of the major exceptions is the USA. There are a number of different schemes which give institutional investors access to deposit insurance by dividing large investments among enough banks to keep the amount placed with each bank below the FDIC threshold. Investors can use money market demand accounts (via, for example, Federally Insured Cash Accounts – FiCA) or certificates of deposit (via, for example, the Certificate of Deposit Account Registry Service – CDARS) to access FDIC insurance.) In some cases, a number of governments have taken action to support their banks by guaranteeing certain liabilities. If investments in a failed counterparty are covered by a deposit insurance scheme, the treasurer should apply to the scheme for compensation. If not, the treasurer should apply to the failed counterparty’s administrators, who will treat the claim in accordance with the regulations in the relevant jurisdiction. Even if the company is successful in reclaiming some or all of its invested capital, no interest (on deposits) will have been earned from the date of failure. In addition, any repayment of principal may be made much later than the maturity date of the held investment. The treasurer will need to ensure sufficient cash is available to replace the funds held with the failed counterparty.

Custody arrangements

For some money market instruments, including government bills and commercial paper, companies will need to appoint a custodian bank to hold their investments. Increasingly, instruments are being issued in a dematerialised form (as electronic documents), so investors need to ensure prospective custodians are committed to the business. A number of players have withdrawn from this market over recent years as the investment required to develop and maintain the appropriate level of technology (to perform delivery against payment, for example) has been, and continues to be, significant.

In some cases such as repurchase agreements and secured deposits, companies take collateral when making investments, as a way to minimise counterparty risk. In these circumstances, the company will have to hold the collateral (often a government or high-quality corporate instrument) securely and separately. While holding the collateral, the company may need to make arrangements to pay any accrued interest on the collateral instrument to the other party. Also, if the collateral is held with a third party custodian (via a tripartite agreement), the investor will be required to place cash with the custodian to compensate for any appreciation of the collateral asset during the agreement. The custodian will revalue the collateral and, if necessary, call for additional cash daily, which may place an additional cash forecasting requirement on the investor.

Dematerialised money market instruments are held in accounts with organisations, called securities depositories, such as Clearstream and Euroclear in Europe, or the Depositary Trust Company (DTC) in the USA. These accounts are held by agents, called custodians, who hold the instruments in their clients’ names. When an investor purchases an instrument, its ownership is recognised by a book entry across the account of the investor’s custodian at the securities depository. Delivery of the instrument is against payment and, again, is processed through the depository. When realising the investment, the settlement process works in reverse, with the investor receiving payment on delivery of the instrument (also as a book entry at the depository).

For many corporate and institutional treasurers, the need to establish custodial arrangements as well as dealing capabilities for each instrument type (let alone the resourcing of investment research and analysis) has led such treasurers to utilise money market funds as an ‘outsourced’ alternative.

Changes in counterparty creditworthiness

Even when treasurers devote significant resource to assessing the strength of their counterparties, these assessments can change once the company has invested in a particular instrument issued by an approved counterparty. The longer the term of the investment, the greater the chances of this happening become.
**Investment appraisal**

All investment decisions should be subject to a regular appraisal process. Performing an appropriate appraisal process which does not alter behaviour in an adverse way is not easy.

For example, of the three core objectives when investing operating cash, treasury will usually want to prioritise security and liquidity. However, yield is easiest to measure. The appraisal process should avoid concentrating on yield, as it may result in dealers selecting a higher yielding but less liquid instrument, when making an investment.

Any appraisal process needs to do the following things:

- **Check compliance**
  At the very least, all investments should be subject to an audit which ensures all investment policies and procedures are complied with.

- **Assess forecasts and models**
  The appraisal process will give treasury the opportunity to assess the use of any forecasts and models. Although the cash flow forecasting model may be assessed separately, the investment process should be incorporated in this assessment to identify any weakness. Also, if the company uses a value at risk (VaR) model, its predictions can be assessed after the event and the model improved. It is important to recognise that any model or forecast, including VaR, is only as good as the assumptions made and the historic data used when building it. Some models, including VaR, generate an expected loss over a given period that has a probability of occurring on, typically, 5% or 1% of occasions. If the model generates a VaR at a level beyond the company’s limits, the treasurer will need to consider taking action to minimise the potential risk of loss.

- **Improve performance**
  Finally, appraisal should seek to improve investment performance. As discussed, in this context yield may not be the most appropriate indicator. Instead, the appraisal process should concentrate on security (was there any loss of principal in any investment over the appraisal period?) and liquidity (was there any point when the company had net cash, but was borrowing from the external market?). Should either case be answered in the positive, the appraisal process should seek to identify why this was.

Any performance measurement should use appropriate benchmarks. For example, it is possible to measure the efficiency of the dealing process. Did treasury manage to obtain the best investment rate? This can be assessed with reference to published market rates. (Understanding the appropriate market rate to use is also important. There is information about the calculations of the different LIBOR rates on page 215.) Was the transaction completed in a timely fashion? This can be assessed by tracking the time between the identification of the cash surplus and the completion of the transaction. Security can be measured by reference to counterparty limits, for example. Liquidity can be assessed simply by establishing whether any short-term external borrowing was required whilst the company or group had a cash surplus. Operational control can be assessed by looking at timeliness of confirmation matching, and dealing with any discrepancies.

However, there is a risk that reliance on too few, or inappropriate, benchmarks will distort treasury activity. For example, it may not be best if some transactions are completed in a timely fashion. Some large transactions will require planning to ensure they are appropriate. Assessing security with respect to counterparty limits does not suggest whether the counterparty limits themselves are appropriate.

To be effective, the appraisal process must recognise these limits.

**Accounting**

The final stage in the process is to account for all the transactions. There are two aspects to this: recording the data and preparing reports, be they for internal management or external accounts for tax and other regulatory reasons.

Most treasury management systems will be able to generate accounting entries automatically, minimising the back office work required in the treasury team. This can be more complicated when a variety of systems are used within the company, as the treasurer will need to ensure appropriate interfaces are developed and work effectively.

For external accounts, the first requirement for the treasurer in a company which reports to International Financing Reporting Standards is to have a clear set of accounting policies. (The requirements for entities reporting to different accounting standards will vary, but all demand the use of accounting policies.) These will set out the basis under which accounts are published, and state how the use of financial instruments are presented, measured and disclosed and how the company’s exposure to credit, liquidity and market risk are disclosed. They will also state whether investments are recorded on the trade date or the settlement date.

Under the terms of IAS 39, short-term investments are usually classified as ‘financial assets at fair value through profit or loss, held for trading’. This means the investments are recognised on the company’s balance sheet at fair value. (IAS 39 will be replaced by IFRS 9. This was originally due to take place by January 2015, but the IASB has determined that this date does not give entities sufficient time to prepare. A new date for mandatory adoption will be set when the IFRS 9 project is close to completion.) One task for the treasurer is to establish whether the short-term investments made are considered as ‘cash equivalent’ under the terms of IAS 7. Most short-term investments (with a maturity of less than three months), including European (IMMFA, or French OPCVM de trésorerie) and US (2a-7) money market funds, are considered cash equivalent, although companies should check with their external auditors before preparing their accounts. For cash equivalent instruments, the original cost is considered to be the same as at fair value, because they are, by definition, liquid.

Treasurers will also need to ensure that any instruments held to hedge the value of a short-term investment (perhaps to ensure the principal of the investment retains its foreign currency value) are accounted for appropriately under IAS 39 or, in due course, IFRS 9.

Advice should always be sought when preparing accounts.
Chapter 6
Understanding the impact of regulation on different markets

Introduction
Regulation can be an important factor in determining how a treasury can manage its short-term investment activity. Relevant regulations change, and treasurers need to keep up to date with them.

Regulation is typically applied at national level. This is also true in the European Union (EU), where directives have to be incorporated into national law. (In some cases, EU directives are incorporated unchanged into national law and dependent regulations; in others, directives allow local regulation, resulting in differences between countries in the application of a supposedly pan-EU directive. EU Regulations on the other hand become law in member states without the need for local legislation.)

Regulation relevant to short-term investment applies in three main areas:

- It can impose requirements on the decisions the investor is permitted to take. For example, banks and some other financial institutions have to be mindful of capital adequacy requirements (see section on Basel III below). Public authorities usually need to comply with rules or legislation limiting the range of approved counterparties and investment instruments.

- It can set criteria which help investors to understand the nature of a particular investment instrument. For example, in the USA commercial paper has a maximum maturity of 270 days, because longer-dated paper has to meet SEC registration requirements. Also in the USA, to be considered a money market fund, fund managers have to meet criteria set out in the 2a-7 rules.

- It can determine who is entitled to invest in particular instruments. For example, most European-based money market funds are not registered under the 1933 Securities Act or the 1940 Investment Company Act in the USA. As a result, they cannot be publicly marketed within the USA.

Regulation is also applied according to the nature of the investor. Companies, financial institutions, banks and public authorities are all considered ‘institutional investors’; however, banks are typically subject to different regulations than other private companies, and public authorities have their own regulations too.

There is insufficient room to discuss the differences in regulation which apply for all types of institution in all countries. Instead, in this chapter, we discuss:

- The impact of Basel III upon short-term investment decisions
- Developments in money market fund regulation in both Europe and the USA
- The potential eurozone financial transactions tax; and
- The possible ring-fencing of banks

In these four cases, the intention is only to draw out the main points. Treasurers should always take professional advice and seek regulatory approval, if appropriate, before finalising investment policy. Treasurers must do their due diligence on any investment. It is very important not to assume that what holds true in one jurisdiction (and can be relied on there) is applicable in any other jurisdiction.

Basel III
This is a brief explanation of Basel III and how it affects the short-term investment offerings from banks and other financial institutions which are required to maintain certain levels of capital and liquidity.

The purpose of the three Basel Capital Accords is to outline prudential capital adequacy requirements for banks. The original accord was adopted in 1998, with the second accord agreed in 2004. The EU implemented the second accord through the Capital Requirements Directive, which required lenders to comply by the beginning of 2008. The Bank for International Settlements (BIS – located in Basel) has developed a third capital accord, which aims to strengthen the resilience of the banking sector and improve the framework for measuring and monitoring liquidity risk. Basel III is being implemented in the EU via the Capital Requirements Directive and the Capital Requirements Regulation (the package being known as ‘CRD IV’). The legislation entered into force in July 2013 and implementation started on 1 January 2014.

With the aim of improving the stability of the financial system, and to ensure that banks have sufficient capital to absorb potential losses, there will be changes to the level and type of capital that banks will be required to hold. The minimum (definition-amended) Tier One capital holding against risk-weighted assets is rising from 2% to 7% starting in 2013. (Tier One including non-core Tier One moves from 4% to 8.5%) Banks will thus be required to hold significantly more capital against loans, securities portfolios and, especially, derivatives contracts. This includes a ‘Capital Conservation Buffer’ from 2016, which will rise to 2.5% of risk-weighted assets by 1 January 2019 and which can be depleted in times of stress, subject to certain additional restrictions. Yet more capital can be required as a counter-cyclical measure, or for systemically significant banks. In addition, by 2018, banks will have to comply with a non-risk-weighted leverage ratio of 3%.
From an investment perspective, the entirely new requirements on bank holdings of liquidity will have a more immediate and significant effect. From 2015, the liquidity coverage ratio will require banks to hold sufficient liquid assets so that they could meet all the cash flow demands on them during a period of stress in the markets lasting 30 days. This stress scenario assumes that the bank is unable to raise any new funding and that existing deposits are withdrawn at certain rates, while at the same time the demand for funds by borrowers from the bank is accelerated. Longer-term positions will be subject to a new net stable funding ratio from 2018.

**Potential implications for corporate investors**

Under Basel III, there are a number of changes which will have an impact on most treasurers investing corporate cash. These are primarily the result of the effect of changes to the capital ratios and of the new liquidity coverage ratio.

**Increased cost of borrowing**

Making banks hold more Tier One capital will result in a higher cost of borrowing, as the bank will have to set aside more capital for every loan it advances. This will have the effect of making it more advantageous to avoid simultaneously borrowing and investing, and will make it more cost effective to implement some form of liquidity management structure.

However, Basel III may also affect the economics of such structures if banks are required to set aside more assets to cover any notionally pooled cash. This would make notional pooling less attractive than is currently the case, especially on a cross-border basis. In these circumstances, any treasurer employing a liquidity management structure would need to assess whether an existing notional cash pools should be replaced by a physical cash pool (effectively weighing the cost of the reduced return on a notional pool, with the increased costs of physical cash movements).

**Banks’ appetite for deposits will change**

From the investor’s perspective, Basel III introduces a new characterisation of short-term (below 30 days) corporate deposits: they will either be considered operational or non-operational.

- Operational deposits are viewed as working capital cash required for daily operations and should include balances held for transactional purposes. These are viewed by regulators as ‘stickier’ than non-operational deposits, as cash is more likely to remain with or be recycled through cash management banks.
- Non-operational deposits are considered as those for which the cash is not immediately required by the investor. Regulators consider that corporate treasurers are more likely to place these deposits with a wider range of institutions, whether to manage counterparty risk or simply to obtain a better yield. In the event of a credit scare, these deposits are more likely to be ‘hot money’ and be hastily withdrawn.

Banks will have to hold liquid assets against just 25% of operational deposits but 40% of non-operational deposits. Banks may respond by offering lower returns on non-operational deposits with a maturity below 30 days. Instead, banks may offer encouragement to depositors to invest for longer than 30 days to avoid any asset-holding requirements under the liquidity coverage ratio. This is likely to have the effect of reinforcing any segmentation of cash, as described in Chapter 3. Investors may also start to see stepped returns at these key points, with a further step for deposits made for longer than a year (as the net stable funding ratio starts to be applied). To assist in their management of liquidity, some banks are introducing innovative structured deposits with 30 or 93 day evergreen maturities.

Banks will need to be able to articulate clearly how they assess whether or not deposits are ‘operational’ to their regulator, and to satisfy the regulator that any distinctions are clearly followed. This may impose additional reporting requirements on investors.

On the asset side of a bank’s balance sheet, they will need to categorise assets as ‘liquid’ or ‘illiquid’. Banks will have to hold significant amounts of liquid assets (government paper or securities issued by highly rated companies), which will create an additional demand for this type of asset. If assets are categorised by quality as well as instrument type, a downgrade in a particular asset could have a significant impact on the liquidity of that instrument (as banks seek to replace the downgraded asset for liquidity purposes).

This categorisation will also have an impact on the relative pricing of longer-term investments. Banks will look to fund themselves on a longer time frame, rather than relying so much on the wholesale markets. Banks’ demand for this financing will increase interest rates for those instruments that exceed the 30-day threshold. In the UK, the Financial Conduct Authority has already introduced a mandatory liquidity rule. This has a 93-day stressed period, so that banks have become keener to take deposits for 93 days or more (or with a 93-day notice period). Banks are similarly expected to reduce the amount of short-term debt they issue, reducing the availability of this debt for short-term investors, including money market funds. These two effects will result in a steeper yield curve, with shorter-dated bank-issued paper offering a lower return. Indeed, the future existence of any interbank market for less than 30 days will become less certain.

The 3% leverage ratio will be introducing a further constraint on bank appetite to take deposits. Any deposits have the effect of grossing up a bank’s balance sheet and therefore increasing leverage. This means that some institutions will find taking deposits, or even simply holding large balances on operational or current accounts, unattractive. This may result in negative interest rates or charges for excessive cash balances.

Although some of these changes will take time to implement, banks are already starting to change their behaviour in response to the proposals.
Money market fund reform

In the immediate aftermath of the collapse of Lehman Brothers in 2008, and the consequent ‘breaking of the buck’ by the Reserve Fund in the USA, regulators in both the EU and the USA introduced tighter regulations for money market funds. European money market funds were covered by UCITS Directive 2009/65/EC and, for IMMFA member funds, amendments to the IMMFA code of practice. In 2010, the US SEC introduced revisions to rule 2a-7, which covers money market funds to improve the liquidity and credit quality of these funds.

However, regulators on both sides of the Atlantic remain concerned that money market funds (as part of the so-called shadow banking system) continue to represent a potential threat to the stability of the wider financial system. The concern derives from the fact that money market funds represent an important source of short-term funding for banks, especially in the USA, and thus that any run on a money market fund could have potentially serious consequences for banking sector liquidity. Although industry groups, including the Institutional Money Market Funds Association (IMMFA) and the Investment Company Institute (ICI), have been robustly defending the role of money market funds and questioning some of the bases of regulatory concern, regulators continue to press ahead, albeit slowly, with actions they believe will reduce the threat of any run on a money market fund affecting the wider economy. There is a significant degree of common ground between the US and EU regulators. However, we will address each one in turn.

Europe

In the EU, the European Commission has been working on tighter regulation than the changes introduced in 2010. The Commission published its proposals for a new Regulation in September 2013. These include:

- Restrictions on MMF eligible investments. The first change is likely to tighten the rules covering the nature of instruments in which MMFs are permitted to invest. The proposed regulation lists four categories of permitted investment instrument. It restricts or excludes some others, notably asset-backed commercial paper and repos where the security given is longer-term
- A prohibition on funds soliciting a credit rating
- Funds will have to hold 10% of assets maturing overnight and a further 20% in assets maturing within a week (which reflects the SEC’s 2010 changes to 2a-7 rules)
- Additional requirements for CNAV funds. Although the proposals do not prohibit CNAV funds, they do place some significant additional restrictions on any CNAV fund. These may make them uneconomic for fund managers to continue to operate, especially during periods of low interest rates. All money market funds, including CNAV funds, will be required to value their funds daily (either mark-to-market or mark-to-model). More worrying for EU-based money market funds are rules which would require CNAV funds to hold a cash buffer of 3% of assets under management in a separate account. It is this proposal to hold a cash buffer which represents the biggest threat to CNAV funds, as it will effectively require investors to pay to use the fund
- Restrictions on external sponsor support. Money market fund sponsors will not be permitted to provide direct support to money market funds. Sponsors of CNAV funds will be permitted to provide support, but only via the cash buffer. (These rules can be relaxed during periods of market uncertainty)

Although the proposals are not yet finalised, and may not become legally enforced until after the 2014 European Parliament elections, there has been some significant discussion between the European Commission, regulators and industry bodies, and a growing expectation that variable net asset value funds will become more prevalent.

USA

After the publication of the President’s Working Group report in 2010, the SEC held discussions on all the recommendations. It decided to conduct more research into how a run on a money market fund would transmit into the wider economy, and whether it would pose a threat to financial stability. It also sought views on four areas of potential regulation: the prohibition of CNAV money market funds, the regulation of money market funds as special purpose banks, the introduction of a mandatory reserve or capital requirements, and the introduction of liquidity fees.

The Financial Stability Oversight Council (FSOC) was established by the Dodd-Frank Act to assess possible threats to financial stability. Although it has no regulatory powers per se, it does have the authority to suggest reforms to the SEC, which is then required to either implement legislation or explain why it chooses not to do so.

In June 2013, the SEC issued its latest proposals for money market reform in the USA. These were presented as two alternatives, although the SEC has also floated the idea that both proposals could be combined.

Alternative One: Permit fluctuating (or variable) NAV only

Under this proposal, prime money market funds would only be permitted to operate on a floating net asset value only. No amortised cost valuations would be allowed, and price fluctuations would be shown daily (rounded to four decimal places). Only government (those investing primarily in government instruments) and retail (those with maximum daily redemptions of USD 1 million) money market funds would be exempt from this requirement.

Alternative Two: The use of liquidity fees and redemption gates

Under this proposal, money market funds will usually be required to impose a 2% liquidity fee on all redemptions, if the weekly liquid asset ratio falls below 15% of the total assets. (The 2010 reforms require funds to maintain 30% of total assets in weekly liquid assets.) In addition, funds will also be able to temporarily prevent redemptions (impose a redemption gate) for a maximum 30 days in any 90-day period. The fund management will need to disclose such a decision. Disclosure will also be required if the management decides against imposing either a liquidity fee or a redemption gate in these circumstances.

As well as these alternatives, the SEC is proposing a series of enhanced disclosure, reporting and diversification requirements and improved stress-testing. These are likely to be adopted on top of one or both of the alternatives outlined above.
**Implications for corporate treasurers**

The implications for corporate treasurers are significant. Without CNAV, the accounting requirements for any variable or fluctuating NAV money market fund holdings will become more onerous (although not insurmountable).

However, the unintended consequences of regulations requiring more assets held in fewer, but more liquid, instruments may have much more serious implications for the economic rationale for investing in money market funds. (For more, see page 173.)

**Other potential reforms**

Three other possible reforms have the potential to significantly affect the short-term investment of corporate cash: the proposed European financial transactions tax, regulation of bank activities to separate retail and non-retail activities, and the new recovery and resolution procedures for banks and the concept of bail-in.

**European Financial Transactions Tax**

The proposed eurozone financial transactions tax (FTT) has the potential to affect corporate short-term investment decisions. As currently designed, the tax will apply to shares, bonds and derivatives transactions. Although there is theoretically an exemption for non-financial corporations (when hedging foreign exchange positions, for example), the tax will affect money market fund investments, repurchase agreements and any collateral movements, when at least one participant is a financial institution and if either leg of the transaction is based in one of the countries supporting the tax.

At present, 11 countries support the FTT: Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia and Spain. The UK has launched a legal challenge to the proposed tax, which it argues would adversely affect the UK’s financial services industry. The UK is supported in this legal action by Luxembourg.

Because of the way it is proposed to be implemented, corporate treasurers are likely to be indirectly affected by the financial transaction tax. It will increase the cost of financial transactions for banks (as they seek to manage the risk on their own books), which will be passed on to investors. It will also have the effect of further reducing returns from money market and other mutual investment funds. Certain central treasury operations risk being treated as financial institutions and directly subject to the tax, with the tax also applying to intra-group transactions with the centre.

**Ring-fencing of bank activities**

Another area which has significant scope to affect short-term investing decisions is the potential ring-fencing or legal separation of banks into retail and non-retail activities. Proposals come in a variety of forms, including: the UK Independent Commission on Banking (Vickers), which recommended ring-fencing, later enacted in the Banking Reform Act 2013; the Liikanen proposals for the EU, subsequently adapted into draft legislation from the European Commission in January 2014; suggestions that the USA reinstate the Glass-Steagall Act (which required a split between commercial and investment banks) and rules (Volcker rules) separating proprietary trading from other activities of banks.

There is no clear regulatory path at present. However, any movement towards ring-fencing or separation will alter bank deposits and other bank-issued instruments as investment propositions. In particular, the credit standing of the two sides of a ring-fenced bank could be very different by virtue of the different sorts of business they undertake, the different levels of implicit or explicit government backstop support available, and the degree to which wholesale deposits are subordinated to other creditors or even subject to bail-in risk.

**Recovery and resolution procedures**

The European Union is working through the legislative process to introduce the Recovery and Resolution Directive. This will require banks and regulators to have plans in place to enable action to be taken to forestall a bank failure. In the event that a bank failure is unavoidable, processes should be in place to enable an orderly winding down and to provide protection for preferred classes of creditors and payment systems.

The concept of bail-in is of particular significance for investors. If a bail-in is invoked, certain creditors of the failing bank would be forced to take a write-down in the value of their investments. This write-down represents an increase in capital for the bank, and would help the restructuring and rescue of the bank. A new category of funding for banks is envisaged which would include contractual bail-in rights for the bank.

More contentiously, regulators may have the power to impose bail-in on other classes of lender to the banks, including wholesale depositors. As retail depositors are unlikely to be bailed-in, wholesale depositors would be disproportionately more at risk in a bank with a large retail deposit base. In these circumstances, institutional investors, including corporate investors, will need to understand the funding structure of a bank, as their place in the hierarchy of claims will become more critical.
Implement

Chapter 7
Summary

This is a short checklist of decisions which need to be taken in any investment process. It focuses on short-term investments, but could be applied to longer-term decisions as well.

Identifying the funds
The first task is to identify the funds available for investment, or which need to be managed.

Forecasting cash flows accurately
- How does treasury receive information about the present and future contents of bank accounts? Is it available in a consistent format?
- Is information available in advance, e.g. through a cash flow forecast? Can it be consolidated through the use of a treasury management, or similar, system?
- Does treasury have access to real-time information about the content of bank accounts?
- How accurate is this information?

Managing cash flows effectively
- Does the company operate one or more centralised cash management structures?
  If so, where is cash concentrated to, and how frequently?
- Are the accounting and tax implications of the structures fully understood? How frequently are these implications reviewed?
- Are there any operating units or bank accounts which remain outside any centralised cash management structure? If so, where are they and who is responsible for managing their treasury activities?

Segmenting cash flows intelligently
Once this information is collected, any surpluses have to be classified.
- Where are the surplus funds?
- In which currency (or currencies) is (are) the funds denominated?
- How much is available to be invested?
- For how long are the funds available to be invested (or have to be managed)?
- Can the funds be classified as operating cash or strategic cash?

Establishing an appropriate investment policy
Treasury then needs to establish an investment policy, setting clear overall objectives for short-term investment and detailing how treasury will seek to manage the risks which arise.

Investment objectives
For each cash surplus, treasury also needs to identify the investment objectives:

Security
- How much risk to principal can the company assume?

Liquidity
- How accessible must the invested funds be?

Yield
- Can the company afford to compromise the objectives of security or liquidity in order to earn a higher return?

Selecting the instrument
Once the objectives have been identified, treasury will need to identify the most appropriate instrument(s) and market.

Constraints on investment
- Are there any constraints which prevent treasury investing in particular instruments?

Internal
- What limits are set by the treasury and investment policies?
- Are there restrictions in terms of which instruments can be used?

External
- Are there any regulatory restrictions on investment?
- What are the tax implications of particular investments?
- Are there any practical restrictions (cut-off times, transmission issues) preventing access to particular markets?

Selecting the counterparty
- Does the counterparty fit within the group policy?
- What counterparty limits are in place?
- Will the transaction comply with existing counterparty limits, e.g. is there sufficient unused headroom within the limit?
- Does treasury have an appropriate dealing mandate or other contract in place with potential counterparties?
- Has the appropriate credit rating been used to assess counterparty credit risk, and has it been checked recently for any changes or alerts?
Implementing effective investment management

Who takes the decision?

- How is the segregation of duties applied?
- What individual authorities are applied within the treasury?
- Does central treasury have the authority to direct or require local operating companies to behave in a particular way?
- Has an automated investment strategy (e.g. a sweep to a money market fund) been adopted?

Appropriate instruments

Given these restrictions, treasury may have to choose between different potentially suitable instruments:

Characteristics

- Does the instrument match the investment objectives, without exposing the company to unacceptable risks?
- Is the instrument available in the desired market? If so, is the market sufficiently liquid?
- How would an investment in such an instrument affect the investment portfolio as a whole?

Transaction

- Have the dealing procedures been followed?
- Were sufficient alternative quotes sought?
- Has an appropriate record been kept of the transaction?
- Has the transaction been confirmed?
- Are there sufficient authorised personnel in the office to effect the necessary funds transfers?

Post-transaction

- Has the transaction been reconciled properly?
- Is the investment instrument sufficiently safeguarded? Is a custodian required?
- How is the value of the investment measured?
- Will the investment need to be realised early?

Appraisal

- How is the investment decision appraised?
- Was the initial identification of funds accurate? If not, why not, and can anything be done to improve the process?
- Were the objectives appropriate at the time of determination and in hindsight? If not, why not?
- Did the chosen investment instrument match the investment objectives? If not, why not, and should that lead to a reassessment of the appropriate use of that instrument?
- Was the dealing process conducted in accordance with established procedures? Were any weaknesses in the procedures identified and, if so, what action can be (or has been) taken?
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Interest-bearing current accounts

Core characteristics

Key features
Interest-bearing current accounts are the simplest form of short-term investment instrument. Banks will pay interest on surplus balances in designated current accounts.

Availability
Interest-bearing current accounts are available in many countries. Current accounts are available in local currency and, depending on location, in many international currencies as well.

In other locations, interest is not commonly offered on current account surpluses. In these jurisdictions, companies may be able to negotiate for the current account to be interest-bearing, or establish some sort of sweep arrangement into an interest-bearing account. Whether the bank agrees will depend on the nature of the bank relationship.

In a small number of jurisdictions, the payment of interest on current accounts is prohibited.

Nature of the return
To qualify for interest payments, the company may need to maintain a minimum balance. The precise terms and conditions can vary:

- **Daily balance.** This minimum balance may be calculated on a daily basis. In this case, interest is accrued daily only if the account is in credit or the balance is above a threshold level.

- **Average balance.** Alternatively the minimum balance is calculated as an average over a predetermined period. In these circumstances, treasury will need to understand how interest accrues.

Treasury will need to identify how interest is calculated and to select terms and conditions which match the company’s likely account balance profile. Interest is usually paid in fixed intervals, typically monthly, quarterly or annually.

The rates of interest are low relative to many alternative investments. The offered rate may increase as the balance on the account increases.

Banks may levy a monthly or annual management fee.
Accessibility
Investors access their current accounts through their banks. These accounts are typically accounts used for payments and collections, and their balances will fluctuate daily. Investors will need to comply with account-opening procedures. These vary in complexity, both between countries and between banks.

Main variants
As well as standalone current accounts, many banks offer a range of cash concentration and cash pooling structures. These can be single or multi-currency structures and be domestic or cross-border arrangements.
- **Cash concentration.** In some cases, balances from a number of linked accounts are concentrated to one or more header or master accounts. These header or master accounts may be interest-bearing accounts, although usually the surplus balance is then invested in higher yielding instruments, such as money market funds.
- **Cash pooling.** In other cases, linked accounts are notionally pooled to a master account. Interest may be offered on any surplus on this account, although again the surplus may be invested elsewhere.

Benefits

Ease of use
One of the key benefits of investing in interest-bearing current accounts is their ease of use. Because cash will flow into these accounts as a result of all cash management activity, there will be no need for additional work by treasury to identify the best location for the surplus cash. Treasury’s key task will be to ensure that the correct amount of interest is credited by the bank. This can be achieved by keeping accurate records, perhaps as part of a treasury management system.

Liquidity
Secondly, because cash remains in current accounts, there is no loss of liquidity. This cash continues to be available to meet short-term obligations, whilst simultaneously earning a return while invested.

Local investment opportunities
Although interest-bearing current accounts are prohibited in a few jurisdictions, they do offer companies the opportunity to generate a return in most locations on even small amounts of surplus cash.
For groups of companies operating in a number of locations, such accounts allow subsidiaries to earn a return without having to participate in a group-wide cash management structure. As a result, these subsidiaries avoid the need to comply with sometimes complex local regulations.
Where a local subsidiary does participate in a group-wide cash management structure, an interest-bearing current account allows the entity to generate a return on any funds which remain locally.

Potential problems

Low return
The main disadvantage of investing in interest-bearing current accounts is that the return is usually relatively very low. Treasury will need to decide how important even a moderate return is on any investment. In those locations where there are limited short-term investment opportunities, treasury may consider alternative investment instruments to represent too great a risk.
In periods of low market rates and heightened concerns over credit risk, highly rated banks will not want large current account balances. In such circumstances, they may even offer a negative rate of interest or apply a holding charge on large balances (which will have the same effect).

Counterparty risk
Treasury will need to be wary of counterparty risk when leaving cash in interest-bearing current accounts. Where the company uses a small number of cash management banks, it is likely that any cash in current accounts will remain with those banks. It is important when seeking to manage counterparty risk to include any cash remaining in current accounts.

Inefficiencies
Because security and liquidity are often the main objectives when investing short-term cash, treasury can be satisfied with the small return generated when cash is deposited in interest-bearing current accounts. Reviewing cash management structures and treasury organisation could provide access to higher-yielding alternative instruments.

Assessment
As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
Current account surpluses are relatively secure investments. The level of security will vary from bank to bank. Published credit ratings provide a good indication of the relative counterparty risk. It is important to recognise that different entities within the same bank group may have different credit ratings. The level of bank supervision is also an important determinant of counterparty risk.

Liquidity
Current account surpluses are highly liquid. In most cases, there will be no restrictions on access to funds. In a few cases, the terms and conditions of operating the current account may require a minimum credit balance to be maintained.

Yield
Relative to other instruments, bank current accounts offer very low rates of return. In some jurisdictions, banks are prohibited from paying interest on current account balances.
Key uses
Current accounts are most useful in the following circumstances:

- For the investment of small surplus balances, especially when current accounts are interest-bearing.
- For the investment of small surplus balances denominated in different currencies, to avoid foreign exchange transaction costs.
- If the accounts are part of a group liquidity management structure, whether physical concentration or notional pooling is used.
- For the investment of local surplus balances in the period between generation and repatriation to group treasury.
- When exchange controls require local subsidiaries to invest locally, and alternative short-term instruments expose the entities to unacceptable levels of risk.
- As a destination for overnight investment when cut-off times for high-yielding instruments have passed.
- As a tool to maintain short-term liquidity, especially where the cash flow forecast may be inaccurate.
- As part of the pattern of managing the duration of the group’s investment portfolio within acceptable limits.
- As a counterparty risk management tool.

Core characteristics

Key features
Sometimes referred to as sight deposits, a bank’s demand deposit account is a form of bank account which pays interest, but is not available to be used for cheques or other similar payments.

Availability
Apart from some locations where payment of interest on demand deposit accounts is prohibited, demand deposits are widely available. Subject to exchange control rules, deposit accounts are usually available in the local currency as well as major international currencies.

Nature of the return
Demand deposit accounts are interest-bearing, although investors may need to maintain a minimum balance to qualify. The rates of interest are low relative to many alternative investments. The offered rate may increase as the balance on the account increases. E-bank accounts usually pay a higher rate of interest.

Interest is usually paid in fixed intervals, typically quarterly or annually, although it may accrue daily.

Banks may levy a monthly or annual management fee.

Accessibility
Investors typically access demand deposit accounts through their banks. In some cases, any investment decision will be implemented manually. In many others, a company will arrange for surplus current account balances to be swept into a demand deposit account on a daily basis. Investors will need to comply with account-opening procedures. These vary in complexity, both between countries and between banks.

Main variants
The pure demand deposit allows the investor to have access to the funds at any time.

In addition, banks often provide a range of alternative deposit accounts to companies. There are two main variables:
Instruments

- Notice period. By agreeing to a notice period, the investor will be compensated by receiving a higher rate of interest on the deposited funds. The investor sacrifices some liquidity for a greater yield. This will suit subsidiaries which only submit funds to group treasury or make payments on a regular weekly or monthly basis.

- Graduated rates. Some deposit accounts pay increasing rates of interest as the balance level increases.

Benefits

Ease of use

Moving funds to a demand deposit account is usually the easiest alternative to leaving surplus cash in a current account. Interest-bearing demand deposit accounts are available to companies in most jurisdictions. They usually offer a higher rate of interest than interest-bearing current accounts.

Where there are difficulties in repatriating funds, or the volume of surplus cash is uncertain or low, it is often easiest for the treasurer to arrange to transfer funds to a deposit account at a pre-determined time. Some higher-yielding instruments impose early cut-off times and often apply a minimum investment amount.

Availability

Demand deposits can be used to invest for short-term surplus funds in a variety of locations. They are widely available even in countries with relatively few alternative investments.

They are suitable for companies with subsidiaries in locations outside the scope of the main group-wide cash management structures.

Counterparty risk management

Because they are relatively accessible, demand deposits can be used as a means of managing counterparty risk. By depositing with a number of banks, treasury will be able to reduce exposure to counterparty risk.

In a group of companies, especially a group in which local subsidiaries retain responsibility for short-term investment decisions, care should be taken to ensure all counterparty limits are adhered to at all times.

Bank relationship management

Leaving funds on deposit with one of a group’s cash management banks, whether centrally or locally, may be one way to compensate those banks for the services they provide.

Potential problems

Low return

The key disadvantage to investing in bank demand deposits is that they usually offer a relatively low rate of return. As mentioned, this return can be enhanced if the investor accepts certain restrictions, notably that of a notice period before funds can be withdrawn.

Treasury needs to determine the company’s objective when making the investment. If the funds are deposited for a short period, perhaps to allow for compliance with exchange controls, the company may accept a relatively low return in exchange for the liquidity benefits.

Restrictions

Although bank demand deposits are one of the simplest forms of short-term investments, there may still be some restrictions. Sometimes, interest-bearing demand deposits may not be available to companies. Where they are, a number of other restrictions may apply:

Term

Companies should be aware of demand deposits where the bank specifies a minimum period of investment before interest can be paid. Although most demand deposit accounts pay interest on a quarterly or annual basis, some may only apply interest once funds have been deposited for a minimum period. These accounts would be unsuitable, for example, for the overnight deposit of short-term cash surpluses.

Minimum balance

Treasurers should also be aware of any minimum balance requirement before interest can be earned. In addition, some accounts apply interest rate thresholds, with the rate increasing with additional deposits. Treasurers will need to understand how these rules apply, especially if the minimum balance must be maintained for a period of time.

Tax

Treasurers also need to understand how tax rules, especially withholding tax, apply to any interest earned on these investments. When evaluating all types of investment, the treasurer should assess the return net of tax.

Inefficiencies

Although bank demand deposits may be a simple solution, especially where exchange controls exist, their use may mask operational inefficiencies within the treasury.

- Cash management. Treasurers should revisit the cash management structure on a regular basis. Regulations, especially exchange control rules, are continuously changing. Over time, it may become possible to concentrate sufficient cash to one or more locations to make it practical to access higher-yielding instruments, such as money market funds.

- Treasury management. In decentralised companies, local finance teams may be responsible for the investment of short-term cash surpluses. This may well be appropriate in some jurisdictions. However, from a group perspective, this may be inefficient, and the treasurer may consider ways in which the treasury structure and responsibilities could be changed.
Assessment
As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
Bank demand deposits are relatively secure investments. This level of security will differ from bank to bank. It is also important to recognise that different entities within the same bank group may have different credit ratings. Balances on deposit may be covered by the local country’s deposit protection scheme. The rules governing the eligibility of such schemes vary significantly between countries and may not apply to corporate deposits. A maximum level of coverage may also apply.

Liquidity
Bank demand deposits are highly liquid. This liquidity can be restricted if notice periods apply.

Yield
Bank demand deposits offer relatively low rates of return. Companies can often marginally increase these by depositing into accounts for which a notice period applies.

Key uses
Bank demand deposits are most useful in the following circumstances:
- For the investment of small surplus balances, especially when current accounts do not pay interest
- For the investment of local surplus balances in the period between generation and repatriation to group treasury
- When exchange controls require local subsidiaries to invest locally and the other available short-term instruments represent too high a risk
- When an unexpected cash surplus is generated, such that cut-off times for higher-yielding investments are missed
- As a tool to maintain short-term liquidity
- As a counterparty risk management tool
- As a means of rewarding cash management banks

Core characteristics

Key features
Bank time or term deposits require investors to deposit funds for a fixed period. Banks usually offer a range of investment periods, from overnight to over two years.

Availability
Bank time deposits are widely available in most jurisdictions. They are available in local currency and, depending on the local exchange control regulations, a range of foreign currencies as well.

Nature of the return
Most time deposits pay a fixed rate of interest, although variable rate deposits may be available. This is typically payable on maturity for shorter-dated instruments. Some longer-dated deposits, especially those with a maturity of over a year, may make interim interest payments. Investors will know the return when making the deposit.

Accessibility
Investors typically access time deposits through their banks or via brokers.

Main variants
Time deposits usually have a fixed maturity, with returns increasing as the term increases.

Some banks offer increasing rates of interest as the sum invested increases. Companies should take care to ensure counterparty limits are not breached.

Because longer-term deposits help banks manage their own liquidity, some banks offer higher rates on ‘evergreen’ deposits. These are time deposits which extend indefinitely, but have a notice period, typically of 30 or 90 days.

Benefits
Ease of use
The key benefit for the investor is that bank time deposits are widely available and are easily accessible via the company’s banks.

In those jurisdictions which prohibit the payment of interest on current and sight deposit accounts, bank time deposits are the most accessible interest-bearing instruments for most companies.
Instruments

Group-wide counterparty risk

Because of their availability, time deposits are used by groups of companies where operational and regulatory factors result in investment decisions being taken locally. In these circumstances, although central treasury may not have direct responsibility for each investment decision, they should take care that the group as a whole is not over-exposed to any counterparty banking group. This is more important for time deposits than sight deposits, as the cash is not immediately accessible.

Assessment

As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security

Bank time deposits are relatively secure investments. This level of security will differ from bank to bank. It is also important to recognise that different entities within the same bank group may have different credit ratings. Balances on deposit may be covered by the local country’s deposit protection scheme. The rules governing the eligibility of such schemes vary significantly between countries and may not apply to corporate deposits. A maximum level of coverage may also apply.

Liquidity

Bank time deposits are usually only accessible on maturity. For this reason, deposits for less than a week are popular when investing working capital cash.

Yield

The return on the deposit will increase as the bank’s control over the funds increases. For short-term deposits, rates can vary between banks.

Key uses

Bank time deposits are most useful in the following circumstances:

- When the investment period is known and the investor wants to hold the instrument to maturity
- To generate a fixed return (depending on the terms of the account)
- As a means of rewarding members of the core banking group
- As a counterparty risk management tool
- As part of a strategy of diversifying risk across a portfolio of investments
- Where a relatively secure investment instrument is required

Local markets

Bank time deposits do give investors access to relatively secure investment instruments in small local markets. This can be important if it is difficult to repatriate cash to central treasury. When investing locally in time deposits, treasury should consider country risk.

Counterparty risk

Because the time deposits are held with banks, counterparty risk is easier to manage. Banks have published credit ratings, although care should be taken to ensure the rating applies to the correct counterparty. In addition, banks are subject to a stricter supervisory regime than most other counterparties, although these regimes vary from country to country.

Bank relationship

As with all bank deposits, investing in time deposits allows treasury to reward their cash management banks. From this perspective, time deposits are of more value to the bank, because the cash is committed to the bank for the term of the deposit. The bank rewards the investor with slightly higher rates of interest than may be available on sight deposits.

Potential problems

Inaccessibility

The major problem with time deposits is the restriction on the withdrawal of funds before the maturity date. In most cases, cash is not accessible until the maturity date, although withdrawal may be possible on payment of a penalty fee. This can result in the company being forced to borrow funds to meet short-term obligations even though it has surplus cash.

Tax

As with all investments, investors should always be aware of the tax implications of any deposit.

Accounting

In order to be recorded as ‘cash or cash equivalents’ under international accounting rules, any deposit should have a short maturity. IAS 7, paragraph 7, states that a short maturity would be three months or less from acquisition. The limit is somewhat arbitrary and will be subject to some interpretation. The interpretation will also consider the purpose of holding the deposit: to be recorded as ‘cash or cash equivalents’, the deposit should be held to meet short-term cash needs, rather than as an investment.

Variable return

The return available on time deposits varies according to the credit rating of each bank as well as the term for which cash is deposited. Once dealt, the rates become fixed for the specified period. The rates being quoted for deals will also vary according to conditions in the interbank market and the balance sheet position of the bank itself. This means that rates can fluctuate and will vary between banks. For this reason, investors should seek quotes from a number of different banks before making a deposit.
Commercial paper

Core characteristics

Key features
Commercial paper is a short-term, unsecured promissory note. It is usually issued in bearer form, meaning it is a negotiable instrument. By issuing the paper, the issuer promises to pay the bearer the face value of the paper on a fixed maturity date. Originally commercial paper was issued in a physical form, although over recent years it has increasingly become dematerialised.

Availability
Commercial paper is widely available in most local markets and in various currencies. There are many multicurrency programmes available, which allow investors to access favoured issuers in their favoured currency denomination.

It is issued with a range of alternative maturities. Local securities’ legislation usually determines the maximum maturity. This is usually the point at which a security has to be registered with the local securities’ regulator.

There is also a small, but growing, market in extendable commercial paper. The investor has some limited options to extend the maturity of the paper owned, rather than allowing it to mature. There may be a small yield enhancement, as the issuer has longer use of the investor’s funds.

Nature of the return
In most cases, commercial paper is issued at a discount. On maturity, the issuer will then pay the paper’s face value to the holder. The rate of return is determined by the difference in the two values and the term of issue.

Some commercial paper is issued as an interest-bearing instrument, but this is relatively rare.

In general, good quality commercial paper will yield LIBID to LIBOR and more. It tends to offer a better return than bank deposits, which typically yield LIBID.

Accessibility
Investors buy commercial paper from dealers, usually banks. Commercial paper can be sold in one of two main ways:

- By the dealer to investors. Dealers may sell paper in the open market. In some cases, dealers will sell to a small group of investors without alerting the market as a whole. This is known as a private placement. There are different regulations in the US commercial paper (USCP) market covering paper issued by private placement.

- By reverse enquiry. Investors can also approach dealers to see whether an issuer is prepared to issue commercial paper. As a result, the investor may be able to purchase commercial paper issued in a currency (in the case of Euro CP) and with a maturity to match their investment needs.

Main variants
The prime variant of commercial paper is asset-backed commercial paper. Being asset-backed creates a number of characteristics to the investment, so asset-backed commercial paper is examined in the next section.

Aside from this, there are two main forms of commercial paper: domestic, of which USCP is the most significant, and Euro CP (effectively international commercial paper).

Domestic CP
There is some form of domestic commercial paper in most local markets. Domestically, the instrument may not be called commercial paper. For example, French commercial paper is usually known as billets de trésorerie. In all markets where commercial paper is issued, however it is known, the instrument is an unsecured promissory note, with a predetermined maturity date.

The use of credit ratings varies from country to country. In some markets, it is only the largest and most well known companies which issue commercial paper. In these markets, investors tend to purchase paper on the basis of the name of the issuer. In an increasing number of markets, a growing number of commercial paper issues are being publicly rated.

In most markets, both issuers and investors tend to be domestic residents.

USCP
The USCP market is the largest domestic market in the world. Commercial paper is an important form of working capital financing in the US domestic market, as overdrafts are not permitted.

The USCP market is different from most domestic commercial paper markets because almost all commercial paper has a published credit rating from one or more of the credit rating agencies. The agencies also rate the paper itself, rather than the issuing company. This means the paper can enjoy a higher credit rating than the issuing company, especially if the company has put some form of credit enhancement in place.

USCP can be issued with maturities from overnight up to a maximum of 270 days.

There is a significant presence of foreign investors in the USCP market.

Euro CP
The Euro CP market was established in the mid-1980s and is effectively an international commercial paper market.

Euro CP can be issued with maturities ranging from overnight up to one year. Like the USCP market, most issues are rated by one or more of the credit rating agencies.
Euro CP is primarily denominated in euros and US dollars. The GB pound is the most common of the other currencies of issue. In practice, many Euro CP programmes are multi-currency programmes. This means investors may be able to request that paper is issued in a currency to suit them.

Euro CP is international because it can be bought by investors in many countries. Technically it is issued in one legal jurisdiction, which is often Luxembourg. Its legal status will depend on the country of issue. An initiative by the European Commission has created a standardised form of paper across Europe, under the STEP (Short Term European Paper) banner.

**Benefits**

**Ability to match investment requirements**

Investors often have the ability to invest in commercial paper issued to a specific maturity. This means the investor can select the maturity either to match a particular cash flow or to realign the duration of the investment portfolio as a whole.

**Range of issuers**

Because commercial paper is widely available, investors have a broad range of alternative issuers to choose from when investing in this instrument. Both banks and non-banks issue commercial paper. Investors can spread their risk by selecting issuers operating in different sectors of the economy.

**Information available**

When a commercial paper issue is made available in the open market, many dealer banks make presentations to potential investors on behalf of the issuers. Investors should always do their own research before committing to an investment. Because a successful commercial paper issuance programme relies on the availability of investors, information about specific issues is typically relatively accessible.

**Legal basis**

For the largest markets (the US domestic market and the Euro CP market), there is standard documentation covering commercial paper issuance. Although this documentation has primarily been developed to benefit issuance, it also ensures that there are common features to almost all commercial paper issues.

**Negotiability**

Finally, commercial paper is usually issued in negotiable form. This means investors have the ability to sell paper in the secondary market if they need to realise their investment. This will depend on the liquidity in the particular market. However, most investors keep the paper until maturity.

**Potential problems**

**Nature of the instrument**

Because commercial paper is an unsecured promissory note, its nature means it is a less secure investment than a number of alternative instruments. Investors should understand any credit enhancement facilities, such as credit back-up lines, before investing in the instrument. These are important, because many issuers seek to repay maturing commercial paper by ‘rolling over’ an issue, which means issuing new paper to raise funds to meet these repayment obligations. Credit enhancement facilities are designed to repay investors if market conditions do not permit a rollover.

The rating agencies insist that for any paper to attract a short-term rating of A or better, back-up facilities must be available to provide a liquidity source to cover maturing paper.

**Counterparty risk**

Just as when investing in other instruments, investors need to manage counterparty risk. Although it is the issue which is rated (rather than the issuer), investors will still need to set, and adhere to, strict counterparty limits. It is important to remember that, when purchasing commercial paper, the investor is fully exposed to the issuer. As a short-term instrument, there are no events of default documented so, unlike a bond or loan agreement, the investor has no rights to demand early repayment should the borrower’s financial strength deteriorate.

**Operational costs**

There are some administrative costs associated with investing in commercial paper. The investor will need to appoint a custodian bank, both because the paper is increasingly dematerialised and to help to manage settlement risk. For more, see page 119.

Investors will probably want to perform their own credit checks of issuers, especially if the issue is not rated by one of the agencies. This will impose an operational cost within the treasury department.

**Assessment**

As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

**Security**

The security of commercial paper varies significantly according to the issuer. It is dependent on the maturity of the issue and any additional credit enhancement facilities, especially when the issuer is a relatively weak credit. In some markets, security can be identified using credit ratings. It is crucial to ensure the correct issue’s rating is assessed.
Liquidity
Commercial paper is a relatively liquid instrument. It can usually be redeemed early via a sale in the secondary market. Its liquidity is therefore dependent on the size of the secondary market.

In practice, most investors will purchase commercial paper with a maturity to suit their requirements.

Yield
Most commercial paper is issued at a discount. Most investors hold paper to maturity, although it can be sold in the secondary market.

Key uses
Commercial paper is most useful in the following circumstances:
- When the investment period is known and the investor wants to hold the instrument to maturity
- When the redemption point is not known, since it can be traded on
- As part of a strategy of diversifying risk across a portfolio of investments, particularly across non-bank counterparties
- In smaller markets, as an alternative to bank deposits
- To gain a rate advantage over bank deposits

Asset-based commercial paper

Core characteristics

Key features

Like standard commercial paper, asset-backed commercial paper is a short-term, unsecured promissory note.

Whereas standard commercial paper relies on the creditworthiness of the issuer to repay investors when the paper matures, asset-backed paper is supported by specific assets. These assets are usually short-term receivables, such as mortgage, credit card and vehicle loan repayments.

Although there are differences, asset-backed commercial paper programmes are usually structured to be ‘bankruptcy remote’. This means that a special entity, or conduit, is usually established by the sponsor (typically a bank). The conduit issues commercial paper to buy receivables (or other assets) from one or more borrowers.

To protect the interests of investors, the conduit will put some credit enhancement in place. This should ensure the investors are repaid in the event of any loss in value of the conduit’s assets.

Most programmes will also have some liquidity support, usually in the form of back-up lines from the sponsor bank. Like standard commercial paper, many conduits rely on rolling over some or all of their issuance to repay maturing paper. If the market conditions make this difficult, liquidity support will allow the conduit to repay investors.

Availability

Since 2007, asset-backed commercial paper has been less common than standard commercial paper, primarily because many weaker issuers have left the ABCP market.

Nature of the return

Like most commercial paper, asset-backed paper is issued at a discount. On maturity, the issuer will then pay the paper’s face value to the holder. The rate of return is determined by the difference in the two values and the term of issue. Rates tend to be slightly higher than standard commercial paper, as investors tend to be rewarded for the higher degree of complexity and the additional specialist credit monitoring.

Accessibility

Like standard commercial paper, asset-backed commercial paper is sold through dealer banks.
Main variants

There are two main types of asset-backed commercial paper programmes:

- **Single seller.** These programmes are backed by assets generated by a single institution. Single seller programmes tend to be limited to financial institutions and a small number of other companies (including car manufacturers). Only these types of companies are able to generate enough suitable assets for such a programme.

- **Multi-seller.** Multi-seller programmes are usually sponsored by a bank. The bank will establish a separately owned conduit. The conduit will issue commercial paper in its own name and then purchase assets from a variety of companies.

Benefits

**Asset-backed**

The core benefit of asset-backed commercial paper from the investor’s perspective derives from the nature of the assets purchased by the conduit issuing the paper. The investor will want the conduit to invest in assets which can be readily converted into cash. For this reason, most conduits tend to invest in short-term trade receivables. To avoid unnecessary counterparty risk, the assets will tend to be high-volume assets, such as credit card receivables, which can be easily assessed for their creditworthiness.

**Bankruptcy remoteness**

A second way in which asset-backed commercial paper enhances security for the investor is by structuring the conduit to be bankruptcy remote. Unlike standard commercial paper, where the issuer is the entity seeking to borrow funds, a conduit will be structured to be independent of the end borrower. This means that, even in the event of the bankruptcy of a borrower, the conduit should be able to repay any investors when the paper matures.

Potential problems

**Counterparty risk**

Although asset-backed commercial paper promises additional security over standard commercial paper, all investors should continue to manage counterparty risk carefully.

The investor should analyse the conduit’s own counterparty risk management techniques. In a single-seller programme, the assets bought by the conduit will usually be receivables generated by one group of companies. As a result, the investor will be solely exposed to that group.

For a multi-seller programme, the investor should work to understand the conduit’s approach to counterparty risk and to determine whether its limits are appropriate.

In either case, the investor should assess the creditworthiness of the conduit itself. This will require an understanding of the types of asset the conduit is permitted to purchase, the extent of credit enhancement and the degree of liquidity support.

The investor should also assess the degree of operational independence of the conduit from the sponsoring bank.

Assessment

As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

**Security**

The security of asset-backed commercial paper varies according to the programme. By being bankruptcy remote, it is designed to be relatively secure. Like many standard commercial paper issues, asset-backed commercial paper programmes are usually rated by one of the credit rating agencies. The credit rating will be determined by the nature and quality of the assets purchased by the conduit, the nature of any credit enhancement and the rating of any bank providing liquidity support.

The choice of custodian is also an important factor in the security of investment.

**Liquidity**

Asset-backed commercial paper is a relatively liquid instrument. It can usually be redeemed early via a sale in the secondary market. Its liquidity is therefore dependent on the size of the secondary market.

In practice, most investors will purchase commercial paper with a maturity to suit their requirements.

**Yield**

Most commercial paper is issued at a discount. Most investors hold paper to maturity, although it can be sold in the secondary market.

**Key uses**

Asset-backed commercial paper is most useful in the following circumstances:

- When the investment period is known and the investor wants to hold the instrument to maturity
- When the investor wants to invest in commercial paper and benefit from additional security offered by asset-backed paper
- As part of a strategy of diversifying risk across a portfolio of investments, particularly across non-bank counterparty risk
- In smaller markets, as an alternative to bank deposits
Certificates of deposit

Core characteristics

Key features
Certificates of deposit (CDs) are bank-issued investment instruments. The certificate itself is recognition by the bank that the investor has deposited funds with it. In many ways, a CD is similar to a term deposit, as the bank is committed to repaying the principal plus interest on a fixed maturity date. From the investor’s perspective, a CD is negotiable, meaning the instrument can be sold in the secondary market, allowing the principal plus accrued interest to be redeemed before maturity.

Availability
CDs are widely available in most local markets. They are issued with a range of alternative maturities, depending on the requirements of the issuing banks. They can be issued for terms from under a month to over two years.

Nature of the return
In most cases, CDs pay a fixed return (coupon) on maturity. Longer-dated instruments (typically those with a maturity of over a year) may pay a variable rate of interest, with the rate fixed on an annual basis using a benchmark rate.

Accessibility
Investors can purchase CDs either at issue or in the secondary market.

- Issue. Issuing arrangements vary between banks. In some cases, physical certificates are still issued, although in most markets these have been dematerialised.
- Secondary market. In most countries, CDs can be traded in the secondary market.

Main variants
There are two main variants to the standard fixed rate CD:

- Floating rate CDs. Some CDs, typically those with a maturity of over a year, are issued paying a floating interest rate return. Investors need to understand how the rate is set, how often it is changed, and decide whether or not to hedge the return.

- Call features. A small number of CDs are issued with a call feature. If exercised, the issuer would pay the principal plus any accrued interest to the investor. As a result, the investor would face a reinvestment risk.

Benefits
Bank issued
From the perspective of the investor, one of the key benefits of CDs is that they are issued by banks. As a result, they will be subjected to greater supervisory scrutiny than other similar instruments issued by non-banks, such as commercial paper.

Counterparty risk
In addition, because the issuing bank will have a published credit rating, it is usually easy for the investor to assess relative creditworthiness. It is important to ensure that the rating applies to the entity which has issued the CD.

Commonly available
Another key advantage of CDs is that banks tend to issue them in their local market. As a result, they can be useful investment instruments for subsidiaries in countries where repatriation of cash is either difficult or not required.

Negotiable
In most cases, CDs are negotiable instruments. This allows investors to realise their investment prior to the maturity of the instrument. In many markets there is a highly liquid secondary market for CDs. However, investors should be wary of relying on the ability to sell a CD in the secondary market. Some markets are more liquid than others. In addition, the ability to sell in the secondary market is also dependent on the volume of CDs issued, which varies.

In most cases, the issuing bank may be willing to repurchase the CD at market value before its stated maturity, which contributes liquidity.

Bank relationship
By purchasing a CD from a bank, an investor is effectively placing cash on deposit with that bank for a predetermined period of time, providing significant benefit for the issuing bank. In contrast to time deposits (see above), the investor can effectively withdraw the cash at any time (as long as the CD can be sold in the secondary market).

Potential problems
Minimum investment
The biggest problem for investors is the nature of the certificates themselves. Because of local regulations and the cost of issue, CDs are often issued with a large minimum denomination. In companies where a large pool of cash is concentrated to the centre, this may not be a problem. However, in companies where the pools of available cash are relatively small, investing in CDs may be impossible without breaching counterparty limits.
**Calculation of return**

If a CD is being sold in the secondary market, care is needed when calculating the return from the instrument. This is because CDs are typically sold on a yield to maturity basis. When comparing yields against an alternative investment, it is necessary to use a like-for-like methodology.

If market rates have increased since issue, there will be a small risk to the principal value if a CD is sold prior to maturity. The principal value will also be dependent on the credit risk of the issuer, although this will normally not change over the short life of a CD.

**Tax**

As with all instruments, investors need to assess whether any taxes are applied on investment returns.

**Local market**

A CD’s liquidity is partially dependent on the maturity of the local market. Investors will want to assess the range of alternative investment instruments and the frequency of issue before investing in a CD. This will give an indication of the maturity of the market. This is particularly important if the investor may want to sell the CD before maturity.

**Administration costs**

CDs have increasingly become dematerialised over recent years. Investors will need to incorporate the custodian costs in the costs of any transactions. For more, see page 119.

**Assessment**

As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

**Security**

CDs are relatively secure instruments. This level of security will vary from bank to bank, and can be identified using credit ratings. It is crucial to ensure the correct entity’s rating is assessed.

**Liquidity**

CDs are relatively liquid instruments. They can usually be redeemed early via a sale in the secondary market. Their liquidity is therefore dependent on the size of the secondary market.

**Yield**

Any interest is usually payable on maturity. Any investor selling a CD before maturity will earn a return, dependent on conditions, when sold in the secondary market.

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**Key uses**

CDs are most useful in the following circumstances:

- When the investment period is known and the investor wants to hold the instrument to maturity
- When the redemption point is not known, since liquidity can be achieved through a secondary market sale
- (In the case of fixed-rate CDs) to generate a fixed return
- As a means of rewarding members of the core banking group
- As a counterparty risk management tool
- As part of a strategy of diversifying risk across a portfolio of investments
- In smaller markets, as an alternative to bank deposits
Core characteristics

Key features
As part of their debt management policies, governments issue a variety of debt instruments with maturities ranging from a few days to a number of years. A number of terms are used to denote short-term government paper, including treasury bill. Most countries have a local language name for longer-term government paper, such as US Treasuries, UK gilts and French OATs (obligations assimilables du Trésor).

Availability
The availability of government-issued debt instruments depends on the policies of individual governments. Most governments operate some form of debt issuance programme. However, the maturity of the issued instruments will vary according to the government’s demands.

Nature of the return
Investors earn a return on government paper in a variety of ways:

- **Through the coupon paid.** Some instruments are coupon-bearing. This means the investor receives an interest payment on a regular basis. Coupon-bearing instruments tend to be issued for terms of a year or more. The interest may be fixed for the entire life of the investment or floating, with a periodic re-fixing.
- **Through the price movements in the principal value.** Most short-term government instruments are sold at a discount. The investor will purchase the instrument for a price below the face value and receive the face value on maturity. However, if rates have fallen since the instrument was issued, its price may be above par (the face value) in the secondary market. In this case, the higher coupon will compensate for the loss at maturity.
- **Through uplifts to the redemption value which can occur with index-linked issues.**

Accessibility
Investors can purchase government-issued debt instruments either at issue or in the secondary market.

- **Issue.** Issuing arrangements vary from country to country. Typically, government paper is issued by the central bank or by the ministry of finance.
- **Secondary market.** Most countries have a secondary market for government instruments. These will normally be highly liquid markets, which allow investors to earn a return on the investment, without being required to hold it to maturity.

Main variants
In addition to bills and bonds issued by governments, other public sector debt instruments are available in a number of countries. Issuers include:

- **Central banks.** Some central banks issue very short-term instruments, often as a money supply management tool. Because of the reason for the issue, central banks primarily target banks as investors.
- **Local and state governments.** In some countries, local and state governments can issue their own short- and longer-term debt instruments. Other public sector bodies may also issue debt instruments. Investors will want to understand whether these instruments are guaranteed by the central government.

Benefits

Availability
Most governments issue some form of debt instrument. In most cases, short-term paper (with an initial maturity of under a year) is widely available. Where governments rely on short-term debt to finance their own borrowing, they will tend to issue new debt regularly to maintain the market. Long-term government paper which is nearing the end of its life effectively becomes short-term paper.

Liquidity
Another feature of short-term government paper is that it is usually widely available in the local secondary market. In effect, this means that investors will usually be able to realise their investment relatively easily, simply by selling in the secondary market.

Portfolio management
Investment in government paper allows treasury to adjust the duration of the portfolio as a whole. In particular, investors will be able to select instruments with maturities which match known liquidity requirements. In most government paper markets, instruments with ultra-long maturities of up to 30 years (or even 50) are available.

Counterparty risk management
In most countries, the government ranks as one of the most stable counterparties. Purchasing government paper usually comes with a government guarantee, enhancing the security of the investment.

In countries where companies find repatriating funds to a central treasury difficult, some investment in government paper will diversify the counterparty risk away from banks.
Potential problems

Low return
Government-issued instruments are commonly characterised by a relatively low rate of return, relative to other instruments with a similar maturity, because of the low credit risk. Investors in government paper will usually be seeking the combination of security and liquidity these instruments provide.

Minimum investment
Treasurers should be aware of any minimum investment requirement. This will be determined by the lowest denomination of issued paper.

Administration costs
Government paper has become increasingly dematerialised over recent years. Investors will need to incorporate the clearing house costs in the costs of any transactions. If the paper is not dematerialised, custodian costs must be met.

Counterparty risk
Although governments are usually stable counterparties, investors should always be wary of two factors:
- Country risk. From time to time, governments encounter financial problems. Although it is very rare, investors should be aware of the risk of government default.
- Identity of the issuer. Investors will need to take care to establish the precise identity of the issuer. If the issuer is not the central government, the nature of any government guarantee needs to be clearly understood.

Assessment
As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
Compared with other instruments, government paper is very secure. The level of security will vary according to the issuer of the paper. Published sovereign credit ratings provide a good indication of the relative creditworthiness of individual government issuers.

Liquidity
Government paper is relatively liquid. The liquidity of each instrument depends on the frequency of its issue and the size of the local secondary market.

Yield
Government-issued instruments offer relatively low rates of return.

Key uses
Government paper is most useful in the following circumstances:
- When a company wants to safeguard the security of the investment principal
- As an alternative to bank deposits in smaller markets
- As a counterparty risk management tool
- As part of a strategy of diversifying risk across a portfolio of investments
- When the redemption point is certain
Floating rate notes

Core characteristics

Key features

Technically, most floating rate notes (FRNs) are not short-term investment instruments. FRNs are typically longer-term bonds, with maturities of well in excess of a year. They pay interest (a coupon) on a regular basis. The coupon varies in value and is set (fixed) at the beginning of the interest period.

Availability

The availability of FRNs varies between local markets and according to prevailing market conditions.

Nature of the return

Investors in FRNs receive a regular interest (coupon) payment, typically every three or six months. The rate of interest is re-fixed at the beginning of every interest period. The rate is usually determined with reference to a money market interest rate (e.g. Euribor), although any indicator can be selected as the benchmark rate.

The FRN will usually be issued with a fixed face value and will be sold for this price on the re-fixing date.

Investors only recoup the full principal if the FRN matures. Dependent on changes in the credit standing of the issuer, they may also do so if they sell the FRN in the secondary market at a re-fixing date. If the FRN is sold in between re-fixings, its value will vary according to any changes in the reference rate between the fixing date and the transaction date.

Accessibility

FRNs are sold via dealer banks, both at issue and in the secondary market. The liquidity of the secondary market is dependent on the activities of the dealer banks.

Main variants

There are two main variants:

- Reference rate. Although most FRNs are referenced to a money market rate, such as Euribor or LIBOR, any published rate or index can be used.

Benefits

Floating rate

Because the coupon rate is re-fixed at the beginning of every interest period, FRNs do not expose the investor to as much interest rate risk as a fixed rate investment. That said, the longer the individual interest period (the period between interest rate fixings), the greater the exposure to adverse movements in the market interest rate.

More importantly, the regular interest rate fixings protect the principal of the investment from some of the effects of market volatility. Again, the greater the interval between rate fixings, the higher is the exposure to interest rate volatility. This is because the value of the FRN fluctuates according to the difference between the fixing rate and the current market interest rate.

Negotiability

FRNs are negotiable. This means an investor can sell the instrument in the secondary market to realise their investment. The investor’s ability to do so depends on the state of the market.

Counterparty risk

FRNs can be issued by both banks and non-banks. In most cases, the issuer will have a published credit rating, making it relatively easy for the investor to assess relative creditworthiness. It is important to ensure that the rating applies to the entity which has issued the FRN. For example, a subsidiary may not have the same rating as its parent, although any inter-company guarantees or support will be evident from the credit research process.

Most FRNs will be listed on an official exchange and therefore will have to comply with the relevant listing rules. Typically, these require an initial prospectus covering the terms of the notes and providing some details about the issuer. There will be ongoing requirements to file accounts annually. For these reasons, information to assist in the credit analysis process should be readily available.

Potential problems

Interest calculation

There are two elements when calculating the return from the investment:

- The reference interest rate. In most cases, a money market rate is used. If some other rate or index is used as the reference rate, the investor must understand the nature of the investment’s exposure to changes in market conditions.

- An additional margin. In addition to the reference rate itself, the investor will earn a margin. This will be determined by a range of factors, including the creditworthiness of the issuing counterparty and the relative liquidity of the local market. The investor will need to ensure the additional margin reflects any additional risk assumed.
Floating rate notes

Market risk
Whatever reference rate is used, investors will be exposed to a certain degree of interest rate risk. This will affect the regular interest payments. In addition, if the FRN is sold between interest rate fixings, the value of the invested principal may also be affected.

Tax
As with all instruments, investors need to assess whether any taxes are applied on investment returns. In particular, investors should be aware there may be a difference in the tax treatment of coupon income and any capital gain.

Secondary market
The liquidity of the instrument is dependent on the state of the secondary market. Investors may not be able to realise their principal investment immediately, giving rise to a liquidity risk.

Counterparty risk
Although the interest rates are re-set on a relatively short-term basis, the final maturity of an FRN will normally be medium term, perhaps out to ten years. Any changes in credit risk of the counterparty and its credit margin can have a material effect on the market value of the FRN. FRNs are issued with a relatively high minimum denomination (this will vary between markets). This means the instruments are only suitable for larger investors, who can ensure adequate diversification of credit risk.

Operational costs
There are some administrative costs associated with investing in FRNs. The investor will need to appoint a custodian bank, because the notes are held with securities depositories, such as Euroclear. For more, see page 119.

Assessment
As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
An FRN’s security is determined by the creditworthiness of the issuer. The use of credit ratings will help to assess the relative creditworthiness. It is crucial to ensure the correct entity’s rating is assessed. However, because FRNs are usually longer-term instruments, investors may like to build in their own assessments of suitability, although many investors do rely on credit ratings when assessing counterparty risk.

Liquidity
FRNs are relatively liquid instruments. They can usually be redeemed before maturity via a sale in the secondary market. Their liquidity is therefore dependent on the size of the secondary market, which is determined partly by the activities of local dealer banks.

Yield
The return available from FRNs will depend on the credit risk assumed by the investor as well as the final maturity of the note. Interest is paid regularly, usually at three- or six-month intervals.

Key uses
FRNs are most useful in the following circumstances:
- When funds are available to invest for longer than the immediate short term
- When treasury is unlikely to need to redeem the funds at short notice
- To protect against fluctuations in very short-term interest rates
- When treasury is seeking to earn an additional return on non-core cash by extending the maturity of its investments
- As a counterparty risk management tool
- As part of a strategy of diversifying risk across a portfolio of investments
Instruments

Core characteristics

Key features
A repo (repurchase agreement) is a two-legged agreement involving the sale and repurchase of a security. Repos are usually arranged with a government debt instrument as security, but any mutually agreed instrument can be used.

Technically, a cash investor would enter into a reverse repo agreement. The investor would purchase a security from a counterparty (typically a bank) and then sell the security back to the bank on a predetermined date for the principal amount plus interest.

Availability
Repos are widely available in most local markets. Historically, they have primarily been used as investment instruments by financial institutions, although there is now a growing trend towards large companies using them as a secured investment product. They can be arranged with maturities ranging from overnight upwards. Rolling overnight repos can be used to allow same-day access to the cash deposited. For tax reasons, few have maturities of over a year.

Nature of the return
Interest is usually paid on the maturity of the agreement. The repo seller (usually the bank) pays an interest rate, called the repo rate, when buying back the securities. Technically, the investor is buying the security and agreeing to sell it back to the borrower at a higher price.

Accessibility
Investors arrange repos with counterparty banks on an ‘over-the-counter’, bilateral or tri-party (see tripartite repos, below) basis. In most cases, companies will enter into a legal agreement with each counterparty bank. This will act as the framework for all transactions with that bank and is relatively standardised in the form of a Global Master Repurchase Agreement (GMRA). A Collateral Management Service agreement (CMSA) is also required with each custodian or clearing organisation that will hold the collateral. For tri-party repos the custodian account is opened with the Tri Party Agent (TPA) to which the securities will be credited. The detail of each agreement will then be negotiated on a case-by-case basis.

Main variants

Open repos
Most repos have a fixed maturity date, although it is possible to arrange open repos. These have no maturity date. Instead, both parties have the right to terminate the agreement on a daily basis.

Tripartite repos
With a tripartite repo, the fundamental transaction is the same, with the addition of a third party agent (TPA) acting as an intermediary. The TPA will also value the securities on a continuous basis and manage all collateral calls on behalf of the investor. It should be noted that typically, TPA fees are paid for by the collateral provider and not by the investor.

Benefits

Flexibility
The main benefit derives from the fact that repos are negotiated between two parties. As a result, the investor can arrange a repo to match the specific investment requirement. In particular, a repo’s maturity can range from overnight to up to a year. Theoretically, repos can be arranged for any period, although tax rules typically limit them to terms of under a year. This flexibility means the investor can invest surplus cash until the cash is needed again.

Standard terms
Repos transactions tend to be governed by a standard master agreement, called a Global Master Repurchase Agreement (GMRA) drawn up by the US-based Securities Industry and Financial Markets Association (SIFMA) and the Swiss-based International Capital Market Association (ICMA). These agreements provide a template for contracts to be signed by the company and individual counterparty banks, meaning treasury need not spend much time negotiating contracts, and all contracts cover the same issues.

Counterparty risk management
Because the investor receives possession of a security in return for the cash, it is in effect two-name paper. The investor has the added protection that it can sell the security if the counterparty bank defaults on its obligation on maturity. In addition to the credit risk of the counterparty bank, the repo investor needs to be satisfied with the credit quality of the securities being held as collateral. If riskier security is being provided, the investor may insist on paying less than market value, by deducting a discount, called the initial margin (also called a haircut). Poorer-quality securities should attract a larger haircut, and vice-versa. Initial margin is agreed on a trade-by-trade basis.

Portfolio management
Repos are also useful tools which help treasurers manage their short-term investment portfolios. As discussed, they can be arranged to match short-term cash flow requirements. They also allow the treasury to spread the risk across a larger range of alternative instruments.
Potential problems

**Interest calculation**

Although the investor will earn the repo rate on the transaction, there are a number of other details which also need to be agreed before the full return can be calculated. As with all transactions, the day-count convention must be understood.

**Tax**

As with all instruments, investors need to assess whether any taxes are applied on investment returns. Because repos involve the sale of securities, they can attract withholding tax.

**Operational issues**

There are a number of operational issues which impose a cost on the investment:

**Settlement risk**

The settlement risk inherent in both legs of the repo transaction must be managed carefully. Companies will need to appoint a custodian bank to manage the settlement process and to fulfil the administrative tasks, including daily valuation.

**Legal terms**

Although there are standard legal agreements available to guide initial contract negotiations, the contracts will still need to be agreed. There is a risk that companies agree different contract terms with different counterparty banks. This would make counterparty risk more difficult to manage.

**Administration**

Conceptually, a repo is much the same as a bank deposit, but the security given does introduce an administrative burden and added complexity – the need for a custodian, the need to value the collateral and to adjust the amounts being held by the custodian continuously.

**Local market**

Repos are not available to companies in all jurisdictions. Treasurers should take care to ensure the necessary infrastructure is available to process repo transactions, to avoid being exposed to unnecessary settlement risk.

**Assessment**

As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

The investor must decide whether it is going to invest in repos on a bilateral or tripartite basis.

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**Security**

Repos are relatively secure instruments, although the level of security is determined by the quality of the asset offered in exchange for the investment. The investor should scrutinise the characteristics of the underlying asset, including the creditworthiness of its issuer, before agreeing a repo transaction. As with other investments, it is crucial to ensure the correct issuer and the appropriate credit rating are assessed. A collateral liquidation plan should be developed upfront, in case a counterparty defaults. Even so, the primary risk is that of the borrowing counterparty. Investors will want to avoid the ‘worst counterparty, best collateral’ scenario.

The choice of custodian is also an important factor in the security of investment.

**Liquidity**

Repos are relatively liquid instruments, although this varies from market to market. Because they are arranged ‘over-the-counter’ with a maturity to suit both parties, early redemption is not usually required. When necessary, it is possible to arrange an early redemption by agreeing an equal and opposite repo transaction.

**Yield**

Interest is usually paid on the repo’s maturity. The level of the return is usually dependent on market interest rates and the quality of securities held as collateral.

**Key uses**

Repos are most useful in the following circumstances:

- When the amount of funds to be invested is relatively large. Overnight repos in the UK typically require a minimum investment size of between GBP 20 and 50 million, depending on the counterparty
- When the investment period is known and the investor wants to hold the instrument to maturity
- If the investor wants enhanced security
- As a counterparty risk management tool
- As part of a strategy of diversifying risk across a portfolio of investments
- As an alternative to bank deposits
Money market funds

Core characteristics

Key features
Money market funds are a form of mutual investment fund. As the name implies, money market funds invest in the range of money market instruments, including those discussed in this book.

To invest in a money market fund, an investor has to buy shares in the fund company. By doing so, the investor has access to the returns offered by the full range of instruments which the fund buys.

Most money market funds are domiciled in offshore locations for tax purposes.

Availability
Money market funds are widely available in most local markets and are also provided out of a variety of tax-efficient locations.

In the USA, money market funds, as defined by the 2a-7 rules, are a popular location for short-term surplus cash. Money market funds following similar rules are also available in Europe. International money market funds typically have an AAA rating from one or more rating agencies. This rating imposes a slightly stricter requirement on the manager than the US 2a-7 rules.

Nature of the return
When making an investment in a mutual fund, an investor technically buys a share in the fund company. Investors earn a return, technically a dividend, on a money market fund in one of two ways:

- **Constant net asset value (CNAV).** These funds aim to maintain the value of the investment unit at a fixed face value. The fund’s income is accrued daily. The investor either receives cash or can purchase new units with the income. For administrative convenience the daily accrual is normally allowed to build up and be paid monthly.

- **Variable net asset value (VNAV).** In these funds, income is again accrued daily. The investor benefits as the value of each investment unit increases to reflect that increase.

(See page 127 onwards for details of proposed reforms.)

Accessibility

Investors can usually access the funds directly. This investment process can be in the form of an automated sweep, or via either proprietary or fund-independent web portals. In some cases, investors access funds through money brokers.

Main variants

The use of the term ‘money market fund’ has varied significantly, especially between different markets, and has been used to describe funds with significantly different characteristics. These have included funds which have been referred to as liquidity funds, which invest very short term (with a weighted average maturity less than about 90 days), and funds with extended terms, which have been referred to as MMFplus or enhanced MMFs.

Because of the variation in terminology, the European Securities and Markets Authority (ESMA) has designated two categories of money market fund: a short-term money market fund and a money market fund. The main differences between the two designations are listed below:

<table>
<thead>
<tr>
<th>STMMF</th>
<th>MMF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit quality of portfolio instruments</td>
<td>Limited to top two categories of credit rating</td>
</tr>
<tr>
<td>Maximum maturity of portfolio instruments</td>
<td>397 days</td>
</tr>
<tr>
<td>Weighted average maturity (WAM)</td>
<td>Up to 60 days</td>
</tr>
<tr>
<td>Weighted average life (WAL)</td>
<td>Up to 120 days</td>
</tr>
<tr>
<td>Net asset value (NAV)</td>
<td>Constant and fluctuating both permitted</td>
</tr>
</tbody>
</table>

Enhanced money market funds are outside these guidelines so should not be referred to as money market funds in markets regulated by ESMA.

Mutual funds are common in many local markets. For example, a société d’investissement à capital variable (SICAV) is a popular open-ended mutual investment fund used in France. Fonds commun de placement (FCPs) are unit trust-style funds also used in France. Similar short-term funds are available in local markets. Investors will need to understand how fund managers purchase assets, what restrictions apply when determining the portfolio and what, if any, safeguards exist for investors. Some funds are rated, although the ratings cannot usually be compared to those issued to money market funds, as different criteria are used.
Bond funds are also available in a number of locations. As their name implies, these tend to invest in longer-dated instruments. This offers a higher potential return, although at a greater risk to the security of the principal than money market funds.

Benefits

Diversified risk

Any investment in a money market fund represents a diversified risk, as the fund itself invests in a wide range of alternative instruments.

There are two key advantages for most investors:

Diversification at minimal operational cost

First, this diversification of risk comes at minimal operational cost to the investor. In order to invest in a portfolio of assets similar to those selected by the fund’s manager, an investor would have to assess a large number of alternative assets to select the appropriate asset mix. Once selected, there would be custody arrangements to deal with, and the value and credit standing of these assets would need to be tracked on a regular basis.

These activities would impose a significant back office cost on any group treasury. Smaller treasury departments would be unable to justify these costs.

Instead, money market funds allow smaller treasury departments to invest in the range of assets they would choose, if they had the expertise available. The fees charged by the funds are much lower than any back office costs might be. In addition, the investors benefit from access to professional fund managers’ expertise.

Minimal investment amounts

Secondly, by aggregating investments, money market funds allow investors to diversify risk even if they have only relatively small amounts to invest. In order to replicate the diversity offered by money market funds, investors would also need to have a large pool of cash to invest. Although money market funds have a minimum investment amount, this is comparable to the minimum investment in an individual instrument.

Safety

Money market funds have proved to be secure short-term investment instruments. Two factors help investors when making their decisions although, as with any other investment, the investor in a money market fund assumes the risk of the investment:

Regulation

In some locations, money market funds are subject to regulation aimed at protecting investors. For example, the 2a-7 rules in the USA place restrictions on the type and maturity of instruments in which a money market fund can invest. In the EU, any collective undertaking which wants to call itself a money market fund must comply with guidelines established by the European Securities and Markets Authority (ESMA) (formerly the Committee of European Securities Regulators (CESR)).

In other locations, the regulation of money market funds is less formalised and they may be subject to similar rules as apply to other fund managers. In these cases, investors should take care to understand the level of regulation and supervision to which a chosen fund is subject.

There is also some self-regulation available to members of the International Money Market Association (IMMFA). IMMFA membership requires adherence to its Code of Practice. This incorporates a number of requirements similar to those under US 2a-7 rules, summarised below:

<table>
<thead>
<tr>
<th></th>
<th>IMMFA</th>
<th>2a-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum weighted average life</td>
<td>120 days</td>
<td>120 days</td>
</tr>
<tr>
<td>Maximum weighted average maturity</td>
<td>60 days</td>
<td>60 days</td>
</tr>
<tr>
<td>Minimum proportion of assets convertible into cash within one day</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Minimum proportion of assets convertible into cash within one week</td>
<td>20%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Ratings

Some funds are also rated by one or more of the credit rating agencies. The three largest agencies have each developed their own special rating scale and criteria for money market funds. If a fund is rated, the rating will usually appear with a suffix to indicate it is a fund rating; this varies according to the rating agency.

Investors should take care to understand each agency’s approach to money fund rating. The agencies publish their rating criteria: in order to attract a particular rating, funds are restricted to investing in specific instruments and for maximum defined durations.

In addition, the rating agency will examine the fund manager’s operational effectiveness and receive statements of assets as frequently as weekly, in order to check that the investment policy is being complied with. Although money market funds allow investors to diversify risk, this does assume the fund manager is able to invest funds effectively and to manage those funds once invested. An operational failure by the fund manager could also affect the security of the invested principal.

Accessibility

In most cases, money market funds allow same-day deposits and withdrawals, so that for the investor they are highly liquid.

It is possible for investors to automate a daily balance sweep to some money market funds.
Potential problems

Knowing the rate of interest
There is no published expected return, as the fund managers will be unable to calculate this figure until after the funds have been reinvested. This contrasts with competing investments, such as bank deposits and money market instruments. Returns can be estimated relatively accurately, though, because the volatility of return, especially over the short term, is low. Funds will often benchmark their yield against seven-day LIBOR and will be able to exceed this through holding slightly longer-term investments.

In some circumstances, especially when market rates are increasing, the duration of the fund’s portfolio may mean the fund will under-perform when compared to the overnight market. When market rates are falling, the reverse is generally the case.

Nature of counterparty risk
One reason for investing in a money market fund is to manage counterparty risk at a relatively low cost. However, because of the nature of the funds, it can be difficult for a treasury to manage its own counterparty risk completely.

Investing in more than one fund may not solve the problem, as these funds are often forced to purchase the same instruments (especially government paper and some paper issued by financial institutions) in certain market conditions. By investing in more than one fund, a company may paradoxically be more exposed to some counterparty risks than had it only invested in one. However, the company would be less exposed to operational risk within the fund.

Where a company maintains a portfolio of short-term investments in addition to the money fund, it may be over-exposed to a particular counterparty if the fund also invests in instruments issued by it. A number of fund managers have responded to this concern by providing more information about their funds’ portfolios.

Finally, a company should try to understand the nature of other investors with the fund. No company would want its investment to represent a significant proportion of the total assets under management with the fund, since this could make a rapid redemption of funds difficult. Equally, if other investors hold particularly large holdings, any large withdrawals by them could destabilise the fund.

Restrictions on investment
One of the problems with money market funds is that not all funds are available to all investors. Local rules may prohibit offshore funds being marketed to local investors. Undertakings for the Collective Investment in Transferable Securities (UCITS) legislation has been used by European money market funds to market to investors within the European Union.

Early cut-off
Because fund managers need knowledge of the available investments, most funds apply an early cut-off time with respect to their local market (US dollar denominated funds have a later cut-off time than euro funds). There is some difference in the times applied by different fund managers.

Tax and accounting
Money market funds technically require investors to buy shares in the fund company. This can have complex tax and accounting implications, which need to be understood by investors, but for the most part they are treated as cash deposits earning interest.

In some cases, regulations which prohibit entities investing in shares can prevent investment in money market funds. This has been the case for Belgian coordination centres, for example.

Assessment
As with all instruments, this assessment of investment key use is intended as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
Money market funds are relatively secure investments. The level of security will vary, depending on the nature of the fund, especially its investment rules. Many funds are run so as to ensure an AAA rating. When available, published credit ratings provide a good indication of the relative counterparty risk. The level of fund supervision is also an important determinant of counterparty risk.

Liquidity
Money market funds are highly liquid. In most cases, investors can choose to redeem their investment without giving notice (although, in practice, investors will want to give as much prior notice of a redemption decision as possible). Money market funds can be used as a location for overnight funds. To meet redemption requests, a proportion of a money market fund’s assets are invested on an overnight basis. Funds will require a minimum amount to be invested.

Yield
Money market funds offer returns based on the performance of the assets they buy. Because funds can purchase some longer-dated instruments, the overnight return is often better than an overnight return on an individual instrument. This is more likely when market rates are falling. The fund manager will charge a fee of around 10 to 15 basis points per annum; this varies between funds and depends on the size of the investment. Large users of a fund can often negotiate a rebate of fees.
Money market funds are most useful in the following circumstances:

- If a group concentrates cash using a liquidity management structure and there is a need to invest short-term surpluses overnight
- To invest surplus balances, especially when current accounts are not interest-bearing
- When exchange controls require local subsidiaries to invest locally, and alternative short-term instruments expose the entities to unacceptable levels of risk
- As a destination for overnight investment when higher-yielding instruments cannot be accessed
- As a tool to maintain short-term liquidity, especially where the cash flow forecast can be inaccurate
- As part of the pattern of managing the duration of the group’s investment portfolio within acceptable limits
- As a counterparty risk management tool that delivers diversification

First, banks are now required to extend the duration of their own funding as part of the regulatory direction to strengthen banks’ balance sheets. Second, banks are moving away from wholesale funding as much as possible. Third, in Europe, the European Central Bank has made funding available to banks via its long-term refinancing operations (LTRO), meaning banks are less reliant on other sources. Finally, banks are also seeking to deleverage their balance sheets more generally as they work towards meeting the Basel III leverage requirements.

Less issuance from highly rated corporate issuers. With a slower world economy, many of the more highly rated corporations have chosen to stockpile cash, rather than investing it in new products or acquisitions. These cash surpluses provide a reassurance to investors and also protect companies from any risk that bank or money market funding may tighten again in the near future. These decisions mean that highly rated commercial paper and similar instruments are not being issued in the same volumes as they were before 2008.

Fewer eligible issuers. The foregoing problem has been compounded by rating downgrades which have the effect of reducing the number of eligible issuers further. Money market funds and most corporate treasurers are only permitted to invest in instruments issued by investment-grade issuers. Any downgrades in credit ratings have the effect of narrowing the range of counterparty issuers available to investors.

In combination, these factors mean that there is a relative shortage of highly rated money market instruments available in the market, from both bank and corporate issuers.

**Demand-side factors**

At the same time, there have been a number of factors which have altered the demand for some money market instruments. These include:

- **Investor demand.** Investors have strengthened their focus when placing cash in the short term. As they have sought to manage counterparty risk more tightly, they have been more determined to invest in high-quality assets.
- **Money market fund regulation.** Changes to money market fund regulation require that funds invest in more liquid instruments. This has had the effect of increasing demand for instruments maturing overnight and within a week, and reducing relative demand for longer-dated instruments.
- **Increased demand for collateral.** As well as focusing on the issuer to maintain value, investors are also increasingly demanding collateral for any investments. This is primarily demanded in the form of government-issued paper, further increasing demand for these instruments.
Together, these factors have made it more complex for corporate treasury departments to identify appropriate investment instruments, while maintaining a sufficient diversification within their portfolios. Although they face the same difficulties, money market fund managers have dedicated credit analysis teams available to identify appropriate investment instruments.

**Does regulation pose a threat to money market funds?**

Viewed by some as part of a wider ‘shadow banking system’, money market funds have been under review by regulators in both Europe and the USA since 2008. The European Commission and the SEC have been working independently to identify measures to reduce the future risk of ‘runs’ on money market funds. Both organisations published a set of proposals in the summer of 2013. The details of the proposed reforms are outlined elsewhere in this book (see page 127). This section sets out HSBC Global Asset Management’s views on the proposed reforms, and our views on the potential implications for investors in money market funds.

**European Commission proposals**

HSBC Global Asset Management is pleased to see a number of reforms that we have supported included in the Commission’s proposal. These include the adoption of minimum liquidity requirements and a ‘know your client’ policy, both of which we believe are necessary to better equip money market funds to manage liquidity risk, allowing them to continue to provide liquidity to investors when they require it. We adopted minimum liquidity requirements which are more conservative than the levels proposed by the European Commission and ‘know your client’ policies in 2009, following the credit crisis.

Whilst investors understand that money market funds are not guaranteed, the use of sponsor support has created ambiguity about who owns the risk in a money market fund. With changes in regulation and sponsor attitude to support, we believe the probability of support being provided in the future by any sponsor is low. For this reason, and more importantly the fact that money market funds are an investment product where the risk is owned by the investor, we believe prohibiting the use of sponsor support creates clarity for investors.

With very high levels of transparency now common, and enhanced regulation planned in many areas, coupled with the increased risk of money market fund rating downgrades leading to a ‘run’ in a money market fund, we do not believe the risk/reward trade-off now justifies the use of money market fund ratings.

However, we are disappointed with a number of the regulatory proposals. First, the requirement for CNAV money market funds to hold a 3% capital buffer or convert to floating NAV indicates that the proposals differentiate between the two types of funds’ propensity to ‘run’ risk, which we refute.

Our analysis of the redemption activity in CNAV and VNAV funds during the credit crisis demonstrates that both types of funds experienced runs in a small number of money market funds. In our opinion, investors redeem from money market funds if they have credit concerns about an asset the fund owns. This will not change because the price of a fund has shown small fluctuations in the past. Furthermore, we believe that the capital buffer requirement will result in CNAV funds converting to floating NAV, thus losing a feature valued by investors without achieving the desired outcome of enhanced stability of the financial system.

Secondly, we are disappointed that liquidity fees have not been adopted as a proposed reform in Europe to date. Whilst many CNAV money market funds already have this power available to them, we believe that formally adopting liquidity fees will enhance the stability of money market funds. Whilst the mechanism is likely to be used very infrequently, if required it can provide a measure of protection to investors who remain in a fund during a period of market stress, as the cost of liquidity is borne by redeeming shareholders, rather than being passed on to remaining shareholders.

**US SEC proposals**

As in Europe, HSBC Global Asset Management is pleased to see a number of reforms that we have supported included in the SEC’s proposal. We support the introduction of a trigger-based liquidity for the reasons outlined above, although we differ with regard to the trigger mechanism and the amount of the liquidity fee proposed by the SEC. In addition, HSBC Global Asset Management supports the strengthened diversification requirements included in the proposed reforms. In fact, the proposed requirements around treatment of affiliated issuers and asset-backed security vehicle sponsors are similar to the existing requirements within HSBC Global Asset Management’s internal investment guidelines for managing money market funds.

However, we are disappointed with a number of the regulatory proposals, including the mandatory conversion of a money market fund to VNAV. We are also concerned about the effectiveness and potential impact of releasing underlying portfolio information for money market funds, including market-based NAVs per share and liquidity levels, on a daily basis as required by the proposed reforms.

**How will reforms affect investors?**

There are a number of implications of the proposed reforms in both Europe and the USA that we believe investors will need to consider, particularly in respect to the proposed conversion to VNAV:

1. How to cope with a reduced level of volatility in the yield of the fund. HSBC Global Asset Management is working on an estimate of the expected volatility, using historic fund data to provide the necessary context.
2. How to treat money market funds from an accounting perspective, which will depend on whether money market funds will remain ‘cash and cash equivalents’. Corporate users of money market funds will need to engage with their own auditors on this issue.

3. How to treat a VNAV money market fund from a tax perspective. Corporate users of money market funds will need to engage with their own tax advisors on this issue.

4. If a company’s investment policy stipulates that it must only invest in a CNAV money market fund, the policy will require updating.

5. Money market fund ratings in Europe. Post the regulation, money market fund providers will not be able to pay for their funds to be rated. If an investment policy references a requirement for a fund to be rated, this may require an investor to pay for a rating (if one is available) or to change its investment policy. HSBC Global Asset Management is considering what additional information it can provide to investors on a regular basis.

6. Treasury system development. The regulatory change may require development of treasury systems to manage investment in a floating NAV money market fund.

Will MMFs still be attractive to investors?
Fundamentally, we do not believe that the proposed reforms in either Europe or the USA will remove the utility value that money market funds have provided to investors: professional credit management, credit diversification, a high degree of liquidity, a competitive return compared to short-term money market interest rates, all achieved through a single transaction. For this reason we believe that investors will continue to use money market funds as part of their day-to-day cash investment needs. In addition, we believe a number of the changes are positive, and have the potential to make money market funds even more resilient to any severe market stresses in the future.

Jonathan Curry
Global Chief Investment Officer, HSBC Global Asset Management
Main variants

There are four main types of derivative transactions, often referred to as ‘plain vanilla’. In all cases, the principal amounts are not exchanged. Any payments between the investor and the counterparty bank will be calculated on a pre-agreed notional principal amount.

Swap

Swaps are available to hedge both currency and interest rate risk:
- **Interest rate swap.** An interest rate swap allows an investor to exchange two sets of cash flows associated with two investment instruments. Typically, the investor will swap a set of floating rate cash flows for fixed payments, or vice versa. In some cases, the investor will swap one set of floating rate cash flows for a set calculated on a different basis.
- **Currency swap.** A currency swap is similar to an interest rate swap, except that the two parties will exchange cash flows denominated in different currencies. The currency cash flows may be any combination of fixed and floating rate payments.

Forward

Forward agreements are available to hedge both currency and interest rate risk:
- **Interest rate forward or forward rate agreement.** A forward rate agreement (FRA) allows an investor in effect to pre-agree the rate applicable to a future contract period. To compensate for the difference between the pre-agreed rate and the actual market rate at the start of the contract period, a settlement payment is made from one party to the other at the beginning of the contract period. This will equal the difference between the present values of the two sets of interest payments at the beginning of the contract period.
- **Foreign exchange forward.** A foreign exchange forward allows the investor to fix the exchange rate at a specific point in the future. It is calculated by taking the current exchange rate and extrapolating interest rates in both currencies to find the future value of the exchange rate. The forward rate is a simple calculation and does not incorporate any speculation or taking a view on foreign exchange movements.

These are useful instruments as they allow investors to translate an asset from one currency to another to access higher-yielding investments or more liquid markets. For example, see page 103 for an illustration of how a European company could use an FX forward to access the USCP market.

Option

An option gives the holder the right, but not the obligation, to buy or sell a set quantity of a particular asset at a predetermined price on, or sometimes before, a particular date in the future (the expiration date). A European option can only be exercised on the expiration date. An American option can be exercised on any date up to and including the expiration date.

Options are written by counterparties, usually banks. The investor will hold the option on payment of a premium, which is usually a lump sum at inception. The amount of the premium paid will depend on the likelihood of the holder exercising the option.

- **Interest rate option.** An investor will use an interest rate option to ensure that a minimum interest payment will be earned. Typically, the investor will purchase an option giving the right to exchange floating rate interest payments for fixed rate payments if the market rate falls below a certain level.
- **Currency option.** An investor could use a currency option to ensure that a minimum quantity of foreign currency is received in the future. For example, in order to ensure security and liquidity when investing, the investor may select an instrument denominated in an international currency. When this instrument matures, the funds will be exchanged into a local currency to meet a payment obligation. The option ensures the investor will have sufficient local currency funds when the investment matures. It would be very unusual for a company to write an option (as opposed to buying an option), since this exposes the writer to an unlimited downside risk.

Future

Futures contracts are exchange-traded and are the least common form of derivative used by companies investing working capital. This is because they cannot be tailored to the user’s exact requirements, and because investors will be required to make margin payments on a daily basis, in the event of a serious adverse market movement.

Benefits

Flexibility

Because most derivatives transactions used by company treasuries are arranged ‘over-the-counter’, the terms and conditions can be set to suit each individual circumstance. In particular, the investor can determine the level of protection needed from the derivative.

Ease of access

It is relatively easy for a company to enter into a derivative agreement. Although there are a number of terms and conditions associated with any transaction, many of these can be standardised through the negotiation of an ISDA agreement. For a company intending to arrange a number of derivative transactions, it is often prudent to negotiate ISDA agreements with a group of counterparty banks. This allows the company to seek competitive quotes and to manage counterparty risk more effectively.

Relatively low cost

Once the ISDA agreements have been negotiated, derivative agreements are quick to negotiate. Options do require the payment of an initial premium, although its size will depend on the likelihood of the option being exercised. Other transactions are relatively inexpensive to arrange, although some settlement payment may need to be made.
Potential problems

Counterparty risk
Derivative transactions are distinct financial agreements. Although no exchange of principal normally takes place, the investor is still faced with a counterparty risk. This is because, should the derivative counterparty fail, the investor will no longer be protected against the risk for which the derivative was purchased. If exchange rates or interest rates move significantly, the amounts potentially owing from one party to another can become material. If this is the case, the beneficiary party may want to impose some form of credit support agreement on the other party, such as margin calls or collateral.

Investment policy
Because of highly publicised reports of companies failing due to derivatives transactions, company boards are often nervous of their use. In some cases, this may be reflected in a restrictive investment policy which does not make agreeing a derivative transaction easy. As a result, a treasurer may need to ask the board to amend the investment policy to allow the use of derivatives.

Valuation
In some cases, especially with more complex options, it can be difficult to value derivatives. This can be a problem if the company wants to apply hedge accounting rules.

Accounting
International Accounting Standard (IAS) 39 (being replaced by IFRS 9) and its equivalent in the US, FAS 133, require all derivatives to be marked to market. The precise accounting rules, including the occasions on which hedge accounting can be used, are complicated. They can also require significant record-keeping and additional administration.

Assessment
As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
Because no principal is usually exchanged, derivatives transactions should pose limited risk to their holders. Even so, usage should be recorded against the credit limits marked for the counterparties involved. This assumes care has been taken to ensure the terms and conditions of the derivative will not leave the investor exposed to adverse movements in market prices. For this reason, investors of working capital should not write options.

Liquidity
Options require the payment of an initial premium. Other derivatives transactions may give rise to a cash outflow. Since derivatives are normally tailored over-the-counter transactions, their liquidity is determined by the counterparty bank’s willingness to unwind or buy back the deal. Although this normally is possible, a derivative can always be effectively closed out by transacting an equal and opposite transaction with another bank.

Exchange-traded derivatives are highly liquid instruments, but are rarely used by companies investing working capital.

Yield
Derivatives are rarely purchased by investors of working capital to generate a return. Instead they are used to protect the value of another investment.

Key uses
Derivatives are most useful in the following circumstances:

- To protect the value of a short-term investment instrument
- To protect against fluctuating short-term interest rates
- To protect against fluctuating exchange rates
- To match predicted future cash flows
- As part of a strategy of diversifying risk across a portfolio of investments
Structured deposits

Core characteristics

Key features
As their name suggests, structured deposits are arranged with additional terms and conditions to meet the objectives of both the investor and the counterparty bank. The structured deposit itself will usually incorporate a derivative transaction which will allow the investor to hedge against movements in interest rates or foreign exchange rates.

Availability
Structured deposits are increasingly available, as banks seek to develop products to attract investors. Initially, structured deposits were created as specific solutions to particular problems. Once developed, they became more commonly available, sometimes as standardised products.

Nature of the return
The nature of the return from a structured deposit will vary and will depend on the terms and conditions. One of the attractions of structured deposits is that they allow the investor to achieve a range of alternative returns. This might include an enhanced return compared to alternative investments or a guaranteed minimum return over a period of time.

For example, consider an agreement which states that if a specified interest rate remains within 3% and 4%, then a deposit's return would be enhanced by 50 basis points over the life of the instrument. If the specified rate moves below 3% or above 4% at any point, then the investor would lose interest income for the remaining life of the deposit. This shows that an investor must have a high degree of conviction before agreeing the parameters.

Accessibility
Structured deposits are available as 'over-the-counter' products from banks. Terms and conditions will vary according to the nature of the funds being invested and the investor's requirements.

Main variants
Structured deposits allow the investor to select an instrument created to meet a particular need. In most cases, this will reflect a desire to manage interest rate risk. Foreign exchange risk can also be managed using a structured deposit.

Interest rate based
In most cases, structured deposits will allow the investor to achieve a guaranteed minimum return over a predetermined period of time. The investor may also benefit from an enhanced rate, which will usually be capped by the counterparty bank at a maximum rate, and will reflect different views of the future direction of market interest rates.

The precise terms and conditions, including the level of any capped rate, will be set at the time of arranging the deposit. Where a capped rate is set, the investor benefits from the opportunity to earn an enhanced return, in the belief that a higher variable rate will not be forgone.

For example, a range-based deposit allows a company to earn a guaranteed rate of interest for a fixed period. The company benefits from any increase in market rates, up to a maximum ceiling rate, over the same period.

Foreign exchange rate based
Dual currency deposits allow an investor to make a deposit in one currency, with repayment in either the same or another currency. They allow the investor to hedge foreign exchange risk without having to arrange a separate currency option.

For example, an Italian company decides to deposit some euros in a dual currency deposit for one month. When placing the deposit, a conversion rate of EUR/USD of 1.212 is agreed. Over the life of the deposit, the US dollar appreciates against the euro. At maturity the spot rate is EUR/USD 1.175. On maturity the treasurer elects to have the principal plus interest (EUR 1 million) repaid in US dollars. At the pre-agreed conversion rate, the Italian company will receive USD 1,212,000. This is a better return than the EUR 1,175,000 available in the spot market.

Benefits

Flexibility
The chief advantage of structured deposits is that they are flexible investment instruments. An investor will arrange the terms and conditions of the deposit with the counterparty bank, allowing them to be set to match the investor’s specific requirements.

Enhanced return
One reason why investors are attracted to structured deposits is that they offer an enhanced return, when compared to alternative instruments available in the market.
Banks offer an enhanced return because the investor usually has to commit to invest for a predetermined period of time. This enhanced return is generated by giving up a return in certain circumstances, or effectively granting the bank some form of option. Structures that appear at first sight to be attractive may include some unwelcome downside risk. Furthermore the investor must ensure that any loss of liquidity is justified by the promise of an enhanced, or guaranteed, return.

Structures can also be created that are asymmetric. This means the return is enhanced if the market moves in one direction. However, if the markets move the other way, the returns will be low or nil.

**Counterparty risk**

Structured deposits allow the investor to achieve a particular objective, for example a minimum return, without having to arrange contracts with a number of different counterparties. This is because any derivatives transactions will be incorporated in the structured deposit.

**Potential problems**

**Speculation**

Because structured deposits incorporate a derivative transaction, investors will need to understand any implied speculation. The attraction of the structured deposit is that it may offer a guaranteed minimum return, or provide a hedge against an adverse movement in the exchange rate.

The difficulty for the investor is to understand the full potential implications of the investment. This may include penalty payments to redeem the investment early, or opportunity costs if markets do not move in the expected direction.

**High minimum investment**

Where structured deposits are created to meet an individual investor’s specific requirements, the counterparty bank will insist on a relatively high minimum investment. The investor will need to take care to maintain investments within counterparty limits.

In addition, the bank may also require the investor to commit to a minimum investment term. Before committing to a structured deposit, the investor should understand the implications for group liquidity.

**Complex valuation**

Because the structured deposit incorporates derivatives transactions, it can be difficult to value any investments accurately. Although treasury management systems are increasingly able to mark derivatives transactions to market, the very nature of the structured deposit makes automated valuation difficult. As a result, structured deposits may have to be valued independently. This will be time-consuming and will make managing the portfolio difficult.

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**Assessment**

As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

**Security**

The security of a structured deposit is determined by the creditworthiness of the counterparty bank. The use of credit ratings will help to assess the relative creditworthiness. It is crucial to ensure the correct entity’s rating is assessed.

However, investors should also analyse the terms and conditions of the deposit to identify whether the value of the initial investment is at risk.

**Liquidity**

Because structured deposits are arranged between the investor and the counterparty bank, they are relatively illiquid instruments. They cannot usually be redeemed before maturity, without payment of a penalty.

**Yield**

The return available from structured deposits may be higher than more liquid instruments. This reflects the loss of liquidity faced by the investor and the optionality built in to the transaction.

Interest will be paid according to the terms and conditions of the deposit, typically on maturity.

**Key uses**

Structured deposits are most useful in the following circumstances:

- When funds are available to invest for longer than the immediate short term
- When funds are available for a known period
- When treasury is unlikely to need to redeem the funds at short notice
- To protect against fluctuating short-term interest rates
- When treasury is seeking to earn an additional return on non-core cash
- As part of a strategy of diversifying risk across a portfolio of investments
- To create a tailored form of return which can be used as a hedge against other exposures in the business

However, before using any such instrument, the treasurer should take extra care to understand the nature of the risks the company would be exposed to.
Core characteristics

Key features
A separately managed account (sometimes called a segregated account) is a method of outsourcing investment management decisions. An investor appoints an investment manager to manage funds according to a detailed mandate set by the investor. Unlike other fund management options, each investor's funds are maintained separately by the investment manager.

Availability
Separately managed accounts are available from some banks and investment managers. They are primarily used for longer-term investments although they are increasingly available for short-term investment of cash and working capital.

Nature of the return
The nature of the return from a separately managed account will vary and will depend on the mandate given to the investment manager. One of the attractions of separate accounts is that they allow the investor to set its own investment guidelines to reflect the organisation’s risk appetite and investment objectives.

Accessibility
Separately managed accounts are available from some banks and investment managers. Although the investor will set the investment guidelines within the mandate, the investment manager will also set specific terms and conditions for the wider use of the service.

Benefits

Controlled outsourcing
Separately managed accounts allow the investor to outsource much of the administration of investing whilst retaining the ability to set detailed investment policy.

Counterparty risk
As part of the agreement, any credit risk analysis will be performed by the specialists within the investment manager's team. As a separately managed account, the investor will have access to information about the portfolio of assets held on its behalf.

Potential problems

Counterparty risk
Although the investor will set the investment parameters, there will be no day-to-day control over individual investment decisions. The investor will also be exposed to operational risks within the investment manager.

Cost
Because of the bespoke nature of the service, it can be a relatively expensive solution.

Assessment
As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
The security of a separately managed account is determined by the investment parameters set by the investor. In a separately managed account, the investor holds the securities directly, rather than as a share in a traditional managed fund.

Liquidity
The liquidity of a separately managed account is largely determined by the investment parameters set by the investor. However, a separately managed account is unlikely to be suitable for investors who require instant access to their cash.

Yield
The return from a separately managed account is determined by the investor’s risk appetite and investment policies.

Key uses
Separately managed accounts are most useful in the following circumstances:
- When funds are available to invest for longer than the immediate short term
- When funds are available for a known period
- When treasury is unlikely to need to redeem the funds at short notice
- To implement an investment policy without needing to develop an in-house investment management team
- When a company becomes cash-rich over a relatively short period of time
- As part of a strategy of diversifying risk across a portfolio of investments
Longer-term instruments – bonds

Core characteristics

Key features

Bonds are issued by companies, governments and other entities, for terms ranging from under a year to over 20 years. Some bonds, known as perpetuals, are issued without a maturity date. In effect a bond is a form of term loan that can be transferred between investors.

Bonds are issued in registered or bearer form. Registered bonds are issued in the name of the holder and are becoming less common, whereas bearer bonds are freely negotiable.

Although they are usually medium to long-term securities, as they near maturity, bonds begin to exhibit the characteristics of shorter-term investment instruments.

Availability

The availability of bonds varies between local markets and according to prevailing market conditions. Bonds available in the international capital markets are known as Eurobonds. Despite their name, Eurobonds may be denominated in any currency.

Nature of the return

Bonds usually generate a return for an investor in one of three ways:

- **Coupon-bearing**: Most bonds make some form of interest payment, or coupon. Coupon payments will be made on a regular basis, typically at least annually. These may be structured in a number of different ways. Some bonds pay a fixed coupon throughout their life. Others pay a variable coupon, which is re-fixed after every coupon and is set with reference to a particular market rate. Stepped coupons increase in size over the life of a bond.

  Other coupon payment types are available. For example, some bonds are dual-currency, meaning the principal is denominated in one currency and coupon payments are made in another.

  The price of coupon-bearing bonds will vary according to the market interest rate. A bond price is calculated as the net present value (NPV) of the scheduled interest and capital payments discounted back at the current interest rates. This means that as the market interest rate falls, the price of the bond increases, and vice versa.

- **Zero coupon bond**: As the name implies, zero coupon bonds do not pay interim interest payments. Instead, they are issued at a discount, with the investor being paid the face value at maturity. When sold in the secondary market, the price of these bonds will always be the net present value of the face value of the bond.

- **Index-linked**: Index-linked bonds deliver a return that is linked to some other reference rate or market. Inflation linkage is widely available. An inflation-linked bond is normally structured to pay a low cash coupon (or ‘real’ rate of interest) annually, but calculated on an amount of principal that is itself uplifted each year by the reference inflation index. Assuming inflation is positive, this means that the interest amount each year will grow. Then, at maturity, the principal repaid will also be uplifted by the lifetime move in the inflation index.

Accessibility

Bonds are initially sold to investors by a dealer group of banks, appointed by the issuer. Some bond issues are standalone, whereas others are issued off a euro medium-term note (EMTN) programme.

Some bonds are listed securities, meaning they are listed on a securities exchange and can be traded in that market. In other cases, bonds are issued as private placements, direct to investors. These are not usually traded in the secondary market.

Main variants

There are several types of bond issuer: governments and companies. Other entities, including multinational agencies and local governments, also issue bonds.

**Government bonds**

In most cases, governments elect to issue their bonds into their own local markets. The level of issuance is determined primarily by the level of the government’s public borrowing requirement.

**Corporate bonds**

Companies also issue bonds to finance their operations. The level of issuance by an individual company will depend on its borrowing requirement, its access to other forms of finance (shareholder funds, bank lending and other forms of debt issuance, such as commercial paper) and its preferred debt-to-equity ratio.

Companies issue bonds into their own local markets. They may also issue Eurobonds, which are issued into the international capital markets and may be denominated in a number of international currencies.

**Bond funds**

Investors can also decide to use bond funds, which have the benefit of diversifying counterparty risk. When investing in a bond fund, the investor should take care to understand the investment policy followed by the fund. Funds will often restrict themselves to investing in particular types of bond (in terms of credit rating or type of issuer) or in particular geographic areas. Investors should understand the nature of a fund’s investment policy and ensure that it fits into the counterparty risk policy the investor is following.
Benefits

Liquidity
Bond investors can sell their bonds in the secondary market to realise their investment. The investor’s ability to do so depends on the size of the deal and the state of the market.

Variety of bond issues
No single bond issue has the same characteristics. For example, bonds may be interest-bearing, and they are issued with a range of maturities. This means that there is always a variety of bond issues available, allowing investors to purchase instruments with the characteristics to suit their portfolio requirements.

Because of these differences, when assessing different investment alternatives investors should always take care to ensure that they are comparing like with like. In particular, investors should establish which day-count convention applies, when calculating the yield from the bond.

Riding the yield curve
Because bonds are issued with longer maturities, there may be the opportunity for investors to ‘ride the yield curve’. If the yield on a longer-term bond exceeds that of a shorter-term instrument, the investor can purchase the bond in order to benefit from the better return. The investor can hold the bond until such time that the two yields are equal, and then sell it. As a result, the investor will have generated a higher return on the bond.

Potential problems

Counterparty risk
When purchasing a bond, the investor will be exposed to the credit risk of the issuer. Most public bond issues will carry a long-term credit rating from an international credit rating agency. The investor will need to take care to keep within agreed counterparty limits.

The investor is also at risk from a change in credit rating. A rating upgrade will reduce the yield and increase the market value; if an agency downgrades a bond, its yield will increase and the price will fall. This reflects changes in relative creditworthiness.

This risk can be mitigated by investing in bond funds. However, as with any alternative investment, this will expose the investor to different risks.

Liquidity risk
Because bonds are longer-term instruments, the investor will usually need to sell the bond in the secondary market to redeem the principal. The investor’s ability to do so will depend on the liquidity in the market. For example, in an economic downturn, there may be little appetite from investors to buy corporate bonds, especially the lesser-rated instruments.

Operational costs
There are some administrative costs associated with investing in bonds. The investor will need to appoint a custodian bank, because the bonds are held with securities depositories, such as Euroclear. For more, see page 119.

Assessment
As with all instruments, this assessment of investment key use is designed as a comparative indication. It assumes similarly rated counterparties in the same jurisdiction.

Security
A bond’s security is determined by the creditworthiness of the issuer. The use of credit ratings will help to assess the relative creditworthiness. It is crucial to ensure the correct entity’s rating is assessed. However, because bonds are usually longer-term instruments, investors should not rely on credit ratings alone when assessing counterparty risk.

Liquidity
Bonds are relatively liquid instruments. They can usually be redeemed before maturity via a sale in the secondary market. Their liquidity is therefore dependent on the size of the secondary market, which is determined partly by the activities of local dealer banks. The liquidity of government bonds will also be partially determined by government activity in the markets.

Yield
The return available from a bond will reflect its underlying creditworthiness. In each local market, bonds with the same credit rating will usually offer a similar return. The difference between the return available on differently rated bonds with the same maturity will vary over time.

There may also be a difference in the return offered on bonds with the same credit rating, but with different maturities. This is known as the yield curve effect.

Interest on all bonds is paid regularly. This varies according to the issuer, but will usually be quarterly, every six months or annually.

Like any fixed interest instrument the price of a bond will vary during its life as market interest rates move, or if the creditworthiness of the bond issuer changes.

Key uses
Bonds are most useful in the following circumstances:

- When funds are available to invest for longer than the immediate short term
- To take advantage of differences in the yield curve
- When treasury is unlikely to need to redeem the funds at short notice
- To protect against fluctuating short-term interest rates
- When treasury is seeking to earn an additional return on non-core cash
- As part of a strategy of diversifying risk across a portfolio of investments
In addition to the short-term and longer-term instruments described above, there are many other alternative investment instruments available to companies. Although companies, especially their pension funds, may use the following instruments, for a variety of reasons they are not likely to be suitable for the treasurer seeking to invest working capital.

**Equities**

**Core characteristics**

**Key features**

Equities are shares issued by local and foreign companies. They are usually listed and traded on the local stock exchange. Unlike debt instruments, when an investor purchases a share, this represents a proportional ownership in the issuing company.

**Availability**

Equities are widely available in almost all local markets. Most shares listed on a local stock exchange are issued by domestic companies. Some larger stock exchanges, notably the New York and London Stock Exchanges, list shares issued by foreign companies.

**Nature of the return**

Investors receive a return in two ways:

- **Capital growth.** Capital growth is usually the main reward for the investor.
- **Dividend payment.** Investors may also receive an annual dividend payment. Whether a dividend is paid, and the amount if it is, will depend on the policy of the management of the company. Rapidly growing companies may choose to reinvest profits rather than pay a dividend.

**Accessibility**

Investors access shares through trading members of a stock exchange.

**Assessment**

**Security**

The value of the invested principal will fluctuate according to the price of the underlying share. In the event that that company falls into liquidation, the equity investors bear the first losses.

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**Equity funds**

**Core characteristics**

**Key features**

Equity funds are the most common form of mutual fund. As the name implies, the funds invest in a range of quoted stocks. The nature of the stocks selected by a fund depends on the expressed aims of the fund manager and will affect the security and the yield of the fund. They are known as unit trusts or OEICs (open-ended investment companies) in the UK, mutual funds in the USA and OPVCMs (organismes de placement collectif en valeurs mobilières) in France.

**Availability**

Equity funds are widely available in most local markets.

**Nature of the return**

In most cases, equity funds are designed to provide long-term capital growth for the investor. When making an investment in an equity fund, an investor technically buys a share or unit in the fund company and the return is in the form of a dividend. Funds may be closed, with a fixed number of units/shares in issue, or open-ended, with the ability to create or cancel units to meet demand.

**Accessibility**

Investors can access funds directly or through brokers.

**Main variants**

- **Geographic funds.** Some funds only invest in equities from particular countries or regions. Investors will need to consider country risk.
- **Industry funds.** Some funds only invest in companies operating in a particular sector of the economy. Investors will need to consider the level of exposure to that industry.
Instruments

- Growth or value funds. Some funds concentrate on a particular size of company. Growth funds tend to invest in smaller companies which are expected to grow, including start-ups. Value funds tend to invest in larger, established companies which may be undervalued by the market as a whole.
- Ethical funds. Some funds only invest in companies which meet certain socially responsible criteria.
- Balanced funds. Some fund managers seek to create a fund with a diversified spread of risk. These include index funds which match the return offered by the market as a whole by following a particular market index (such as the FTSE, the Nikkei or the Dow Jones indices).

Assessment

Security

Because the funds invest in equities, the value of the invested principal is determined by the performance of those equities. Investors can manage this risk by selecting particular equity funds, but the underlying risk will always remain.

Liquidity

Equity funds are liquid. Most funds allow investors to withdraw their investment with little or no notice, and with a minimal difference between bid and offer rates. However during times of unusual market strain the manager may impose a restriction on withdrawals. Terms and conditions vary from fund to fund.

Yield

The yield will be determined by a range of factors. The most important will be the investment choices made by the investment managers. The general performance of equities will also be crucial, especially for any index funds.

Key uses

Because of the uncertain nature of the return and the risk to principal, treasurers would have limited use for equity funds when making a working capital investment.

Any company pension fund would consider investing in equity funds.

Hedge funds

Core characteristics

Key features

Their name implies that hedge funds use trading strategies to protect their investment from, and to take advantage of, market movements. In practice, the term hedge fund applies to a range of funds, investing in a variety of instruments. Critically, hedge funds are not constrained by regulatory requirements or the oversight of credit rating agencies.

Most hedge funds are domiciled in offshore locations for tax reasons.

Availability

Hedge funds are increasingly available in a number of markets. They are mainly used by high net worth private investors and institutional investors.

Nature of the return

The nature of the return from an individual fund depends on the investment strategy it adopts. There are significant differences between the investment strategies adopted by individual hedge funds. Some funds target capital growth, whilst others seek to generate short-term income. Hedge funds differ from standard equity funds, because they are permitted to take short positions to benefit from falling markets.

Accessibility

Investors access hedge funds directly.

Main variants

Individual hedge funds vary significantly in terms of their investment strategy. Some funds are highly leveraged, and invest heavily in derivatives. Other funds are much more conservative, and simply seek to use the flexibility offered by the lack of regulation to create a hedged portfolio.

Assessment

Security

There are significant differences of investment approach from one hedge fund to another. Some hedge funds take a more conservative approach to risk and, as a result, the associated counterparty risk will be lower.

Two factors are important for investors of working capital cash:

- Lack of regulation. Because hedge funds are subject to limited regulation, investors do not benefit from the same level of protection that applies with other instruments. This is despite the fact that the UCITS III directive is much more open-ended in regulatory terms compared with its predecessors, such that it will allow hedge fund-like activity.
- Lack of transparency. Linked to this, it is difficult for investors to have a firm knowledge of the risks being taken by the hedge fund managers. Unlike other funds, hedge funds are not subject to the scrutiny of the credit rating agencies. As a result, investors cannot fully evaluate the counterparty risk they assume when investing in a hedge fund.

Liquidity

Hedge funds are relatively liquid investment instruments.

Yield

The potential yield varies according to the approach of the hedge fund manager. Different funds have different investment objectives, which must be understood by investors.
Key uses
Because of the lack of transparency and, sometimes, high-risk strategies, it is unlikely that treasurers would seek, or receive, board level approval to invest working capital in hedge funds.

Currency as an asset class

Core characteristics

Key features
Although major currencies markets are highly liquid and transparent, minor inefficiencies may be created in the foreign exchange market by a number of participants including, for example, treasurers hedging a financial exposure. As a result, active currency managers aim to generate a return from these inefficiencies.

Availability
Active currency management is growing as an activity in the major financial centres.

Nature of the return
In theory, the greater returns should be available from currency pairs, whose value is more volatile. In most cases, active currency management is designed to provide long-term capital growth for the investor.

Accessibility
Most investors will use the services of a specialist active currency manager.

Assessment

Security
Security is dependent on the risk-management policies adopted by the asset manager. It is possible that a manager could experience a loss of principal.

Liquidity
Active currency management is a long-term activity. However, investors should be able to redeem any principal at short notice.

Yield
Yield will be determined by the volatility in the foreign exchange markets.

Key uses
In most cases, companies would not choose currency as an asset when investing working capital. In the short term, treasurers use the foreign exchange market to hedge currency exposures, rather than as a location to deposit cash.

Company pension funds are increasingly turning to currency as an asset, in addition to more traditional instruments such as equities and bonds.

Bank loans as an asset class

Bank loans are emerging as an asset class, notably in the USA. These allow investors to purchase an interest in syndicated loans made to corporate borrowers. These are marketed as a better credit risk than a bond or other debt instrument issued by a similarly rated borrower, essentially because of the loan's seniority in the borrower's capital structure and the tighter covenants typically included.

However, these instruments are not suitable for corporate treasurers seeking to maintain the security and liquidity of their short-term cash. Set against any yield pick-up, there are potential disadvantages from the lack of a rating, the lack of liquidity, the inclusion of non-standardised, and possibly, complex terms and conditions and the risk of withholding tax on interest.
Financial Calculations

Interest rate calculations

Note: the rate of interest or yield in these calculations is represented by the % rate/100.
For example, for a 5% rate, calculate using the number 0.05.

Simple interest

The simplest investment instruments pay simple interest. This means the investor will invest a principal sum and then receive an interest payment calculated from that principal sum from the time of investment until either the instrument matures or the investor redeems the principal. The investor will receive the interest payment, but will be responsible for reinvesting it.

Bonds are perhaps the most common instrument paying a simple interest return. At every interest period, the investor will receive a coupon calculated on the basis of the original principal sum invested. The investor may have used previous interest receipts to purchase additional bonds, but they will generate their own return.

The annual proceeds can be calculated using the following formula:

\[ \text{Proceeds} = (\text{principal} \times (1 + r)) - \text{principal} \]

where \( r \) is the rate of interest.

So, for example, if an investor holds a five-year bond (face value 100) paying a fixed annual coupon of 8%, the investor will receive coupon payments at the end of the first four years of 8. At the end of the fifth year, the investor will receive the coupon of 8 plus the maturing principal 100.

Using the formula:

\[ \text{Proceeds} = (100 \times (1 + 0.08)) - 100 \]

If the investor receives semi-annual (six-monthly) coupon payments, this will be in form of two payments per year of 4 each time. Again, the investor is responsible for reinvesting the received coupons.

Compound interest

In other cases, the investment instrument pays compound interest. This means the investor will invest a principal sum. Any interest earned will be reinvested in the same instrument and added to the invested principal. Subsequent interest payments will be calculated using the enhanced principal.
Nominal versus effective rates of interest

When an investor is earning compound interest, it is useful to be able to calculate the effective rate of interest, especially if the instrument is paying interest more than once a year. It is essential to do this calculation when comparing the returns generated from investments with different interest payment frequencies. This enables the investor to compare like with like.

The effective rate of interest is:

$$\left(1 + \frac{r}{n}\right)^n - 1$$

where \(n\) is the number of interest payments a year and \(r\) is the nominal annual rate of interest.

For example, if an instrument pays interest twice a year (\(n=2\)) and the rate of interest is 3.5% p.a., then the effective rate of interest is:

$$\left(1 + \frac{0.035}{2}\right)^2 - 1 = 3.53\%$$

The effective rate is higher because it assumes the interest earned after six months is reinvested at the same rate for the next six months.

Continuously compounding interest

At the extreme, interest is continuously compounding. This is rare and assumes interest is earned continuously and immediately reinvested.

The annual proceeds can be calculated using the following formula:

$$\text{Proceeds} = \text{principal} \times \left(e^{rt} - 1\right)$$

where \(e\) = 2.71828, the base of natural logarithms.

Using the example of 100 invested at 8%, the annual proceeds as a result of continuously compounding interest will be:

$$100 \times \left(e^{0.08} - 1\right) = 8.24\%$$

The more frequently interest is applied (assuming the proceeds are reinvested at the same rate), the higher the annual return will be.

Long-term investment proceeds

Compound interest also has an effect on instruments held for more than a year, even if interest is only paid annually. This is because the receipts are reinvested at the same rate and interest is then earned on the new principal.

The long-term proceeds can be calculated using the following formula:

$$\text{Long-term proceeds} = \left[\text{principal} \times \left(1 + r\right)^y - \text{principal}\right]$$

where \(y\) is the number of years.

If we assume the same original principal of 100, the same rate of interest of 8% p.a. and the same investment period of five years, we can calculate the long-term proceeds:

$$100 \times \left(1 + 0.08\right)^5 - 100 = 46.93$$

This return compares well to the total proceeds of the bond paying a simple interest return illustrated above. This paid a total return of 40 (five different coupon payments of 8), compared to the compounded return of 46.93.

The investor may well have decided to reinvest the coupons earned under simple interest, but will only have been able to earn a total return of 46.93 if each coupon payment was reinvested at 8%, which may not have been possible. This is reinvestment risk. On the other hand, the investor may have been able to reinvest at a better rate than 8%, and then would have earned in excess of 46.93.

Total proceeds of a short-term investment

When making an investment for period under a year, the investor will also need to compare the respective potential returns from prospective instruments.

In this case, the interest proceeds from an investment made for under a year, and assuming interest at maturity only, can be calculated using the following formula:

$$\text{Proceeds} = \left[\left(\text{principal} \times \left(1 + \left(r \times \frac{d}{y}\right)\right)\right) - \text{principal}\right]$$

where \(r\) is the rate of interest, \(d\) the number of days in the interest period and \(y\) the number of days in the year.

In this case, the number of days in the year becomes important. This will depend on which particular day-count convention applies in the relevant market, either 360 or 365 days.

This formula calculates the proportion of the full term interest payment which should be earned.
For example, consider an investment of $100 held at a rate of 8% p.a. for 57 days, in a market in which the convention is 360 days. The proceeds would be as follows:

\[
\left[\left(100 \times \left[1 + \frac{0.08 \times 57}{360}\right]\right) - 100\right] \approx 1.27
\]

**Bond pricing**

The following techniques are then useful for pricing bonds and other investment instruments. The principle underpinning all investment instrument valuation is the idea that the investor will pay the net present value of all future cash flows. The net present value represents the capital sum which, when invested at the discount rate, would be able to generate all the stated flows of that investment.

For a zero coupon bond (or a bond nearing maturity after the final coupon has been paid), an investor will pay:

\[
\text{Price of zero coupon bond} = \frac{\text{maturity proceeds}}{\left[1 + \left(\frac{\text{yield}}{\text{number of days to maturity}}\right)\right]^{\text{number of days to maturity}}}
\]

For a zero coupon bond with more than a year to run, the compounding effect means that with an annualised yield and \( n \) years to run, an investor will pay:

\[
\text{Price of zero coupon bond} = \frac{\text{maturity proceeds}}{\left[1 + \frac{\text{yield}}{\text{number of days to maturity}}\right]^{i \cdot \text{number of days to maturity}}}
\]

If a bond has interim coupon payments, the purchaser will have to compensate the seller for the time that they have held the bond since the last coupon payment. This can be calculated using the following formula:

\[
\text{Ex-dividend} = -\frac{(\text{face value} \times \text{coupon rate} \times \text{number of days until next coupon})}{\text{number of days in the year}}
\]

In some cases, the seller will have to compensate the purchaser of the bond. This occurs when a coupon payment is made after the bond is sold, but the administration process is delayed such that the coupon payment is made to the previous holder. This is known as an ex-dividend payment and the seller will have to pay the value of the accrued coupon, calculated using the following formula:

\[
\text{Ex-dividend} = -\frac{(\text{face value} \times \text{coupon rate} \times \text{number of days since last coupon})}{\text{number of days in the year}}
\]

**Discount to yield**

Some short-term instruments, such as commercial paper, are issued at a discount and so they are non-interest bearing. This means the investor will invest a discounted amount and receive back face value on maturity. By convention, these instruments are nonetheless quoted as a yield.

\[
\text{Discounted proceeds} = \frac{\text{face value of principal}}{\left[1 + \left(\frac{\text{quoted yield} \times \text{days to run}}{\text{number of days in the year}}\right)\right]}
\]

**Bond yields**

The yield on a corporate bond can be expressed either as an absolute rate or as a spread over a reference market rate. The spread is usually given as the number of basis points over the relevant government security or over the swap rate for the same maturity and currency. In most cases, corporate bonds pay interest annually, whereas government bonds and swap rates pay interest semi-annually.

When comparing yields, it is essential to ensure that any comparisons are done on a like for like basis.

**Repos – implied rate of interest**

These techniques can also be used to imply the rate of interest on a repo transaction. This is calculated using the following formula:

\[
\text{Interest rate} = \left[\frac{\text{future value} - \text{present value of purchased security}}{\text{number of days in year}}\right] - 1
\]

In effect, this extrapolates the difference between the two transaction prices into an annual interest rate and can be useful when comparing alternative investment returns.

**Net present value**

One way of comparing alternative investment instruments is to translate all future cash flows into a present value.

The following formula translates a future cash flow into a present value:

\[
PV = \frac{FV}{\left(1 + \frac{r}{n}\right)^d}
\]

where \( r \) is the rate of interest, \( n \) is the number of interest payments every year, \( d \) is the number of days until the cash flow and \( y \) is the number of days in the year (as determined by the day-count convention).

For example, the present value of 100, a cash flow expected in 27 days in a 365-environment with the current interest rate of 4.75%, can be calculated as follows:

\[
PV = \frac{100}{\left(1 + \frac{0.0475}{1}\right)^{\frac{27}{365}}} = 99.66
\]

The net present value of a series of cash flows (perhaps those associated with a bond) is simply calculated by summing the present value of each individual future cash flow.
For example, consider a five-year bond with a face value of 100 paying annual coupons of 6% with a current yield of 4.5%. The price of the bond would be calculated by discounting each future cash flow (the five annual coupon payments and the repayment of principal at the end of the fifth year) to a present value.

Using the formula above, the calculation would be:

\[
\text{Price} = \frac{6}{1.045} + \frac{6}{1.045^2} + \frac{6}{1.045^3} + \frac{6}{1.045^4} + \frac{106}{1.045^5} = 106.58
\]

The bond price is above 100 (above par) because the current yield is below the coupon rate.

**Calculating duration**

Duration uses the concepts of net present value to help investors manage their exposure to interest rate risk. An investment is sensitive to changes in the interest rate. In general terms and especially for instruments paying a fixed rate of interest, the price of an instrument falls as the interest rate rises, and vice versa.

The duration (sometimes called the Macaulay duration) of an investment is a measurement of how long it takes on average for the bondholder to receive the associated cash flows under the bond, including coupon payments. In its simplest form, duration is a measure of the weighted average of the timing of all the payment flows associated with that investment.

It can be calculated using the following formula:

\[
\text{Duration} = \frac{\text{sum of (present values of each cash flow x time to that cash flow)}}{\text{sum of (present values of each cash flow)}}
\]

**Modified duration**

This concept can also be extended to measure an investment’s sensitivity to a change in the interest rate. Modified duration is calculated using the following formula:

\[
\text{Modified duration} = \frac{\text{Macaulay duration}}{1 + \frac{\text{YTM}}{n}}
\]

where YTM is the yield to maturity and n is the number of interest periods per year.

Modified duration of x means that for every 1% fall in the interest rate, the price of the investment will increase by approximately x%. The price of an investment with a 15-year duration will move more as interest rates change than an investment with a ten-year duration.

**Constructing a yield curve**

As part of their investment strategy, investors often want to construct a yield curve. Knowing the shape of the yield curve allows investors to adopt different strategies. In most cases, the yield curve suggests that longer-dated instruments offer a higher return than shorter-dated instruments. Investors are rewarded for giving up some liquidity by a higher return.

In some cases, the yield curve is unusual. For example, sometimes short-term instruments offer a better return than longer-dated instruments. This is seen in an inverted yield curve.

**Figure A2. Diagram of inverted yield curve**

This can arise for a number of reasons. The market may expect interest rates to fall, as a result of central bank activity or due to general economic conditions. Alternatively, a government may have issued a large number of long-dated bonds and the market may simply be reflecting the short-term excess of supply over demand for that particular date.

It is possible to ‘ride the yield curve’ if there is an upward sloping yield curve. In these circumstances, an investor may invest for in an instrument with a longer maturity before selling out when the maturity has shortened, at which point the price will have risen because the yield has reduced. This assumes the yield curve is static with time. There can be other opportunities to gain better returns than expected, especially if the curve is not a normal shape. However, to be successful, investors will need to understand why the yield curve’s shape is unusual and how it might change with time.
### Plotting a yield curve

In order to plot a yield curve, investors can use market rates for instruments of different maturities. By using government paper (treasury bills and notes), the investors can minimise the effect of risk on the shape of the curve.

In some countries, governments only issue paper for a small number of maturities. In this case, investors may need to extrapolate and interpolate yields for different maturities to complete the curve.

This formula can be used to interpolating an interest rate, although it is based on a linear equation:

\[
\text{Interest rate } r_d = r_x + \frac{(r_y - r_x)}{(y - x)} \cdot (d - x)
\]

where \(r_d\) is the interest rate for \(d\) days, \(r_x\) is the interest rate for \(x\) days and \(r_y\) is the interest rate for \(y\) days.

It is also possible to plot a forward yield curve, using current spot rates. For example, knowing the current three-month and six-month LIBOR rates, we can calculate the forward rate for an investment placed in three months and redeemed in six months time (this rate is known as the 3x6 forward rate, as it starts in three months and matures in six months). This is because the return on an investment made at the three-month LIBOR rate which is reinvested for a further three months at the forward rate must equal the return on a six-month LIBOR investment. If not, arbitrage opportunities will be exploited until it does so.

The equation is as follows:

\[
\left(1 + \frac{92}{365}\right) \times \left(1 + \frac{91}{365}\right) = \left(1 + \frac{183}{365}\right)
\]

So, if three-month Libor = 2.86% and six-month Libor is 3.03%, we can solve for the 3 x 6 forward rate (\(r\)):

\[
\left(1 + 0.0286 \times \frac{92}{365}\right) \times \left(1 + r \times \frac{91}{365}\right) = \left(1 + 0.0303 \times \frac{183}{365}\right)
\]

\[1.0072 \times \left(1 + r \times \frac{91}{365}\right) = 1.0152\]

Solving for \(r\), we get 0.0318, or 3.18%. This is intuitively correct, as the investor would expect to earn a higher return from the second three months to obtain the same return had the funds been invested for the full six months.

A full forward curve can be calculated using existing spot rates to create 1 x 4, 2 x 5, 4 x 7 rates, and so on.

### Summary of day-count conventions

Interest is calculated in different ways, depending on the market in which an investment is made.

For a short-term investment, interest is accrued according to the formula:

\[
\text{Interest accrued} = \text{principal} \times \left(\frac{r \times d}{y}\right)
\]

where \(r\) is the rate of interest, \(d\) the number of days in the interest period and \(y\) the number of days in the year.

Most markets base interest calculations on a 360-day year, although some calculate on the basis of a 365-day year (sometimes referred to as an actual basis).

There can also be variances in the calculation of the number of days in an interest period. In the money market, most calculations are done on an actual basis. Sometimes ‘bond basis’, where all months are assumed to have 30 days (and years to have 360 days), is applied in the money market (although this is more common in the bond markets).

Day-count conventions are determined by a combination of the currency of the issued security and the market (whether domestic or international) into which it is issued. A summary of the conventions is given below. However, as with any convention, it is important to establish exactly how interest is applied before making an investment.

<table>
<thead>
<tr>
<th>Convention</th>
<th>Domestic money market</th>
<th>International money market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual/360 (ACT/360)</td>
<td>EUR, DKK, SEK, NOK (except Treasury bills)</td>
<td>EUR, DKK, SEK, NOK</td>
</tr>
<tr>
<td>Number of days as, 360 days in year</td>
<td>CHF, USD</td>
<td>CHF, JPY, USD</td>
</tr>
<tr>
<td>Actual/365 fixed</td>
<td>AUD, CAD, NZD</td>
<td>AUD, CAD, NZD</td>
</tr>
<tr>
<td>Number of days as, 365 days in year (even leap years)</td>
<td>JPY, HKD, SGD, TWD, ZAR</td>
<td>JPY, HKD, SGD, TWD, ZAR</td>
</tr>
<tr>
<td>Actual/365 fixed Treasury bills</td>
<td>GBP, NOK Treasury bills</td>
<td>GBP</td>
</tr>
<tr>
<td>30/360</td>
<td>SEK Treasury bills</td>
<td></td>
</tr>
</tbody>
</table>

Most US corporate and federal agency bonds are issued on ‘bond basis’. Some Eurobonds (those issued into the international market) and Swiss bonds are issued on a modified ‘Eurobond basis’ (if the last date of the interest period is 28 February, then the month will not be extended to 30 days).

Other bonds, including EUR-denominated bonds, GBP-denominated bonds, and US treasury notes, are usually issued on an Actual/365 (or actual/actual) basis. This is different from Actual/365 fixed, as actual/actual computes on 366 days in a leap year.
**Interest basis – converting 360-day to 365-day basis**

In order to compare proceeds from investments calculated on a different basis, treasury will need to convert all rates to a common basis. This can be done using the following formula:

\[
\text{Interest on quoted basis} \times \frac{\text{number of days in comparison}}{\text{number of days in quoted year}}
\]

So, if a treasurer wanted to compare a 4.5% interest rate calculated on a 365-day year with instruments calculating interest on a 360-day basis, the calculation would be:

\[
\text{Comparison interest rate} = 4.5 \times \frac{360}{365} = 4.44\%
\]

This formula can also be used to translate a 360-day interest rate into an equivalent 365-day rate. Note that rates prepared on a 360-day basis will always be slightly lower than those on a 365-day basis.

**How LIBOR and Euribor rates are calculated**

When appraising investments, it is important to understand any benchmark interest rates. One of the most commonly used benchmark rates is Libor (originally the London InterBank Offered Rate).

The LIBOR rates used to be calculated daily for ten major currencies (AUD, CAD, CHF, DKK, EUR, GBP, JPY, NZD, SEK and USD) and for 15 maturities ranging from overnight (or spot/next) to the maximum 12 months.

However, since the emergence of allegations of LIBOR manipulation, the recommendations of the Wheatley Review into LIBOR have begun to be implemented. As a result, LIBOR rates will only be calculated daily for five major currencies (CHF, EUR, GBP, JPY and USD) and for seven maturities (overnight/spot/next, one week, one month, two months, three months, six months, and 12 months). Two euro same-day rates (one week and one month) will also be published.

Each LIBOR rate is developed from a panel of contributor banks (ranging from eight to 16 banks per currency), each of which was asked to respond to this question on a daily basis: ‘At what rate could you borrow funds, were you to do so by asking for and then accepting interbank offers in a reasonable market size just prior to 11am?’ Personnel at each of the contributor banks filed their bank’s rates to Thomson Reuters, which performed the rate calculation on behalf of BBA Libor Ltd. The top and bottom quartile submissions are deleted (to avoid outliers distorting the result) and the daily LIBOR rate is calculated as the mean of the remaining four to eight submitted rates. The daily rates are then published electronically by ten data vendors.

Under the Wheatley reforms, the body responsible for the administration of LIBOR (ICE Benchmark Administration Ltd) is regulated by the Financial Conduct Authority and requires bank submissions to be supported by transactional evidence, while still requiring contributors to use professional judgement where transactional date is insufficient or unrepresentative. This change plus certain governance reforms should reduce the risk of banks being able to manipulate the rates.

The European Banking Federation (EBF) produces the Euribor (Euro Interbank Offered Rate) benchmark on a daily basis. It uses a similar calculation method to LIBOR, with rates provided by a large panel of contributor banks, with the top and bottom 15% of submissions deleted before each rate is calculated. It is the rate at which contributors believe euro interbank term deposits would be offered by one prime bank to another prime bank within the EMU zone. Rates have been published for 15 maturities, ranging from one week to 12 months. Since 2012, the EBF has published its USD Euribor benchmark for 15 maturities, from overnight to 12 months.

As with LIBOR, the calculation of Euribor is also being reformed. It is proposed that Euribor should now be calculated for seven maturities (one week, one month, two months, three months, six months, nine months and 12 months) and clearer definitions of ‘interbank’ and ‘prime bank’ are being developed.

The EBF also produces an overnight reference rate for EUR, the Euro Overnight Index Average (Eonia), which is calculated via the European Central Bank, and is a weighted average of overnight interbank lending transactions in the euro area by the same panel banks which help to calculate Euribor.

Understanding the rate-setting process is essential. It is important to recognise that the contributor panel for Euribor and Eonia is larger than the LIBOR panels, which might increase the potential impact from involving banks with a lower credit standing in the EBF rates, according to their interpretation of ‘prime bank’. Generally speaking, the Euribor rate tends to come in at levels that are slightly higher than the LIBOR rate for euros, probably for liquidity reasons.

The Sterling Overnight Index Average (SONIA) is the actual average market sterling funding rates each day based on all unsecured sterling overnight cash transactions brokered in London by the Wholesale Market Brokers’ Association (WMBA) member firms.

Finally, because LIBOR started as an offered rate, it was better suited to benchmark borrowing rates, and a bid rate may be more appropriate for short-term investment. Traditionally the London Interbank Bid Rate (LIBiD) was taken as LIBOR less a margin of 0.125%. Today, in practice, in the current low-rate environment, the bid rate is not so clearly defined. Given the somewhat arbitrary nature of this margin, a treasurer may be better served by benchmarking against LIBOR itself and determining an appropriate margin if necessary. Few contracts or deals now refer to Libid.
Financial calculations

Foreign exchange calculations

Forward exchange rates

When managing investments, treasury may want to fix a future exchange rate to ensure access to the required foreign currency on the date of maturity. This is possible through the use of a forward foreign exchange rate. Forward foreign exchange rates are calculated from the spot rate between the two currencies and the respective currency interest rates.

To calculate a forward exchange rate between the euro and the US dollar for 60 days’ time, we would use the following equation:

\[
\text{Forward rate} = \text{spot rate} \times \left[ \frac{1 + (r_v \times \frac{d}{y})}{1 + (r_b \times \frac{d}{y})} \right]
\]

where \( r_v \) is the variable currency interest rate, \( r_b \) is the base currency interest rate, \( d \) is the number of days until settlement and \( y \) is the number of days in the year. By convention, all currency pairs are quoted in the same way. The first named currency is the base currency and the second is the variable currency. In most cases, the US dollar is quoted first (the exceptions against the USD are GBP, EUR, AUD and NZD, which are quoted first).

For example, to calculate the EUR/USD exchange rate 40 days forward when the spot rate is 1.20, with the EUR interest rate 2.5% and the USD interest rate 4.0%, we use the formula:

\[
\text{Forward rate} = 1.20 \times \left[ \frac{1 + (0.025 \times \frac{40}{360})}{1 + (0.04 \times \frac{40}{360})} \right] = 1.202
\]

This can also be calculated using a points adjustment. In this case, the formula is:

\[
\text{Forward rate} = \text{spot rate} + \left( \text{spot rate} \times (r_v - r_b) \times \frac{d}{y} \right)
\]

Using the example above:

\[
\text{Forward rate} = 1.20 + \left[ 1.20 \times (0.04 - 0.025) \times \frac{40}{360} \right] = 1.202
\]

By convention, exchange rates are quoted with a bid/offer rate. The bid rate is the rate at which the counterparty bank will buy the currency from the company and the offer rate is the rate at which the counterparty bank will sell the currency to the company. For example, the spot EUR/USD exchange rate may be quoted as 1.2020/1.2023. This shows a bank will sell USD 1.2020 for 1 euro. A company would need to sell USD 1.2023 to receive 1 euro.

Forward rates are usually quoted in terms of the differential between the spot and the forward rate. For example, the spot GBP/USD rate could be 1.7625/1.7629, with forward points at 50/49. Because the larger number comes first, this means the points should be subtracted from the spot rate (indicating that US interest rates are higher than UK rates at the time of the quote). If the rate was quoted as 1.7625/1.7629, with forward points at 49/50, the points should be added to the spot rate, implying UK rates are higher than US rates. Finally, it is important to remember that spreads for forward rates are always greater than those for spot rates: a useful check that you have the convention the right way round.
**Derivatives transactions**

**Swaps**
When entering into an interest rate swap agreement, it may be possible to calculate the net present values of the two different sets of cash flows associated with the swap. The calculation of the net present value uses the formula explained earlier.

Calculating the net present value of the fixed-rate leg of an interest rate swap is relatively straightforward. Calculating the net present value of any floating rate leg is more complex. Investors can infer the likely future cash flows by using the forward interest rates implied by the current zero coupon yield curve. These can then be discounted to a present value using the same formula.

Finally, the net present value of the swap is represented by the difference between the two calculations.

**FRAs**
A forward rate agreement allows one party to fix a rate of interest (the contract rate) from one point in the future to another (the contract period) and make payments on the basis of a set principal amount. The FRA effectively locks in either a payable or receivable rate for the future period. The settlement rate is determined with reference to an appropriate money market rate (e.g. Libor or Euribor) ruling on the start of the contract period.

The two parties will exchange a settlement amount at the beginning of the contract period. The settlement amount represents the difference between the settlement rate and the contracted rate discounted back from the end date. It is calculated using the following formula:

\[
\text{Settlement} = \left( s - c \right) \times \frac{\text{principal} \times \frac{n}{y}}{1 + \left( s \times \frac{n}{y} \right)}
\]

where \( s \) is the settlement rate, \( c \) is the contract rate, \( n \) is the number of days in the contract period and \( y \) is the number of days in the year.

For example, an investor may decide to enter into an FRA with a bank to fix the interest the interest rate at 3% for three months in three months’ time. If the nominal principal amount is EUR 450,000 and the rate at the beginning of the contract period is 3.15%, then the settlement payment will be:

\[
\left( 0.0315 - 0.03 \right) \times 450,000 \times \frac{92}{360} \left/ \left( 1 + \left( 0.0315 \times \frac{92}{360} \right) \right) \right) = \text{EUR 171.12}
\]

Because the settlement rate is above the contract rate, this is paid by the party wanting to fix the rate to the counterparty bank.

**Options**
Options are complex to value. The Black-Scholes model is one method of valuing an option. The original equation calculated the value of a call option on a stock. This would give the holder the right to buy the stock on a particular date in the future.

The value of the Black-Scholes call option is:

\[
= \left( P \times N(d_1) \right) - \left( K \times e^{-rT} \times N(d_2) \right)
\]

where \( P \) is the current stock price, \( K \) is the exercise price, and \( e^{-rT} \) is the factor which discounts \( K \) to a present value. \( N(d_1) \) is an assessment of the likelihood of the option being exercised; and \( N(d_2) \) is an assessment of the likelihood of the option being ‘in the money’ on exercise day (in other words, of \( K < P \) on exercise day).

This basic model has been adapted to value all types of option, including currency options.
### COUNTRY PROFILES

Bespoke profiles covering over 200 countries:

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<th>Subject</th>
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<td>Legal and regulatory</td>
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<tr>
<td>Bank penetration</td>
<td>Liquidity management</td>
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<tr>
<td>Banking system</td>
<td>Payment/collection instruments</td>
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<tr>
<td>Cash management</td>
<td>Payment systems</td>
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<tr>
<td>Central bank reporting</td>
<td>Political background</td>
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<td>Commercial cards</td>
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<td>Counter-terrorist financing</td>
<td>Short-term investments</td>
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<td>Short/medium/long-term funding</td>
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<tr>
<td>Economic background</td>
<td>Sovereign debt repayment</td>
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<tr>
<td>Economic data</td>
<td>Taxation</td>
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<tr>
<td>Electronic banking</td>
<td>Trade (finance)</td>
</tr>
<tr>
<td>Exchange controls</td>
<td>Plus other required topics</td>
</tr>
<tr>
<td>Holidays – payments and public</td>
<td>Useful contact addresses</td>
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### PUBLICATIONS

**Treasury Managers’ Handbooks for:**
- Africa
- The Americas
- Asia Pacific and Australasia
- Europe
- Middle East

**White-labelled publications**

**Treasurers’ Guides to:**
- International Cash Management
- Investing Cash
- Trade Finance
- Treasury Technology

AFP Thought leadership guides

Guide to Treasury Best Practice and Terminology
**Argentina**

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or ✗</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest-bearing current accounts are permitted and they are offered by the larger banks.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing USD denominated savings accounts are available to individuals and companies. Authorisation from the Central Bank of Argentina (BCRA) is required for interest-bearing savings accounts denominated in other foreign currencies.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits in ARS (at fixed and variable rates for ARS and also CER rates) and USD are available. ARS fixed rate deposits are subject to a 30 day minimum term. ARS variable rate deposits are subject to a 120 day minimum term. CER-linked time deposits are only available for maturities of a year or longer.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit (CDs) are available in nominal and inflation-adjusted instruments with a range of maturities. The most popular maturities are under two months. CDs have declined in popularity due to relatively low interest rates.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✗</td>
<td>The Argentine Treasury has not issued Treasury bills since defaulting in 2001. The BCRA issues bills denominated in ARS. Fixed and floating rate bills are both available. ARS BCRA bills are issued with maturities between one month and three years.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✗</td>
<td>Although domestic commercial paper issuance is possible, Argentinian companies do not tend to do so. Where issued, commercial paper has a maturity of between 90 days and two years.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Short-term mutual investment funds are available.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) are available with maturities ranging from overnight to 30 days (terms up to seven days are the most traded). Repos are used by financial institutions.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✗</td>
<td>Bankers’ acceptances are not used as short-term investment instruments in Argentina.</td>
</tr>
</tbody>
</table>

**Withholding tax on interest payments to companies**

| Source: Deloitte Touche Tohmatsu, 2014. | To resident companies: 3%/6%/28%. To non-resident companies (subject to tax treaties): 35% or 15.05%. |

Country profiles
Argentina – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or x</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td>Depository</td>
<td>Caja de Valores SA.</td>
<td></td>
</tr>
<tr>
<td>Central counterparty</td>
<td>Mercado de Valores de Buenos Aires (Merval).</td>
<td></td>
</tr>
<tr>
<td>Settlement</td>
<td>Most securities settle on T+3, but Mercado Abierto Electrónico (MAE) executed trades of Letras del Tesoros settle on T+1. A T+0 cycle for Bolsa de Comercio de Buenos Aires and MAE transactions is optionally available, but is not used by foreign investors. In March 2010, T+1 and T+2 cycles were introduced for trades at Merval and MAE.</td>
<td></td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013

Australia

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or x</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>Residents and non-residents can hold interest-bearing current accounts in local (AUD) and foreign currencies.</td>
<td></td>
</tr>
<tr>
<td>Demand deposits</td>
<td>Interest-bearing demand deposit accounts are widely available.</td>
<td></td>
</tr>
<tr>
<td>Time deposits</td>
<td>Term deposits in AUD and foreign currencies are available. Maturities range from seven days to over a year.</td>
<td></td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>These are short-term debt instruments issued by banks. Most investments are for durations between one and six months. There is an active secondary market for certificates of deposit in Australia.</td>
<td></td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>The Reserve Bank of Australia (RBA) issues Treasury notes on behalf of the Australian Government (Australian Office of Financial Management). Treasury notes are short-term instruments designed to meet short-term government funding requirements. Treasury notes are issued on an ‘as required’ basis. No notes have been issued since 2003. Overnight indexed swap rates are also issued by the RBA.</td>
<td></td>
</tr>
<tr>
<td>Commercial paper</td>
<td>Australian companies issue discounted promissory notes, which are popular with institutional investors. Notes are issued for maturities which usually range from seven days to six months.</td>
<td></td>
</tr>
<tr>
<td>Money market funds</td>
<td>Numerous banks offer access to managed funds as part of their suite of short-term investment products.</td>
<td></td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>Repurchase agreements (repos) are available as short-term investments in Australia. They tend to be used more by financial institutions than by companies. Repos have an average maturity of 30 days.</td>
<td></td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>These are called bank bills in Australia. Bank bills are issued with maturities of one month, three months and six months. Most bills have one-month maturities.</td>
<td></td>
</tr>
</tbody>
</table>

Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: None.
To non-resident companies (subject to tax treaties): 10%.

Custody and settlement arrangements

| Depositories | ASX Settlement. ASX Austraclear. |

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
## Austria – continued

### Instruments

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>Interest payable on bank account surplus balances</strong></td>
<td>✓</td>
<td>There are no restrictions on interest payments on resident or non-resident current accounts.</td>
</tr>
<tr>
<td><strong>Demand deposits</strong></td>
<td>✓</td>
<td>Interest-bearing demand deposit accounts are available.</td>
</tr>
<tr>
<td><strong>Time deposits</strong></td>
<td>✓</td>
<td>Time deposits are the most popular method of short-term investment among companies in Austria. Time deposits in EUR and foreign currencies are available. The minimum investment depends on the currency and maturity of the deposit. Maturities range from seven days to over a year.</td>
</tr>
<tr>
<td><strong>Certificates of deposit</strong></td>
<td>✓</td>
<td>Banks issue certificates of deposit in maturities ranging up to one year.</td>
</tr>
<tr>
<td><strong>Treasury (government) bills</strong></td>
<td>✓</td>
<td>Treasury bills (ATBs) are issued by the Austrian Treasury (Österreichische Bundesfinanzierungsagentur) on behalf of the Austrian government. Bills are issued, usually at a discount, with maturities between seven days and one year. The minimum investment is EUR 100,000. Treasury certificates and government bonds are also available.</td>
</tr>
<tr>
<td><strong>Commercial paper</strong></td>
<td>✓</td>
<td>Commercial paper is issued by large companies at a discount for maturities of three, six, nine and 12 months.</td>
</tr>
<tr>
<td><strong>Money market funds</strong></td>
<td>✓</td>
<td>Some banks offer money market funds as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td><strong>Repurchase agreements</strong></td>
<td>✓</td>
<td>Repurchase agreements (repos) permit customers to buy securities for a specific period of time and yield interest on an overnight rate. Banks repurchase the securities (including interest) at maturity. Austria is home to an active repo market.</td>
</tr>
<tr>
<td><strong>Bankers’ acceptances</strong></td>
<td>–</td>
<td>There is no evidence that bankers’ acceptances are used as short-term investments by companies.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

| Source: Deloitte Touche Tohmatsu, 2014 | To resident companies: 0%/25%. To non-resident companies (subject to tax treaties): 0%/25%. |

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All custody information provided by GlobalCustody.net. The above is an extract from [www.globalcustody.net](http://www.globalcustody.net) September 2013

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**Australia**

### Instruments

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia’s securities settlement and custody includes:</td>
<td></td>
<td>The Australian Securities Exchange (ASX) owns ASX Clear and ASX Settlement Corporation. ASX Clear is Australia’s clearing facility and central counterparty for securities listed on the exchange’s trading platform for cash market securities (comprising equities, pooled investment products and warrants) and derivatives (comprising exchange traded options and futures, predominantly equity related). ASX Clear operates the Derivatives Clearing System (DCS) to clear and settle equity-related derivative products. ASX Settlement Corporation has two wholly owned subsidiaries ASX Settlement and ASX Austraclear, which provide all settlement and central registration of equities and debt instruments respectively. ASX Settlement operates CHESS (Clearing House Electronic SubRegister System), a system for the electronic settlement of equities on a T+3 cycle. Debt instruments often settle on a T+3 cycle, but in some cases this can between T and T+3. Settlement of securities occurs on a gross basis, simultaneously with real-time gross settlement (RTGS) of cash, so that a final transfer of securities only occurs once the transfer of cleared funds is confirmed.</td>
</tr>
</tbody>
</table>

---

**Country profiles**
Belgium

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ / ×</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest can generally be earned on resident and non-resident current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing demand deposit accounts are available.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Interest rates vary in accordance with the maturity and amount of the time deposit. Maturities range from one week up to 12 months in EUR or major foreign currencies.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Offered by commercial banks, certificates of deposit are short-term promissory notes, which have a minimum maturity of seven days and a maximum maturity of one year. Most have a fixed rate of interest. The minimum investment amount is EUR 250,000.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury securities are regularly issued by the Belgian Debt Office, of which there are two types: Treasury bills (issued in any OECD currency with maturities of up to three months). Treasury certificates (issued in EUR at a discount with maturities of three, six or 12 months). Accrued interest is not subject to withholding tax.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Offered by companies and public authorities, commercial paper has a minimum maturity of seven days and a maximum maturity of one year. The minimum investment amount is EUR 250,000. It is common for amounts to exceed EUR 5 million.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Companies can invest in SICAVs (Sociétés d’Investissement à Capital Variable), which are open-ended investment companies. Local funds are based in Belgium and Luxembourg.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) usually have maturities ranging from one day to one week.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>×</td>
<td>There is no evidence that bankers’ acceptances are used by companies as short-term investments.</td>
</tr>
</tbody>
</table>

Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014
To resident companies: 0%/15%/25%.
To non-resident companies (subject to tax treaties): 0%/15%/25%.
## Bermuda

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Comments</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest can be paid on current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>—</td>
<td>Fixed term deposit accounts are available from the leading banks in local currency (BMD) and all major foreign currencies, with maturities typically ranging from one week to one year.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Certificates of deposit are available in BMD and all major foreign currencies.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit are available in BMD and all major foreign currencies.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>—</td>
<td>Commercial paper is available.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Bermuda’s banks offer access to money market funds for short-term investment.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>—</td>
<td>Repurchase agreements are available.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>—</td>
<td>There is no evidence that bankers’ acceptances are used as short-term investment instruments by companies.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

- To resident companies: None.
- To non-resident companies (subject to tax treaties): None.

### Custody and settlement arrangements

- Depository: Bermuda Securities Depository.
- Settlement: Securities settle on a T+3 cycle, with most Bermudian issues currently dematerialised in the BSD.

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All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
### Brazil

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>X</td>
<td>This is not formally available in Brazil. However, some banks use automatic investment of surplus balances on mutual funds to generate very similar results.</td>
<td></td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing BRL denominated savings accounts are available.</td>
<td></td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits in BRL are available, with maturities between 30 and 120 days.</td>
<td></td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit (called CDB in Brazil) are widely used in the country. Maturities usually range from one month to one year (although there is no maximum maturity). Both fixed and floating rate CDBs are issued and widely available.</td>
<td></td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Two types of Treasury bills are issued – National Treasury Bills (called LTN in Brazil) and Treasury Financial Bills (called LFT in Brazil). Also, a portfolio of different Treasury notes exists – National Treasury Notes (called NTN in Brazil). Both bills and notes are issued for a wide range of maturities. Bills (LTN and LFT) are issued and traded at a discount over par value. Notes (NTN) pay a coupon over face value, which is usually index-linked. These notes are issued in both BRL and USD. The Central Bank of Brazil also issues its own bills (Letras do Banco Central – LBCs) and sells them in the market through daily auctions.</td>
<td></td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Domestic commercial paper is a popular type of investment in Brazil.</td>
<td></td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>This is an extremely popular type of investment in Brazil. The majority of the total assets under management in the country are invested in mutual funds of this category. Such money market mutual funds may be incorporated as short-term or long-term funds (lower tax rates for long-term funds).</td>
<td></td>
</tr>
</tbody>
</table>

#### Withholding tax on interest payments to companies

| Source: Deloitte Touche Tohmatsu, 2014 | To resident companies: 0–22.5%. To non-resident companies: 15–25%. |

### Brunei

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest can be paid on the surplus balances of local currency current accounts and local and foreign currency saving accounts. Interest is less common on foreign currency current accounts.</td>
<td></td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing demand deposit savings accounts are available.</td>
<td></td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Local and foreign currency time deposits are available. A range of maturities are available, from one month to one year.</td>
<td></td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Sharia-compliant certificates of deposit are available in Brunei for terms up to one year.</td>
<td></td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>The Autoriti Monetari Brunei Darussalam (AMBD) sells and discounts local currency sukuk bills on behalf of the government of Brunei. Bills are usually issued with maturities of 91 and 364 days.</td>
<td></td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Sharia-compatible commercial paper is issued by companies in Brunei, priced at a comparable rate to governments sukuk bills, and for terms of up to 12 months.</td>
<td></td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are available in Brunei.</td>
<td></td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are available in Brunei.</td>
<td></td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>–</td>
<td>Bankers’ acceptances are not a commonly used investment instrument in Brunei.</td>
<td></td>
</tr>
</tbody>
</table>

#### Withholding tax on interest payments to companies

| Source: Deloitte Touche Tohmatsu, 2014 | To resident companies: None. To non-resident companies (subject to tax treaties): 15%*. |

#### Custody and settlement arrangements

**Depository**

- BM&FCBIOVESPA, Central Securities Depository (CSD)
- Central de Custódia e de Liquidação Financeira de Títulos (CETIP)
- Sistema Especial de Liquidação e Custodia (SELIC)

**Central counterpartparty**

- BM&FCBIOVESPA

**Settlement**

- Equities settle on T+3, while debt normally settles on T+0 or T+1. SISBEX (the government debt trading platform) transactions can settle any time between T+0 and T+23.

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*Interest on approved foreign loans from non-resident sources is exempt from tax.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
## Country Profiles

### Instruments

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>✗</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>Interest-bearing CAD and USD current accounts are available.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Cash management/current accounts with interest generally pay a prime discounted interest rate on daily deposits, paid monthly. This is also available for US deposits, and is based on the US Base Rate on a discounted basis. These accounts are the most liquid.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Term deposits are available in both CAD and foreign currency. CAD term deposits up to CAD 100,000 for terms up to five years are guaranteed by the Canada Deposit Insurance Corporation (CDIC), as long as the deposit-holder is a member of the CDIC.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td></td>
<td>Canadian banks issue Guaranteed Investment Certificates (GICs). Short-term GICs are issued for terms from one month to five years. Some have the option of early redemption.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td></td>
<td>Treasury bills (T-bills) are issued by both the federal and the provincial governments and their agencies. Federal government three-, six- and 12-month T-bills are auctioned off bi-weekly. Federal government cash management bills are issued for maturities from overnight to up to three months. Auctions are held when necessary. T-bills under six months can be found in the secondary market with maturities placed every two weeks. T-bills between six months and one year are available with maturities placed every month. The minimum investment is CAD 10,000 for three months to one year and CAD 25,000 for maturities of one or two months. There is an active secondary market.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td></td>
<td>Commercial paper (CP) is commonly issued by companies with maturities of one, two and three months; however, it is possible to see issuance from overnight to one year. US and international companies frequently access the Canadian market with USD and CAD commercial paper programmes. The minimum investment is CAD 100,000 or USD 100,000. There is an active CP secondary market for both domestic and foreign issuers.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td></td>
<td>Money market funds are widely available.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>Repurchase agreements (repos) are available in Canada. Maturities can range from overnight to one year. Overnight paper can be continuously rolled over.</td>
</tr>
</tbody>
</table>

### Canada – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankers’ acceptances and banker deposit notes</td>
<td>✓</td>
<td>Bankers’ acceptances (BAs) and bearer deposit notes (BDNs) are popular short-term investment instruments in Canada. They are issued with maturities of one, two, three, six and 12 months, although any maturity ranging from overnight to one year can be available in the secondary market. The minimum investment is CAD 25,000 for retail investors and CAD 100,000 for institutional investors. BDNs require a minimum investment of CAD 1 million, however small lots are found in the secondary market. BAs and BDNs, which are issued by Canada’s largest financial institutions, have minimal credit risk and provide a benchmark for other short-term credits. There is an active secondary market.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

- To resident companies: None.
- To arm’s length non-resident companies (subject to tax treaties): None.
- To non-arm’s length non-resident companies (subject to tax treaties): 25%.

### Custody and settlement arrangements

- **Depository**: CDS Clearing and Depository Services Inc.
- **Central counterparty**: The Canadian Derivatives Clearing Corporation.
- **Commercial paper**: The Canadian Derivatives Clearing Corporation acts as central counterparty for equity derivatives, index derivatives and interest rate derivatives.
- **Settlement**: Settlement is on a T+3 basis for equities and debt securities and T+0 for money market instruments and short-term federal bonds.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
## Chile

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest is offered on current account surpluses. Accounts are available in local (CLP) and foreign currencies.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Term deposits are available for maturities from one month to one year. The most popular maturity is one month. They are available in CLP, UF (unidades de fomento) and USD (including in a USD-linked index). UF-denominated deposits are inflation-indexed and available for periods over three months.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit (CDs) are available with maturities from one month to one year. CDs with maturities of less than 89 days are denominated in CLP. Those with maturities of three months and above are inflation-indexed and denominated in UF.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (T-bills), in the form of discountable promissory notes, are issued by the Chilean government with maturities from one month to one year. T-bills are issued via an auction. There is an active secondary market. The Chilean Central Bank issues its own discountable promissory notes ( pagarés descontables del Banco Central – PDBCs) with maturities up to one year on a regular basis. The most common maturities are one and three months. There is an active secondary market in these instruments.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper (CP) can be issued for maturities up to 36 months. The minimum denomination for CP issues is UF 250.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are available in Chile.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are popular short-term investment instruments for companies in Chile.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>–</td>
<td>Bankers’ acceptances are available in Chile, but there is no evidence they are used by companies as short-term investment instruments.</td>
</tr>
</tbody>
</table>

### Chile – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custody and settlement arrangements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depository</td>
<td></td>
<td>Deposito Central de Valores (DCV).</td>
</tr>
<tr>
<td>Central counterparty</td>
<td></td>
<td>Contraparte Central de Liquidacion de Valores (CCLV).</td>
</tr>
<tr>
<td>Settlement</td>
<td></td>
<td>T+2 for equities; T+0 or T+1 for bonds.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013

### Withholding tax on interest payments to companies

**Source:** Deloitte Touche Tohmatsu, 2014

To resident companies: None.

To non-resident companies (subject to tax treaties): 4%/25%*.

*4% withholding rate applies to interest payments made to foreign banks, financial institutions and on import instalments.
### China

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest-bearing current accounts are available.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Local (RMB) and foreign currency demand deposit accounts are available. The interest rate on RMB deposits is subject to a ceiling published by the central bank, the People's Bank of China (PBoC). Banks are free to set rates on foreign currency-denominated deposits for large deposits in EUR, HKD, JPY and USD (amounts equal to or higher than USD 3 million equivalent). The interest rate on low-value deposits (denominated in EUR, HKD, JPY and USD with amounts smaller than USD 3 million equivalent) is subject to a ceiling published by the PBoC.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Term deposit accounts in local and foreign currencies are available. RMB deposit accounts are available with maturities of three and six months and one, two, three and five years. Foreign currency accounts have terms of one and two weeks, one, two, three and six months and one and two years. The interest rate on RMB deposits is subject to a ceiling published by the PBoC. Banks are free to set rates on foreign currency-denominated deposits for large fixed deposits in EUR, HKD, JPY and USD (amounts equal to or higher than USD 3 million equivalent). The interest rate on low-value fixed deposits (denominated in EUR, HKD, JPY and USD with amounts smaller than USD 3 million equivalent) is subject to a ceiling published by the PBoC.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>—</td>
<td>Although certificates of deposits are available, the market is ill-developed and illiquid. The PBoC issued new rules on the sale of Negotiable Certificates of Deposit (NCDs) in December 2013, authorising their sale by financial institutions, with trading on the interbank market. The Shanghai Interbank Offered Rate will be used as a reference rate for the NCDs. NCDs must be issued at over RMB 50 million. Fixed rate CDs must have a maximum maturity of one year. Floating rate CDs must have maturities of more than one year.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>—</td>
<td>Only Qualified Foreign Institutional Investors are permitted to invest in Chinese government securities.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper (CP) is issued in China, usually with maturities of up to six months.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are available in China.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) can be arranged on both government and corporate bonds. Foreign-invested enterprises must sign a master agreement before entering into a repo with a counterparty.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankers’ acceptances</td>
<td>✓</td>
<td>These are common investment instruments in China.</td>
</tr>
</tbody>
</table>

### Custody and settlement arrangements

|--------------|-------------------------------------------------------------|

China’s securities settlement and custody includes:

- The China Securities Depository and Clearing Corporation Limited (CSDCC) is the central counterparty, securities settlement system and central securities depository for all instruments traded on the Shanghai and Shenzhen Stock Exchanges. The China Government Depository and Clearing Corporation Limited is the securities settlement system and central securities depository for China’s interbank bond market. A state-owned non-bank financial institution based in Beijing, it offers issuance, registration, custody, settlement and principal redemption/interest payment agency services for government bonds, financial debentures, corporate bonds and other fixed-income securities, as well as for bond funds and money market funds. It provides first-tier custody services for the whole bond market, with the CSDCC acting as sub-custodian for the exchange bond market, and the four big commercial banks acting as sub-custodians for the bank counter market.

- For the majority of transactions (A shares and bonds), the final movement of securities occurs on T and the net cash settles on T+1. For ‘B’ shares, held by foreign investors, an extended settlement cycle of T+3 allows for post-trade activity across multiple time zones. All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013

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**Country profiles**
### Colombia

#### Instruments

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest is not offered on COP-denominated standard current accounts but is offered on remunerated current accounts (cuentas corrientes remuneradas).</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing savings accounts are available.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Term deposits are available in the form of certificados de ahorro a termino (CDATs). These are savings certificates issued by banks with maturities of between one and 30 days.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Banks issue certificados de deposito a termino (CDTs) for a range of maturities from one month to over a year. The most popular have maturities below three months. There is a secondary market via the Colombian Securities Exchange. The minimum investment amount is COP 1 million.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>The Colombian Government issues Treasury bills (Titulos de Tesoreria – TES) weekly through registered dealers. The minimum investment amount is COP 500,000. Some TES are denominated in UVR (Unidad de Valor Real) or in TRM (reference exchange rate – tasa representativa del mercado). There is an active secondary market in TES.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Colombian companies do issue commercial paper (CP). However, the market is not developed and CP is not commonly used by companies as a short-term investment instrument. Maturities range from 45 days to one year.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Short-term mutual investment funds are available in Colombia.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are available in Colombia. The market is dominated by financial institutions, although some companies do use them as short-term investment instruments.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✓</td>
<td>Bankers’ acceptances (BAs) with maturities up to a year are available in Colombia. BAs are traded on the Colombian Electronic Market (MEC).</td>
</tr>
</tbody>
</table>

**Withholding tax on interest payments to companies**

<table>
<thead>
<tr>
<th>Source: Deloitte Touche Tohmatsu, 2014</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To resident companies: 7%.</td>
</tr>
<tr>
<td></td>
<td>To non-resident companies (subject to tax treaties): 14%/33%*.</td>
</tr>
</tbody>
</table>

---

### Colombia – continued

#### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Depositories</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposito Centralizado de Valores de Colombia S.A. (DECEVAL) for the Stock Exchange.</td>
<td></td>
</tr>
<tr>
<td>Deposito Central del Valores (DCV) for government bond.</td>
<td></td>
</tr>
<tr>
<td>Central counterparty</td>
<td>Bolsa de Valores de Colombia.</td>
</tr>
<tr>
<td>Settlement</td>
<td>T+3 for equities; T+0 to T+3 for bonds.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
## Costa Rica

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Current accounts can be interest-bearing and are available in both domestic (CRC) and major foreign currencies, including USD and EUR.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing savings accounts are available.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Term deposits (depositos a plazo fijo) are available in maturities ranging from one month to one year, with three, six- and 12-month terms most common. Rates vary according to the amount invested. Banks set minimum investment limits for each type of instrument.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Offered by commercial banks, certificates of deposit (certificados de depósito a plazo) are available in both domestic currency and USD with maturities from one month to five years.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Several types of Treasury bills are issued by different government entities. Bonos de Estabilización Monetaria (BEMs), or monetary-stabilisation bonds, are central bank bills with maturities from one to 12 months issued via auction. They are used widely as short-term investment instruments.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper (paparés) is commonly issued by local companies and can be purchased through the stock market or directly from the issuing firm.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Several banks offer access to money market funds for short-term investment.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are popular short-term investment instruments in Costa Rica.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✓</td>
<td>Bankers’ acceptances are widely available from commercial banks.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

<table>
<thead>
<tr>
<th>Source: Deloitte Touche Tohmatsu, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resident companies: 8%*. To non-resident companies (subject to tax treaties): 0%–15%**.</td>
</tr>
</tbody>
</table>

*Only paid by financial intermediaries or entities registered on a stock exchange.
**There is no withholding tax on interest payments to recognised financial institutions and banks registered with the Costa Rican central bank as financial institutions that perform international transactions on a regular basis. There is no withholding tax on interest payments from loans granted for industrial and agricultural activities by recognised financial institutions and banks duly registered with the Costa Rican central bank as first-rate banks.

### Custody and settlement arrangements

- **Depository**: Central de Valores SA (CEVAL).
- **Central counterparty**: There is no central counterparty.
- **Settlement**: Settlement is on a T+3 basis for equities and T+1 for bonds.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.

## Denmark

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest is usually paid on current account credit balances.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits are the most popular method of short-term investment among companies in Denmark. The minimum amount for a time deposit is DKK 250,000.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Offered by commercial banks, certificates of deposit are short-term promissory notes.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Government securities are popular with both companies and financial institutions in Denmark. Tbills are regularly issued with maturities of six or nine months. They can be issued with maturities of up to 12 months. A new six-month T-bill is opened every three months. Tbills are issued in multiples of DKK 20 million.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>The minimum investment amount for commercial paper is usually DKK 1 million.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Some banks offer access to money market funds as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are available with maturities ranging from one day to one year. The minimum investment amount for a repo is DKK 1 million. The minimum amount for a reverse repo is DKK 500,000.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>×</td>
<td>There is no evidence of these instruments being used by companies as short-term investments.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

<table>
<thead>
<tr>
<th>Source: Deloitte Touche Tohmatsu, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resident companies: None. To non-residents companies (subject to tax treaties): 0%/25%.</td>
</tr>
</tbody>
</table>

### Custody and settlement arrangements

- **Depository**: VP Securities.
- **Vaerdipapircentralen (VP)** acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.
- **Settlement**: T+2 for Treasury bills and money market transactions. VP Securities is set to migrate to TARGET2 Securities in the third wave, scheduled for 12 September 2016.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
## Egypt

### Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>Interest can be paid on current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Interest-bearing savings accounts are available.</td>
</tr>
</tbody>
</table>

### Time deposits

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits are a popular method of short-term investment among large companies in Egypt. Time deposits are offered by the majority of commercial banks in Egypt. Deposits usually have maturities of one, three, six and 12 months, but maturities can range from one week to five years. Time deposits with maturities exceeding one year are uncommon. Deposits in EUR and USD are offered with three-month maturities, but their rates of interest are significantly lower than those denominated in local currency (EGP).</td>
</tr>
</tbody>
</table>

### Certificates of deposit

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Offered by both the Central Bank of Egypt and commercial banks, certificates of deposit (CDs) are short-term promissory notes. CDs in foreign currency are available with maturities ranging up to ten years. Certificates are issued in EGP, USD, EUR and GBP by public sector banks. Those issued by private sector banks represent only a small proportion of CDs. Returns from CDs are exempt from tax.</td>
</tr>
</tbody>
</table>

### Treasury (government) bills

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (T-bills) are the most popular method of short-term investment in Egypt and their usage continues to grow. T-bills are issued by the Central Bank of Egypt via weekly auctions and are available via the secondary market. Bids for T-bills are required to be placed via financial institutions licensed by the CBE. Foreign institutions are exempt from restrictions on such investments. T-bills are usually issued with maturities of 91, 182, 273 or 364 days. Returns from T-bills are tax-free.</td>
</tr>
</tbody>
</table>

### Commercial paper

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Discounted commercial paper is available in Egypt but the market for such paper remains underdeveloped.</td>
</tr>
</tbody>
</table>

### Repurchase agreements

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements on T-bills are available.</td>
</tr>
</tbody>
</table>

### Bankers’ acceptances

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankers’ acceptances</td>
<td></td>
<td>Bankers’ acceptances are legally permitted but seldom used in Egypt.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

<table>
<thead>
<tr>
<th>Source</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deloitte Touche Tohmatsu, 2014</td>
<td>To resident companies: None. To non-resident companies (subject to tax treaties): None/20%.*</td>
</tr>
</tbody>
</table>

*Interest paid under a long-term loan (i.e. exceeding three years) is subject to withholding tax.

### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depository</td>
<td>Misr Company for Central Clearing, Depository &amp; Registry (MCDR). MCDR is the sole central securities depository in Egypt.</td>
</tr>
</tbody>
</table>

Settlement

- The settlement time-frame: T for eligible securities in the case of intermediaries licensed by the Capital Market Authority; T+1 for Treasury bonds; T+2 for securities held in the depository system; and T+4 for other securities.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
## Finland

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>❌</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>Interest is paid on current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Interest is paid on short-term deposit accounts.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Time deposits are not as common as certificates of deposit in Finland, but are a popular method of short-term investment among smaller companies. Most time deposits have maturities below one month.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td></td>
<td>Offered by commercial banks, certificates of deposit (CDs) are short-term promissory notes offered by commercial banks to companies and institutional investors. CDs can be traded prior to their maturity date and have traditionally been the most popular method of short-term investment in Finland. CDs traded on the interbank market are usually worth EUR 5 million to EUR 10 million. The minimum investment amount for a certificate of deposit is EUR 150,000.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td></td>
<td>Issued by the State Treasury, T-bills are available in EUR and USD and have maturities ranging from one day to one year.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td></td>
<td>Offered throughout the eurozone by companies, commercial paper has increased significantly in popularity in recent years.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td></td>
<td>Initially popular with smaller companies, money market funds are available to all corporate investors.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>Repurchase agreements (repos) permit investors to buy securities for a specific period of time and yield interest on an overnight rate. Banks repurchase the securities (including interest) at maturity. There is an active interbank repo market in Finland.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>❌</td>
<td></td>
<td>There is no evidence of these instruments being used by companies as short-term investments.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

- **Source:** Deloitte Touche Tohmatsu, 2014
- **To resident companies:** None.
- **To non-resident companies (subject to tax treaties):** 0–25%

### Custody and settlement arrangements

- **Depository:** Euroclear Finland.
  - Euroclear Finland acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.

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**Country Profiles**

### Settlement

- **T+3 for bonds, equities and derivatives; T+2 for money market instruments.**
  - Euroclear Finland is set to migrate to TARGET2–Securities in the fourth wave, scheduled for 6 February 2017.
## France

### Instruments

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✅</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repurchase agreements</td>
<td>✅</td>
<td>Repurchase agreements (repos) are available and popular. Repos permit customers to buy Treasury securities for a specific period of time and yield interest on an overnight rate. Interest is calculated around the bid rate. Banks repurchase the securities (including interest) at maturity. Repos usually have maturities ranging from one day to one week.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>X</td>
<td>There is no evidence that bankers’ acceptances are used as short-term investments by companies.</td>
</tr>
</tbody>
</table>

### Comments

- **Interest payable on bank account surplus balances**: Interest can be accrued on resident and non-resident current accounts.
- **Demand deposits**: Interest-bearing demand deposit accounts are available.
- **Time deposits**: Time deposits can be offered in EUR and other currencies with maturities ranging from one week to one year.
- **Certificates of deposit**: Offered by financial institutions in a highly liquid market, certificates of deposit are short-term promissory notes which have a minimum maturity of one day and a maximum maturity of one year. The majority of CDs have maturities of three to six months. CDs can be denominated in domestic (EUR) or foreign currency and can have fixed or variable interest rates. The minimum investment is EUR 150,000.
- **Treasury (government) bills**: Treasury bills (bons du Trésor) are regularly issued to commercial banks and funds by the Agency France Trésor. Discounted bills (bons du Trésor à taux fixe – BTFs) have maturities of between two weeks and one year.
- **Commercial paper**: France has the busiest commercial paper market in Europe. Offered by companies and public authorities, commercial paper (billet de trésorerie – BT) is popular among commercial banks. Most outstanding BTs are held in OPCVMs. Commercial paper is issued in EUR, GBP and USD and has a minimum maturity of one day and a maximum maturity of one year. The majority of BTs have maturities of between one and three months. France’s leading banks act as dealers in commercial paper programmes. Issuers rarely distribute commercial paper directly. The minimum investment is EUR 150,000.
- **Mutual investment funds**: OPCVMs (organismes de placement collectif en valeurs mobilières) are a popular and flexible method of short-term investment. OPCVMs are mutual investment funds into which residents can transfer excess funds. An OPCVM can take the form of an open-ended investment company (société d’investissement à capital variable – SICAV) or a unit trust based on the contractual co-ownership of transferable securities (fond commun de placement – FCP) which, unlike a SICAV, does not have to publish its net asset value on a daily basis. OPCVMs are used to invest in money, bonds or equities.

### Custody and settlement arrangements

- **Depository**: Euroclear France. Euroclear France acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.
- **Central counterparty**: LCH.Clearnet SA.
- **Settlement**: T+3, set to change to T+2 in October 2014. Euroclear France is set to migrate to TARGET2-Securities in the second wave, scheduled for 28 March 2016.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
### Germany

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest-bearing current accounts are available to residents and non-residents.</td>
</tr>
</tbody>
</table>

#### Bankers’ acceptances

- **Comments**: Bankers’ acceptances (BAs) are frequently used among companies and the market is thriving. BAs generally have maturities of 30–90 days.

#### Withholding tax on interest payments to companies

- **Source**: Deloitte Touche Tohmatsu, 2014
- **To resident companies**: 26.375% (25% plus 5% solidarity surcharge).
- **To non-resident companies**: 0%/15.825%/26.375% (including solidarity surcharge).

#### Custody and settlement arrangements

- **Depository**: Clearstream Banking Frankfurt (CBF). Clearstream Banking acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.
- **Central counterparty**: Eurex Clearing AG
- **Settlement**: T+2.

Clearstream Banking is set to migrate to TARGET2-Securities in the third wave, scheduled for 12 September 2016.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.

### Germany – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (T-bills) are regularly issued by the federal government. Fixed rate T-bills have maturities of three months to several years. Zero-coupon T-bills have maturities of six months to two years. Bubills are zero coupon T-bills with maturities of six months issued on a monthly basis by the German Finance Agency to refund the federal debt on a short-term basis. Bundesschatzanweisungen are T-bills occasionally issued by the Bundesbank with maturities of two years.</td>
</tr>
</tbody>
</table>

#### Money market funds

- **Comments**: A number of banks offer access to money market funds as part of their suite of short-term investment products.

### Repurchase agreements

- **Comments**: The volume of repurchase agreement (repo) transactions has risen sharply in recent years. Repos can be used as a money market substitute. Repos usually have maturities ranging from one day to one week.
## Greece

### Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✔️</th>
<th>✗</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✔️</td>
<td></td>
<td>Interest can be paid on resident and non-resident current accounts without restrictions. Accounts are available in domestic and foreign currency. Interest rates are competitive and open to negotiation.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✔️</td>
<td></td>
<td>Interest-bearing demand deposit accounts are available in domestic and foreign currency.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✔️</td>
<td></td>
<td>Time deposits can be held in domestic currency (EUR) or foreign currency and usually have maturities ranging from one week to one year. Interest is usually paid on the maturity date, although monthly interest payments are possible for 12-month deposits.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✔️</td>
<td></td>
<td>Issued by commercial banks, certificates of deposit are short-term promissory notes and have maturities ranging up to one year.</td>
</tr>
<tr>
<td>Treasury bills</td>
<td>✔️</td>
<td></td>
<td>Greek Treasury bills (T-bills) are auctioned by the Ministry of Finance and usually have maturities of three, six or 12 months.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✔️</td>
<td></td>
<td>Commercial paper (CP) is issued by companies in a range of maturities. Some Greek companies operate Euro CP programmes.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✔️</td>
<td></td>
<td>The use of collective investment schemes, such as money market funds, is increasing rapidly.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✔️</td>
<td></td>
<td>Repurchase agreements (repos) permit customers to buy securities for a specific period of time and yield interest on an overnight rate. Banks repurchase the securities (including interest) at maturity. Most repos are made on T-bills and government bonds.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✗</td>
<td></td>
<td>There is no evidence that bankers’ acceptances are used as short-term investments by companies.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✔️</td>
<td></td>
<td>Greek Treasury bills (T-bills) are auctioned by the Ministry of Finance and usually have maturities of three, six or 12 months.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✔️</td>
<td></td>
<td>Commercial paper is available in Hong Kong.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✔️</td>
<td></td>
<td>Money market funds are offered by commercial banks in Hong Kong.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✔️</td>
<td></td>
<td>Repurchase agreements are available in Hong Kong and are used by some large companies.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✗</td>
<td></td>
<td>Bankers’ acceptances (BAs) are available in Hong Kong although not widely used. Where offered, BAs are only available in USD.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

- **Resident companies**: 15%.
- **Non-resident companies (subject to tax treaties)**: 33%.

### Custody and settlement arrangements

- **Depository**: Bank of Greece (BOG), Hellenic Exchange SA (HELEX).
- **Central counterparty**: Hellenic Exchanges SA.

### All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.

## Hong Kong

### Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✔️</th>
<th>✗</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✔️</td>
<td></td>
<td>Interest-bearing current accounts in local (HKD) and foreign currency are available.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✔️</td>
<td></td>
<td>Interest-bearing demand deposits are available in local and foreign currency.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✔️</td>
<td></td>
<td>Local and foreign currency time deposits are available, often with a minimum deposit requirement of HKD 10,000. Maturities usually range from overnight to a year, although other maturities are available as licensed banks are permitted to issue deposits of any size or maturity. Restricted licence banks may only offer time deposits of HKD 500,000 or more and deposit-taking companies may only offer deposits of HKD 100,000 or more with a maturity of at least three months.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✔️</td>
<td></td>
<td>Banks issue certificates of deposit in different currencies for a range of maturities. The minimum investment amount depends on the currency. Interest is paid periodically, depending on the issue.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✔️</td>
<td></td>
<td>The Hong Kong Monetary Authority (HKMA) issues Exchange Fund Bills with maturities of between one week and 12 months. Bills are issued at a discount, with a minimum denomination of HKD 500,000 and are exempt from profits tax and stamp duty.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✔️</td>
<td></td>
<td>Commercial paper is available in Hong Kong.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✔️</td>
<td></td>
<td>Money market funds are offered by commercial banks in Hong Kong.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✔️</td>
<td></td>
<td>Repurchase agreements are available in Hong Kong and are used by some large companies.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✗</td>
<td></td>
<td>Bankers’ acceptances (BAs) are available in Hong Kong although not widely used. Where offered, BAs are only available in USD.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

- **Resident companies**: None.
- **Non-resident companies (subject to tax treaties)**: None.

### Custody and settlement arrangements

- **Depositories**: CCASS, CMU.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
### Hong Kong – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong’s securities settlement and custody includes:</td>
<td></td>
<td>For equities, the T+2 settlement cycle requires prepayment for cash to achieve T+2; otherwise the cash element occurs one day later. For exchange traded securities, settlement is through the Central Clearing And Settlement System (CCASS) either through a Continuous Net Settlement (CNS) system or as isolated trades. For isolated trades, Hong Kong Exchanges Clearing Company Limited (HKEXCC) acts as central counterparty and is responsible for settlement to both parties to the trade. For isolated trades, HKEXCC only facilitates the settlement between buyer and seller, with each bearing counterparty risk.</td>
</tr>
</tbody>
</table>

### Hungary

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td></td>
<td>Interest can be paid on resident and non-resident current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest can be paid on demand deposits.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits are the most popular method of short-term investment and have maturities of one week to one year.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit (CDs) are offered by commercial banks to both companies and individuals with maturities of one month to three years.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (T-bills) are widely used by companies, financial institutions and domestic mutual funds. They are regularly issued via auction by the Government Debt Management Agency with maturities of three, six or 12 months. Government bonds are also issued with maturities of over one year, two, three, five, 10 and 15 years. They are used by both domestic and international investors. The National Bank of Hungary auctions its own bills on a weekly basis with maturities of two weeks.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper (CP) is issued by companies and local authorities. CP can be issued via auction by dealers or by direct private placement.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are also offered by some banks as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are used for short-term investment purposes by all banks and brokerage companies.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✓</td>
<td>Bankers’ acceptances are permitted but usage is negligible.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

- To resident companies: None.
- To non-resident companies (subject to reduction or exemption under tax treaties): None.

### Custody and settlement arrangements

Depository: Központi Elszámolóház és Értéktár (Budapest) Zrt. (KELER). KELER acts as the CSD for Equities, ETFs, Government bonds, Corporate bonds, T-bills, Commercial paper, Investment funds.

Central counterparty: KELER CCP Ltd. Central Clearing House and Depository Budapest.

Settlement: T+3 for equities; T+2 for debt instruments. KELER is set to migrate to TARGET2-Securities in the third wave, scheduled for 12 September 2016.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
Country profiles

India

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>☒</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>☒</td>
<td>Residents and non-residents can open current accounts in local (INR) and foreign currency respectively. Banks do not pay any interest on current accounts.</td>
<td></td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Residents can open Call Deposit Accounts in local and foreign currency (subject to certain conditions). Non Residents (other than Non Resident Indians) require specific permission to open such accounts. RBI has accorded general permission for FIIs and FPIs to open such accounts but the credits and debits are specified (largely connected to Securities Investment Flows).</td>
<td></td>
</tr>
<tr>
<td>Term deposits</td>
<td>✓</td>
<td>Non Residents (other than Non Resident Indians) are not permitted to open Term Deposits. Residents are permitted to open Term Deposits in Foreign Currency (only subject to certain conditions). There is no minimum investment term for residents, although non-residents may be required to invest for a minimum of one year. Companies can invest in other companies for short periods through inter-corporate deposits (ICDs), usually for no longer than six months.</td>
<td></td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit (CDs) are available to residents and non-residents. CDs can only be issued to non-residents on a non-repatriable basis. CDs issued by banks have maturities ranging from no less than seven days to a maximum of one year. Other financial institutions can issue maturities of no less than one year and not exceeding three years. CDs have a minimum investment amount of Rs. 1 lakh (INR 100,000) and are only be issued in multiples of Rs. 1 lakh. CDs can be interest-bearing or issued at a discount.</td>
<td></td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>The Reserve Bank of India (RBI) issues Treasury bills (T-bills) at weekly auctions for 91 days. 182-day T-bills and 364-day T-bills are issued on a fortnightly basis. T-bills are available to residents and non-residents. There is an active secondary market, especially for the longer-dated bills.</td>
<td></td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper (CP) can be issued with maturities ranging from one week to one year. CP is available to both residents and non-residents. Commercial paper can be issued with maturities ranging from seven days to a maximum of one year. The most common maturity is three months. The minimum investment is Rs. 5 lakh (INR 500,000). CP must be rated by an RBI specified Indian rating agency.</td>
<td></td>
</tr>
</tbody>
</table>

India – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>☒</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are available in India.</td>
<td></td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) can be arranged against certain instruments without a limit on maturity. Only RBI authorised financial institutions can participate in the repo market.</td>
<td></td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>☒</td>
<td>Bankers’ acceptances are not permitted in India.</td>
<td></td>
</tr>
</tbody>
</table>

Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: 10%.
To non-resident companies (subject to tax treaties): 5%/20% plus applicable surcharge and cess.

Custody and settlement arrangements

Depositories

CDSL.
NSDL.
RBI.

India’s securities settlement and custody includes:

The National Securities Clearing Corporation Ltd (NSCCL) carries out clearing and settlement functions.
NSCCL has two categories of clearing members: trading clearing members and custodians.
Trading members’ proprietary trades become the member’s obligation for settlement.
A member of a clearing member that trades on behalf of clients, and a custodian is involved, the member flags the trade with a Custodian Participant (CP) code. The custodian is required to confirm settlement of these trades on T+1 day by a 13:00 cut-off time. Nonconfirmation by the custodian devolves the trade obligation on the member who had input the trade for the respective client.
Trades in the normal settlement segment are subject to a multilateral netting procedure, under which the clearing member has a net settlement obligation (delivery/receipt of securities and cash).
In the case of securities in the Trade for Trade – Surveillance segment and Auction Trades, obligations are determined on a gross basis for both funds and securities.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
### Indonesia

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest can be paid on current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest can be paid on short-term deposits.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits are offered by banks in domestic and foreign currency. Maturities vary from between one month and two years.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit with terms between one week and one year are offered by some domestic and international banks, predominantly in local currency (IDR).</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Sertifikat Bank Indonesia (SBI) are issued weekly via auction by Bank Indonesia with maturities of one, three, six, nine and 12 months. SBIs are available in denominations of IDR 1 million, although a minimum purchase amount of IDR 1 billion is required for banks who purchase SBIs directly from Bank Indonesia.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>—</td>
<td>Commercial paper is not widely used in Indonesia, but it is available for maturities from one week to nine months.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✓</td>
<td>Bankers acceptances are available in Indonesia, although they are rarely used.</td>
</tr>
</tbody>
</table>

**Withholding tax on interest payments to companies**

- Source: Deloitte Touche Tohmatsu, 2014

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankers acceptances</td>
<td>✓</td>
<td>Bankers acceptances are available in Indonesia, although they are rarely used.</td>
</tr>
</tbody>
</table>

**Custody and settlement arrangements**

- Depositories: Bank Indonesia, KSEI.

---

### Indonesia – continued

Indonesia’s securities settlement and custody includes:

- Kliring Penjaminan Efek Indonesia (KPEI, or Indonesian Clearing and Guarantee Corporation), is the clearing house for all securities traded on the Indonesia Stock Exchange (IDX).
- Kustodian Sentral Efek Indonesia (KSEI, or Indonesian Central Securities Depository), provides central registration of securities and operates a book entry settlement system.
- The KSEI settlement system has the mechanism for Delivery Versus Payment (DVP), but the legal framework requires enhancement for this to have full effect.
- For government bonds and central bank instruments, the central bank, Bank Indonesia, acts as central securities depository and operates Bank Indonesia Scripless Securities Settlement System (BI-SSSS), which conforms to BIS Model 1.
- Settlement of these instruments is on a DVP basis in the Bank Indonesia Real Time Gross Settlement (BI-RTGS).

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
### Italy

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>Interest can be paid on both resident and non-resident current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Interest can be paid on both resident and non-resident demand deposit accounts.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Time deposits are offered by commercial banks with maturities ranging from overnight to one year. The terms of such deposits are negotiable.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td></td>
<td>Certificates of deposit (certificati di deposito – CDs) are offered by commercial banks, with maturities ranging from three months to five years. CDs with maturities exceeding 18 months are not permitted to be cashed until after the first 18 months. The rates of interest applied can be fixed or floating and differ according to the issuing bank. CDs are available in foreign currencies, particularly in USD, GBP and CHF. There is no secondary market for CDs.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td></td>
<td>Alongside time deposits, Treasury bills are the most popular short-term investments in Italy. Buoni ordinari del Tesoro (BOTs) usually have maturities of three, six and 12 months, although the Ministry of Economy and Finance's Department of Treasury can issue BOTs for any period. An active secondary market exists for BOTs. Bonds are also issued by regional, provincial and municipal authorities (buoni obbligazionari comunali).</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td></td>
<td>Issued by many leading Italian businesses outside Italy, commercial paper (cambiale finanziarie) is rarely used in Italy itself. Commercial paper has maturities ranging between three and 12 months. The minimum investment amount is EUR 50,000.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td></td>
<td>A number of banks offer access to money market funds as part of their suite of short-term investment products. The minimum investment amount is EUR 25,000.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>Repurchase agreements (pronti contro termine – PCTs) are increasingly popular among companies and institutional investors. Most PCTs have a spot value date, while the remainder have maturities of one week, one month or three months.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>—</td>
<td></td>
<td>Bankers’ acceptances (BAs) have maturities of three to 12 months. BAs are seldom used and involve relatively high fees.</td>
</tr>
</tbody>
</table>

### Italy – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withholding tax on interest payments to companies</td>
<td></td>
<td></td>
<td>Source: Deloitte Touche Tohmatsu, 2014 To resident companies: 0%/20%. To non-resident companies (subject to tax treaties): 0%/20%.</td>
</tr>
<tr>
<td>Custody and settlement arrangements</td>
<td></td>
<td></td>
<td>Depository: Monte Titoli SpA. Monte Titoli acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, investment funds, rights and warrants.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Central counterparty: Cassa di Compensazione e Garanzia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Settlement: T+3 Monte Titoli is set to migrate to TARGET2-Securities in the first wave, scheduled for 22 June 2015.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
Japan

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Local and foreign currency current accounts are available to residents and non-residents. Interest can be paid on current accounts. It is also usually possible for companies to sweep surplus balances into an interest-bearing overnight account.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing local and foreign currency savings accounts are available to residents and non-residents.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Local and foreign currency time deposits are available. A range of maturities are available from one month to 10 years. Foreign currency deposits have become popular as domestic interest rates have remained low.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Banks issue fixed interest rate certificates of deposit for a range of maturities from overnight to up to five years, although three months is the most common maturity. There is an active secondary market.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>The Japanese government issues short-term T-bills via bi-monthly auctions. The bills are usually issued with maturities of three or six months and one year.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Companies issue commercial paper at a discount for maturities up to one year, although the most popular maturity is three months.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are a popular and increasingly available investment instrument for Japanese companies.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are used by companies as short-term investment instruments.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✗</td>
<td>Bankers’ acceptances are not used as investment instruments.</td>
</tr>
</tbody>
</table>

Japan – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan’s securities settlement and custody includes:</td>
<td></td>
<td>The Japan Securities Depository Centre (JASDEC) is the book-entry central registration and transfer institution for equities and corporate bonds. Bank of Japan acts as the central depository for Japanese Government Bonds. Japan Securities Clearing Corporation (JSCC) act as the clearing house and central counterparty for exchange-traded securities. Tokyo Stock Exchange is the principal securities exchange in Japan. Osaka Securities Exchange is the second largest, with strength in derivative products, and Nagoya Stock Exchange is the third largest. The Bank of Japan’s BOJ-NET Funds Transfer System provides are real-time gross settlement system.</td>
</tr>
<tr>
<td>Source: Deloitte Touche Tohmatsu, 2014</td>
<td></td>
<td>To resident companies: 0%/20%. To non-resident companies (subject to tax treaties): 0%/15%/20% plus special reconstruction tax of 2.1%.</td>
</tr>
</tbody>
</table>

Custody and settlement arrangements

| Depositories | Bank of Japan. JASDEC. |

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
### Luxembourg

#### Instruments ✓ X Comments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>No restrictions exist on the payment of interest on resident or non-resident accounts, denominated in EUR or foreign currency.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Demand deposits are available to resident and non-residents.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Time deposits are available for maturities ranging from one week up to 12 months in EUR or major foreign currencies.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td></td>
<td>Offered by commercial banks, certificates of deposit are short-term promissory notes with a minimum maturity of one day and a maximum maturity of one year.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>X</td>
<td></td>
<td>Treasury bills are not issued by the government.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td></td>
<td>Offered by companies and public authorities, commercial paper has a minimum maturity of one day and a maximum maturity of one year.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td></td>
<td>Companies can invest in SICAVs (Sociétés d'Investissement à Capital Variable), which are open-ended investment companies.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>Repurchase agreements permit customers to buy securities against payments for a specific period of time and yield interest on an overnight rate. Banks repurchase the securities (including interest) at maturity. They are actively traded in the interbank market.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>X</td>
<td></td>
<td>There is no evidence these instruments are used as short-term investments by companies.</td>
</tr>
</tbody>
</table>

#### Withholding tax on interest payments to companies

<table>
<thead>
<tr>
<th>Source: Deloitte Touche Tohmatsu, 2014</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resident companies: 0%*/15%</td>
<td></td>
</tr>
<tr>
<td>To non-resident companies (subject to tax treaties): 0%*/15%</td>
<td></td>
</tr>
</tbody>
</table>

*So long as the rate and conditions are at ‘arm’s length’.

### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Depositories</th>
<th>Clearstream, Luxembourg.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VP LUX.</td>
</tr>
<tr>
<td></td>
<td>LuxCSD SA.</td>
</tr>
<tr>
<td></td>
<td>Euroclear Bank.</td>
</tr>
<tr>
<td></td>
<td>CREST Depository Limited acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.</td>
</tr>
<tr>
<td></td>
<td>A new central securities depository is to be set up by London Stock Exchange Group plc by the first half of 2014.</td>
</tr>
</tbody>
</table>
## Malaysia

### Instruments

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>x</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>Banks are not allowed to offer interest-bearing current accounts to their corporate customers.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>-</td>
<td></td>
<td>A deposit must have a tenor of 30 days before interest is payable. Companies can earn overnight interest by depositing funds with a bank with principal dealer status.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Time deposits are available in domestic and foreign currencies, with maturities ranging from one to 60 months. They are a popular investment instrument for companies.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td></td>
<td>Certificates of deposit (CD) are a popular short-term investment instrument used by companies. Short-term CDs usually are issued with maturities from one month to a year, with longer-term CDs having terms of up to ten years. There is a secondary market in CDs.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td></td>
<td>The Malaysian Government issues Treasury bills (T-bills) in both Islamic and conventional form through regular tenders. T-bills have maturities of three (issued weekly), six (issued fortnightly) and 12 (issued monthly) months. The central bank issues Bank Negara Monetary Notes, which have a maximum maturity of one year. Longer-dated bonds are also issued by the government in Islamic and conventional form, with three, five and ten year maturities. Cagamas notes are short-term bonds issued by Cagamas Berhad (the National Mortgage Corporation) to refinance mortgage loans. Cagamas notes are issued with maturities ranging from one month to ten years.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td></td>
<td>Commercial paper is available and is used as a short-term investment instrument by companies. Maturities usually last from between one month to one year.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>x</td>
<td></td>
<td>Money market funds are widely available in Malaysia.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>Repurchase agreements with maturities from less than a month to one year are available in Malaysia.</td>
</tr>
<tr>
<td>Bankers' acceptances</td>
<td>✓</td>
<td></td>
<td>Bankers' acceptances instruments are available as short-term investment instruments in Malaysia.</td>
</tr>
</tbody>
</table>

### Comments

- Malaysia’s securities settlement and custody includes:
  - Bursa Malaysia (formerly Kuala Lumpur Stock Exchange) operates a Central Depository System (CDS) for securities traded on Bursa Malaysia and cleared through Bursa Malaysia Securities Clearing Sdn Bhd. The CDS is operated by a wholly owned subsidiary, Bursa Malaysia Depository Sdn Bhd, and uses a simple book entry system to keep track of the movement of shares. Sellers must have adequate shares in their CDS accounts by 12.30 on T+2 and buyers' shares accounts are credited on T+3. Cash settlement takes place on a net basis.
  - Malaysia Electronic Clearing Corporation Sdn Bhd (MyClear) operates a Scripless Securities Depository System (SDSS). SDSS is an online book entry system that effects and records the settlement of securities traded in its Real Time Electronic Transfer of Funds and Securities (RENTAS), i.e. Government securities, Bank Negara Malaysia (BNM) paper and unlisted corporate bonds. As well as having the advantage of dematerialised scrips, securities and cash settlement take place on a Delivery Versus Payment (DVP) basis (simultaneously in real-time) on a gross basis on T.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: None. To non-resident companies (subject to tax treaties): 0%/15%.
Mexico

Country profiles

**Instruments**

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>—</td>
<td>Interest-bearing current accounts are not widely used, although some are available. Companies are able to sweep surplus balances into overnight investment accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Demand deposit accounts are available, although a minimum investment may be required.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Term deposits are available in MXN and USD, although they are not popular with companies.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>CEDES (CDs) are usually issued with maturities of between two and 12 months. CEDES are issued in MXN and USDs, which are local investment units. There is a minimum investment of MXN 50,000. Companies prefer to invest in pagares, which are short-term promissory notes issued by banks. These are issued at a discount.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>The Banco de México issues Federal Treasury Certificates (CETEs) at weekly auctions. CETEs have maturities of one, three, six, nine or 12 months. CETEs are issued at a discount. There is an active secondary market in CETEs.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper is offered by companies and government bodies.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>—</td>
<td>Some banks offer access to money market funds as part of their suite of short-term investment products, but these cannot accommodate overnight investments.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are used in monetary operations and in interbank transactions.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>X</td>
<td>There is no evidence that bankers’ acceptances are used as short-term investments by companies.</td>
</tr>
</tbody>
</table>

**Withholding tax on interest payments to companies**

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: 0%/15%.

To non-resident companies: None.

**Custody and settlement arrangements**

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: 0.6%.

To non-resident companies (subject to tax treaties): 4.9%–30%.

**Depository**

Central Securities Depository.

Malta Stock Exchange acts as the central securities depository for equities, government bonds, corporate bonds, T-bills and commercial paper.

**Settlement**

T+3 for netting: government bonds, corporate bonds, equities.

T+0 for gross: Treasury bills.

Malta Stock Exchange is set to migrate to TARGET2-Securities in the first wave, scheduled for 22 June 2015.

Malta

Country profiles

**Instruments**

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>—</td>
<td>Interest is not usually paid on current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest can be paid on demand deposits.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Interest rates on time deposits vary in accordance with the maturity and amount. Time deposits have maturities ranging from one week to over a year.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit are offered by commercial banks.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills are issued by the Treasury Department of the Ministry of Finance and have maturities of one, three, six, nine or 12 months.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper is offered by companies and government bodies.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>—</td>
<td>Some banks offer access to money market funds as part of their suite of short-term investment products, but these cannot accommodate overnight investments.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are used in monetary operations and in interbank transactions.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>X</td>
<td>There is no evidence that bankers’ acceptances are used as short-term investments by companies.</td>
</tr>
</tbody>
</table>

**Withholding tax on interest payments to companies**

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: 0%/15%.

To non-resident companies: None.

**Custody and settlement arrangements**

Depository: Central Securities Depository.

Malta Stock Exchange acts as the central securities depository for equities, government bonds, corporate bonds, T-bills and commercial paper.

Settlement: T+3 for netting: government bonds, corporate bonds, equities.

T+0 for gross: Treasury bills.

Malta Stock Exchange is set to migrate to TARGET2-Securities in the first wave, scheduled for 22 June 2015.

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
### Netherlands

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest is paid on resident and non-resident current accounts. Interest is paid on a gross basis (typically quarterly) on current accounts as they are exempt from withholding tax. Numerous differently constructed credit accounts are available.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing demand deposit accounts are available to residents and non-residents.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits are the most popular method of short-term investment among companies in the Netherlands. Time deposits can be held in domestic currency (EUR) or a major foreign currency and have maturities ranging from one day up to several years. Time deposits can have fixed, floating or annuity interest rates.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit are issued by commercial banks.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Dutch Treasury Certificates (DTCs) are Treasury bills (T-bills) issued by the Dutch State Treasury Agency and have maturities of three, six, nine or 12 months. Schatkistbiljetten, schatkistpromessen and schatkistcertificaten are T-bills with different uses and maturities.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Offered by companies and public authorities and traded by banks, commercial paper issues usually have a minimum maturity of one month and a maximum maturity of two years. The minimum investment amount is EUR 500,000.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Some banks offer access to money market funds as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements permit customers to buy securities for a specific period of time and yield interest on an overnight rate. Banks repurchase the securities (including interest) at maturity. Belening (collateralised loan) is a local form of repurchase agreement.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>×</td>
<td>There is no evidence that bankers’ acceptances are used as short-term investments by companies.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

<table>
<thead>
<tr>
<th>Source: Deloitte Touche Tohmatsu, 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resident companies: None.</td>
</tr>
<tr>
<td>To non-resident companies (subject to tax treaties): None.</td>
</tr>
</tbody>
</table>

### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Depositories</th>
<th>Euroclear Nederland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Netherlands Inter-professional Securities Centre</td>
</tr>
<tr>
<td></td>
<td>Euroclear Nederland acts as the central securities depository for equities, government bonds, corporate bonds, T-bills, commercial paper, rights and warrants.</td>
</tr>
</tbody>
</table>
### Netherlands – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central counterparty</td>
<td></td>
<td></td>
<td>LCH.Clearnet SA.</td>
</tr>
<tr>
<td>Settlement</td>
<td></td>
<td></td>
<td>T+3, set to change to T+2 in October 2014. Euroclear Nederland is set to migrate to TARGET2-Securities in the second wave, scheduled for 28 March 2016.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013

### Norway

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td></td>
<td></td>
<td>Current accounts are not usually interest-bearing, although no restrictions exist.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Interest can be paid on short-term demand deposits.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Time deposits are available in domestic and major foreign currencies. Deposits have maturities ranging from one day to two years, but those with maturities of one week to three months are most common. There are no specific minimum/maximum amount restrictions, but the minimum investment amount is usually NOK 1 million.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td></td>
<td>Offered by major commercial banks, certificates of deposit are well established as short-term investments for larger companies. The minimum investment amount is NOK 1 million.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td></td>
<td>Treasury bills (T-bills) are popular with companies in Norway. T-bills have maturities of three, six, nine and 12 months and are denominated in units of NOK 1,000. The minimum investment amount is NOK 1 million.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td></td>
<td>Offered by large domestic companies, local authorities and mortgage institutions, commercial paper (CP) is purchased by financial institutions, larger companies and, in particular, medium-sized enterprises. NOK 1 million is the minimum investment amount.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td></td>
<td>Some banks offer access to money market funds as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>Norway has an active interbank repurchase agreement market.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>X</td>
<td></td>
<td>There is no evidence of companies in Norway using bankers’ acceptances as short-term investment instruments.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

| Source: Deloitte Touche Tohmatsu, 2014 | To resident companies: None. To non-resident companies (subject to tax treaties): None. |

### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Depository</th>
<th>Verdpapirrendalen ASA (VPS). VPS acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central counterparty</td>
<td>Oslo Clearing.</td>
</tr>
<tr>
<td>Settlement</td>
<td>T+3. T+1 for Norwegian short-term instruments.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
### Panama

#### Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✔️</th>
<th>☑️</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✔️</td>
<td></td>
<td>Interest can be offered on current account surplus balances.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✔️</td>
<td></td>
<td>Demand deposit accounts are available in PAB and USD.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✔️</td>
<td></td>
<td>Term deposits are available in PAB and foreign currency. Maturities range from overnight to over a year. Overnight deposits are subject to a minimum investment of USD 1,000.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✔️</td>
<td></td>
<td>Certificates of deposit are issued by banks in non-negotiable form.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✔️</td>
<td></td>
<td>The Panama government issues USD Treasury bills (T-bills) at monthly auctions. T-bills are issued with maturities of three, six, nine and 12 months. The minimum investment is USD 1,000.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✔️</td>
<td></td>
<td>Some companies issue commercial paper in the form of valores comerciales negociables (VCNs) or pagarés de empresa. Issuance levels vary, although VCNs are traded on the Panama Stock Exchange.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✔️</td>
<td></td>
<td>Money market funds are available in Panama.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✔️</td>
<td></td>
<td>Repurchase agreements (repos) are available for a range of maturities. The most popular maturities are one, three, six and nine months. Overnight repos are also available.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>❌</td>
<td></td>
<td>Bankers’ acceptances are available in Panama, but there is no evidence that they are used by companies as short-term investment instruments.</td>
</tr>
</tbody>
</table>

#### Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

<table>
<thead>
<tr>
<th>Type</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resident companies</td>
<td>5%*</td>
</tr>
<tr>
<td>To non-resident companies</td>
<td>12.5%**</td>
</tr>
</tbody>
</table>

*If not an ‘authorised financial institution’.
**Being 25% corporate tax rate on 50% of the interest remittance.

### Peru

#### Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✔️</th>
<th>☑️</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>—</td>
<td></td>
<td>Current accounts are available in PEN, USD and EUR. Interest can be offered on current account surpluses. However, it is not common practice in Peru.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✔️</td>
<td></td>
<td>Interest is payable on PEN- and USD-denominated savings accounts.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✔️</td>
<td></td>
<td>Term deposits are offered in PEN, USD and EUR. Maturities usually range from 30 to 360 days.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✔️</td>
<td></td>
<td>The Central Reserve Bank of Peru issues certificates of deposits (CDs) via regular auctions for a range of maturities from overnight to over a year. Other local banks also issue CDs.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✔️</td>
<td></td>
<td>T-bills are issued with maturities of three, six, nine and 12 months.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✔️</td>
<td></td>
<td>Companies issue commercial paper (CP) in Peru. The local market has become much more liquid in recent years. The maximum maturity of CP is 180 days.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✔️</td>
<td></td>
<td>Some short-term mutual investment funds are available, although the minimum investment period is three days.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✔️</td>
<td></td>
<td>Repurchase agreements (repos) are available in Peru. Repos are available for a range of maturities from overnight.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✔️</td>
<td></td>
<td>Bankers’ acceptances are available in Peru.</td>
</tr>
</tbody>
</table>

#### Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

<table>
<thead>
<tr>
<th>Type</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resident companies</td>
<td>None</td>
</tr>
<tr>
<td>To non-resident companies</td>
<td>4.99%/30%*</td>
</tr>
</tbody>
</table>

* The 30% rate is applicable to interest paid abroad to economically related parties or to interest payable to non-related parties exceeding the maximum allowed by law.

#### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Depository</th>
<th>CAVALI SA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement</td>
<td>T+3 for equities; T+2 for bonds; T+0 for fixed income; T+0 to T+2 for money market.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
### Poland

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest is usually paid on current accounts. Some banks provide sweep accounts, which offer higher rates of interest on short-term surplus cash than current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest-bearing demand deposits are available.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits are the most frequent method of short-term investment in Poland. Time deposits can be held in domestic currency (PLN) or foreign currency and have maturities of one week, one, three or six months, or one, two or three years. The most popular deposits have maturities of three or six months. There are no specific minimum investment amounts. Each bank imposes its own limit. Interest is usually paid at maturity, however interest can be paid every quarter period for deposits with maturities of two or three years. Deposits with a maturity below six months typically pay a fixed rate of interest. Those with a maturity above six months usually pay a floating rate.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Offered by commercial banks, certificates of deposit are short-term promissory notes and cannot be resold. Maturities range between one month and one year. Those with a maturity below six months typically pay a fixed rate of interest. Those with a maturity above six months usually pay a floating rate.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (T-bills) are particularly popular among institutional investors, including those from abroad. T-bills are auctioned regularly by the National Bank of Poland (NBP) on behalf of the Ministry of Finance and usually have maturities of 20–52 weeks. T-bills with maturities of two, three, five or six weeks or three months are also occasionally issued. There is a minimum investment amount of PLN 100,000. NBP bills with maturities ranging between one day and one week are also auctioned on a weekly basis to money market dealers (banks) to control the banking sector’s liquidity.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Offered by companies, commercial paper (CP) is mainly placed with domestic investors. Domestic CP usually has maturities ranging from one week to one year. The usual investment amount ranges between PLN 100,000 and PLN 500,000.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Several banks offer access to money market funds as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements on T-bills are available from Poland’s leading banks but are seldom used.</td>
</tr>
</tbody>
</table>

### Poland – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankers’ acceptances</td>
<td>—</td>
<td>Bankers’ acceptances are not a common short-term investment instrument.</td>
</tr>
</tbody>
</table>

**Withholding tax on interest payments to companies**

| Source: Deloitte Touche Tohmatsu, 2014 | To resident companies: None. To non-resident companies (subject to tax treaties): 20%. |

**Custody and settlement arrangements**

| Depository | National Depository for Securities SA (KDPW). KDPW acts as central securities depository for equities, ETFs, government bonds, corporate bonds, commercial paper, rights and warrants. |
| Settlement | T+3 for equities. T+2 for bonds. |

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
### Portugal

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest-bearing current accounts are available, although a low rate of interest is usually applied.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest can be earned on demand deposit accounts.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Interest can be earned on time deposit accounts. Time deposits can be held in domestic currency (EUR) or foreign currency.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>These are offered by commercial banks and the Banco de Portugal.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (bilhetes do Tesouro) are issued at a discount by the Portuguese Government Debt Agency and have maturities ranging up to 12 months. Treasury bills can be traded on the Special Market for Public Debt (MEDIP) and on other major European trading platforms.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Offered by domestic and international companies, commercial paper is a short-term investment usually issued as a tranche of a longer-term programme.</td>
</tr>
<tr>
<td>Mutual investment funds</td>
<td>✓</td>
<td>Some banks offer access to money market funds as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) permit investors to buy securities for a specific period of time and yield interest on an overnight rate. Banks repurchase the securities (including interest) at maturity.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✗</td>
<td>There is no evidence that bankers’ acceptances are used by companies as short-term investments.</td>
</tr>
</tbody>
</table>

#### Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: 25%.
To non-resident companies (subject to tax treaties): 25%.

### Saudi Arabia

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Prior approval from the Saudi Arabian Monetary Agency (SAMA) is required for the payment of interest on resident and non-resident current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest can be paid on savings accounts and deposit accounts. Demand deposit accounts are offered by commercial banks.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposit accounts are offered by commercial banks and have maturities ranging up to one year. Islamic investment accounts are increasingly popular. These accounts link banks’ profits to payments on time deposits, respecting the Islamic prohibition of interest.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✗</td>
<td>Certificates of deposit are not available in Saudi Arabia.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (T-bills) are issued on a weekly basis by the SAMA in denominations of SAR 1 million for banks and other institutions. T-bills are issued with maturities ranging from overnight to one week. T-bills are negotiable instruments and are exempt from withholding tax.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>—</td>
<td>Commercial paper (CP) issuance is not prohibited, although there is no dedicated CP market.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are available in SAR and USD.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) are a common method of short-term investment for large banks in Saudi Arabia. The majority of repos offered by the SAMA have maturities ranging from overnight to one week. Repos can only be arranged domestically and are exempt from withholding tax.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✗</td>
<td>Investment instruments similar to bankers’ acceptances are available from some Islamic financial institutions in Saudi Arabia.</td>
</tr>
</tbody>
</table>

#### Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: None.
To non-resident companies (subject to tax treaties): 5%.

### Custody and settlement arrangements

| Depository | Interbolsa. Interbolsa acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants. |
| Central counterparty | LCH.Clearnet SA. OMIClear. |
| Settlement | T+3. Interbolsa is set to migrate to TARGET2-Securities in the second wave, scheduled for 28 March 2016. |

Source: GlobalCustody.net

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
### Saudi Arabia – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>x</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement</td>
<td></td>
<td></td>
<td>Saudi Arabia’s Capital Market Law provides for establishment of an Assets Services &amp; Depository, which is solely entrusted to execute the transactions of deposit, transfer, settlement, clearing and registering ownership of securities traded on the Saudi Stock Exchange (Tadawul). The functions of the Assets Services &amp; Depository are currently operated by the exchange. Settlement is T for equities and T+2 for debt instruments.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013

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### Singapore

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>x</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>Interest-bearing current accounts are available. Companies need to maintain a minimum credit balance before interest is earned.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Interest-bearing demand deposit accounts are available in both local (SGD) and foreign currency.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Local and foreign currency time deposits are available for a range of maturities, usually from one week to over a year. Banks often require a minimum deposit of between SGD 5,000 and SGD 10,000 to open an account.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td></td>
<td>Banks issue negotiable certificates of deposit (NCDs) in local and foreign currency, subject to the rules set by the central bank, the Monetary Authority of Singapore (MAS). SGD- and foreign currency-denominated NCDs must have a minimum investment amount of SGD 100,000 or equivalent. Wholesale and offshore banks are permitted to issue NCDs but these are subject to MAS restrictions. Interest on CDs with a maturity up to one year is paid at maturity.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td></td>
<td>Treasury bills (T-bills) are issued by the MAS on behalf of the Singapore government. Three-month bills are auctioned weekly, one-year bills are auctioned twice a year. The minimum investment is SGD 1,000. T-bills are sold at a discount. Longer-term government bonds are also issued with maturities between two and 20 years.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>—</td>
<td></td>
<td>Only a small number of companies issue commercial paper and it is not a popular short-term investment instrument.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td></td>
<td>Money market funds are available in Singapore.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>There is an established repurchase agreement (repo) market in Singapore.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>—</td>
<td></td>
<td>Bankers’ acceptances are available in Singapore, although they are not a widely used instrument.</td>
</tr>
</tbody>
</table>

Withholding tax on interest payments to companies

- To resident companies: None.
- To non-resident companies (subject to tax treaties): 15%.

Source: Deloitte Touche Tohmatsu, 2014
Spain

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>x</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Interest can be paid on current accounts.</td>
<td></td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Interest can be paid on short-term deposit accounts.</td>
<td></td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>The majority of leading commercial banks and savings banks in Spain offer short-term deposits with maturities of one, three, six and 12 months.</td>
<td></td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Offered by commercial banks, certificates of deposit are rarely used as short-term investment instruments by companies. The depósito financiero is a more popular method of investment. Interest rates can be negotiated and tend to vary widely.</td>
<td></td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills ( letras de Tesoro) with maturities of three, six, 12 and 18 months are issued by the Treasury through monthly auctions. They are issued at a discount, with the minimum investment being EUR 1,000. Letras are particularly popular among foreign investors. Earnings on government securities are exempt from withholding tax.</td>
<td></td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper ( pagares de empresa) is seldom used as a short-term investment instrument by companies. Financial institutions are the main investors in commercial paper issued by companies and public authorities. Commercial paper is exempt from withholding tax.</td>
<td></td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Some banks offer money market funds as part of their suite of short-term investment products.</td>
<td></td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) are popular in Spain and are prominent in the domestic financial market. The most popular maturities are one day and one week, although maturities of one, two and three months are also available.</td>
<td></td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>x</td>
<td>These are not used as a short-term investment instrument by companies in Spain.</td>
<td></td>
</tr>
</tbody>
</table>

Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

To resident companies: 0%/21%.
To non-resident companies (subject to tax treaties): 0%/21%.

Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>x</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depository</td>
<td>Iberclear. Iberclear acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Sweden

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td>Current accounts are not usually interest-bearing although no restrictions exist. Interest rates are bank-specific, but they are ultimately based on the Stockholm Interbank Offered Rate (STIBOR).</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>—</td>
<td>Time deposits with a wide range of maturities are offered to companies by commercial banks and financing associations. Most deposits have maturities ranging between three and 12 months. The maximum maturity for a deposit is two years.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits with a wide range of maturities are offered to companies by commercial banks and financing associations. Most deposits have maturities ranging between three and 12 months. The maximum maturity for a deposit is two years.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Offered by commercial banks, certificates of deposit (CDs) are rarely issued due to low yields. There is no specific minimum investment amount. Banks determine their own minimum investment amounts for CDs, which usually range from SEK 1,000 to SEK 50,000.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Government securities are a popular method of short-term investment among companies in Sweden. Treasury bills (T-bills), Treasury bonds and inflation-linked bonds are issued at regular intervals by the Riksgäldkontoret (National Debt Office – NDO) and sold via banks acting as primary dealers. The minimum investment amount is SEK 5,000. T-bills are low risk and highly flexible and have maturities ranging from three months to one year. The NDO and, less frequently, mortgage companies also issue fixed- or variable-rate premium bonds to domestic and international companies.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Offered by companies and public authorities, commercial paper (CP) is usually purchased by the major domestic companies. CP can be issued between companies but a significant secondary market exists.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Some banks offer access to money market funds as part of their suite of short-term investment products.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are widely used by financial institutions and companies. Rates of interest depend on the demand.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>X</td>
<td>Banker’s acceptances (BAs) are seldom used. No formal market exists for BAs in Sweden.</td>
</tr>
</tbody>
</table>

### Withholding tax on interest payments to companies

<table>
<thead>
<tr>
<th>Source: Deloitte Touche Tohmatsu, 2014</th>
<th>✓ or X</th>
</tr>
</thead>
<tbody>
<tr>
<td>To resident companies: None. To non-resident companies (subject to tax treaties): None.</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Switzerland

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓ or ×</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>—</td>
<td>Paying interest on current accounts is not common practice in Switzerland, although some banks offer minimal interest on CHF and EUR-denominated accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Some banks offer interest-bearing call deposit accounts, although a notice period of up to 48 hours may apply.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits in domestic currency (CHF) and EUR and other major foreign currencies are available with maturities ranging from overnight to over a year. The larger domestic companies often place their surplus funds in three- or six-month time deposits.</td>
</tr>
<tr>
<td>Fiduciary deposits</td>
<td>✓</td>
<td>These are the preferred liquidity instrument recommended by banks because they provide considerable flexibility to their customers. This instrument is offered in any currency and with any maturity up to one year. The rates paid are equivalent to the time deposit.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>—</td>
<td>Domestic banks do not usually issue certificates of deposit with maturities below one year.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>The Swiss National Bank (SNB) issues money market debt register claims on behalf of the federal government with maturities of three, six and 12 months. They are auctioned on a weekly basis. The minimum investment and denomination is CHF 50,000. The Swiss National Bank also auctions its own SNB bills in CHF and SNB USD bills. SNB bills in CHF are auctioned on a weekly basis in denominations of CHF 1 million and have maturities ranging between one week and one year. SNB USD bills are auctioned every fortnight in denominations of USD 500,000 and have maturities of one, three and six months.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>×</td>
<td>There is no domestic commercial paper (CP) market in Switzerland. Some companies issue CHF-denominated Euro CP for maturities between one and six months.</td>
</tr>
<tr>
<td>Mutual investment funds</td>
<td>✓</td>
<td>A number of leading banks offer money market funds as an alternative short-term investment. In most cases, these funds are domiciled in Luxembourg for tax reasons.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements (repos) are available on the SIX Swiss Exchange. The repo market in Switzerland is highly active.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>×</td>
<td>No formal market exists in Switzerland.</td>
</tr>
</tbody>
</table>
### Taiwan

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>X</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>X</td>
<td>Only residents are permitted to open current accounts in Taiwan. Interest cannot be paid on current account surplus balances.</td>
<td></td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Local (TWD) and foreign currency demand deposit accounts are available to both residents and non-residents. Interest is payable on these accounts. For demand deposit accounts opened in an offshore banking unit (OBU), individuals may not withdraw funds in cash and the withdrawn funds are only allowed to be sent outside Taiwan. These regulations do not apply to company accounts held in an OBU.</td>
<td></td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Fixed term deposits are available to residents and non-residents in both local and foreign currency. Local currency accounts have maturities ranging from one month to two years. Foreign currency accounts have maturities ranging from overnight to one year. There is usually a minimum investment amount, although this will vary between banks.</td>
<td></td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Certificates of deposit are issued by banks with maturities between a month and a year.</td>
<td></td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>The Central Bank of China issues Treasury bills (T-bills) via a public auction. T-bills usually have maturities between 63 and 364 days. Longer-term bonds are also issued with maturities between two and 20 years. The minimum denomination for government securities is TWD 100,000. There is a secondary market for T-bills.</td>
<td></td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Commercial paper is the most commonly issued short-term paper in Taiwan. It is issued for a range of maturities from one month to one year. The tenor of most commercial paper is less than three months.</td>
<td></td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td>Repurchase agreements are available in Taiwan, although they tend to be used as short-term investments by financial institutions rather than companies.</td>
<td></td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✓</td>
<td>Bankers’ acceptances are available, but they are not a popular investment instrument for companies.</td>
<td></td>
</tr>
<tr>
<td>Withholding tax on interest payments to companies</td>
<td>Source: Deloitte Touche Tohmatsu, 2014</td>
<td>To resident companies: 10%. To non-residents (subject to tax treaties): 15%/20%.</td>
<td></td>
</tr>
</tbody>
</table>
### Taiwan – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>×</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custody and settlement arrangements</td>
<td>✓</td>
<td></td>
<td>The Taiwan Depository and Clearing Corporation (TDCC) provides central registration and settlement services for securities on the Taiwan Stock Exchange (TSE) and Gre Tai Securities Market (GTSM), the latter offering central trading of listed stocks and also OTC trading mechanisms for the GTSM emerging stock market, government and corporate bonds, and derivatives.</td>
</tr>
<tr>
<td>Depository</td>
<td></td>
<td></td>
<td>TDCC.</td>
</tr>
</tbody>
</table>

Taiwan’s securities settlement and custody includes:

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013

### Turkey

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>×</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✓</td>
<td></td>
<td>Interest can be earned on resident and non-resident current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td></td>
<td>Demand deposits can be held in domestic currency (TRY) or a major foreign currency.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td></td>
<td>Time deposits can be held in domestic currency or a major foreign currency. Most time deposits have maturities of one, three, six or 12 months. Interest is paid on the maturity date. Many companies keep funds in repurchase agreements rather than deposit accounts.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>×</td>
<td></td>
<td>Offered by commercial banks, certificates of deposit are seldom used and deemed to be less liquid than time deposits. Maturities range up to 12 months. Yields can differ substantially.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td></td>
<td>Treasury bills (T-bills) are the most popular method of short-term investment among banks in Turkey. T-bills are issued by the Undersecretariat of the Treasury with maturities of three, six, nine or 12 months. Government bonds have maturities of over one year.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>×</td>
<td></td>
<td>Commercial paper is issued by larger companies in Turkey. A bank bill is a similar investment instrument to commercial paper and is issued by investment banks and development banks.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>×</td>
<td></td>
<td>Mutual investment funds are available, but not in the form of money market funds. The major mutual fund managers are affiliated to the country’s leading privately-owned banks. Yields may differ substantially.</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>✓</td>
<td></td>
<td>Repurchase agreements (repos) are increasingly used by individuals and companies. Repos on government securities are usually issued in maturities of one, two or four weeks or, on occasion, three months.</td>
</tr>
<tr>
<td>Bankers’ acceptances</td>
<td>✓</td>
<td></td>
<td>Permitted as a method of investment for companies, bankers’ acceptances are not usually traded.</td>
</tr>
</tbody>
</table>

Withholding tax on interest payments to companies

Source: Deloitte Touche Tohmatsu, 2014

| Source: Deloitte Touche Tohmatsu, 2014 | To resident companies: 0%/15%. | To non-resident companies (subject to tax treaties): 0%/10%. |
### Turkey – continued

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depository and settlement arrangements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Depository</strong></td>
<td>Central Registry Agency (M KK). Takasbank. MKK acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants. Takasbank acts as the central securities depository for equities, ETFs, government bonds, corporate bonds, T-bills, commercial paper, investment funds, rights and warrants.</td>
<td></td>
</tr>
<tr>
<td><strong>Central counterparty</strong></td>
<td>Takasbank</td>
<td></td>
</tr>
<tr>
<td><strong>Settlement</strong></td>
<td>T+2 for Equities. T+0 for Bonds. T+3 for Eurobonds.</td>
<td></td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013

### United Arab Emirates

<table>
<thead>
<tr>
<th>Instruments</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest payable on bank account surplus balances</strong></td>
<td>✓</td>
<td>Subject to approval, interest is paid on current account surplus balances.</td>
</tr>
<tr>
<td><strong>Demand deposits</strong></td>
<td>✓</td>
<td>Demand deposits can be held in domestic currency (AED) or a major foreign currency.</td>
</tr>
<tr>
<td><strong>Time deposits</strong></td>
<td>✓</td>
<td>Time deposits can be held in domestic currency or a major foreign currency. Time deposits usually have maturities of one, two, three, six, nine or 12 months. Interest is paid on the maturity date.</td>
</tr>
<tr>
<td><strong>Certificates of deposit</strong></td>
<td>✓</td>
<td>UAE Central Bank auctions certificates of deposit (CDs) with maturities ranging from one week to five years. They are offered in USD and EUR as well as in AED, with a minimum investment of one million in the respective currency. CDs with maturities of one week to one year are auctioned daily. Those with maturities of two to five years are auctioned monthly. USD and EUR denominated CDs are auctioned on all days except Fridays, Saturdays, Sundays and official holidays. AED CDs are auctioned daily except Fridays, Saturdays and official holidays.</td>
</tr>
<tr>
<td><strong>Treasury (government) bills</strong></td>
<td>✗</td>
<td>The UAE government currently does not issue short-term debt instruments, although they may be introduced in future.</td>
</tr>
<tr>
<td><strong>Commercial paper</strong></td>
<td>✓</td>
<td>Commercial paper is available in the UAE, usually issued at a discount by financial institutions with maturities of less than nine months.</td>
</tr>
<tr>
<td><strong>Money market funds</strong></td>
<td>✗</td>
<td>The availability of money market funds in the UAE is increasing.</td>
</tr>
<tr>
<td><strong>Repurchase agreements</strong></td>
<td>✓</td>
<td>Repurchase agreements permit customers to buy securities for a specific period of time and yield interest on an overnight rate. Banks repurchase the securities (including interest) at maturity.</td>
</tr>
<tr>
<td><strong>Bankers’ acceptances</strong></td>
<td>✗</td>
<td>Bankers’ acceptances are not used in the UAE.</td>
</tr>
<tr>
<td><strong>Withholding tax on interest payments to companies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source: Deloitte Touche Tohmatsu, 2014</td>
<td>To resident companies: None. To non-resident companies (subject to tax treaties): None.</td>
<td></td>
</tr>
</tbody>
</table>

### Custody and settlement arrangements

| Depositories | Abu Dhabi Securities Exchange (ADX). Dubai Financial Market (DFM). Nasdaq Dubai. There are three stock exchanges, each of which operates its own depository for the settlement and central registration of its respective (equity or corporate debt) instruments. |
| Settlement | T+2. |

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013
### United Kingdom

#### Instruments

<table>
<thead>
<tr>
<th>Name</th>
<th>✔️</th>
<th>☒</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✔️</td>
<td></td>
<td>Interest can be paid on resident and non-resident current accounts.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✔️</td>
<td></td>
<td>Interest-bearing demand deposits are available to residents and non-residents.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✔️</td>
<td></td>
<td>Time deposits are the most popular method of short-term investment with companies in the UK.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time deposits are offered by commercial banks in several different currencies with a wide range of maturities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The most popular time deposits have a maturity of 30 days, though they can be arranged for terms ranging from overnight up to five years.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✔️</td>
<td></td>
<td>London has a highly active certificates of deposit (CD) market.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CDs in GBP are offered by the majority of leading banks and building societies. Many banks also offer CDs in USD or EUR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The minimum investment amount for a GBP-denominated CD is GBP 50,000.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CDs in GBP are issued in denominations of GBP 50,000.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The minimum investment amount for a USD-denominated CD is USD 1 million.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CDs have maturities ranging from one week to five years, although most have maturities of three or six months.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>There is an active secondary market for CDs.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✔️</td>
<td></td>
<td>Treasury bills (T-bills), notes and short-term government bonds (gilts) are issued by the UK Government Debt Management Office (DMO) through weekly auctions and are a popular method of short-term investment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The DMO issues T-bills with maturities of one, three, six and 12 months. The minimum investment amount for T-bills is GBP 500,000.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short-term gilts usually have maturities below two years, but maturities can range up to five years.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>There is an active secondary market in UK Treasury securities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Short-term obligations are also issued by local authorities.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✔️</td>
<td></td>
<td>Issued by companies and public authorities, commercial paper (CP) is usually purchased by financial institutions, money market funds, pension funds and insurance companies.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maturities range from one week to one year, although most CP is issued with maturities ranging from three to six months.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The minimum denomination for commercial paper is usually GBP 100,000 and GBP 500,000 is the minimum investment amount.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The domestic GBP CP market is highly liquid.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Euro CP is a well established method of short-term investment.</td>
</tr>
</tbody>
</table>

#### Comments

- **Mutual investment funds**: Money market funds are widely available. Investments are offered in GBP, EUR and USD.
- **Repurchase agreements**: There is an active repurchase agreement (repo) market in the UK. Repos are more popular as short-term investment instruments among financial institutions than with companies.
- **Bankers’ acceptances**: Bankers’ acceptances are usually traded between banks. They are seldom used by companies as the returns are minimal.
- **Withholding tax on interest payments to companies**
  - To resident companies: None.
  - To non-resident companies (subject to tax treaties): 0%/20%.

#### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Depository</th>
<th>Central counterparties</th>
<th>Settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euroclear UK &amp; Ireland.</td>
<td>LCH.Clearnet.</td>
<td>T+3 for equities.</td>
</tr>
<tr>
<td></td>
<td>SIX x-Clear AG.</td>
<td>T+1 for government bonds.</td>
</tr>
<tr>
<td></td>
<td>EuroCCP</td>
<td>T+0 for money market instruments.</td>
</tr>
</tbody>
</table>

All custody information provided by GlobalCustody.net. The above is an extract from www.globalcustody.net September 2013.
## United States of America

### Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>✓</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest payable on bank account surplus balances</td>
<td>✗</td>
<td>Regulation Q prevented banks paying interest on company demand deposits. Many companies overcame this by sweeping surplus balances to overnight investment, or sweep, accounts, which provide access to money market funds.</td>
</tr>
<tr>
<td>Demand deposits</td>
<td>✓</td>
<td>Since the repeal of Regulation Q, banks can now pay interest on company demand deposits.</td>
</tr>
<tr>
<td>Time deposits</td>
<td>✓</td>
<td>Time deposits are available in the USA. Maturities range from seven days to over a year.</td>
</tr>
<tr>
<td>Certificates of deposit</td>
<td>✓</td>
<td>Banks issue certificates of deposit (CDs) for a range of maturities from one week to over a year. The most popular maturities are between three and six months. Interest is paid at maturity for CDs with maturities under a year. The interest rate can be fixed or floating. CDs are issued in denominations of USD 100,000 and above. There is an active secondary market in CDs.</td>
</tr>
<tr>
<td>Treasury (government) bills</td>
<td>✓</td>
<td>Treasury bills (T-bills) are issued by the US Treasury Bureau of the Public Debt via auctions held weekly (for maturities of four, 13 and 26 weeks) and monthly (for maturities of one year). T-bills are issued at a discount. The minimum investment is USD 100. There is a highly liquid market for T-bills. T-bills are also available to resident companies and individuals through the internet (TreasuryDirect.gov). State governments and local authorities also issue short-term securities. Federal agencies, including Ginnie Mae, Freddie Mac and Fannie Mae, issue mortgage-backed securities.</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>✓</td>
<td>Companies issue commercial paper (CP) for maturities ranging from overnight to a maximum 270 days. Most CP is issued at a discount, although some is interest-bearing. The USCP market is highly liquid. Each issue usually has a published credit rating. The minimum investment is usually USD 100,000.</td>
</tr>
<tr>
<td>Money market funds</td>
<td>✓</td>
<td>Money market funds are a popular short-term investment instrument in the USA. Money market funds must comply with rule 2a-7 of the 1940 Investment Company Act. The minimum investment is set by each fund, but is typically USD 1,000.</td>
</tr>
</tbody>
</table>

### Repurchase agreements

| Repurchase agreements | ✓ | Repurchase agreements (repos) are available in the USA for maturities ranging from overnight to three months. Overnight repos are popular short-term investment instruments for US companies. |

### Bankers’ acceptances

| Bankers’ acceptances | ✗ | Bankers’ acceptances are no longer a popular short-term investment instruments in the USA. |

### Withholding tax on interest payments to companies

| Source: Deloitte Touche Tohmatsu, 2014 | To resident companies: None. To non-resident companies (subject to tax treaties): 0–30%. |

### Custody and settlement arrangements

<table>
<thead>
<tr>
<th>Depositories</th>
<th>Depository Trust Company (DTC), Federal Reserve.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central counterparties</td>
<td>National Securities Clearing Corporation (NSCC), Fixed Income Clearing Corporation (FICC). NSCC acts as central counterparty for equities, corporate and municipal debt, American depository receipts, exchange-traded funds and unit investment trusts. FICC includes Fixed Income Clearing Corporation Government Securities Division (US Treasury and agency securities) and Fixed Income Clearing Corporation Mortgage-Backed Securities Division (mortgage-backed securities).</td>
</tr>
<tr>
<td>Settlement</td>
<td>T+3 for equities, corporate bonds and municipals. T+0 or T+1 for money market instruments and government securities.</td>
</tr>
</tbody>
</table>

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Accumulating Net Asset Value (ANAV)
A method of compensating money market fund investors through increasing the net asset value (NAV) of each fund unit rather than through dividend payout. See Stable Net Asset Value (SNAV).

Accrued Interest (AI)
The interest accumulated on a debt security since its issue date, but not yet paid out. This is accounted for in the actual gross purchase price of the debt security.

Agent Bank
A custody term designating any bank providing custody services on behalf of a custodian for securities traded in the country where the bank is based.

American Option (American-Style Option)
A type of derivative that it is widely used in the USA. It gives its holder the right to buy or to sell a certain amount of the underlying financial product at any time from its purchase to its date of expiry.

Annual Equivalent Rate (AER)
The notional annual rate of interest applied to current, deposit and savings accounts assuming that all interest is reinvested or compounded.

Arbitrage
The process by which profits are generated from the buying of an asset in one market and the simultaneous sale in another market of the same asset or its economically equivalent derivative. Arbitrage occurs when there is a price differential for the same asset in two different markets.

Arm’s-Length Principle
The arm’s-length principle assumes that pricing for transfers between affiliated companies should be identical to that applied to transfers between fully independent companies. See transfer pricing, transfer pricing regulations.

Asian Option
A type of option where the amount that needs to be repaid is determined by the underlying asset’s average value over a specific period of time.

Ask Price
The offered (selling) price of traded securities or other instruments, i.e. the price which a buyer would be expected to pay.
At-the-Money (Option)
A situation where the strike price of an option is equivalent to the underlying instrument’s current market price.

Authorisation
A key control in treasury. Authorisation needs to be provided for all transactions in treasury and given only by a small number of people with the appropriate (seniority) qualifications. The individuals with power of authorisation should be listed in a document also specifying the various transactions that can be authorised, procedures for controlling authorisation, etc.

Authority Limits
Limits set by treasury to the number of dealers allowed to carry out transactions, the value of the transactions they can execute and the number of people giving authorisation. More generally, limits can also be applied to the financial risk that a company or organisation is willing to bear. Limits can, for example, be set for the proportion of foreign exchange exposures and the time period within which they should be hedged. The company/organisation may also, for liquidity reasons, limit the types of deals that it wants to have transacted. Another area of authority limit concerns the level of counterparty credit exposures resulting from deals such as those in derivative products. In some exceptional situations, the dealer may have to exceed the risk and authority limits set by the management. In such cases, it is essential for the dealer to have the transaction approved by the relevant responsible manager.

Average Maturity
The amount of time needed for all securities held in a portfolio to reach maturity, weighted by the amount of assets invested in each security.

Average Effective Maturity
1. A calculation of the maturity of a bond taking account of any potential early redemption.
2. A calculation of the weighted average of the maturities of bonds in a portfolio, which includes all adjustable coupons, mortgage prepayments and puts.

Average Nominal Maturity
As opposed to average effective maturity, it does not take account of a potential early call, adjustable coupons, mortgage prepayments and puts.

Average Weighted Maturity (Weighted Average Maturity – WAM)
A calculation of the weighted average of the maturities of the fixed rate periods for instruments held in a portfolio. Average weighted maturity is correlated to the interest rate risk profile of the portfolio, i.e. a longer WAM implies greater price volatility.

Back Office
The part of the treasury organisation that administers and supports the trading activities of the treasury front office. The back office’s main functions are to process, confirm, verify, settle, reconcile and record financial market transactions. The back office is also responsible for ensuring that the organisation’s treasury management policy and controls are followed, as well as ensuring general compliance with rules and regulations. In a more general sense, the term refers to all administrative functions that support an organisation and includes areas such as payroll and expenses, accounts payable, accounts receivable and accounting.

Backwardation
The extent to which a spot price of a foreign currency plus carrying costs exceeds the forward price.

Barrier Option
An option that is initiated or terminated if the underlying asset’s value exceeds or goes below a reference price threshold.

Base Currency
Generally this means the currency to which other currencies are compared. In a multicurrency liquidity arrangement, refers to the currency in which the master account is denominated and to which all other currencies are converted. The base currency also serves as the basis for all interest rate calculations.

Basis
In futures markets, the price differential between the price of the asset underlying the futures contract and the price of the futures contract.

Basis Point (bp)
One-hundredth of one percent, i.e. 1% equals 100 basis points or bps. While bond coupons may be expressed in fractions (i.e. in quarters, eighths or sixteenths), yields and prices of most money market instruments, such as commercial paper or treasury bills, are quoted in basis points.

Basis (Rate) Swap
An arrangement where payments based on different floating rates are swapped. The payments can also be denominated in different currencies.

Bearer Bond or Bearer Security
A bond/security that is not registered in the name of a specific owner. The owner of the bond is the person who holds it. Thus, title to the bearer bond is transferred through delivery. Principal and interest were historically paid, upon presentation of coupons, to a paying agent, although nowadays bearer bonds usually operate by book entry, whereby investors buy and sell their interests in a global note representing the entire issue and held within the clearing system.

Benchmark
A standard set by the market (such as a stock market index) or by an institutional investor (such as an internally developed benchmark) against which the performances of a fund or portfolio can be managed and tracked.

Beneficiary
The party that is named by the grantor, settlor or creator of the trust and is entitled, according to the terms in the respective trust deed, to benefit from the revenues of the trust.

Best Ask
Dealer’s instruction to sell securities or assets at the highest price possible.

Best Bid
Dealer’s instruction to buy securities or assets at the lowest price possible.
Bid and Ask
Quote (quotation) at a given point in time that simultaneously includes the highest bid price (bid) for a security and the lowest offer price (ask). The spread between the highest bid and lowest offer is referred to as ‘the touch’.

Bid Price
The market-maker’s buying price of securities or assets.

Bid Rate
The price at which banks and other market participants are willing to buy currencies, securities, commodities, instruments, derivatives or to take deposits.

Bid–Offer Spreads
The difference between the prices that a holder or trader of assets (generally a financial institution or financial intermediary) is willing to buy and sell those assets. These assets can be currencies, shares, fund units, etc.

Black–Scholes Model
A method of determining the price of an option contract by taking into account the price of the underlying asset, strike price, date of expiry, risk-free interest rate and volatility of the option.

Book Entry
An electronic method of registering ownership of and transferring securities.

Book-entry System
An accounting system that allows the transfer of claims (e.g. securities) without the physical movement of paper documents or certificates.

Broker
An individual or a firm (also called a broking house) that acts as an agent for investors by dealing in securities. Usually, the broker will charge commissions (called brokerage) for his advisory and trading services. A broker does not buy or sell on his own account but acts as an agent for his clients.

Call
The act of paying/redeeming a security’s principal before its actual maturity date in line with the rules laid out in the bond documentation.

Call Option
The option to buy a certain amount of an underlying financial product on (a) specific date(s) at a predetermined price.

Cap
A maximum limit on a price, interest rate or coupon.

Cash Concentration
A cash management technique where account balances are physically transferred to/from a single master account for liquidity management purposes.

Cash Flow Forecast
A regular report sent by the company’s operations and subsidiaries to the treasury management headquarters informing it about any cash excesses and deficits that they may have in the future.

Cash Flow Management
The monitoring, analysing and adjusting of cash flow to organisation requirements.

Cash Pooling
A cash management technique aimed at improving liquidity management by pooling an organisation’s account balances either under the form of a cash concentration or a notional pooling arrangement.

Central Counterparty
An institution, acting in one or more securities or cash markets, that is interposed between two trading parties. The central counterparty guarantees the performance of the underlying transaction by acting as a matching seller to the buyer and a matching buyer to the seller.

Certificate of Ownership
A certificate issued to prove ownership of a given security.

Clean Price
The price of a bond excluding any interest accumulated.

Clearance
The process of transmitting, reconciling and, in some cases, confirming payment orders or security transfer instructions prior to settlement, possibly including netting of instructions and calculating final positions for settlement. Sometimes the term is used (imprecisely) to include settlement. Outside the securities market this process is generally referred to as clearing.

Clearstream
In addition to Euroclear, Clearstream is one of the leading clearing systems and depositories for euromarket securities, as well being a major international central securities depository (ICSD) and the central securities depository for the German and Luxembourg markets. Clearstream is owned by the Deutsche Borse.

Collar (Interest Rate or Foreign Exchange Rate Collar)
A risk management arrangement where the purchase of an option and sale of another occur contemporaneously for the same underlying financial product. The payment acquired from the sale reduces the cost of the purchase. If both the payment and receipt match exactly, this is known as a zero-cost collar. The collar places a band around the potential outcome for this risk-hedging technique.

Compounding
The process of accumulating the time value of money forward in time. When money is invested at compound interest, each interest payment is reinvested to earn additional interest in subsequent periods. See time value of money.
Confirmation
A document through which a market participant notifies its counterparties or customers of the details of a trade/transaction and, typically, allows them time to affirm or question the trade/transaction. The issue and matching of confirmations is one of the key controls in treasury dealing activity. Increasingly confirmations are being transmitted and matched by electronic means, but the same rules, relating to the separation of the dealing function from the confirmation function, still apply.

Constant Net Asset Value (CNAV)
A form of money market fund whose distributing shares maintain a 'constant' price through the application of amortised cost accounting, rather than marking to market the value of the investments held in its portfolio.

Continuous Linked Settlement (CLS)
A global real-time settlement system for foreign exchange transactions that eliminates foreign exchange settlement risk caused by delays arising from time-zone differences; the so-called Herstatt risk.

Counterparty
One of the opposing parties involved in a transaction.

Coupon
The periodic rate of interest paid on bonds and money market securities, stated as a percentage of the principal and usually paid out once or twice a year, depending on the terms of the issue.

Coupon Rate
The rate of interest, expressed as an annual percentage, to be paid on debt securities.

Credit Derivative
A contract allowing for the transfer of credit risk via a derivative instrument. The party transferring credit risk is obliged to pay a fee to the transferee.

Credit Enhancement
The increasing of the creditworthiness of securities. There are three main methods of credit enhancement:

1. Junior/senior tranches: the entire debt is divided into so-called junior and senior tranches, with the former bearing all the first losses. Thus, the credit standing of the remaining senior tranches is raised considerably.

2. Insurance: a third party, usually an insurance company, undertakes to insure the credit risk of the respective securities (called 'wrapping').

3. Collateralisation: securities may be backed by other financial assets, usually equity, of higher values. The difference serves as collateral for the repayment of the debt (over-collateralisation). The issuing company may also put collateral on the differential between the respective security's original and market values (margin).

Credit Rating
A standardised assessment, expressed numerically, of the creditworthiness of an entity raising debt capital – a company, an investment vehicle (mutual fund), a country (sovereign) and its affiliated public agencies or regional/local authorities or a supranational institution – provided by credit rating agencies to investors and analysts. Ratings also serve as a measure of the risks related to specific financial investments.

Credit Rating Agencies (CRA)/Rating Agencies
Independent institutions that assess the creditworthiness or the credit risk of issuers and provide credit ratings which are publicly available and used by investors as well as analysts as a guide for investment decisions.

Credit Spread
1. The difference in yield between a given security and a comparable benchmark government security. It gives an indication of the issuer’s credit quality.

2. The difference in value of two securities with comparable maturity and yield but different credit qualities.

Cross-border Sweeping
A cash management technique used to automatically concentrate funds derived from different countries into a bank account located in a different jurisdiction.

CSD
Central Securities Depository.

Currency Forward Contract
An agreement to buy or sell a specified amount of a foreign currency at a future date for a predetermined price.

Currency Futures
Exchange traded, and therefore standardised, contracts to buy or sell a specified amount of foreign currency at a specific price and at a specific date in the future.

Currency Option
A derivative giving its holder the right, but not the obligation, to buy or to sell a certain amount of a foreign currency at a predetermined price on a specified date.

Current Yield (Running Yield)
The annual return in the form of dividend or interest payment on an investment. It is equal to the coupon/ dividend divided by the market price, expressed as a percentage. Also known as flat yield or income yield.
Custodian
A bank, financial institution or other entity responsible for maintaining accurate and up-to-date registration details of the beneficial owners of those securities for which it has custodial responsibility. Custodians are also responsible for the administration of the assets they hold (including trade settlement), the collection of interest or dividends, exercising the voting rights attached to certain types of securities if so required, as well as being able to provide other services such as the production of portfolio valuations and performance measurement. As a result of dematerialisation, the need to hold and safe-keep securities in physical form has been largely removed in many of the world’s major securities markets. See global custodian, local custodian.

Custody
The registration and administration of securities and financial instruments on behalf of investors.

Custody Risk
This is the risk of loss of securities held in custody occasioned by the insolvency, negligence or fraudulent action of the custodian or of a sub-custodian.

Custody Services
These include the processing of securities trades, keeping financial assets safe and servicing the associated portfolios.

Central Securities Depository (CSD)
A facility for holding securities that allows securities transactions to be processed by book entry. Physical securities may be immobilised by the depository or securities may be dematerialised (solely recorded as electronic records). In addition to safekeeping, a central securities depository may provide comparison, clearing and settlement functions.

Day Count
1. The number of days within a specific interest payment period in which interest payments are due.
2. The convention governing the way such interest payments are to be calculated (e.g. 360/365 days).

Debt Book-entry System
A book-entry system for the issue and registration of debt securities.

Delivery
The final settlement of a securities transaction.

Delivery Versus Payment (DVP) System or Delivery Against Payment System
A mechanism in an exchange-for-value settlement system that ensures that the final transfer of one asset occurs only if the final transfer of another asset(s) takes place. Assets are, among others, monetary assets (this includes foreign exchange), all types of securities and other financial instruments.

Demand Deposit Account (DDA)
A type of non-interest-bearing bank account available in the USA and Canada that allows the account holder to transfer funds to a third party via cheque, wire transfer, or an automated clearing house (ACH) transfer and to withdraw funds on demand.

Dematerialisation
The elimination of physical certificates or documents of title which represent ownership of securities, so that securities exist only as accounting records.

Depository
An agent whose primary function is to record securities either physically or electronically and to keep records of the ownership of these securities.

Depository Trust Company (DTC)
(USA) A subsidiary of the Depository Trust & Clearing Corporation (DTCC), the DTC is an automated central securities depository. It is a member of the US Federal Reserve System, a limited-purpose trust company under New York State banking law and a registered clearing agency with the Securities and Exchange Commission.

Derivative (Derivative Security)
An instrument, such as an option, future or swap, of which the criteria and value are determined by those of an underlying asset such as a stock, currency or commodity.

Differential Swap
An arrangement involving the exchange of payments denominated in different currencies and with a different floating exchange rate. However, actual payments are always denominated in the same base currency.

Discount
The difference between a financial instrument’s market price and its face value or redemption price when its market price is the lower of the two.

Discount Instruments
Securities that are sold at a discount to face value.

Discount Note
A short-term note (with a maximum maturity of 360 days) issued at a discount to its par value. It pays out no interest but investors receive par value upon maturity.

Discount Rate
1. The generic name for the rate of interest at which the future cash flows of an investment are discounted in order to obtain the net present value of the cash flows. The choice of discount rate should reflect the risks of the investment/project.
2. In the USA, the interest rate that member banks pay the Federal Reserve when the banks use securities as collateral. The discount rate acts as a benchmark for interest rates issued. Other central banks also have similar discount rates.
Discounted Cash Flow (DCF)
A method for the evaluation of investments. This is calculated by discounting the future cash flows at an appropriate discount rate of interest in order to arrive at a single net present value (NPV) figure, which can be compared with other investments.

Domestic Fund
A mutual fund which only invests in securities originating from a single country, which is more often than not the country in which the fund is domiciled.

Domicile
The country of a fund’s creation.

Double Taxation
Instances where the same income or profit is subject to tax twice.

Double Tax Treaties
Agreements between countries to attribute taxing rights and provide relief where double taxation might otherwise apply.

Duration (Macaulay Duration)
The weighted average timing of the cash flows of an instrument, weighted by the present values of the cash flows. Macaulay’s duration uses the yield to maturity of the instrument to work out the present values to use for weighting in the duration calculation. The longer the duration, the more a security’s price is likely to be affected by changes in interest rates. Duration is also used as a measure to compare debt securities that have different maturities and yields.

DVP
Delivery vs. payment.

Embedded Option
1. A provision in a debt security which allows the issuer or the holder to exercise an option – this is generally a call option (issuer) or a put option (holder). The option is generally linked to specific dates and may be subject to other conditions.
2. A provision in a debt security which links payments on the security to pre-specified changes in an underlying security, currency, index or commodity.

Euro Interbank Offered Rate (Euribor)
Sponsored by the European Banking Federation, Euribor is the benchmark rate at which EUR interbank term deposits within the eurozone are offered by one prime bank to another prime bank at 11:00 CET. Euribor is calculated daily and covers periods ranging from one day to one year.

Euro Overnight Index Average (Eonia)
An effective overnight rate computed as a weighted average of all overnight unsecured lending transactions in the interbank market, initiated within the eurozone by the contributing panel banks. Eonia is widely used as the underlying rate for derivatives transactions within the eurozone.

Eurobonds
International long-term debt securities with maturities over one year denominated in any Eurocurrency. International distribution is a key feature and they are usually in bearer form, but the bonds can be issued in any currency or any interest basis.

Euroclear
Located in Brussels, Euroclear is the world’s largest settlement system for domestic and international securities transactions (covering equities, bonds and funds), providing a comprehensive range of services to major financial institutions located in more than 80 countries worldwide. It also acts as the central securities depository (CSD) for Belgian, Dutch, French, Irish and UK securities.

Eurocurrency
Generic term for deposits held or financial instruments which may be issued and held outside the country/countries in whose currency they are denominated, though this does not usually exclude purchases by domestic investors.

EURONIA
A euro overnight index average that tracks actual average market euro overnight funding rates each day for settlement that day. It is based upon all unsecured euro overnight cash transactions brokered in London by Wholesale Market Brokers’ Association (WMBA) member firms.

European Option (European-Style Option)
A derivative that gives its holder the right to buy or to sell a certain amount of the underlying financial product on its date of expiry or for a short specific period (i.e. one day) just beforehand.

Ex-coupon
Debt securities that are sold without the right to receive the next or due coupon.

Exchange-traded Funds
Open-ended funds tracking an index that are priced on a continuous basis and can be bought or sold like shares.

Exchange-traded Option
An option that is traded on an exchange, as opposed to over the counter, i.e. with a bank or other financial institution.

Exercise Price
The predetermined price in a contract at which the option holder can either purchase or sell the underlying security, instrument or commodity.

Exotic Option
A range of options with unconventional payout structures and underlying securities/commodities.

Expiry Date
The final day that an option holder can purchase or sell an underlying security/commodity.

Face Value (Par Value/Principal Value/Nominal Value)
The nominal amount indicated on the security which is the basis for interest or dividend payments.
Fair Value (or Fair Market Value)
The price at which an asset can be bought or sold in transparent/perfect markets, i.e. where contracting parties are informed and act in their best interest. It represents the theoretical equilibrium price of securities or derivatives on open markets, i.e. neither buyers nor sellers perceive them as either over-priced or under-priced.

Federal Funds Rate (USA)
The rate of interest charged on overnight loans from banks’ deposit accounts held at the Federal Reserve (the USA’s central monetary authority) to other banks.

Firm Bid/Firm Offer
Unconditional order to purchase or sell securities during a specific period at a specified price.

Floor
The minimum interest rate paid on a security or under a derivative agreement.

Fonds Commun de Placement (FCP)
Type of collective investment scheme available in France and Luxembourg, which provides participants with co-ownership of a portfolio of securities managed by an investment management company. Unlike SICAVs, FCPs are not distinct legal entities.

Foreign Currency Option
A contract where the buyer/holder has the right, but not the obligation, to purchase/sell a fixed amount of a foreign currency at a specific price within a specific timeframe.

Foreign Exchange Portal
A browser-based electronic marketplace that regroups several foreign exchange providers who provide online quotes in real time, thereby enabling foreign exchange products to be traded on a fully automated basis. Foreign exchange portals are increasingly being used for smaller foreign exchange trades that do not require human intervention.

Foreign Exchange Swap
A contract where it is agreed that certain amounts of a particular currency are exchanged between two parties on a specific date, combined with a reverse exchange of the same two currencies at a future date and at a rate agreed at the outset, which will normally be different.

Forward Discount
The situation in which the spot price of a currency is greater than the forward price of that currency.

Forward Foreign Exchange Contract
Foreign exchange contracts that are constructed to mature and be settled at a future date. They are priced by adjusting the spot rate to reflect the interest rate differential between the two currencies involved for the forward period. They are used to hedge against future value fluctuation by locking in future price or rates.

Forward Foreign Exchange Rate
The agreed exchange rate on the day a transaction is entered into for a foreign currency transaction that settles more than two days in the future. The rate is determined by adjusting the spot rate to reflect the interest rate differential between the two currencies involved for the forward period.

Forward Forward
A foreign exchange swap or other swap arrangement where the transaction commences at some date in the future and is in force for a further future period.

Forward Market
A marketplace that allows same-day price fixing of currencies, commodities and securities that will be delivered at a future date.

Forward Premium
The premium that has to be paid when a traded currency’s forward price is greater than its spot price.

Forward Price
The price for a transaction that has a start date in the future, or later than the spot date.

Forward Rate
A fixed rate to be applied to a transaction that will come into force at a specific date in the future.

Forward Rate Agreement (FRA)
A bilateral forward contract that fixes the interest rate on the day of the agreement for payment at a future settlement date; this can be up to two years later. FRAs are used to hedge against interest rate exposure, in the sense that one of the parties pays a fixed rate and the other a variable rate. If, at the settlement date, the market rate is lower than the previously agreed rate, the purchaser will indemnify the seller for that difference and conversely, if the market rate has risen, the seller will compensate the purchaser.

Forward Start Swap
Swap arrangement where the commencement of the swap is delayed for a period exceeding the market standard. The pricing and terms of the transaction are agreed at the outset.

Front Office
The part of the treasury function that executes transactions for the cash investment, funding, foreign exchange and risk hedging requirements of the company. The front office is the unit of the treasury which interfaces with the group’s entities or subsidiaries, and provides treasury services to them, and which interacts most with the company’s lenders and other financial counterparties.

Futures (Futures Contracts)
Contracts stipulating the purchase or sale of commodities, currencies or securities of a specified quantity, at a specific price and on a predetermined date in the future. Futures tend to be standardised in terms of quantity, price and maturity periods.
Global Custodian
An international financial institution that is able to provide custody services to leading international investors in several financial markets. See Custodian.

Global Fund
A mutual or investment fund that has its assets invested in all major financial markets.

Hedge Accounting
Under International Financial Reporting Standards (IFRS) a hedge and the underlying transaction being hedged are accounted for separately. Hedge accounting ensures that both items receive similar accounting treatment, to reflect that the transactions are economically self-cancelling. There are qualifications that must be satisfied in order that hedge accounting may be used, for example that the hedge can be shown to be effective.

Hedging
The implementation of a set of strategies and processes used by an organisation with the explicit aim of limiting or eliminating, through the use of hedging instruments, the impact of fluctuations in the price of credit, foreign exchange or commodities on an organisation’s profits, corporate value or investments.

High-yield Bond (or Junk Bond)
A bond with a sub-investment (speculative) grade credit rating. This type of bond is used particularly to finance leveraged buy-outs and to pay higher yields to investors than bonds with higher ratings do. The term, therefore, increasingly refers to financial instruments with speculative credit ratings.

ICSD
International Central Securities Depository.

Implied Volatility
The volatility of the asset, liability, security or commodity underlying a derivative, which is derived from the option pricing formula and the anchor price of the option itself.

Institutional Money Market Funds Association (IMMFA)
The trade association for providers of triple-A rated money market funds within Europe. Its members currently have funds domiciled in Dublin, Luxembourg and the Channel Islands.

Interest
The price paid by the borrower or issuer of debt securities to the lender or investor for providing funds. It is usually expressed as a percentage rate over a period of time (usually one year), and is paid out once or twice a year. See Coupon.

Interest-bearing Instruments
Securities on which a specific rate of interest is required to be paid periodically or at maturity.

Interest Rate Caps
Maximum thresholds applied to the amount of interest that can be charged on debtors’ periodic payments.

Interest Rate Collar
A combination of a cap and a floor.

Interest Rate Enhancement (Interest Rate Netting or Interest Rate Optimisation)
A cash management practice that acts as a substitute for notional pooling in several European countries where tax or regulatory constraints limit the potential for cost-effective notional pooling. As is the case for notional pooling, interest rate enhancement aims to view the account balances of a company or its subsidiaries as a whole for the purposes of interest calculation. However, unlike notional pooling, there is no formal scheme set up to allow the systematic offsetting of the various participants’ credits and debits.

Internal Rate of Return (IRR)
An accounting method for calculating the return achieved on a (potential) investment by equating the net present value (NPV) of cash inflow over time to zero.

Interest Rate Swap (IRS)
A swap arrangement where interest payments on a certain amount of principal are exchanged between two parties on a specific date. One of the payment streams involved is usually based on a fixed interest rate, while the other is based on a floating rate.

International Central Securities Depository (ICSD)
A central securities depository that provides clearing and settlement facilities for cross-border transactions in domestic securities and/or international securities transactions.

International Fund
A fund which invests in securities outside the country of the investor.

Inverted/Negative Yield Curve
A situation where securities with short-term maturities attract higher interest rates than those with long-term maturities. So called because the term premium is negative.

Investment Grade
Securities with credit ratings equal to or above investment grade, which is currently BBB or better.

ISDA (International Swaps and Derivatives Association)
An international trade association, composed of over 600 members, for institutions dealing in derivatives, swaps and options.

Issue
The creation of new securities by a private or public entity in exchange for cash or assets. An issue can involve one or more types of debt and/or equity security.

Issuer
A company or other entity that borrows or raises capital via the financial markets through the issuance of securities.

Jumbo Certificate of Deposit (CD)
(USA) A certificate of deposit with a high face value generally purchased by institutional investors looking for low-risk investments.
Glossary

LIBID (originally the London Interbank Bid Rate)
The interest rate which the quoting bank will pay on funds deposited with it. LIBID is normally 0.125% lower than LIBOR.

LIBOR (originally the London Interbank Offered Rate)
A daily published rate reflecting the average rate from a panel of contributor banks in the London market. The daily rate is published for different periods and different currencies.

Listed Investments
Securities which have been admitted for trading on an official exchange.

Local Custodian
Provides custody services for securities traded and settled in the country in which the custodian is located.

Long-dated Swap
A long-term agreement between two parties to exchange a set of cash flows for a minimum of one year and up to 15 years in the future.

Mandates
Agreements regulating the dealing relationship between the company and its counterparties, authorising people to conduct transactions, possibly applying limits to the size of deals and procedures concerning settlement, and regulating the opening and closing of transactions. Mandates are a key element of treasury control and are an essential mechanism for reducing the company’s dealing risk.

Margin
In the context of the securities markets, where securities are bought using credit supplied by the broker, margin is the cash collateral put up by the purchaser. The margin amount is subsequently adjusted to reflect changes in value of the securities broker. In the context of derivatives, margin is cash collateral paid by market participants to protect their counterparties in the market against the risk of a default.

Marking to Market
The practice of revaluing securities and financial instruments using current market prices. In some cases, unsettled contracts to purchase and sell securities are marked to market and the counterparty with an, as yet, unrealised loss on the contract is required to transfer funds or securities equal to the value of the loss to the other counterparty.

Master Account
Account in a cash pooling structure used to fund zero/target/threshold balance accounts automatically or concentrate funds from participating accounts automatically. The master account may be interest-bearing. A master account is also known as concentration account.

Matching
The process used by market participants before settlement of a transaction to ensure that they agree with respect to the terms of the transaction. This is usually done by matching transaction confirmations sent to a counterparty with those received from that counterparty.

Mid-Market Price (Mid Price)
The average value of the bid price and offer price of a security or fund unit.

Middle Office
With the front and back offices, the middle (or mid-) office completes the key best practice division of duties and responsibilities in the treasury operation. Its basic responsibilities include treasury reporting, accounting for treasury and determining and monitoring the internal treasury control framework. Many companies may not have operations that are sizeable enough to require a middle office; in these cases, its role is performed by the back office or the accounting department.

Multicurrency Cross-border Pooling
A cash management technique in which excess funds from companies’ accounts in different countries, which are denominated in different currencies, are concentrated and used to offset deficits for the purpose of determining interest earned or owed.

Multicurrency One-country Pooling
A cash management technique in which excess funds from companies’ accounts in the same country, which are denominated in different currencies, are concentrated and used to offset deficits for the purpose of determining interest earned or owed.

Mutual Fund
A pool of capital provided by small as well as institutional investors, and invested in a portfolio of securities. There are two types of mutual fund: open-ended and close-ended. While close-ended mutual funds have a predetermined amount of capital to be invested, open-ended mutual funds do not.

Net Asset Value (NAV)
The market price of an investment fund’s portfolio of securities (after the deduction of debt to be repaid) calculated by dividing the total value with the total volume of securities.

Net Present Value (NPV)
Refers to the present value of an investment based on the calculation of its future cash flows minus the costs. See Internal Rate of Return (IRR).

Netting
An agreed offsetting of positions or obligations by trading partners or participants. The netting reduces a large number of individual positions or obligations to a smaller number of obligations or positions, thereby reducing the overall credit, liquidity and settlement risk. Netting may take several forms that have varying degrees of legal enforceability in the event of default of one of the parties.

Non-investment Grade
A rating attributed to a security that is deemed speculative, i.e. less certain in respect of the preservation of capital, in the opinion of a credit rating agency such as Fitch Ratings, Moody’s or Standard & Poor’s.
**Notional Pooling**
A cash management technique where account balances are offset without physical movement or co-mingling of funds, for the purpose of interest compensation by the bank.

**Notional Principal Amount (Notional Principal)**
In a derivatives contract, the amount of underlying assets used to calculate the obligations between the different parties.

**Offset**
Ability to set assets against liabilities in multiple bank accounts. Also used in netting transactions.

**Offshore**
This term is generally used in the context of transactions with (or) a company resident in a tax haven.

**Offer Rate**
The price at which currencies, assets, securities, commodities or instruments are sold, or money/funds are lent by market participants.

**Offshore Fund**
Any fund or investment company (in the case of a unit trust or FCP) that is legally established outside the country of the investor. Popular offshore fund locations are Bermuda, Luxembourg, Ireland and the Channel Islands.

**Open-ended Investment Company (OEIC)**
A limited company listed on the stock exchange whose sole aim is to invest in securities issued by other entities. Unlike an investment trust, there is no limitation on the number of shares that can be issued (i.e. it is an open-ended structure). The value of the shares is determined by the OEIC’s underlying assets; however, there is no bid-offer spread. OEICs can be the underlying structure for a single fund or the umbrella fund for a family of sub-funds.

**Option**
A derivative giving its holder the right, but not the obligation, to buy or to sell a certain amount of the underlying financial product, usually a security, on a specific date at a predetermined price.

**Out-of-the-Money (OTM)**
A revalued derivative position showing a loss because of market changes.

**Outsourcing**
The contracting of all or part of the treasury operation to a specialist third-party service provider, rather than it being performed in-house. This is now a commonly used model and has particular application where treasury needs change due to some form of corporate restructuring or change.

**Over-the-Counter (OTC)**
A market for the trade of securities that are not listed on the stock exchange consisting of bilateral dealing contracts between brokers. As opposed to an organised stock exchange, prices in the OTC markets are set by direct negotiation between dealers, and not by an auction system. The OTC market is a market for companies which do not fulfil the listing requirements of the official stock exchange markets, or for derivatives or other financial instruments that do not have a liquid market.

**Paying Agent**
An institution, a company or a bank which, on behalf of the issuing company, makes interest payments and repayment of the principal upon presentation of coupon and/or bond certificates.

**Pfandbrief**
Mortgage bond issued by German mortgage banks. The strict regulatory regime governing Pfandbrief-issuing and their relatively high credit ratings have enabled issuers to sell them widely to international investors.

**Plain-vanilla**
Instruments that have only the standard features.

**Portfolio**
A collection of financial assets purchased by private or institutional investors in order to achieve a return on the capital invested.

**Positive Yield Curve**
Where yields increase as maturities lengthen.

**Present Value**
The current equivalent value of cash available immediately for a future payment or a stream of payments to be received at various times in the future. The present value will vary with the discount (interest) factor applied to the future payments.

**Primary Market**
The market for new issues of securities with the aim of raising new capital.

**Principal**
The face value of a debt instrument. The principal amount of a trade is the face value of the debt instrument involved in the trade.

**Private Placement**
The sale of securities by a lead manager directly to a limited number of institutional investors, instead of to a wider group of investors as is the case with a public offering. Securities sold via private placement are not listed on the stock exchange.

**Put Option**
The option to sell a certain amount of an underlying financial product on (a) specific date(s) at a predetermined price.
Quotation/Quote
1. A dealer’s bid or offer price for a security.
2. A security’s listed market price.

Rate Reset
An amendment, in accordance with a specific formula, in the rate of interest applied to an adjustable rate debt security.

Redemption
The paying off or buying back of a debt security by the issuer on or before its stated maturity date. The redemption can be made at par value or at a premium, as is the custom when exercising a call option.

Rule 2a-7
This is the section of the US Investment Companies Act of 1940 which specifically defines investment restrictions for money market funds.

Safekeeping
The physical holding and preservation of securities, or the maintenance of up-to-date CSD records, for the beneficial owners of securities by an agent bank, custodian or fund administrator. See Custody.

Same-day Funds
Money balances that the recipient has the right to transfer or take out of the account on the same day as the funds are received. The value date is equal to the date on which the funds transfer is initiated.

Secondary Market
The market for the trading in securities that have previously been bought by investors as new issues in the primary market.

Securities Settlement System (SSS)
A system which permits the transfer of securities: either free of payment, i.e. free delivery (for example in the case of pledge), or against payment. Settlement of securities occurs on securities deposit accounts held with a central securities depository (private CSDs or a central bank acting as a CSD) or with a central bank (safe custody operational accounts).
In the latter case, the central bank acts as the intermediate custodian of the securities.
The final custodian is normally a CSD. Settlement of cash occurs in an interbank funds transfer system (IFTS), through a settlement agent.

Settlement
The exchange of securities between buyer and seller and the corresponding transfer of money between the two contractual parties. Settlement is usually preceded by confirmations on, among other things, the date and method of exchange and payment.

Settlement Agent
An institution that is responsible for managing all aspects of the settlement process (including the calculation of settlement positions and the monitoring of the exchange of payments) on behalf of transfer systems or other settlement arrangements.

Settlement Date
The date on which a security transaction is settled, i.e. payment is made and securities are physically received and delivered or beneficial ownership records are changed in CSDs. See Trade Date.

Single Legal Account Pooling
A cash management technique based around a single legal master account structure in the name of the parent or group financing company where the other participant accounts act as memo accounts of that legal account. This cash management technique is widely used in Northern Europe (Nordic and Baltic countries).

Société d’Investissement à Capital Variable (SICAV)
Type of collective investment scheme available in France and Luxembourg. Unlike FCPs, SICAVs are distinct legal entities, with each investor being a shareholder of the company. In other words, SICAVs are open-ended investment companies.

Spot Market
A market in which a currency or commodity is traded for immediate delivery and against cash payment. Settlement usually occurs within two business days. Also known as cash market.

Spot Price
The rate or price applying to the immediate delivery of a commodity or currency.

Spot Rate
1. The annual rate of return on a zero-coupon instrument.
2. Synonym for spot price, particularly when involving currency transactions.

Spot Transaction
A transaction where both parties agree to pay each other a specific amount in a foreign currency either on the same day or within a maximum two days of each other.

Spread
1. The differential between the yields of two fixed-income securities, mostly expressed in basis points.
2. The difference between the bid and ask prices quoted for a security.

Spread to Treasury/Governments
The spread differential between the yields of a non-government fixed income security and that of a treasury/government security with the same or similar characteristics, whereby the latter acts as a benchmark.

Stable Net Asset Value (SNAV)
See Constant Net Asset Value (CNAV).

Sterling Overnight Interbank Average (SONIA)
A sterling overnight index average that tracks actual average market sterling overnight funding rates each day for settlement that day. It is based upon all unsecured sterling overnight cash transactions brokered in London by Wholesale Market Brokers’ Association (WMBA) member firms.
**Strike Price**
The price in an option contract at which the option can be initiated, i.e. the price at which the option’s underlying security/commodity can be bought or sold.

**Sub-custodian**
Any company/institution providing custody administration services on behalf of other custodians who may not have an operation in the country concerned.

**Swap**
An agreement between two parties to exchange (or swap), under specified conditions, a set of cash flows at a future point in time.

**Swaption**
An option on a swap where the buyer of the option has the right, but not the obligation, to enter into a specified swap at a specific future date.

**Sweep Account**
A bank account that automatically transfers excess balances into an overnight interest-earning investment with the same bank.

**Target Balance**
The minimum amount that needs to be maintained in each sub-account under a target balancing scheme.

**Target Balancing**
A cash concentration technique whereby all account balances are physically transferred into a nominated account leaving a predetermined amount in the sub-accounts. Also known as target concentration or sweeping.

**Taxable Equivalent Income (Taxable Equivalent Yield)**
Adjusting method that allows tax-free income or yield to be compared to gross taxable income before any taxes are deducted in order to determine how much taxable income/yield is required to equal the income or yield generated by a tax-free investment.

**T-bill Rate**
(USA) The yield derived from the interest rate achieved on the weekly auctions of the three-month treasury bill.

**Tenor**
1. The term may be used synonymously with maturity, but may also refer to
2. The period between a security issue and its maturity.

**Threshold Balancing**
A cash concentration technique where the balances of the sub-accounts are physically transferred in their totality into a nominated account each time the sub-accounts’ balances reach a predetermined threshold.

**Time Value of Money**
The concept that the value of money is linked to time because of its capacity to earn interest over time. Thus, a given amount of money available today is worth more than a given amount of money to be received tomorrow, because the amount available now can be invested immediately.

**Total Return**
Return on an investment, taking into account reinvested income as well as capital appreciation.

**Trade Date**
The date on which a transaction is executed following which settlement will occur on the agreed settlement date. Also known as transaction date.

**Tranche**
One part of a number of different securities that are issued by the same company at the same time. Such securities may differ in terms of risk, yield and/or (most commonly) maturity.

**Transfer Agent**
An individual or company that records, on behalf of a company, the sale and purchase of a company’s securities as well as maintaining detailed ownership records of the company’s shares and other registered securities. Sometimes called a registrar in the USA.

**Treasury Inflation-indexed Securities (TIIS), Treasury Inflation-protected Securities (TIPS)**
(USA) Government securities which are inflation-protected in respect of their real value through their linkage to the consumer price index.

**Undertaking for Collective Investments in Transferable Securities (UCITS)**
Generic term for any open-ended collective investment scheme involving investments in assets that are available under the form of transferable securities, i.e. FCPs, OEICs, SICAVs and unit trusts.

**Variable Net Asset Value (VNAV)**
A form of money market fund whose value fluctuates on account of marking to market the value of the investments held in the fund’s portfolio.

**Volatility**
The level of fluctuation in the rate/price of financial instruments and assets.

**Weighted Average Final Maturity (WAFM)**
This is used to measure credit risk. WAFM is calculated by taking the final maturity of the underlying money market instruments held by the fund, weighted according to the relative holdings per instrument.

**Weighted Average Life (WAL)**
This is used to measure credit risk. Although the terms WAFM and WAL are currently used interchangeably with respect to money market funds, the WAL is technically the weighted average of the times when principal is repaid. Instruments which repay principal over several years will have a shorter WAL than those which repay all principal at maturity.
Weighted Average Maturity (WAM)
This is used to measure interest rate risk. WAM is calculated by taking the maturity of the fixed rate periods of the underlying instruments held by the fund, weighted according to the relative holdings per instrument.

Withholding Tax
Tax retained at source, generally on dividend and interest income.

Working Capital
The short-term assets a company has at its disposal to produce assets. These include items such as cash, accounts receivable, inventory and marketable securities. The amount by which these exceed the company’s short-term liabilities is the net working capital or net current capital.

Yield
The annual rate of return from income paid out on an investment in securities, expressed as a percentage of the current market price of the relevant securities.

Yield Curve
A graphical representation demonstrating the relationship between yield and maturity on comparable debt securities with different maturities, usually for a single issuer or a very closely related group of issuers.

Yield Spread
The difference in the effective rate of interest offered by two debt securities.

Yield to Maturity (YTM)
The return on a security held to maturity, taking account of the coupon and reinvestment rates and the buying price compared to its face value. YTM assumes that all coupons are fully paid out on their due dates and reinvested at the same yield and that the principal is paid back in full upon maturity. It is an internal rate of return calculation performed on the security’s expected cash flows.

Zero Balance Account (ZBA)
A bank account that is automatically brought to a zero balance each day. Debits are covered by a transfer of funds from a master account at the same bank. Credit balances are automatically transferred to the master account.

Zero Balancing
A cash concentration technique where all account balances are physically transferred into a nominated master account.

About HSBC
HSBC Global Asset Management is a leading global asset management firm managing assets totalling USD 427.8 billion at the end of December 2013. As one of the world’s leading global and emerging markets asset management businesses, through its network of offices in over 30 countries around the world, we have strong relationships with a wide range of corporates, institutions and financial intermediaries. We offer clients around the world a range of investment products including equity, fixed income, liquidity and multi-asset strategies. Our objective is to manage focused investment strategies that are responsive to client needs while delivering long-term value.

Why choose HSBC?
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Contacts
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