WHITE PAPER

TREASURY

TREASURY RISK MARKET STUDY

Contents

THE WIDENING GAP: ARE YOU KEEPING PACE AS TREASURY RISK PRACTICES EVOLVE?

As the Divide Widens, where will you be Left Standing?

In an environment of substantial market volatility, flat economic growth in many parts of Europe, growth spurts in the United States and a major market correction in China, effective risk management is a priority for companies of all sizes, in all regions and in all industries. To understand how corporate approaches to risk management have developed and the key challenges that treasurers and financial risk managers are experiencing, FIS has carried out a detailed study on different elements of treasury risk management, a similar study to one that was undertaken in 2012.

The study involved more than 200 treasury and finance professionals who responded to an online survey in Q3, 2015. The results emphasize the growing priority of risk management amongst corporate treasurers, particularly as risk management failures have the potential to cripple a company and severely damage its financial results, access to liquidity and competitiveness.

The study included respondents from all major regions and industry groups, approximately half of whom represented companies of over $1bn revenue (see appendix for a complete breakdown). A notable change since the 2012 study is the increase in participation from Asia, which impacted the results in a variety of ways

The Pace of Change is Accelerating

> There are benefits such as improved efficiencies, controls and governance and transparency that come with implementing a specialized treasury management solution...

TOBY SHORE, MCT, CORPORATE TREASURER AND CHIEF RISK OFFICER, DUBAL

2015 survey findings

The 2015 study revealed that while risk management remains a priority, treasurers' have a relatively low level of confidence in their ability to manage risk effectively. In particular, the prevalence of manual methods for identifying, monitoring and managing risk is a major obstacle to reliable information and decision-making.

The risk framework

- Fifty-four percent of companies use spreadsheets to manage risk.
- One third do not have a formal risk policy.
- Measuring both market and credit risk is an immediate issue for treasurers, impacting on all other elements of an effective risk management strategy.

Counterparty risk

- Companies are adopting a blended approach to counterparty risk management, but often lack the tools to do this efficiently. Twelve percent do not monitor counterparty risk, resulting in considerable financial exposure and risk to business continuity.
- Twenty-five percent do not actively monitor counterparty limits before dealing.

Market risk

- One third of companies mark their portfolio to market for risk management purposes, and the same proportion use sensitivity analysis. Cashflow at risk (CFaR) is also becoming more popular amongst treasury risk functions.
- Valueatrisk(VaR)remains a popular portfolio risk measure (54 percent) but few companies are in a position to use variance/ co-variance and Monte Carlo simulations without specialist risk management capabilities.
- Twenty-eight percent of companies do not have a defined hedging program to manage risk in a systematic way.

Cash flow forecasting

- Thirty-nine percent use spreadsheets for cashflow forecasting;
- Twenty-seven percent have achieved less than 70 percent short-term forecasting accuracy, with better performance recorded by those using specialist treasury functionality.

Future priorities

- Treasurers are not yet considering in detail the risk impact of regulatory developments such as Basel III and money market fund reform.

Overall, only 46 percent of companies believe their current risk approach is effective, emphasizing the scale of opportunity for treasurers and risk managers to add value to their business by creating a more reliable risk picture, monitoring risks more effectively and hedging more accurately. Specialist treasury and risk management solutions are essential to achieving this, providing a robust platform for risk visibility, control, analytics and reporting.

Have you documented your risk policy?

Sixty-seven percent of respondents in the survey noted that they had a documented risk policy, leaving 33 percent without a formal protocol. While larger companies (over $1bn revenue) are more likely to have a documented risk management policy than their smaller peers, 12 percent of the largest companies in the survey (over $5bn revenue) had not defined a treasury risk management policy.

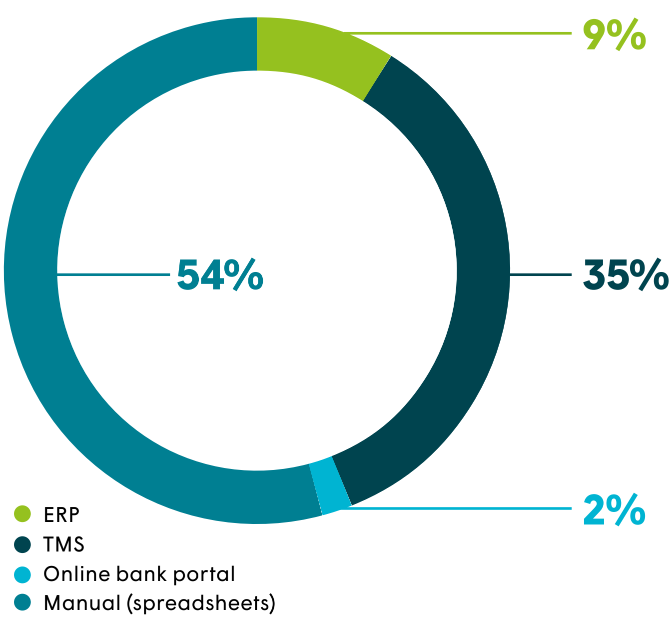
There may be a number of reasons why such a large proportion of companies, including large multinational corporations, have not created a formal risk policy. However, the most compelling is the large number of participants (31 percent) in markets such as Africa, Asia (excluding Australia, Japan, Singapore and Hong Kong) and Eastern Europe that are often less mature than their peers in North America, Europe and other locations with a longer heritage of sophisticated treasury management.

While U.S. and western European corporations are typically accustomed to creating and maintaining formal policy documents, the priority for the faster growing corporations headquartered in Asia has been more on growth. This is changing, however, with a more defined treasury functions emerging and a greater focus on risk. Consequently we expect to see these companies developing a more structured approach to risk management over the next two to three years.

A documented risk management policy is an essential tool for corporations of all sizes, particularly those that operate internationally. It outlines the board's risk appetite and principles, and provides a remit for treasury to measure, manage and report on risk. Without this, treasury has no clear mandate and no framework within which to manage risk.

From a technology perspective (figure 1) more than half (54 percent) of participating companies use spreadsheets to manage risk, with a further 44 percent using a treasury management system (treasury management solution) or enterprise resource planning (ERP) tool. Twenty two percent of companies used a specialist risk management solution, which is integrated with other treasury activities such as cash management in just over half (53 percent) of cases. The benefits of integrating risk tools with the treasury management solution are significant. By creating a cohesive, integrated infrastructure, treasurers and risk managers have consistent data and can make decisions are based on up-to-date information.

Figure 1 Technology used for risk management



While the use of a treasury management solution, ERP and specialist tools for risk management is more common amongst larger companies, the use of spreadsheets conflicts with recognized best practices for risk management, irrespective of the size and profile of the corporation. For example, lack of data integrity and accuracy, poor responsiveness, lack of timeliness, limited analytical capabilities and dependence on key individuals are frequently cited by auditors. Instead, auditors generally recommend that companies implement treasury solutions with specific risk management functionality, or integrate specialist risk management tools within a treasury technology framework. Given the growing importance of risk management and compliance as market volatility and regulatory demands increase, we would expect to see significant growth in the use of automated technology for risk management over the next two or three years.

Risky business: are you working in the dark?

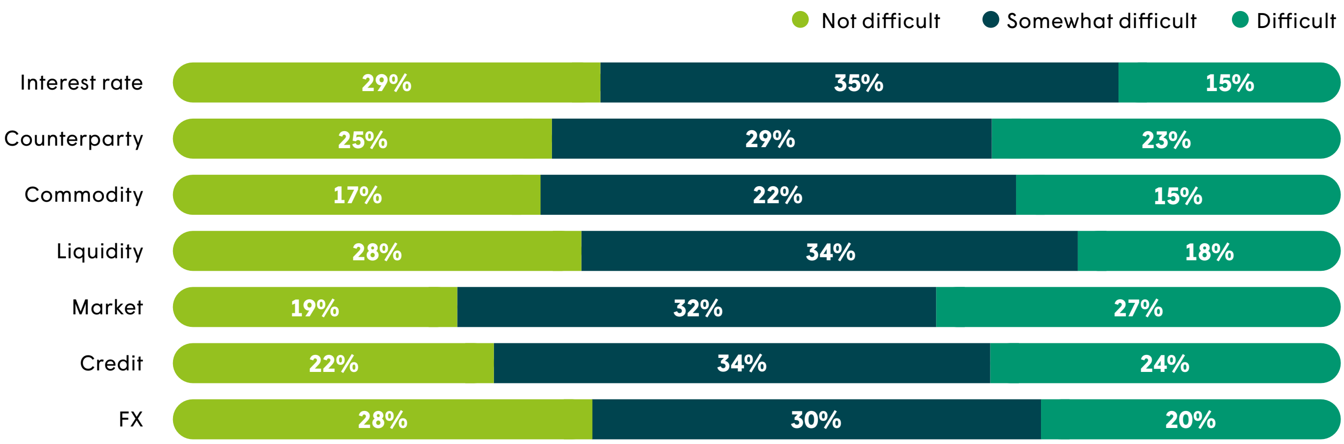
Although the techniques used to measure each type of risk inevitably differ, treasurers are experiencing similar levels of difficulty (figure 2). Interest rate risk management remains the least difficult to measure, a similar finding to the 2012 survey, partly as centralized treasury functions have more control over interest rate risk than other types of risk. Credit risk and market risk pose the greatest challenges. In both cases, lack of visibility over exposures, lack of confidence and timeliness of information, and the inability to model different hedging strategies are amongst the most frequent obstacles.

Is your bank posing a risk?

The importance of counterparty risk management came to the forefront during the global financial crisis, and although immediate fears of counterparty failure may have subsided, treasurers have become far more aware of the need to understand, monitor and manage their risk to both commercial and financial counterparties. In addition, the concept of bank risk is taking on a new dimension as banks choose to exit either markets or product lines, exposing their customers to risk of business interruption.

Historically, most treasurers used ratings awarded by independent rating agencies as the basis for setting exposure limits. During the crisis, this approach was found to be lacking, partly as changes in a company's financial stability were not reflected quickly enough. Rating agencies have subsequently amended their rating criteria, resulting in a significant number of rating downgrades, but treasurers are now applying additional criteria when setting limits. For example, at the height of the crisis when market volatility was at its peak, many treasurers used credit default swap (CDS) spreads as a means of evaluating bank risk. CDS spreads reflect market participants' assessment of risk of a counterparty default, and during the period of heightened market volatility and constrained liquidity, they were considered to reflect changes to counterparty credit conditions more quickly than credit ratings.

Figure 2 Difficulty of managing specific risk types



Today, the survey reveals that treasurers are adopting a multi- faceted approach to evaluating and managing counterparty credit risk (figure 3). Although credit ratings remain important (mentioned by 32 percent of those that manage counterparty risk), treasurers are now more likely to create an internal credit score based on a variety of criteria, including regional/country risk (16 percent), capital structure (15 percent) as well as CDS spreads (13 percent) and other measures.

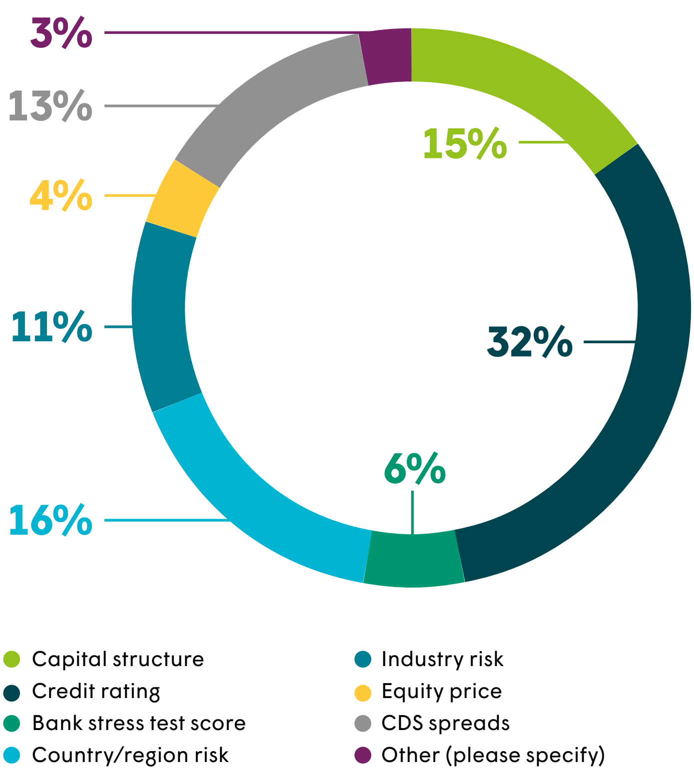
While this blended approach is likely to result in the board, investors and bond holders having greater confidence in treasury's approach to counterparty credit risk, it can be difficult to manage multiple risk factors in a systematic, timely way, particularly where companies have a large number of financial counterparties. This is reflected in the large proportion of respondents who indicated that they are only in a position to monitor these risk criteria retrospectively rather than real-time. This problem particularly applied for credit ratings, which 78 percent monitored retrospectively. Equity prices and CDS spreads appeared to be easier to monitor in real-time, noted by 45 percent and 48 percent respectively, but it is generally larger companies with more system and human resources dedicated to managing risk that adopt these measures.

Overall, 12 percent of companies noted that they did not manage counterparty risk. While this figure mostly reflects the experience of smaller companies, particularly those with a revenue of less than $250million that often have a less defined treasury and risk function than larger businesses, a notable 6 percent of companies with a revenue above $1billion did not monitor counterparty credit risk. Apart from the regional composition of the results already highlighted, additional reasons for this are unclear. However, taking a more proactive approach to measuring and managing counterparty risk is a vital way in which treasurers can protect the interests of the company.

Having determined a counterparty's credit risk, treasurers can then limit exposure to each counterparty according to the perceived risk. The next challenge is to determine how each transaction will impact counterparty limits. This is more straightforward for instruments such as deposits where the company is exposed to the counterparty for the full principal value of the deposit (where utilization may be calculated with or without interest). Calculating limit utilization for financial derivatives is more complicated, however, with companies applying a variety of different criteria, such as a percentage of the principal amount, which may vary according to the maturity date of the transaction.

Complex limit utilization calculations, particularly where these are done manually, makes it difficult for dealers to check the potential impact of a transaction before dealing, particularly for time-sensitive transactions such as FX. Nearly half of respondents (46 percent) of those that monitor credit limit utilization prior to dealing derivative transactions indicated that they use spreadsheets, with a further 48 percent using their treasury management solution / risk management system or ERP. In addition, a significant 25 percent of participating companies do not proactively monitor credit limits prior to dealing. This suggests that while treasurers may be measuring counterparty credit risk, this is more of a reporting process than a way of actively managing counterparty exposure, offering considerable opportunity for improvement.

Figure 3 Counterparty risk criteria



> Having visibility of daily cash and risk positions across the business is empowering us to make on-time and accurate decisions.

ABU SHAQRA,
GROUP TREASURER, AW ROSTAMANI GROUP

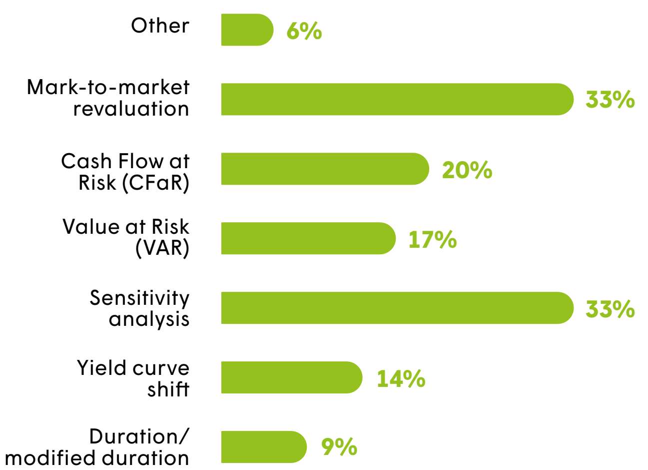
Risk Decision-Making: are you Evolving at the Right Pace?

Risk decision-making: Are you evolving at the right pace?

Corporations use a variety of different analyses for risk decision- making, of which mark-to-market revaluation and sensitivity analysis are the most common. While VaR has become less prevalent since the global financial crisis, as it may be unreliable in determining the impact of extreme market events, techniques such as sensitivity analysis and mark-to-market revaluation (both at 33 percent) are essential tools in treasurers' armory, as well as being required for accounting purposes (figure 4). Consequently, treasurers that are not yet using

these techniques may need to review their decision-making processes to make sure they have a systematic and industry-accepted way of making and validating decisions to build stakeholder confidence. An interesting development is the notable use of cash flow at risk (CFaR), used by 20 percent of respondents. While VaR was originally designed to measure market risk for financial institutions, and has been seen as a market standard, its limitations have been more widely recognized in recent years. Furthermore, it is not universally suited to a corporate environment, which has led to a modified approach in the form of CFaR. This uses forecasted cash flow as the reference value, rather than portfolio value, often leading to a more actionable outcome.

Figure 4 Risk analysis measures used for decision making



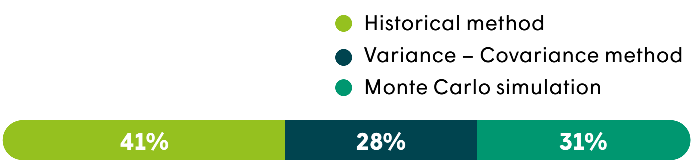
While use of risk analytics to support decision-making is prevalent amongst treasury functions that have been established for longer, with dedicated infrastructure in place, companies with manual risk processes and/ or a less mature treasury function are far less likely to have implemented these techniques.

How are you monitoring your portfolio?

Just over half of respondent companies (54 percent) use value at risk (VaR) to monitor portfolio risk, most of which include both their FX and interest rate portfolios. The largest proportion of these use the historical method (41 percent, figure 5) which uses historic data to calculate the probability of best and worst case scenarios. Use of variance – covariance (also known as parametric VaR, which assumes normal distribution of stock returns) and Monte Carlo methods (a model for future returns based on hypothetical trials) were roughly equal at 28 percent and 31 percent respectively, an increase in both cases from the 2012 study. A small number use two or three methods, but these are typically the largest enterprises with a sophisticated treasury risk management function.

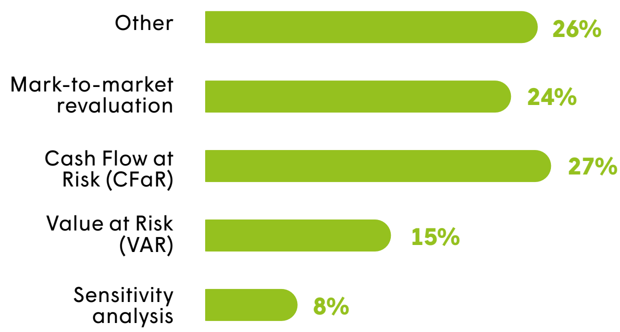
It is not surprising that the historical method is the most common means of calculating VaR as it is the most straightforward, although it is a very difficult technique to implement using spreadsheets. This method relies on the assumption that the past is a reliable predictor of the near future, which may not always be valid: therefore, a growing number of treasurers prefer to use an alternative or additional method such as variance – covariance or Monte Carlo simulations. The complexity of these methods, however, means that only treasurers with a treasury management solution and sophisticated risk management solutions can realistically consider them. Those without these solutions may be hampered in their ability to measure and manage portfolio risk.

Figure 5 Value at Risk (VaR) methods in use



How can treasurers demonstrate value without measuring their performance?

Figure 6 Monitoring effectiveness of hedging programs



Is your hedging strategy effective?

Although most companies (67 percent) indicated that they have a documented risk management policy, 28 percent do not have a hedging program. There are various possible reasons for this, for example: the decision not to hedge is a conscious one defined within the risk policy; the company may have balanced 'natural' hedges so no external hedging is required; exposures are too small to warrant the cost and resources required to hedge; and/ or exposures may be in currencies or markets where hedging instruments are not available or applicable. However, in some cases, it would appear that companies are using their risk policy more as a reporting tool rather than a framework for financial risk management. In these cases, treasurers should consider the potential value of a hedging program to manage risk more proactively.

A further seven percent have a hedging program but do not monitor its performance. Again, this would appear to be a limitation in these companies' risk management approach as treasurers cannot demonstrate value to the enterprise without measuring performance. Just as significantly, monitoring the effectiveness of hedging strategies is a requirement under global accounting standards.

Of those that have a hedging program and monitor its effectiveness (figure 6), respondents used a variety of methods, with critical terms match (26 percent), dollar-offset method (24 percent) and VaR (27 percent) more or less comparable.

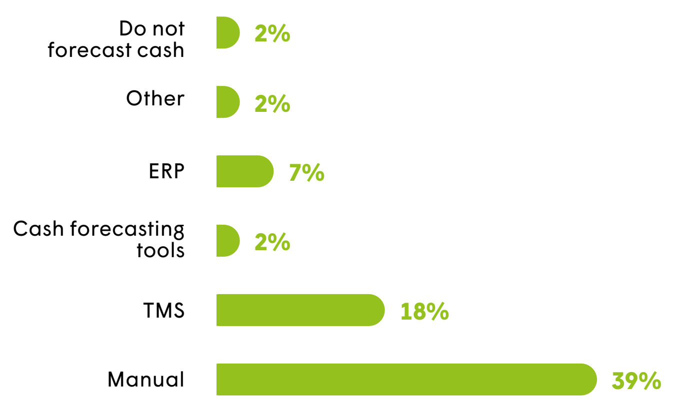
Hedge effectiveness testing is an essential requirement for both accounting and risk management purposes, but it can be extremely complex and time-consuming to perform this manually. Many companies had little choice other than setting up manual process for hedge effectiveness when accounting rules for derivatives were first introduced, as their system vendors were not necessarily able to update their solutions in time to reflect different interpretations of the standards, but this is rarely the case today. Consequently, irrespective of the method used, treasurers and finance managers should be seeking to automate existing manual processes to reduce resource requirements and increase timeliness and accuracy.

Is it Okay to Only be 70% Accurate with your Cash Forecasts?

Underpinning an effective hedging program is the need to forecast cash flow and exposures in a systematic, timely and consistent way across the business. Thirty nine percent of respondents used spreadsheets to create cash flow forecasting (figure 7). This is higher than those using spreadsheets for cash management (33 percent) although lower than those using them for risk management (53 percent).

Cash flow forecasting has been a major focus for treasurers over recent years as liquidity and risk management came to the fore. For example, in the 2012 survey, nearly twice as many respondents (65 percent) of respondents used spreadsheets for cash flow forecasting. Even so, there is still considerable scope for improvement. Spreadsheets often appear the most logical means of creating cash flow forecasts as templates can be distributed to business units easily without the need to provide access to a single system. In reality, however, there are often differences in the way that data is presented, and it is time- and resource-intensive to collate data consistently. Bearing in mind the time-sensitive nature of both cash management and exposure hedging decisions, lack of timely, accurate forecasts can be a significant impediment to efficient cash and risk management processes. Leading treasury management solutions provide integrated web-based tools for business units, enabling business units to input, upload and report on information easily, whilst giving treasury a consistent and complete view of forecasts across the business.

Figure 7 Technology used for cash flow forecasting (short term)

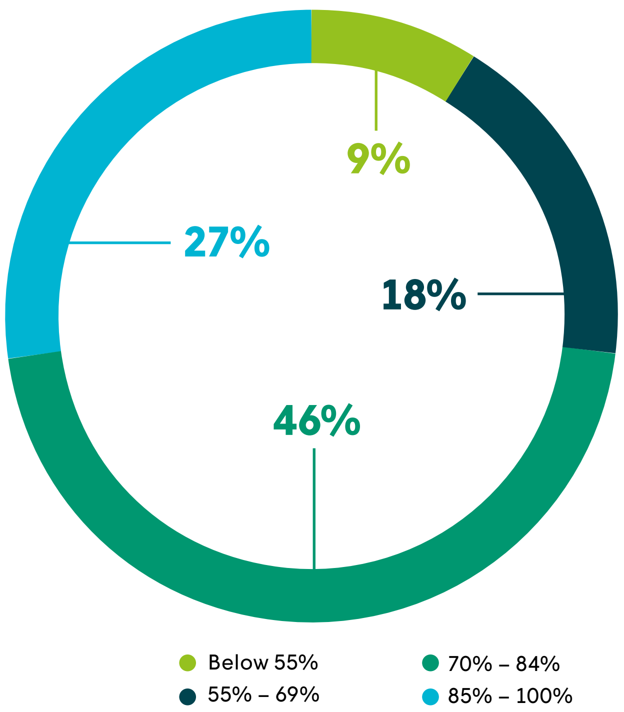


How accurate should your cash flow forecasts be?

Patchy forecasting methods are inevitably resulting in variable degrees of accuracy, as figure 8 demonstrates. Forty six percent of companies indicated that they achieve accuracy rates of 70 – 84 percent, and 27 percent achieve less than 70 percent. Inaccurate cash flow forecasting can have a major impact on the effectiveness of companies' cash, liquidity and risk management strategies. Exposures are more frequently under/ over hedged, resulting in higher costs, additional risk and unfavorable accounting treatment under international and U.S. accounting standards. Similarly, companies often hold more working capital than they need, generating lower returns, and/ or have higher levels of borrowing to create a funding cushion, again increasing costs.

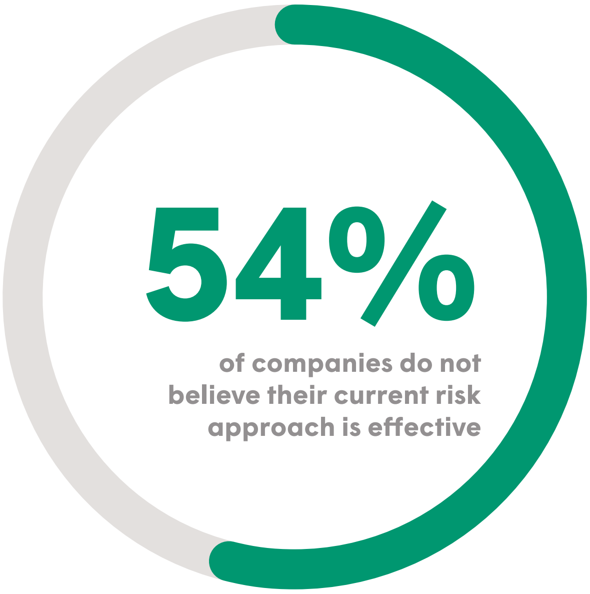
The results indicate that there is a correlation between those that use specialist cash flow forecasting systems or treasury management solutions and improving the accuracy of cash flow forecasts. In contrast, the use of spreadsheets and ERPs were both more closely correlated with lower levels of forecasting accuracy.

Figure 8 Reliability of cash flow forecast for hedging/ investment/financing



> We have achieved our key objective: global visibility over cash and treasury balances and transactions, including cash, debt and investments, with the ability to measure and monitor financial and credit risks.

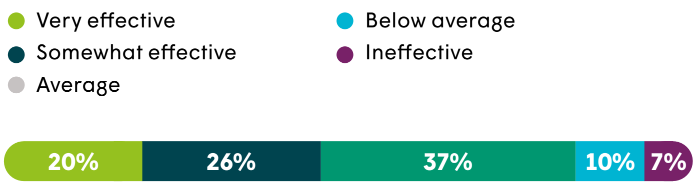
MURIEL ALVAREZ,
ASSISTANT TREASURER,
DANA HOLDING CORPORATION



How confident are you in your risk approach?

Respondents expressed differing opinions on how effective they were in managing risk. Less than half (46 percent) felt that their approach to risk measurement and management is effective (figure 9, 'somewhat effective' or 'very effective;). Lower levels of confidence expressed by the remaining 54 percent is likely to be a cause of concern amongst stakeholders such as shareholders and bond holders. Most companies that were broadly pessimistic about their risk management approach currently use spreadsheets. In contrast, as the findings indicate throughout this survey, the use of treasury management solutions and integrated risk management solutions offer the potential for greater visibility and control over exposures.

Figure 9 Effectiveness in identifying and managing financial risk



> The treasury management solution consolidates our data sources and information into a single, customizable desktop, offering us a real-time view of our global risk and cash positions.

ANTHONY IMPALA, MANAGER TREASURY SYSTEMS, QANTAS AIRWAYS LIMITED

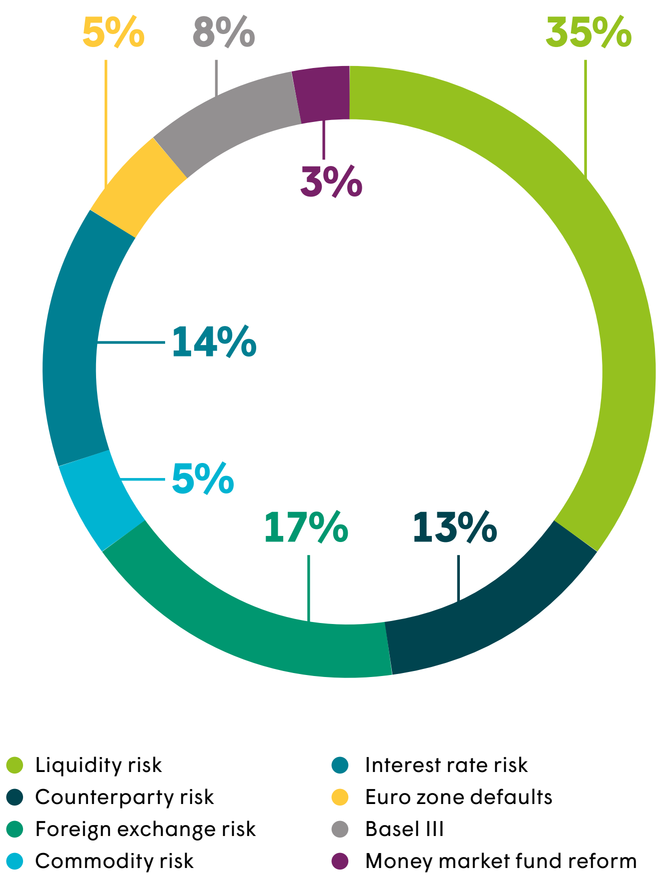
Are you Ready for what will Come Around The Next Bend?

What does it take to compete and win in a world that's being redefined all the time?

Managing foreign exchange and liquidity risk are treasurers' key priorities over the next one to two years (figure 10) which is logical given the high levels of volatility and growing awareness of liquidity risk. In parallel, treasurers will also be paying considerable attention to other core treasury risks such as interest rate and counterparty risk. Conversely, managing the risk to specific key events, such as the potential for Eurozone default, has become less immediate.

However, the results illustrate that treasurers are not yet prioritizing major emerging issues, particularly regulatory developments such as Basel III and money market fund reform that will have a considerable impact on liquidity and interest rate risk management. Basel III and other increasingly onerous regulatory demands, such as anti-money laundering, financial crime and sanctions monitoring, are also likely to prove a catalyst to changes in the banking landscape, with the potential for further market and product exits, and possibly consolidation. Consequently, managing counterparty risk to take into account both the risk of bank failure, but also exit from specific markets or product lines, should be a priority.

Figure 10 Future challenges



NOTE: RESPONDENTS WERE ASKED HOW CHALLENGING THEY WERE LIKELY TO FIND DIFFERENT TYPES OF RISK, WITH POSSIBLE RESPONSES INCLUDING 'VERY CHALLENGING', 'CHALLENGING', 'SOMEWHAT CHALLENGING' AND 'NOT CHALLENGING'. RESPONDENTS COULD ALSO INDICATE IF A RISK TYPE WAS NOT RELEVANT TO THEIR BUSINESS, OR WAS MANAGED

IN ANOTHER PART OF THE COMPANY. RESPONSES WERE WEIGHTED BY THE NUMBER OF RESPONDENTS FOR WHOM A PARTICULAR RISK TYPE WAS RELEVANT, AND THE SEVERITY OF THE CHALLENGE IN MANAGING IT. THE PERCENTAGE WAS CREATED BY DIVIDING THE TOTAL WEIGHTED FIGURE FOR EACH RISK TYPE BY THE TOTAL NUMBER OF RELEVANT RESPONSES.

Many companies headquartered in emerging markets such as in Asia have focused on growth in recent years, while deep market liquidity, benign market conditions and relative immunity from the effects of the global financial crisis have also pushed risk management lower down the list of priorities. Today this is changing, with treasurers and CFOs under increasing pressure to manage market volatility and support the diverse risk challenges of international growth. The treasury function is therefore becoming more clearly defined, and treasury policies, technology, expertise and efficient processes are therefore becoming more important.

The recent market crash in China and ricochets across the global markets emphasize how quickly market and credit conditions can change. Treasurers cannot afford to be complacent, irrespective of how smooth their growth trajectory and benign their own credit and liquidity conditions would appear to be. Over the next two to three years, stakeholders', analysts' and regulators' expectations will increase, with companies' visibility over risk, the rigor of their risk management processes and the timeliness and accuracy of reporting coming under more intense scrutiny. To anticipate and respond to these more onerous demands, treasurers need to identify limitations in their current policies, technology and expertise within the department, and work with their partners to overcome these limitations. By doing so, treasurers add tangible value to the enterprise, and have the opportunity to build trust and confidence amongst stakeholders.

SIX THINGS TO DO TODAY TO ACHIEVE BEST-IN-CLASS TREASURY RISK MANAGEMENT

1. Define a risk management policy with the board and treasury committee. Risk policies should be sophisticated enough to provide a useful and robust means of evaluating risk, but not so complicated that it is impossible to put policy into practice.
2. Implement a structured hedging program, backed by industry-accepted risk analytics, to manage risk routinely and systematically.
3. Embed exposure monitoring (e.g. for FX, commodity and interest rate exposures) and limit utilization checking (e.g. for counterparty risk) into transaction processes rather than simply a reporting device.
4. Define counterparty risk measures to protect the business against both the impact of bank failure and the risk of bank exit from specific markets or product lines.
5. Introduce a robust cash flow forecasting process that leverages treasury and risk management technology that enables functionality to be rolled out easily to business units and departments that contribute to cash flow forecasting.
6. Review treasury and risk management technology and its potential value at every stage in the risk management process, including: cash flow forecasting; achieving visibility over exposures; automating processes and controls, performing risk analytics and producing robust and reliable reporting.

Is managing treasury risk part of your global growth strategy?

About FIS' Corporate Solutions

FIS offers a leading liquidity and risk management solution for corporations, insurance companies and the public sector. The solution suite includes credit risk modeling, collections management, treasury risk analysis, cash management, payments system integration, and payments execution delivered directly to corporations or via banking partners. The solutions help consolidate data from multiple in-house systems, drive workflow and provide connectivity to a broad range of trading partners including banks, SWIFT, credit data providers, FX platforms, money markets, and market data. The technology is supported by a full range of services delivered by domain experts, including managed cloud services, treasury operations management, SWIFT administration, managed bank connectivity, bank onboarding, and vendor enrollment. For more information, visit **www.fisglobal.com**

About FIS

FIS is a global leader in financial services technology, with a focus on retail and institutional banking, payments, asset and wealth management, risk and compliance, consulting and outsourcing solutions. Through the depth and breadth of our solutions portfolio, global capabilities and domain expertise, FIS serves more than 20,000 clients in over 130 countries. Headquartered in Jacksonville, Florida, FIS employs more than 55,000 people worldwide and holds leadership positions in payment processing, financial software and banking solutions. Providing software, services and outsourcing of the technology that empowers the financial world, FIS is a Fortune 500 company and is a member of Standard & Poor's 500® Index. For more information about FIS, visit **www.fisglobal.com**

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