Banking and Capital Markets

Balance sheet management benchmark survey

Status of balance sheet management practices among international banks – 2009

Contents

Introduction

This study covers the four main areas of balance sheet management, namely interest rate risk management, liquidity risk management, capital management and management of discretionary investment portfolios. Many of these functions would be covered by the asset and liability management (ALM) function in banks, but we use the broader term 'balance sheet management' because the study covers capital management as well as the more traditional ALM focus areas.

The financial crisis has highlighted the need for organisations to take a more holistic view of their balance sheets. The financial view of the organisation has evolved over the past decade or so to one which looks at lines of business, rather than legal entities, as the primary profit centres, and both finance departments and national supervisors have been struggling with the tensions arising from this shift. At the same time the risk view of the organisation has also been equally silo-driven, with risk departments focusing on individual risk classes. Liquidity risk, in particular, has thrown up some challenges to this way of viewing finance and risk. What may look acceptable for each line of business on its own may turn out to be an unacceptable level of risk or product concentration for the organisation as a whole. Likewise certain financial products are not clearly assignable to any one risk class – Collateralized Debt Obligations (CDO) in particular have been shown to present a lethal combination of market, credit and liquidity risks. At the same time, national supervisors, understandably keen to contain the risks to their own financial systems, have sought to impose restrictions around cross-border financing and capital flows within international banking groups.

These themes present a number of challenges to the way in which banking groups manage their balance sheets, especially in the area of governance and oversight, which is a major area of focus of this survey.

The objective of this survey is to provide the international banking industry with an overview of the state of balance sheet management in banks, to identify areas for improvement and help banks prepare for the future.

PricewaterhouseCoopers[1] would like to extend our thanks to the many banks who participated in this survey.

1 'PricewaterhouseCoopers' refers to the network of member firms of PricewaterhouseCoopers International Limited, each of which is a separate and independent legal entity.

Background

PricewaterhouseCoopers is pleased to present the results of our survey of the balance sheet management practices at 43 leading financial institutions across the world. The breadth of the survey participants gives a good picture of developments internationally.

The financial institutions who participated in this survey were as follows:

Americas

- Bank of America
- Citigroup
- Wells Fargo

Europe

- ABN Amro
- Banesto
- Bankinter
- Bank of Ireland
- Barclays
- BBVA
- BNP Paribas
- Britannia
- Caixa Catalunya
- Caja Madrid
- Credit Suisse
- Danske Bank
- HSBC
- ING
- Intesa Sanpaolo
- Landesbank Berlin
- Landesbank Hessen-Thüringen
- Lloyds Banking Group
- Nationwide Building Society
- Nordea
- Nykredit
- Rabobank
- Royal Bank of Scotland
- Santander
- SNS REAAL
- Standard Chartered Bank
- Svenska Handelsbanken
- UBI Banca
- UBS
- UniCredit

Middle East and Africa

- Absa
- FirstRand
- Nedbank
- Standard Bank

Asia

- CIMB
- DBS Group Holdings
- Kasikornbank
- Oversea-Chinese Banking Corporation
- Siam Commercial Bank

Australia

- Commonwealth Bank of Australia

The participants in the survey will receive an individual benchmarking report comparing them with their peers internationally. This report summarises the aggregate responses but does not attribute data to specific individual respondents.

Scope of benchmarking survey

The survey was designed to cover both the qualitative and quantitative aspects of balance sheet management approaches currently being utilised by industry participants, with a strong focus on governance and organisation. The results of the survey are intended to assist participating institutions by providing peer benchmarks of industry practices. This report has been organised around the following balance sheet management subject matter topics that were posed to each of the survey respondents:

- Overall governance
- ALM unit roles and responsibilities
- Liquidity risk
- Interest rate risk
- Capital management
- Funds transfer pricing
- Discretionary investment portfolios
- Systems

Survey methodology

Each section of this report includes an analysis of the survey results and a discussion of the underlying issues. Tables and charts are presented to help the reader quickly ascertain the main issues associated with each topic and to assist in the benchmarking of his/her respective institution's practices.

In order to display results provided by participating institutions, PricewaterhouseCoopers designed a survey methodology that strived to achieve the appropriate balance between:

- Promoting maximum participation among institutions by using data templates that required firms to report their actual practices;
- Ensuring soundness, integrity and comparability of the survey to display results based on the actual data reported by participants;
- Protecting confidentiality of participating institutions' responses while providing maximum insight into the detailed parameters needed for analysing balance sheet management.

The survey was carried out from April to June 2009, and the methodology used was a questionnaire supplemented where appropriate with interviews with representatives of participating institutions.

Please note that totals do not always add up to 100 because of rounding, or because respondents could choose more than one answer.

Survey confidentiality

The individual survey results and the survey questionnaire itself are confidential to the responding institutions and PricewaterhouseCoopers. Each institution's individual results have been kept strictly confidential and peer responses have been presented in a way that will not allow identification of any specific institution based on its submitted data. The results are based solely on survey responses as provided by each participant to PricewaterhouseCoopers. PricewaterhouseCoopers has not subjected the data contained herein to audit or review procedures or any other testing to validate the accuracy or reasonableness of the data provided by the participating companies.

A word of thanks

We acknowledge that the highly detailed nature of the survey questionnaire required a considerable amount of effort on the part of each participating institution to provide commensurately detailed and meaningful responses. We would like to extend our thanks to the responding institutions for participating in this study, and providing the breath and depth of qualitative and quantitative response within balance sheet management topics.

We trust that you will find the survey results insightful and hope that they serve as a catalyst for discussion and action within your respective financial institutions.

If you have any comment or question regarding this survey, or would like to request additional copies, please contact your regional PricewaterhouseCoopers contacts listed in the appendix to this report.

Key findings

The scope of balance sheet management has expanded to embrace capital management as well as a more 'holistic' view of the balance sheet, although this remains a work in progress.

Overall governance: There is still a trend for banks to measure, manage and monitor the different risks separately, but an encouraging trend is the establishment of either capital management committees, or a broader mandate for the existing Asset-Liability Committee (ALCO) to focus on capital. The vast majority of banks operate a centralised ALM model, which enables oversight of the entire group balance sheet, usually supplemented with lower-level ALM units focusing either on business units or legal entities.

ALM unit roles and responsibilities: The responsibility for the ALM unit is almost evenly divided between the Treasury and Chief Financial Officer (CFO) functions (see Figure 3.1). Only 51% of ALM units look at capital management (see Figure 3.2), but in certain cases capital management lies with other departments, such as the Chief Risk Officer (CRO). Most banks have benchmarked their ALM framework to the Basel Committee on Banking Supervision (BCBS) guidance, 'Principles for the Management and Supervision of Interest Rate Risk', and half of the respondents have conducted an independent third party review of the ALM framework within the last 12 months.

Liquidity risk: Not surprisingly, many banks have undertaken an extensive review of liquidity risk management, and a very encouraging 88% now have a formal risk appetite for liquidity risk. An ongoing problem area is collateral management, as banks' systems do not easily allow for identification of liquid assets that are encumbered (and thus not available to support liquidity needs). All respondents now conduct regular liquidity stress tests (vs. 75% in our 2006 ALM survey), and respondents report that their Boards are well informed with respect to this risk class.

Interest rate risk: Governance remains an area of potential weakness for interest rate risk management, with the ALM unit responsible for both management and measurement in around half of respondents (emerging best practice is for measurement to be done by an independent unit, such as Finance). However, we do see that a significant minority of banks now have the Risk function in a monitoring role, but there is clearly still a long way to go before this is general practice.

There has been further progress towards development of economic value measurement (as recommended by the BCBS), and 80% of respondents now assign capital to Interest Rate Risk in the Banking Book (IRRBB) under Basel II Pillar 2 (in Australia it is part of Pillar 1). However, these capital measures are still quite crude, with many banks using either the standard 200 bp shock or Net Interest Income (NII) simulation.

Capital management: This includes capital planning, stress testing, capital allocation and economic capital calculation, and tends to sit broadly in the CFO function, although economic capital and stress testing at a number of banks resides within the CRO's area. With capital planning sitting in Finance, having capital stress tests conducted in Risk can give rise to issues around the consistency and coordination of linkages. The common horizon for capital planning is usually three years or longer; however, capital stress testing typically contemplates a shorter time horizon. Only a small minority of respondents conduct a single stress test scenario, with the vast majority using three or more scenarios.

Funds transfer pricing (FTP): Despite the havoc which the financial crisis played with liquidity and other financing assumptions, banks seem generally quite satisfied with their FTP framework and we have not noted any significant shifts in trends since our 2006 survey.

Discretionary investment portfolios: Other than standard liquidity portfolios, there does not seem to be any industry consensus on the best way to manage discretionary investments, and one is left with the distinct impression that these investment decisions are made on a very ad hoc basis, without much in the way of formal policies and processes around them.

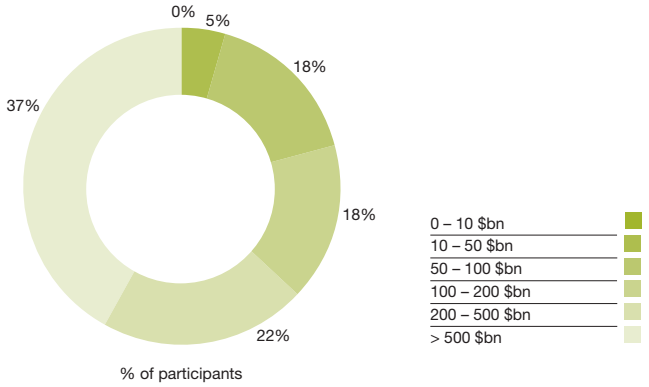
Systems: Banks still tend to operate with a patchwork of legacy systems set up to manage different aspects of the balance sheet (liquidity risk, interest rate risk, etc.), but significant changes are planned. With different systems, any kind of integrated balance sheet management simulation and stress testing is virtually impossible. We anticipate that, over the coming years, banks will upgrade to a more integrated approach, allowing planning and stress scenarios to be carried out across all aspects of the balance sheet. We expect that these integrated systems will cover:

- IRRBB and funds transfer pricing;
- Liquidity risk;
- Capital planning and stress testing; and
- Credit portfolio management.

General information

A total of 43 banks from around the world responded to the survey; participants provided a reasonable mix of large and medium/small banks (see Figure 1.1).

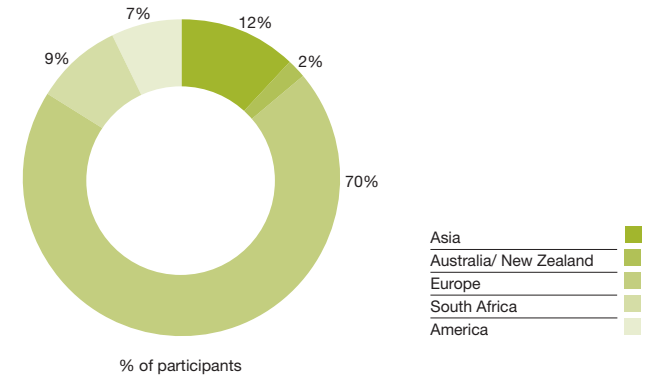
Figure 1.1: Breakdown of participants by asset size



Source: PricewaterhouseCoopers

The survey was conducted at the group head office level for all participants, who represent a good geographical cross-section of domiciles (see Figure 1.2).

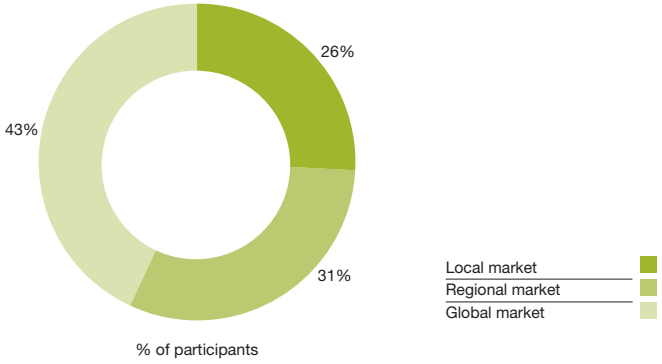
Figure 1.2: Breakdown of participants by region



Source: PricewaterhouseCoopers

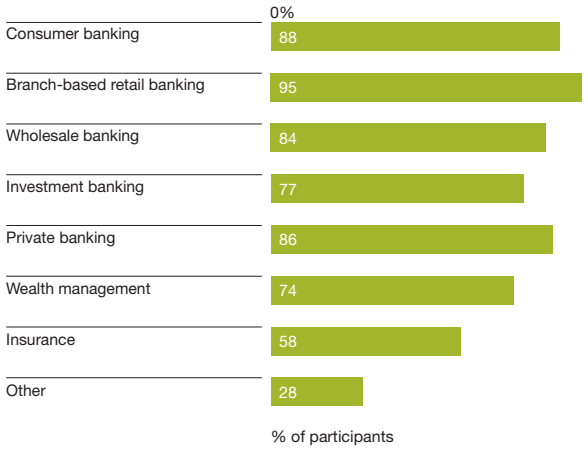
The participants primarily operate in the global market (see Figure 1.3), and are generally active in retail and commercial banking segments (see Figure 1.4).

Figure 1.3: Participants' market presence.



Source: PricewaterhouseCoopers

Figure 1.4: Activities engaged in by participants



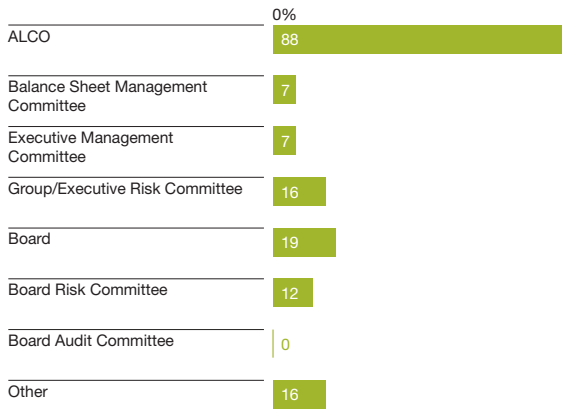
Source: PricewaterhouseCoopers

Overall governance

We found that the ALCO remains the key executive governance body with the responsibility for overseeing balance sheet management activities (see Figure 2.1).

It is interesting to note that some banks have started to integrate overall balance sheet and risk oversight into an overarching executive risk committee. This is a trend that is expected to continue within institutions that are taking the steps to promote a holistic view of, and governance over the full spectrum of risks and capital.

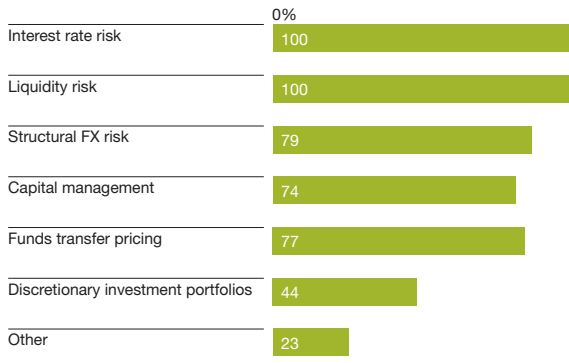
Figure 2.1: Body with primary oversight over balance sheet management



Source: PricewaterhouseCoopers

The ALCO maintains a key focus on the traditional areas of interest rate risk and liquidity risk. In many cases the ALCO has broadened its scope across capital management and also includes the oversight of traded market risk.

Figure 2.2: Areas covered by body with primary oversight

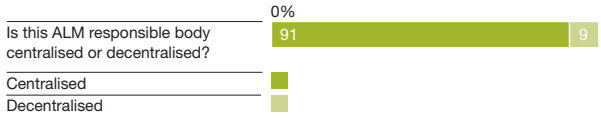


Source: PricewaterhouseCoopers

Centralised balance sheet management

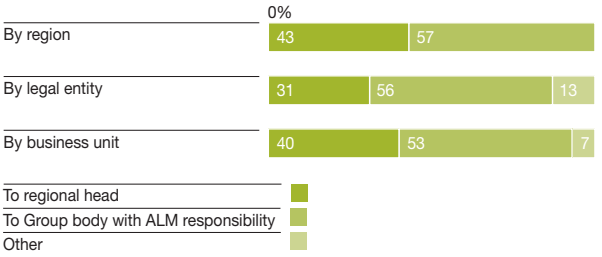
Balance sheet management is largely centralised, with 91% of respondents managing these activities on a consolidated or group basis (see Figure 2.3). However, many banks that do run a centralised balance sheet model also supplement the central unit with decentralised (subordinate) units, which are primarily organised along legal entity, business unit or regional basis. Most respondents noted that the subordinate units all operate under a consistently applied group framework and generally report into the central balance sheet management function.

Figure 2.3: Organisation



Source: PricewaterhouseCoopers

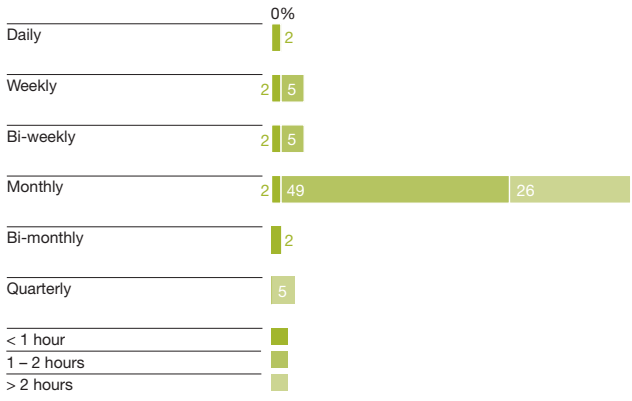
Figure 2.4: Reporting lines and supplemental balance sheet management units



Source: PricewaterhouseCoopers

The amount of time devoted by the primary body with group oversight over balance sheet management matters is mainly around a one- to two-hour meeting on a monthly basis (see Figure 2.5).

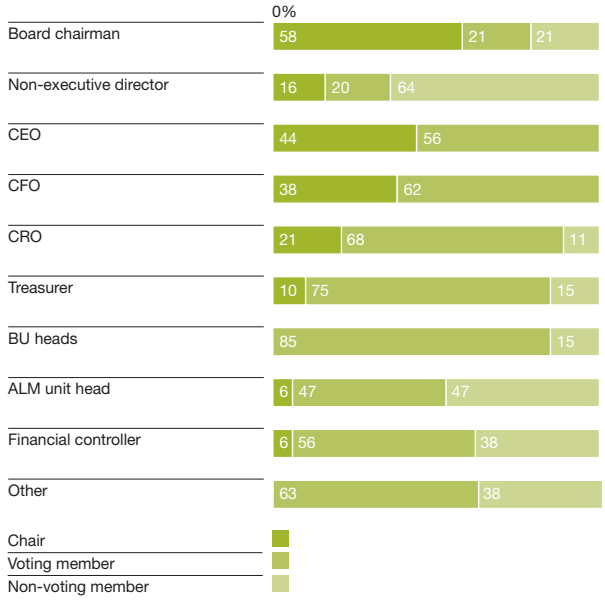
Figure 2.5: Frequency/length of primary oversight body meetings



Source: PricewaterhouseCoopers

The composition of the primary oversight body (see Figure 2.6) includes the most senior bank representatives, with the chair generally held by the most senior person, being either the Board Chairman or CEO. Major business unit heads are key participants and voting members. Other voting members include heads of market and credit risks, the chief economist and head of compliance.

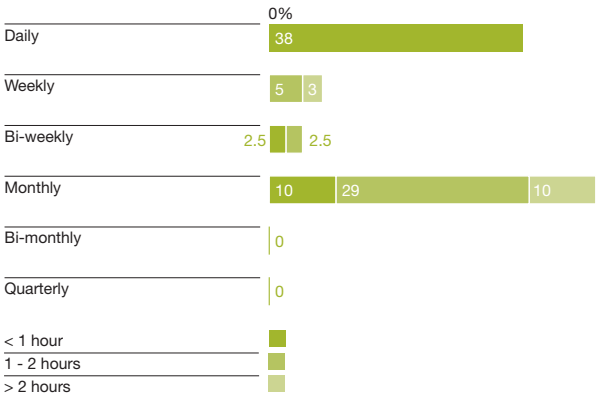
Figure 2.6: Composition of primary oversight body



Source: PricewaterhouseCoopers

For the decentralised subordinate oversight bodies the meeting frequency is at least monthly (see Figure 2.7). The sub-committees that meet on a monthly basis tend to be subsidiary, business unit or regional ALCOs, while those meeting more frequently will more actively focus on market movements and comprise participants that are more closely aligned with the specific activities related to execution of ALCO mandates or strategies.

Figure 2.7: Frequency/length of subordinate oversight body meetings



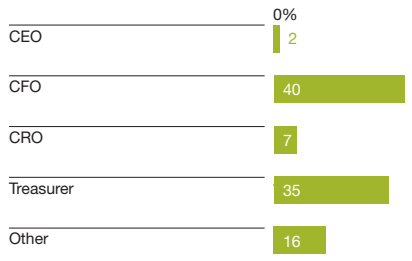
Source: PricewaterhouseCoopers

ALM unit roles and responsibilities

All of the participating banks have a dedicated ALM support unit, which typically reports to either the CFO or the Treasurer (see Figure 3.1).

However, there is also a growing percentage that have aligned the reporting to the risk management function, under the CRO or the head of market risk.

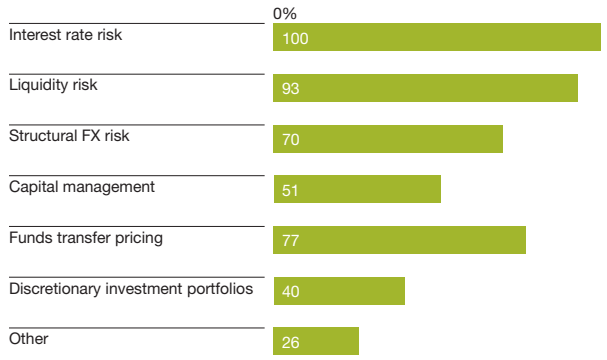
Figure 3.1: ALM unit reporting lines



Source: PricewaterhouseCoopers

The typical areas of focus of this unit remain the core ALM activities of interest rate and liquidity risk management, including funds transfer pricing (see Figure 3.2). Several respondents noted that there is more focus on the overall balance sheet structure and optimisation of the funding and capital mix, along with oversight of impact of IAS39 and hedge effectiveness.

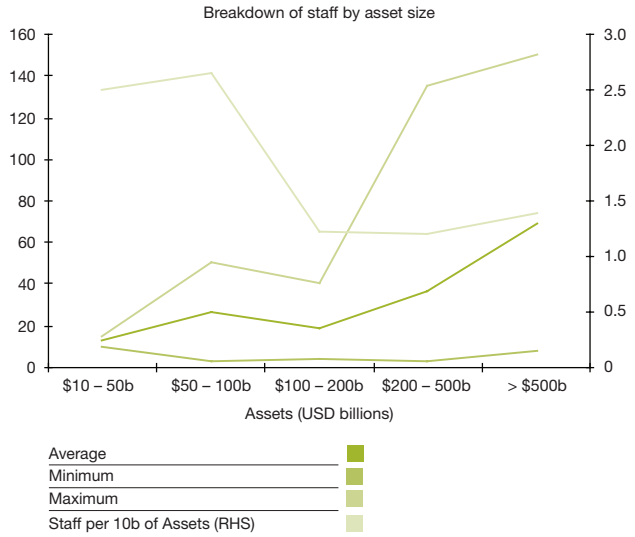
Figure 3.2: Areas of focus for ALM unit



Source: PricewaterhouseCoopers

The size of the ALM department is generally related to the size of the institution, although the size of the unit can vary greatly. Regarding the size of the ALM department, economies of scale appear to realised for banks with assets between 50-100 $billion and 100-200 $billion as indicated by the downward slope and the 'staff per 10 $billion of assets' trend line (see Figure 3.3).

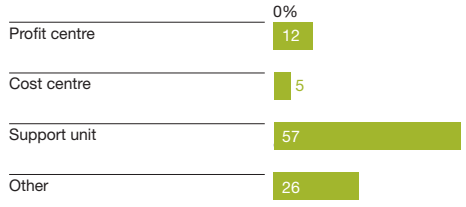
Figure 3.3: Size of ALM unit (including subordinate units below group level)



Source: PricewaterhouseCoopers

The primary objective of the ALM unit is to operate as a support unit (see Figure 3.4). However, within this category some responses would indicate that there is some overlap of cost and profit performance objectives. This is the case where the unit may undertake hedging activities or positioning strategies, but has no clear performance metric related to profit or value add. This is one area that banks need to pay attention to, with respect to segregation of duties, separating risk measurement and monitoring from the management and decision making related to transaction execution.

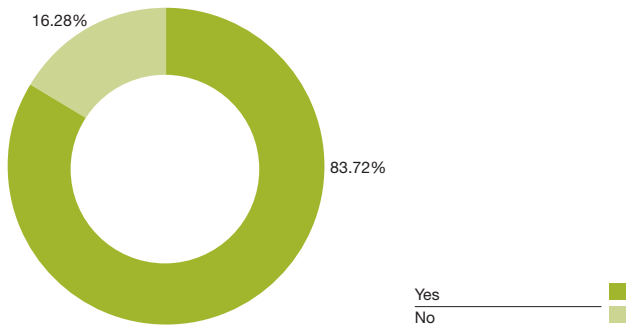
Figure 3.4: Primary objective of ALM unit



Source: PricewaterhouseCoopers

Just over 83% of participants have benchmarked their ALM unit to a specific external reference point (see Figure 3.5).

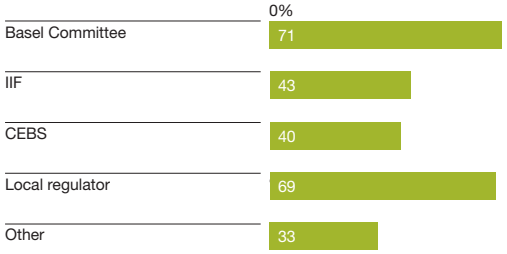
Figure 3.5: Benchmarking of ALM framework



Source: PricewaterhouseCoopers

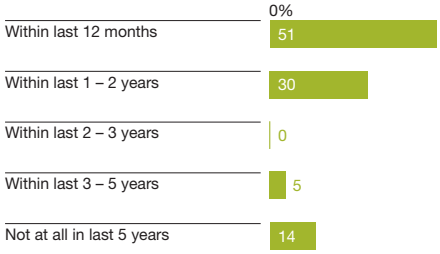
Of the organisations which have conducted external reviews, the primary reference point has been the Basel 'Principles for the Management and Supervision of Interest Rate Risk' (see Figure 3.6). In addition to the guidelines and standards in the public domain, many of these respondents noted that they have also used the last PwC ALM Survey published in 2006 as a reference point. Over 50% of respondents who have conducted external benchmarking have done so within the last 12 months (see Figure 3.7).

Figure 3.6: Reference point for ALM framework benchmarking



Source: PricewaterhouseCoopers

Figure 3.7: Period since last independent review of ALM framework



Source: PricewaterhouseCoopers

Liquidity risk

Liquidity risk has moved up the agenda to be one of the most important areas of focus within the ALM framework.

Certainly the painful experiences and lessons throughout the financial crisis have highlighted the dimensions and severity of consequences from liquidity problems. The Bank for International Settlements (BIS) and Institute of International Finance (IIF) have upgraded their guidelines for the management of liquidity risk to incorporate and reiterate what constitutes sound practice.

Many banks have undertaken extensive reviews and upgrades of their liquidity risk frameworks. Now just over 88% of participants have set a formal risk appetite for liquidity risk at Board level compared with 72% in 2006.

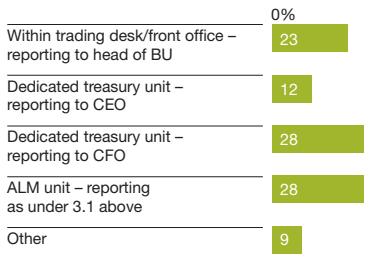
Management, measurement and monitoring liquidity risk

In risk management, we distinguish between those responsible for managing the risk (making day-to-day decisions and executing these (see Figure 4.1)), those responsible for measuring the risk (producing metrics and reports (see Figure 4.2)), and those monitoring the risks (ensuring adherence with policies and limits, and reviewing the overall risk profile (see Figure 4.3)). In the world of traded market risk, these would be the front office, middle office and risk management functions, respectively.

However, for liquidity risk it seems that such segregation of duties is not widely applied. The measurement and management of liquidity risk still generally resides within the same unit, as does, in some cases, the monitoring of liquidity risk.

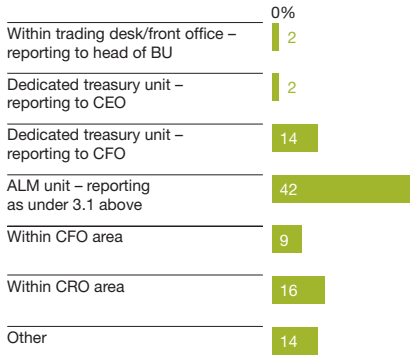
This is an area where we would expect to see growing involvement from the risk management function, particularly with respect to the measurement of liquidity risk being separated from the management of liquidity risk.

Figure 4.1: Responsibility for managing liquidity risk



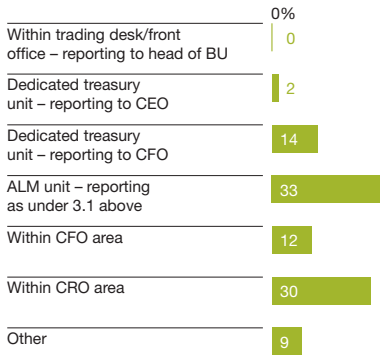
Source: PricewaterhouseCoopers

Figure 4.2: Responsibility for measuring liquidity risk



Source: PricewaterhouseCoopers

Figure 4.3: Responsibility for monitoring liquidity risk



Source: PricewaterhouseCoopers

Governance and oversight

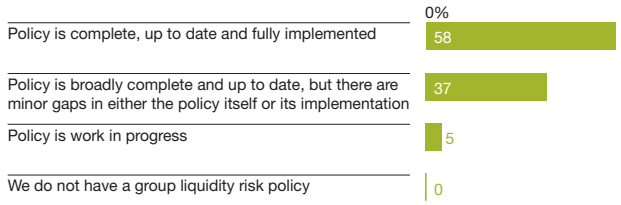
The committee or body with primary oversight for liquidity risk is typically the ALCO (see Figure 4.4).

Figure 4.4: Body with primary oversight over liquidity risk

Source: PricewaterhouseCoopers

Most banks feel that their liquidity risk policies are complete, up to date and fully implemented (58%), or there are only minor gaps in policy or implementation (37%) (see Figure 4.5).

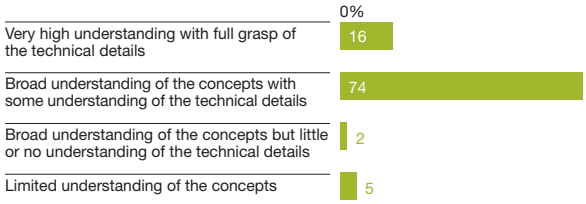
Figure 4.5: Status of liquidity risk management policy



Source: PricewaterhouseCoopers

Board awareness of liquidity risk has undoubtedly been heightened over the past three years, either by experience or observation. 90% of respondents feel that their Boards have good understanding of the concepts and technical details or better (see Figure 4.6).

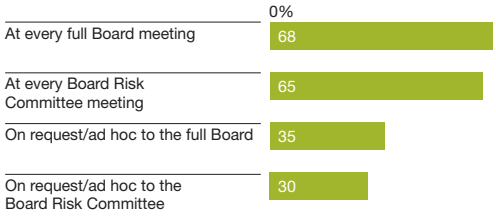
Figure 4.6: Board awareness of liquidity risk



Source: PricewaterhouseCoopers

Over 65% of respondents indicated that there is regular reporting of liquidity risk to the full Board and/or Board Risk Committee. Around 30% do so on an ad hoc basis (see Figure 4.7).

Figure 4.7: Liquidity risk reporting to the Board

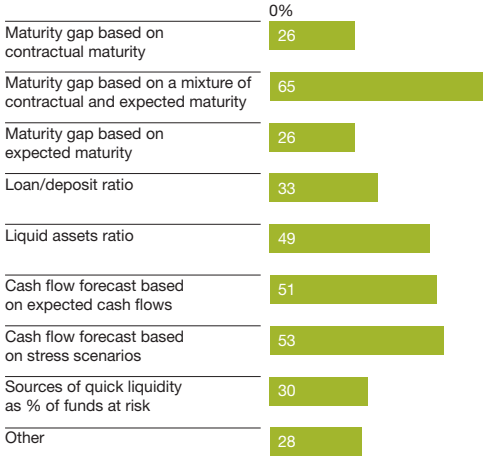


Source: PricewaterhouseCoopers

Liquidity risk measurement

The primary measure of liquidity risk is the static maturity gap using a combination of contractual and expected term data (see Figure 4.8). However, it seems that the use of cash flow forecasts using stressed or expected cash flows is gaining greater prominence as the primary measure of liquidity risk.

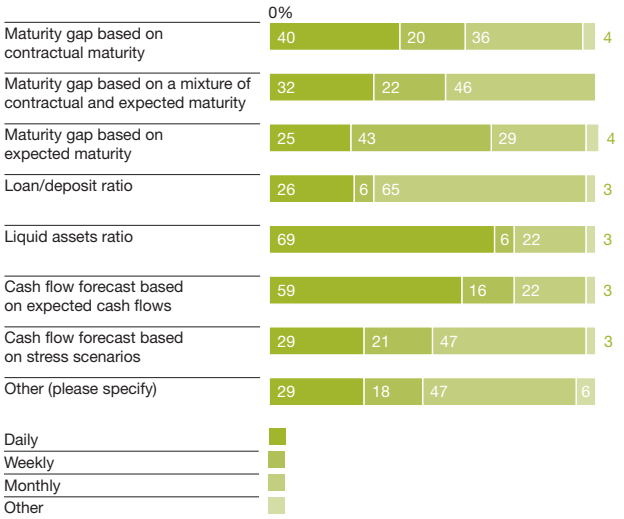
Figure 4.8: Liquidity risk measures



Source: PricewaterhouseCoopers

These measures are typically produced on a daily basis and it is often the case that this is a regulatory requirement.

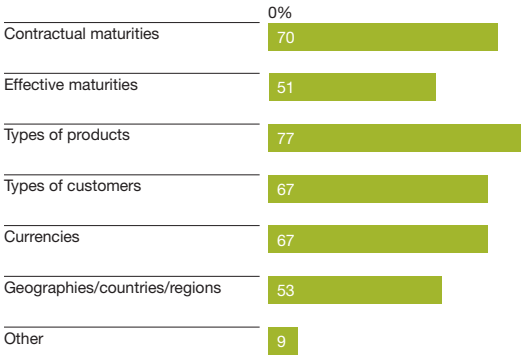
Figure 4.9: Frequency of liquidity risk measurement



Source: PricewaterhouseCoopers

In measuring funding risk limits and concentration, the factors typically taken into account are the types of products and the spread of maturities. Other factors such as currencies and geographies are commonly used as well (see Figure 4.10).

Figure 4.10: Factors included in liquidity risk measurement

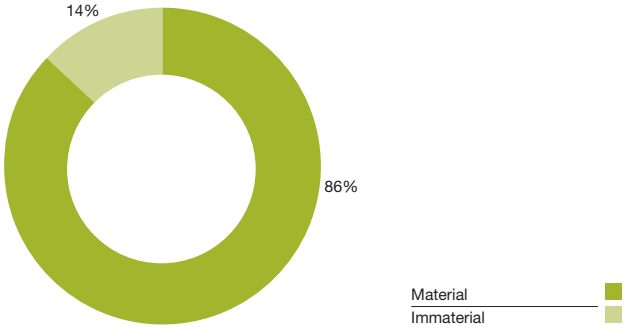


Source: PricewaterhouseCoopers

Collateral management

Collateral management is seen as material for 86% of respondents (see Figure 4.11).

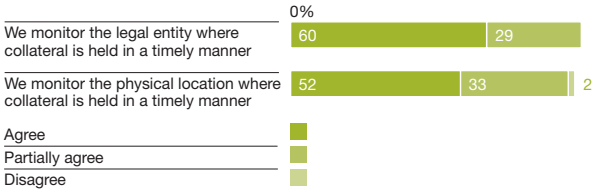
Figure 4.11: Relevance of collateral management



Source: PricewaterhouseCoopers

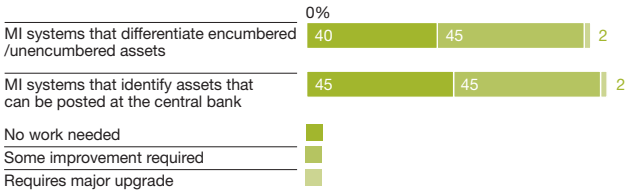
It is essential to have clear, accurate and timely information regarding collateral in order to be able to deal effectively with liquidity events that may require the use of such assets. It is an area where banks need to improve and apply greater rigour in knowing precisely which assets can be quickly liquidated and at what price.

Figure 4.12: Collateral management monitoring



Source: PricewaterhouseCoopers

Figure 4.13: Collateral management infrastructure

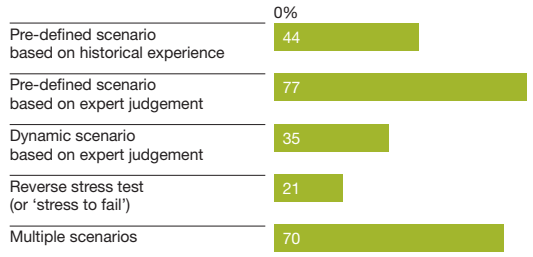


Source: PricewaterhouseCoopers

Liquidity stress tests

All responding banks perform some form of liquidity stress testing. This is an improvement from our 2006 survey which revealed that liquidity stress testing was only conducted by 75% of the banks surveyed. The most common type of scenario is a pre-defined scenario based on expert judgement (see Figure 4.14).

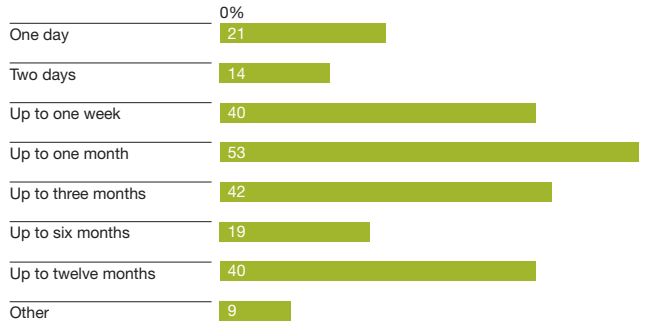
Figure 4.14: Liquidity stress test scenarios



Source: PricewaterhouseCoopers

The one-month time horizon for such stress tests is the most common; however, there is growing use of longer time frames out to one year (see Figure 4.15).

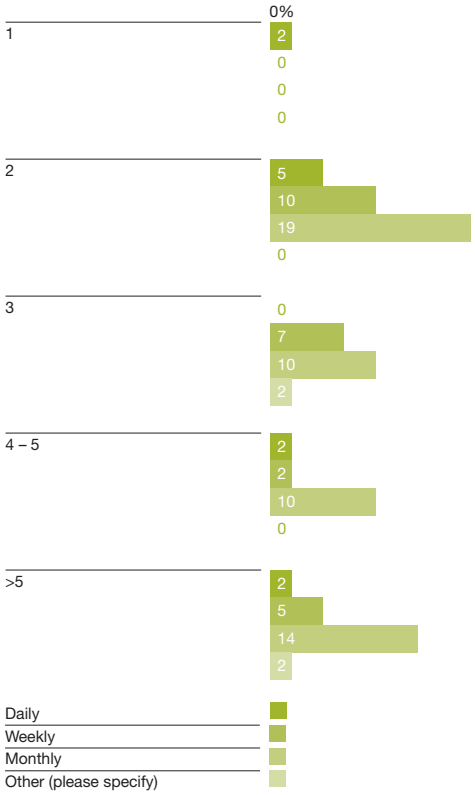
Figure 4.15: Liquidity stress test time horizons



Source: PricewaterhouseCoopers

For those banks using multiple scenarios (see Figure 4.16), the number and frequency of scenarios are mostly performed on a monthly basis using two to five or more scenarios.

Figure 4.16: Number and frequency of multiple scenarios

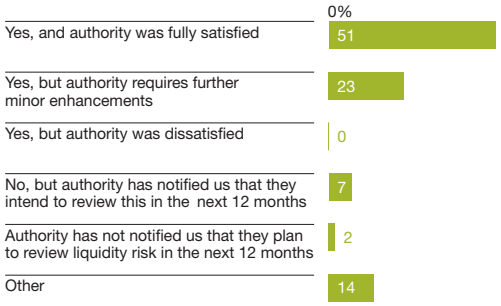


Source: PricewaterhouseCoopers

Within the scenarios 63% of banks assume that central bank funding will be available as part of their stress tests. More than 90% of banks distinguish between firm-specific (single name crisis scenarios) and market-wide stresses in their scenarios.

Supervisory authorities have reviewed around three quarters of the responding banks' liquidity stress testing scenarios with 51% being 'fully satisfactory' (see Figure 4.17). This is an area that is expected to continue to be of high priority with supervisors.

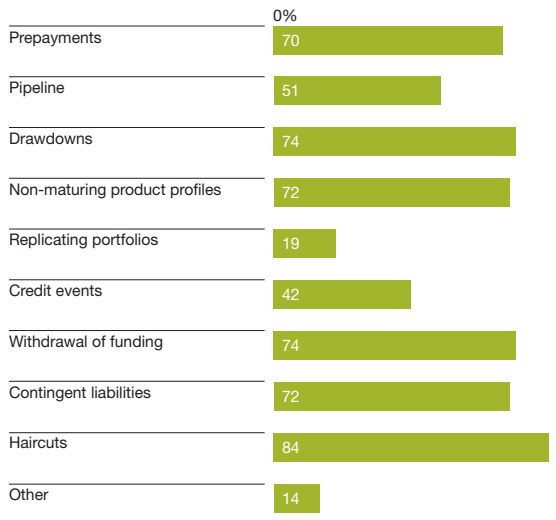
Figure 4.17: Supervisory review of liquidity stress scenarios



Source: PricewaterhouseCoopers

In performing stress tests, multiple factors are taken into account to modify contractual cash flows (see Figure 4.18). Most emphasis is placed upon making assumptions on the value of liquid assets with 'haircuts' and behavioural factors that may have a significant impact on the estimated cash flows, such as a rapid withdrawal of funds.

Figure 4.18: Modifications to contractual cash flows in liquidity risk modelling

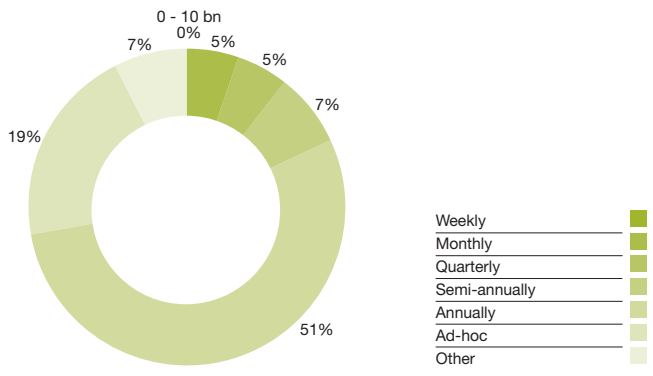


Source: PricewaterhouseCoopers

Oversight over modelling assumptions

93% of participants have had their modelling assumptions reviewed and approved by ALCO or the equivalent body with primary oversight of liquidity risk. This is typically done on an annual basis (see Figure 4.19).

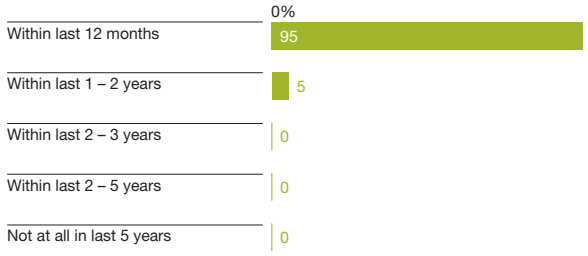
Figure 4.19: Frequency of ALCO review of liquidity risk modelling assumptions



Source: PricewaterhouseCoopers

All of the survey participants have done a comprehensive review of all of the modelling assumptions (see Figure 4.20). Nearly all have done so within the last 12 months, further highlighting the close attention being paid to liquidity risk.

Figure 4.20: Period of last review of liquidity risk modelling assumptions

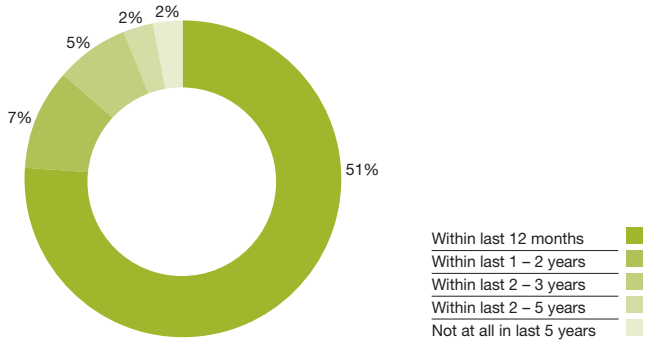


Source: PricewaterhouseCoopers

Contingency funding plan

Only 65% of participants have conducted a simulation of their contingency funding plans. Where simulations have been completed, it was typically within the last 12 months (see Figure 4.21).

Figure 4.21: Period of last simulation of contingency funding plans



Source: PricewaterhouseCoopers

The bodies involved in the contingency funding plan are primarily the ALCO and Treasury. It is worth noting the low responses for the board and risk functions (see Figure 4.22).

Figure 4.22 : Parties involved in contingency funding plans

Source: PricewaterhouseCoopers

Disclosure

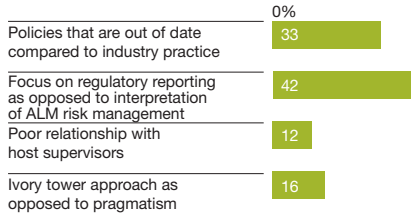
Figure 4.23: Liquidity risk disclosures

Source: PricewaterhouseCoopers

86% of participants are expecting changes in the liquidity risk regime set by their local supervisor, and over 90% believe their supervisor is adequately skilled to supervise liquidity risk.

The challenges for the supervisors are to have policies that are up to date with industry practices and to find the right balance, the form and the substance of the bank's liquidity management practices (see Figure 4.24).

Figure 4.24: Challenges in supervising liquidity risk



Source: PricewaterhouseCoopers

Interest rate risk

Interest rate risk in the banking book (IRRBB), as it is referred to in the various documents produced by the Basel Committee, is the area that has probably had the most attention within banks' ALM functions over the years.

Nearly all banks have been performing some form of interest rate risk management activities and have well-established processes. However, with the heightened focus on the overall Basel II application, both regulators and banks are reviewing and updating their approach to IRRBB.

While measures such as repricing gap and net interest income (NII) analysis are widely used, more attention is now paid to measures of economic value and capital for IRRBB. Of equal focus is the governance around the IRRBB framework, including the Board-approved risk appetite, ALCO investment and oversight, policies, limits, models and organisation structure.

Governance

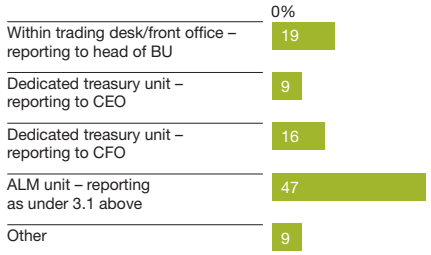
Nearly all banks in the survey report having a formal risk appetite for IRRBB. The primary oversight body was identified by 70% of respondents as the ALCO (see Figure 5.1).

Figure 5.1 Oversight of interest rate risk

Source: PricewaterhouseCoopers

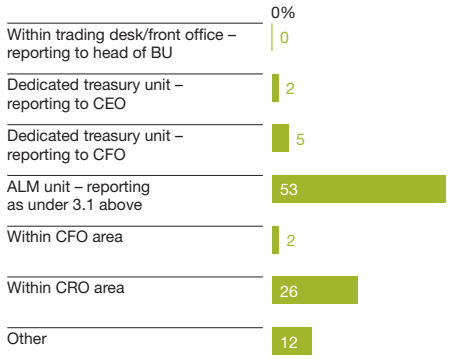
The main departments that support the ALCO framework are Treasury, Finance, ALM and Risk Management. This is an approach that reflects the general concept of segregation of duties in relation to the governance of interest rate risk management.

Figure 5.2: Management of IRRBB



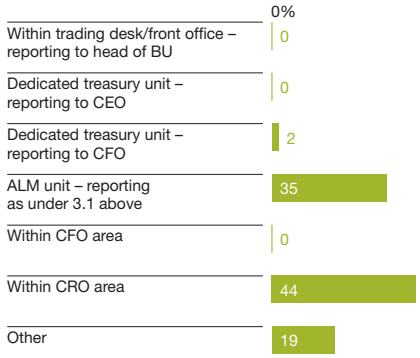
Source: PricewaterhouseCoopers

Figure 5.3: Measurement of IRRBB



Source: PricewaterhouseCoopers

Figure 5.4: Monitoring of IRRBB

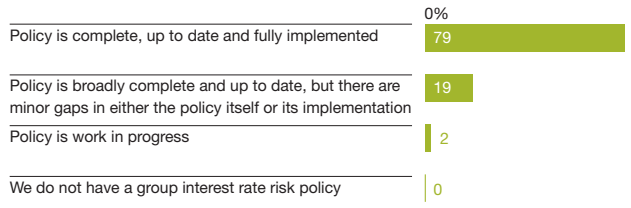


Source: PricewaterhouseCoopers

The results show that a large percentage of respondents that have a structure that combines many of these activities within an ALM unit. There is, however, some attention as to how the traditional ALM unit may evolve, mainly in relation to separating the management of IRRBB positions from the unit that is measuring and/or monitoring the positions (see Figure 5.2-5.4). Some banks have adopted a model akin to the market risk function to handle the measurement and monitoring, while the management aspect is conducted within the Treasury or Finance division.

Nearly 80% have complete, up to date and fully implemented policies for IRRBB (see Figure 5.5).

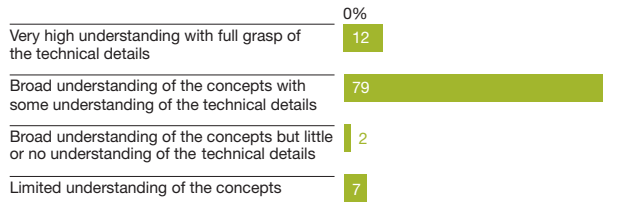
Figure 5.5: Policy



Source: PricewaterhouseCoopers

79% of respondents say their Board's have a broad level of knowledge of the concepts and technical details for interest rate risk management and 12% say that they have an even higher level (see Figure 5.6).

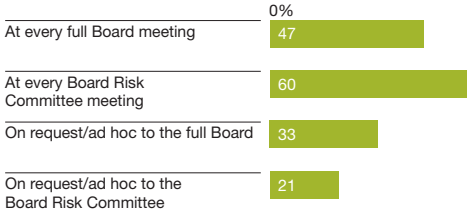
Figure 5.6: Board understanding of IRRBB



Source: PricewaterhouseCoopers

Most participants provide regular reports to the full Board (47%) or the Board's Risk Committee (60%) (see Figure 5.7). This is one of the principles in the Basel 'Sound Practices for the Management and Supervision of Interest Rate Risk'.

Figure 5.7: Board reporting

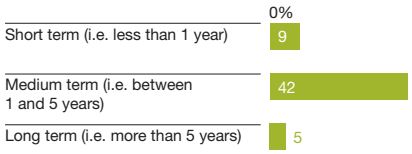


Source: PricewaterhouseCoopers

Investment term of equity

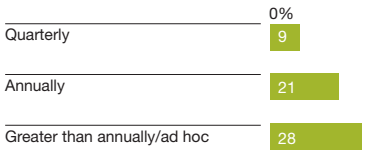
One of the key performance metrics for managing IRRBB is the use of a benchmark for the investment term, or duration, of equity. 58% of participants use this benchmark within their interest rate risk frameworks. The most common period targeted is the medium term of between one and five years for 42% of respondents (see Figure 5.8). This benchmark is generally reviewed and/or changed on an ad hoc basis over the course of the year, indicating that many respondents will change this target in accordance with their strategy and outlook for the interest rate market (see Figure 5.9).

Figure 5.8: Target duration of equity



Source: PricewaterhouseCoopers

Figure 5.9: Frequency of review of equity duration benchmark

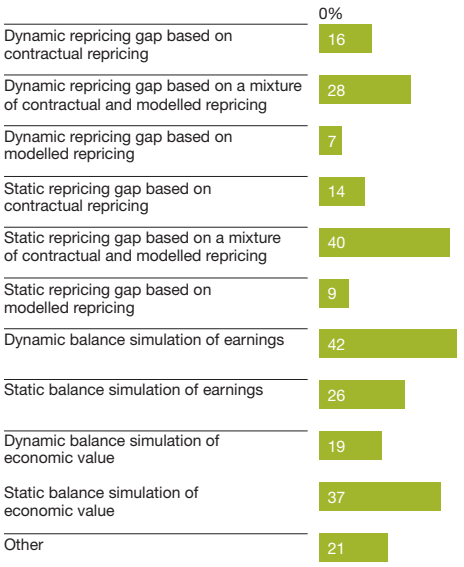


Source: PricewaterhouseCoopers

Measurement

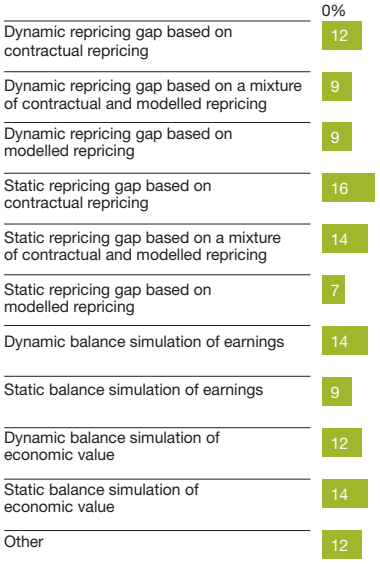
All participants use a variety of measures, generally in combination, to assess IRRBB (see Figure 5.10 and 5.11). These range from repricing gaps to earnings and economic value simulations. The challenge for the measurement and management of IRRBB has been to strike the appropriate balance between the short-term (i.e. less than one year) impact on earnings and the longer term impact on economic value. Respondents have indicated that they have been able to establish a reasonable balance between short-term and long-term measures. It is also worth noting that around 70% of the banks isolate the mismatch earnings to separate P&L units and forecast these specific amounts. This is an area where there are divergent opinions over the appropriate performance measures for the unit managing IRRBB when comparing accrual-type earnings with economic value risk measures.

Figure 5.10: Primary measurement tool for IRRBB



Source: PricewaterhouseCoopers

Figure 5.11: Secondary measurement tool for IRRBB

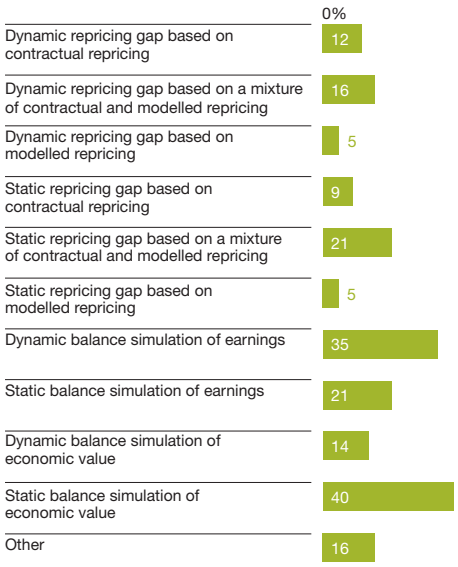


Source: PricewaterhouseCoopers

This can also be seen in the split between the limits applied to the respective measures. The two key identified limits are on the static economic value simulation and the dynamic earning simulation (see Figure 5.12). The slightly higher figure for a limit on the static economic value measure may be related to the fact that this is the measure that was promulgated within the Basel papers as being the approach that regulators are advised to use to determine the level of capital for IRRBB.

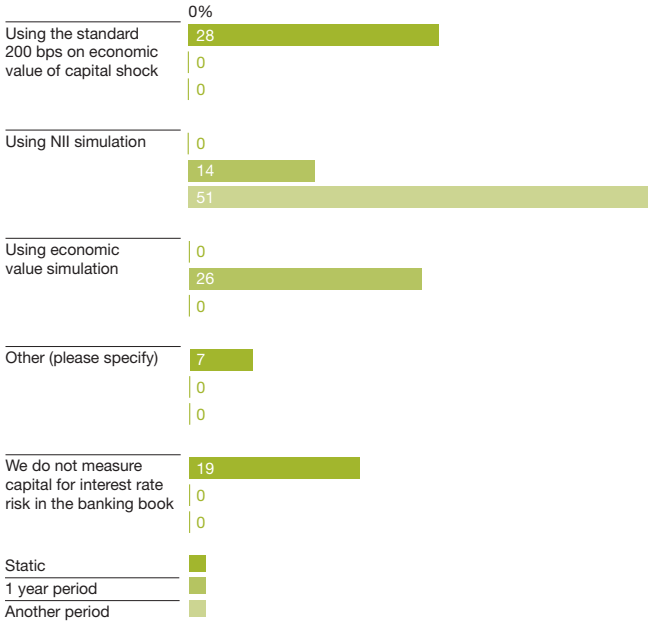
Over 80% of respondents measure the capital required to support IRRBB and the link to the Basel approach is supported by the use of an economic value approach.

Figure 5.12: Limits for IRRBB



Source: PricewaterhouseCoopers

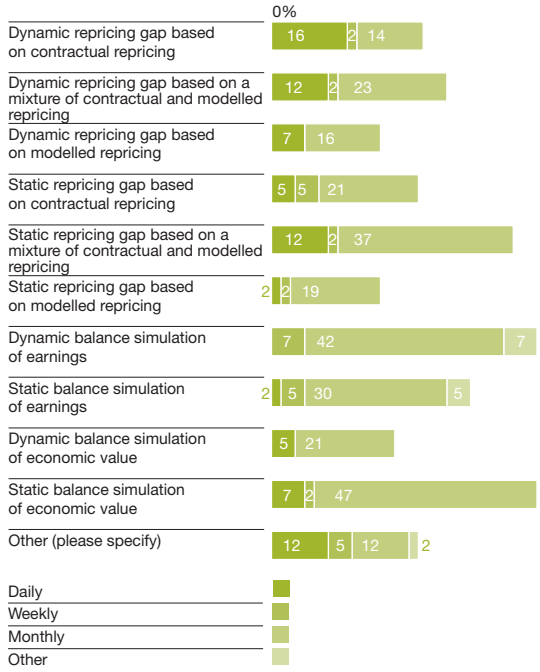
Figure 5.13: Capital for IRRBB



Source: PricewaterhouseCoopers

Nearly all banks generate their IRRBB measures on at least a monthly basis (see Figure 5.14). Most of the banks that perform this on a daily basis are based in Europe.

Figure 5.14: Frequency of IRRBB measurement



Source: PricewaterhouseCoopers

Just over 80% of respondents have had their IRRBB framework reviewed by their regulatory supervisors, and the results have been generally satisfactory (see Figure 5.15).

Figure 5.15: Supervisory review of IRRBB

Source: PricewaterhouseCoopers

Capital management

For this survey, we have included a section on capital management for the first time. This is in response to the increased attention being paid to capital management in a Basel II world and in response to many questions from our clients regarding some of the issues covered.

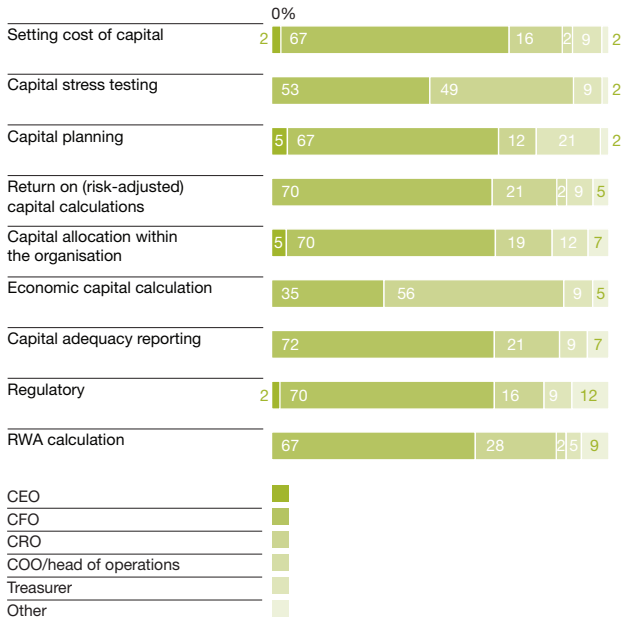
One of the biggest challenges for banks is to establish an effective, integrated operating model to bring all of the components together and thus enable consistency and clarity within the application of the whole and related sub-components, particularly when related to the ICAAP. It has drawn greater attention within the ALM or Balance Sheet Management function under the governance of ALCOs in many cases.

Structure

As we can see from figure 6.2, most of the key capital management activities are split between the CFO and CRO functions. Traditionally, the CFO has had responsibility for regulatory risk reporting and capital planning with a general 'top down' approach. The calculation of economic capital has tended to evolve under the CRO on a 'bottom' up basis. Some of the challenges that arise with this approach are, for example:

- Consistency with economic capital and capital allocation.
- Using a 'top down' holistic economic capital model that can integrate the 'bottom up' measured risks and perform robust intra-risk diversification measurement.
- Using this model for stress testing and then linking to capital planning.
- Reconciling regulatory risk-weighted assets (RWAs) to economic capital.
- Effectively harnessing the capital adequacy measure for stress testing and capital planning to properly capture both risk measures and accounting components, particularly with credit risk and loan loss provisioning.
- Consistency of balances used for capital allocation and funds transfer pricing (FTP) that drive key components that feed into economic value and risk-adjusted return on capital (RAROC) measures.

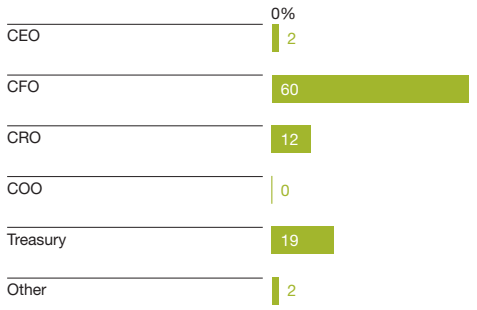
Figure 6.1: Which senior executive has responsibility for the following activities within his/her area



Source: PricewaterhouseCoopers

90% of respondents have a dedicated capital management unit, with the majority reporting to the CFO.

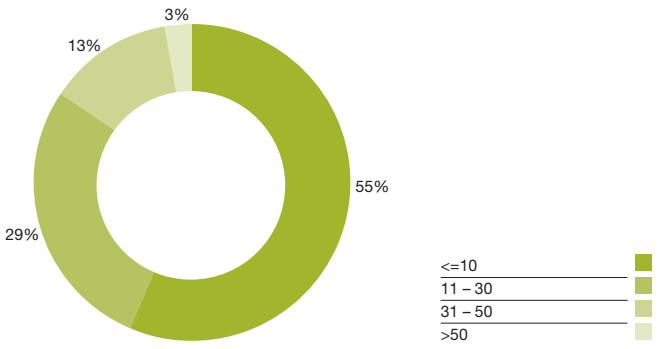
Figure 6.2: Capital management unit reporting line



Source: PricewaterhouseCoopers

The average headcount of these units is approximately 15, with a maximum of 60 people.

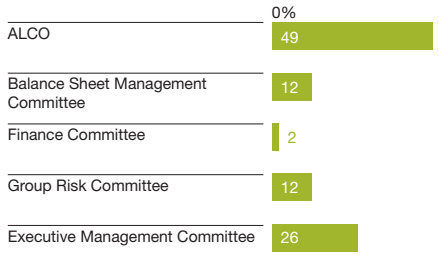
Figure 6.3: Capital management unit headcount



Source: PricewaterhouseCoopers

As mentioned in the introduction, the ALCO has been the main executive body that has oversight of capital management with 49% of respondents (see Figure 6.4).

Figure 6.4: Oversight of capital management



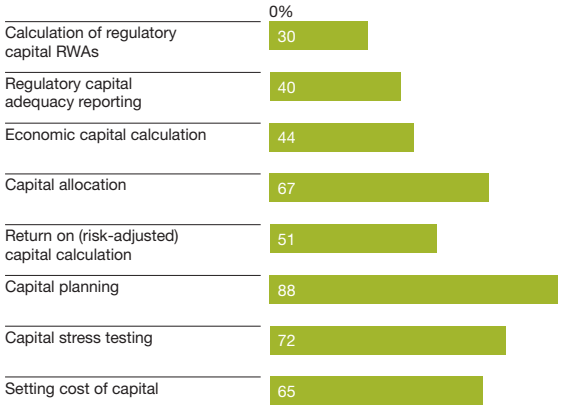
Source: PricewaterhouseCoopers

Activities

The main activities performed by the capital management unit are capital planning, capital stress testing, capital allocation and setting the cost of capital (see Figure 6.5).

Other related activities are more fragmented and it would appear that for most respondents, the capital management unit is a receiver of economic capital information and that it is unlikely to be involved in the calculation of regulatory capital adequacy and risk-weighted assets.

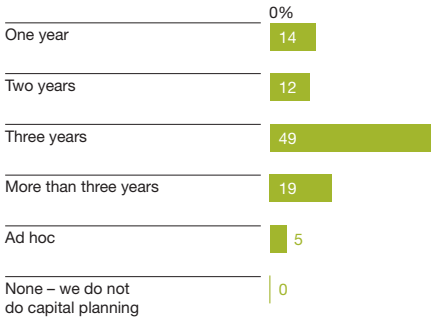
Figure 6.5: Activities of the capital management unit



Source: PricewaterhouseCoopers

With regards to capital planning, the time horizon used by nearly half of the respondents is three years (see Figure 6.6).

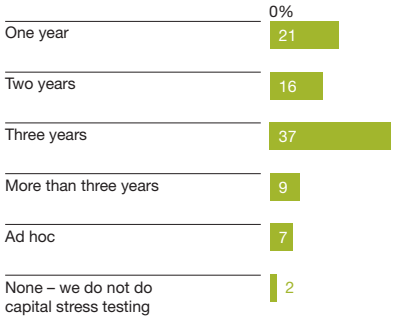
Figure 6.6: Time horizon for capital planning



Source: PricewaterhouseCoopers

This time horizon is broadly consistent with the period looked at for capital stress testing, although there appears to be a shift in focus to shorter time frames for stress testing compared to capital planning (see Figure 6.7).

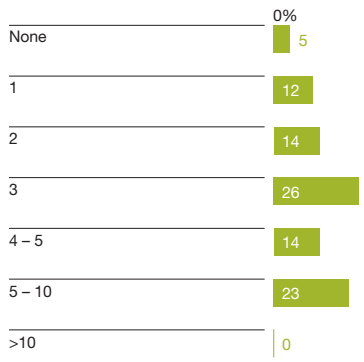
Figure 6.7: Time horizon for capital stress testing



Source: PricewaterhouseCoopers

Most respondents (63%) have reported that they conduct at least three or more scenarios for their capital stress testing (see Figure 6.8).

Figure 6.8: Number of scenarios for capital stress testing

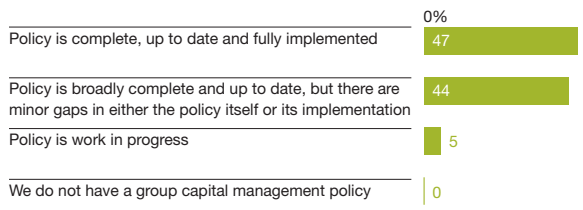


Source: PricewaterhouseCoopers

Governance

All respondents have a capital management policy in place, with nearly half asserting that it is complete, up to date and fully implemented (see Figure 6.9).

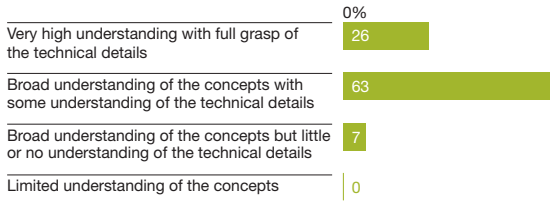
Figure 6.9: Capital management policy



Source: PricewaterhouseCoopers

Most Boards have a reasonable understanding of capital management and the associated technical concepts, with 26% reporting to have a very high level of understanding (see Figure 6.10).

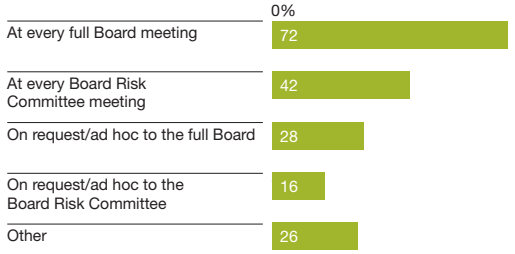
Figure 6.10: Board awareness of capital management



Source: PricewaterhouseCoopers

It would be expected that there is regular reporting of capital adequacy to the Board, its Risk Committee, or both. What is surprising is that over a quarter of respondents (i.e. 'other' category) do not regularly report this information to the Board, but instead generally provide capital adequacy updates to some form of executive committee (see Figure 6.11).

Figure 6.11: Board reporting of capital adequacy



Source: PricewaterhouseCoopers

Funds transfer pricing

Funds transfer pricing has been a key component of most banks' ALM frameworks for many years. It has often been sitting in the background and seen as a process function and not necessarily well understood or appreciated beyond the units administering it.

However, over the past year many banks have been revisiting their practices and paying significant attention to ensuring that it is functioning properly and is supported by robust, appropriate methodologies.

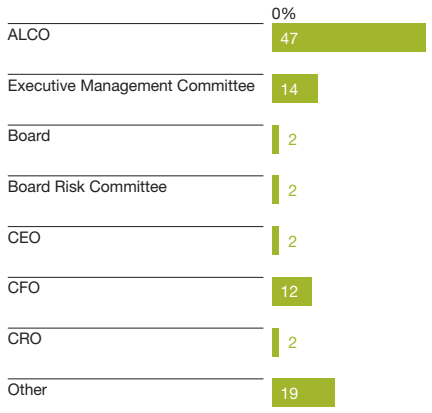
The importance of FTP has been highlighted as it underpins the interest margin and profitability results and, thus, has a significant impact on business unit performance measurement and business behaviour. It has been recognised that aspects like pricing for liquidity, optionality, customer behaviour and trading portfolios require more attention to ensure that underlying risks are properly reflected within pricing and performance measurement practices.

It is important that FTP is well understood throughout the bank and that the implications of it are understood beyond the specialised functions administering it. Methods must be sound and transparent and an appropriate level of governance undertaken to avoid potential conflict of interest.

Governance

Around half of the participating banks have their FTP policy as a part of the ALCO responsibilities (see Figure 7.1). In some banks it resides with the Finance or Treasury function (as noted within the 'other' category).

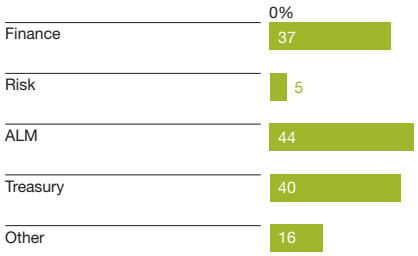
Figure 7.1: Responsibility for FTP policy



Source: PricewaterhouseCoopers

The responsibility for managing the FTP process is primarily with the ALM unit (44%), or with the Finance or Treasury units (see Figure 7.2). A key governance point regarding the management of FTP and the setting of policy is to consider the aspect of segregation of duties. This aspect of managing FTP is of higher importance for units that are considered profit centres.

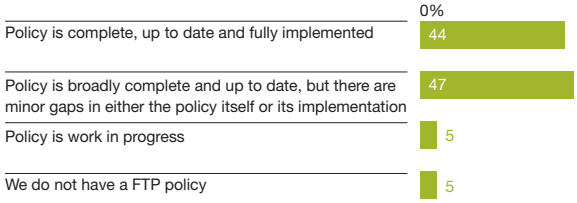
Figure 7.2: Management of FTP process



Source: PricewaterhouseCoopers

While 90% of respondents have an FTP policy in place, it is notable that around half feel that they have some gaps in the policy or its implementation (see Figure 7.3).

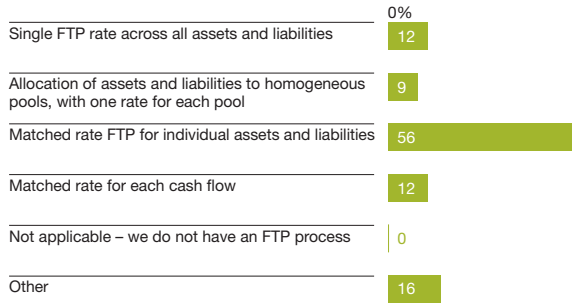
Figure 7.3: Status of FTP policy



Source: PricewaterhouseCoopers

The clear majority of approaches use FTP rates that are matched according to term or cash flow (see Figure 7.4).

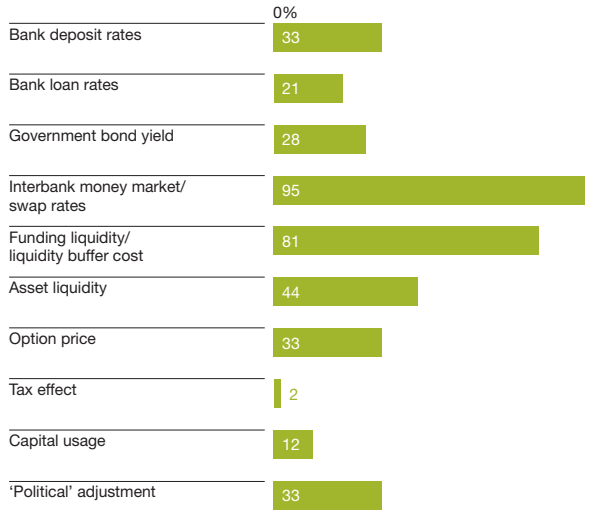
Figure 7.4: FTP approach



Source: PricewaterhouseCoopers

Nearly all respondents (95%) use interbank money market/ swap rates to determine their FTP rates (see Figure 7.5). It is also very common to have an adjustment for funding liquidity, or a liquidity buffer (81%), and the use of an adjustment for asset liquidity is growing (44%). A third of respondents also use 'political' of non-risk related adjustments to influence FTP results.

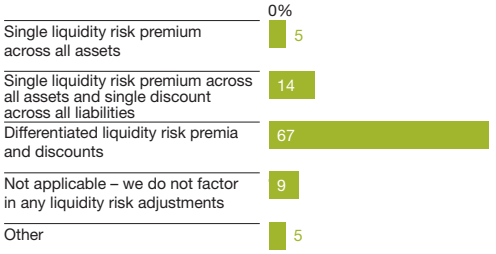
Figure 7.5: Components of FTP rates



Source: PricewaterhouseCoopers

When making adjustments for liquidity, two-thirds of respondents differentiate them by term and/or by product.

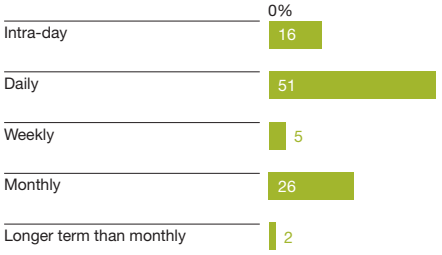
Figure 7.6: Treatment of liquidity risk in FTP rates



Source: PricewaterhouseCoopers

Over half update their FTP rates on a daily basis, with a further 16% updating rates on an intra-day basis (see Figure 7.7).

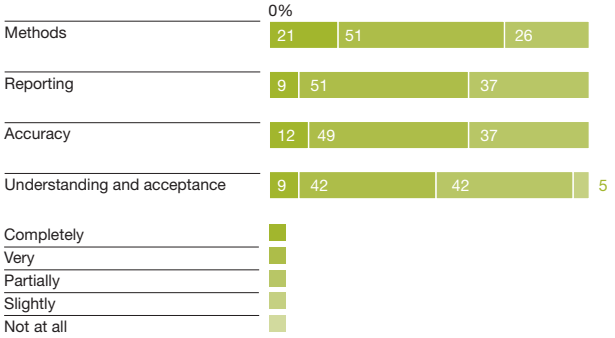
Figure 7.7: Frequency of FTP rate updates



Source: PricewaterhouseCoopers

While most participants are generally satisfied with their FTP frameworks, the areas that seem to require additional attention are improvements to the understanding, acceptance, and reporting of FTP (see Figure 7.8).

Figure 7.8: Satisfaction with FTP framework



Source: PricewaterhouseCoopers

Discretionary investment portfolios

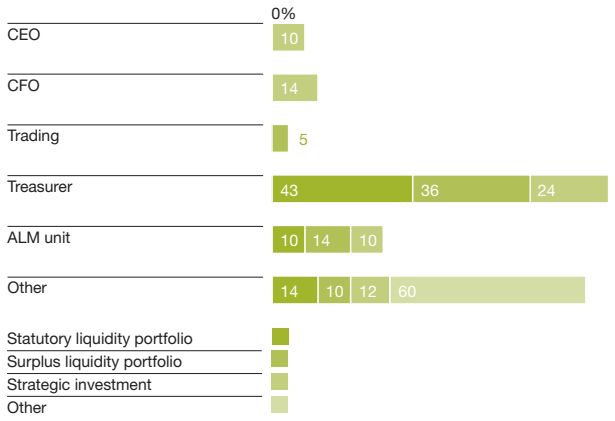
Discretionary investment portfolios consist of investments that are outside the 'normal' business activities of banks, such as:

- Trading portfolios;
- Temporary warehousing of securitisation pipelines; or
- Debt/equity investments resulting from problem loan work-outs.

As these portfolios in many cases include liquidity portfolios, it is not surprising that a high proportion (65%) of banks report managing such portfolios.

Statutory liquidity portfolios are typically managed by the CFO or Treasurer, with surplus liquidity typically passed to the trading desk to manage. However, quite a significant portion of strategic and other investment portfolios are managed by a dedicated corporate strategy/investments/development type of function.

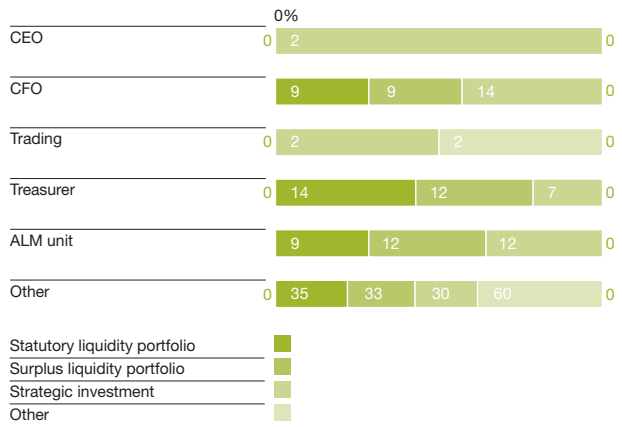
Figure 8.1: Discretionary portfolio types



Source: PricewaterhouseCoopers

Other than the standard liquidity portfolios, we find that there is little commonality as to how the discretionary portfolios are managed and monitored.

Figure 8.2: Investment portfolio monitoring



Source: PricewaterhouseCoopers

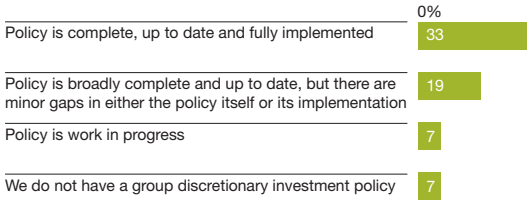
However, we do find that, in around two thirds of banks, there is oversight over these portfolios at a suitably senior committee level.

Figure 8.3: Investment portfolio oversight

Source: PricewaterhouseCoopers

It is also notable that only a minority of banks have clear policies for managing these portfolios.

Figure 8.4: Investment portfolio policy



Source: PricewaterhouseCoopers

This, coupled with the lack of clear monitoring, would indicate that discretionary investments are very much entered into on an 'ad hoc' basis, leaving room for potential problems arising from these portfolios.

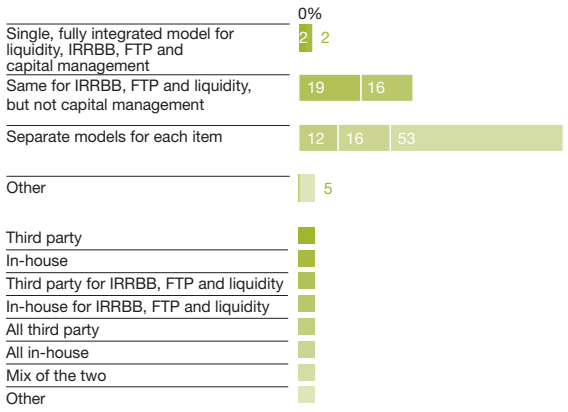
Systems

There has been tremendous development of balance sheet management systems capabilities over recent years. Many ALM software vendors have developed integrated architecture and modules to enable IRRBB, liquidity and FTP to be managed from the same platform.

Some have even moved into extending modules into other risk categories, such as credit risk, to provide the foundation for the possibility of a fully integrated risk capital model that leverages the ALM platform.

At this stage, most banks seem to have a combination of various vendor systems and in-house built models supporting different parts of their ALM framework (see Figure 9.1). A handful of banks have started to make progress on achieving the use of a single, fully integrated platform.

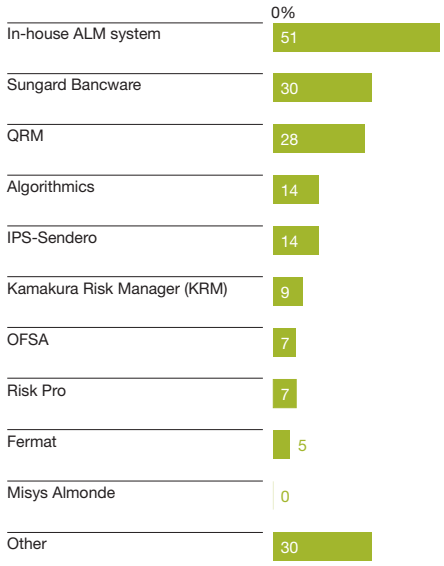
Figure 9.1: Software used for ALM model



Source: PricewaterhouseCoopers

QRM and Sungard Bancware are the main ALM systems currently used, followed by IPS Sendero/KRM and Algorithmics. However, half of the respondents also use some form of in-house built solutions in combination with vendor models (see Figure 9.2).

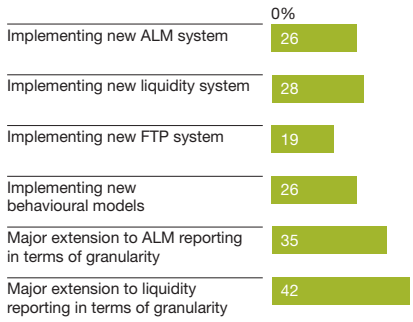
Figure 9.2: Systems used for ALM model



Source: PricewaterhouseCoopers

However, a significant number of banks are planning changes to their systems over the coming two years (see Figure 9.3). The key area of capability is around increasing granularity and developing transaction-based models.

Figure 9.3: Systems changes planned



Source: PricewaterhouseCoopers

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