

24

Financial Services Authority

Liquidity risk in the Integrated Prudential sourcebook: a quantitative framework

October 2003



Contents

1	Executive summary	3
2	Introduction	6
3	Main features of a quantitative framework	12
4	Current ideas on the detail of the framework	18
5	Examples of the gap ratio calculation	32
6	Cost implications; next steps	37

Annex 1: List of questions in this paper

Annex 2: Views on stress factors and discounts

Annex 3: Firms' data to assist calibration

Annex 4: Guidance notes to firms' input in Annexes 2 and 3

The Financial Services Authority invites comments – and data input from firms – in response to this Discussion Paper. Comments should reach us by 27 February 2004.

Comments and data may be sent by electronic submission using the form and tables on the FSA's website (at www.fsa.gov.uk/pubs/discussion/dp24).

Alternatively, please send comments and data in writing to:

Jeremy Richardson
Prudential Standards Division
Financial Services Authority
25 The North Colonnade
Canary Wharf
London E14 5HS

Telephone: 020 7066 3146
Fax: 020 7066 3147
E-mail: dp24@fsa.gov.uk

It is the FSA's policy to make all responses to formal consultation available for public inspection unless the respondent requests otherwise. However, all data input received from individual firms in response to this Discussion Paper will be treated in strictest confidence.

1 Executive summary

- 1.1 This Discussion Paper (DP) aims to do two things. The first is to explain, and seek reactions widely to, the stage we have reached in developing a framework of quantitative requirements for the Liquidity Risk module of the Integrated Prudential Sourcebook (PSB). The PSB will form part of our Handbook of Rules and Guidance, and set out detailed prudential requirements for the firms that we regulate. The second is to seek specific input from firms on the calibration of the proposed framework.
- 1.2 Liquidity risk is the risk that a firm, though solvent, either does not have sufficient financial resources available to it to enable it to meet its obligations when they fall due, or can secure them only at excessive cost. It is a basic business risk faced to some degree by most (if not all) firms, though clearly it is more significant for some than others.
- 1.3 As a subject of prudential standards, it is both important and complex. We have acknowledged and reflected these challenges in our gradual progress with the module (starting with its systems and controls provisions), and we continue that approach in this DP.
- 1.4 There is a strong case for an acceptable integrated quantitative framework. Recent experience suggests that liquidity risk is one of the more common factors behind instances of deposit-taker failure or near-failure. We believe we can make a number of important improvements in moving to a framework that appropriately covers all firms in which the risk is a significant one, as well as all parts of their business that contribute significantly to it:
 - by covering the appropriate set of firms; and
 - by closing important gaps in coverage in the predecessor regimes.

- 1.5 When, for example, the International Monetary Fund (IMF) published its UK Financial System Stability Assessment earlier this year, it expressed concern that the Sterling Stock regime (which applies to the largest retail banks) was having an adverse effect on firms' behaviour. It took comfort from the fact that we were looking at reforms in this area.
- 1.6 We are clear in our preference for an assessment that assumes stressed conditions, in contrast, for instance, to the banking Mismatch regime. That regime currently applies to banks other than Sterling Stock banks, and has grown less consistent in this area over time. And in the Sterling Stock regime there are important issues, which we continue to consider, about the treatment of assets both needed by some firms as collateral in ordinary conditions for their payments systems roles and which may be wholly counted towards meeting regulatory requirements.
- 1.7 This DP discusses some of the general issues in designing a framework. And, in that context, it sets out our specific ideas on the way forward on the framework's detail. We think this is the best way of stimulating a productive wider debate, as well as obtaining further specific input for the framework's calibration – *before* finalising our proposed requirements. On the latter point, the wider the data-set that firms provide at this stage, the better for the quality of the eventual proposals.
- 1.8 We envisage setting limits to a firm's liquidity gaps over periods of a week and a month, when 'stress factors' have been applied to its current business profile. We give two examples of how the calculation would work in Chapter 5. In the framework's Standard Approach, the factors would be prescribed. But a firm with high-quality liquidity risk management could qualify for advanced adjustments for components of its business, meaning that the factors for those would be calculated on the basis of its own internal method of measuring the risk.
- 1.9 This measurement framework would, therefore, be neither wholly prescriptive nor wholly discretionary. One main challenge in developing it is to avoid shoe-horning firms into a 'one size fits all' approach. We have sought – and continue to seek – to build in considerable differentiation and flexibility. For instance, we allow for the possibility that for a particular firm the Standard stress factors might not be sufficient as an approximation of the impact of a serious stress. Firms would be required to conduct an Individual Liquidity Adequacy Review to satisfy themselves that overall the general framework was sufficiently conservative for them, and to amend its application if not.
- 1.10 Deciding the calibration of the stress factors is another key challenge. Here, we are proposing two main guiding principles, of different sorts:

- The degree of stress that we are trying to approximate should be that of a temporary, serious stress of roughly two weeks' duration, affecting the firm (or group) specifically rather than the market in general.
- We intend that the degree to which the requirements may be tightened for some firms compared with their predecessor regime should, very broadly, match the degree to which they will be loosened for others (to the extent that like-for-like comparison is possible).

Who should read this DP?

1.11 Different readers may have different angles of interest in this DP. Among firms, it will mainly interest:

- all firms in PRU Category 1 (deposit-takers);
- all firms incorporated elsewhere in the European Economic Area that are authorised as Banking Consolidation Directive credit institutions and which have established a deposit-taking branch in the UK; and
- certain principal position taking investment firms in PRU Category 3.

We would propose to exclude those smaller PRU Category 3 firms whose principal positions were less than 150% of their Tier 1 capital.

1.12 We are seeking reactions to this DP – including responses to the current detail it puts forward, and data input – by 27 February 2004. We will take those contributions into account in finalising our proposed requirements, which will then be the subject of formal consultation, planned for autumn 2004.

This DP does not raise any issues that directly affect consumers. However, consumer groups, in particular, should note that the purpose of an integrated framework would be to reduce the probability that, as a result of firm failure brought about by the crystallisation of liquidity risk, consumers suffer loss or financial markets are disrupted. It would do so by putting in place a minimum standard of adequacy of firms' liquidity, limiting the amount of liquidity risk they may incur. Adequacy of firms' liquidity underpins the ability of consumers to obtain cash quickly by realising their savings or investments.

2 Introduction

- *Readers interested in an overview of our thinking should focus mainly on this chapter, Chapters 3 and 6.*
- *Readers wishing to understand those ideas in greater detail should also read Chapters 4 and 5.*
- *Readers wanting to engage at the most detailed level should also read Annex 4.*

2.1 Liquidity risk, as an area of prudential standards, is both important and complex – as is suggested by experience in the past 25 years in the UK and internationally.

2.2 Internationally, it has been subject to relatively little in the way of regulatory agreements, despite the general recognition of its importance. The Basel Committee has published a paper on sound liquidity risk management practices, and the International Organisation of Securities Commissions has similarly issued a paper in that area.¹ But approaches more generally towards the risk, and towards setting quantitative requirements in particular, continue to vary considerably.

2.3 Domestically, the complexities have been reflected in the differences of approach among, and the relatively slow evolution of, the main predecessor quantitative regimes. They are those for the largest retail banks (the Sterling Stock regime), other banks (the Mismatch regime), building societies, and the liquidity risk treatments within their capital adequacy requirements for ex-SFA firms. And we have acknowledged and reflected its challenging nature in our progress to date with the PSB's Liquidity Risk module.

1. The Basel Committee on Banking Supervision, '*Sound Practices for Managing Liquidity in Banking Organisations*' (February 2000), and the report of the Technical Committee of IOSCO, '*Sound Practices for the Management of Liquidity Risk at Securities Firms*' (May 2002).

Progress of the Liquidity Risk module

- 2.4 When we consulted on the bulk of the PSB in CP97 in June 2001, we left the module for separate consultation later.
- 2.5 On firms' risk management, we published proposed standards in March 2002 in CP128: *Liquidity risk in the Integrated Prudential sourcebook: Systems and Controls chapter*. Following the responses to that CP, we published a Policy Statement giving feedback on the consultation last October, and we will issue 'near-final' text of that chapter very shortly. We plan to implement that chapter in the final quarter of 2004 at the same time as the PSB's other systems and controls provisions.
- 2.6 In CP128 we also outlined our preference, in principle, for the Liquidity Risk module to contain both systems and controls provisions and, separately, a framework of quantitative requirements, distinct from the capital adequacy framework. A main reason for that preference was a view that the two types of requirement (as we envisage them) best address different objectives. In particular, the Systems and Controls chapter contains provisions requiring that firms perform stress testing and scenario analysis, and have a contingency funding plan for dealing with such scenarios. We see those as the best means of addressing the risk of the most extreme stresses. A quantitative framework, on the other hand, is an appropriate way to set a minimum standard of adequacy of liquidity.
- 2.7 We said in CP128 that our aim was to achieve a unified quantitative framework, but that we would only be able to decide whether that was feasible in practice after more detailed consideration. We have done substantial further development work since then, in the light of which we judge that an acceptable and effective single framework can be built. Mindful of the area's difficulties, however, we think it is right now – as the best way of stimulating a productive wider debate – to share the thinking behind that judgement. This includes sharing our specific ideas on the way forward on the detail of the framework, before moving to finalise our proposals for the text of the requirements.
- 2.8 That approach reflects input received from a number of firms, trade bodies and other interested parties in informal consultation. Our ideas have benefited from those contributions in a number of ways. As well as acting as a sounding board and giving input on how best to take forward our developing proposals, a range of firms – of different types and sizes – have provided us with data and estimates. These enabled us to do an initial impact study as we developed our proposals. And a number have provided information relevant to our consideration of some of the main potential cost implications.

2.9 So, with this paper we hope to obtain:

- wide reactions to our views on the appropriate main features of a quantitative framework, and our thinking behind those views;
- reactions, and where appropriate, suggestions for improvements to our current ideas for the detail of the framework to build around those features; and
- data from firms that will allow a solid foundation for our final proposals for the framework's calibration.

Case for an integrated quantitative framework

2.10 We see important benefits from a move from the current regimes to an acceptable integrated quantitative framework.

2.11 First, liquidity risk is clearly a risk that needs to be addressed effectively in standards. Despite the lack of serious instances in the UK in the past few years, over recent decades there have been a number of examples of liquidity strains, having a wide variety of causes, and affecting firms both singly and in clusters.

2.12 Perhaps the best known single example of a large firm failure in which loss of liquidity played a key role was the US case of Continental Illinois in 1984. Mounting lending losses, leading to rumours that Continental was close to bankruptcy, set off a flight of wholesale funding. Because of its reliance on the Eurodollar market, Continental was particularly vulnerable to this bank run, which was only stopped when the US authorities stepped in with an assistance package.

2.13 In the UK, research covering the period 1984-96 suggests that liquidity risk problems are one of the more common factors behind bank failures or near-failures.² In most of the cases covered by this research, such problems went together with poor asset quality or other problems: the adequacy of a firm's liquidity can often be tested when poor asset quality or other problems begin to be recognised by its counterparties. Many of these cases also occurred in the period after the failures of British and Commonwealth Merchant Bank and BCCI, which led to a shift in preference towards high-quality names, so that a number of small banks, dependent on wholesale funding, faced liquidity problems.

2.14 Operational or systems problems have also led, in a more direct and often rapid way, to a liquidity stress. In 1985, the Bank of New York faced a huge short-term need for liquidity because of a software error in its systems for tracking securities transactions.

² See the analysis of such factors in '*Deposit Protection and Bank Failures in the United Kingdom*', Bank of England Financial Stability Review, Autumn 1996.

- 2.15 Although our ideas are based on the idea of a firm-specific stress, a quantitative framework applied across the range of firms would also reduce the risks arising from wider stresses. Major disruptions such as followed the 11 September attacks, the downfall of the hedge fund Long-Term Capital Management in 1998, and the 1987 stock market crash can cause liquidity problems for many firms, either directly or as a result of contagion or uncertainty leading to tighter liquidity in the market. And if a particular firm suffers problems, contagion can cause liquidity strains for its peer group, as witnessed by the funding resistance experienced by other UK investment banks following the problems at Barings.
- 2.16 It is clear that, by reducing the probability that the crystallisation of liquidity risk will lead to firm failure or serious loss, effective standards can make an important contribution to meeting our consumer protection and market confidence objectives, in particular. This paper does not raise any issues that directly affect retail consumers. However, consumer groups in particular should note that the purpose of an integrated quantitative framework would be to reduce the probability either that consumers suffer loss or that financial markets are disrupted, because a firm fails due to the crystallisation of liquidity risk. It would do so by putting in place a minimum standard of adequacy of liquidity, limiting the amount of liquidity risk that firms may incur. Adequacy of firms' liquidity underpins the ability of consumers to obtain cash quickly by realising their savings or investments.
- 2.17 Second, an integrated framework can appropriately cover all firms in which liquidity risk is significant in relation to the risks to our objectives, and all parts of their business that contribute significantly to that risk. This would address some important shortcomings in the predecessor regimes.
- 2.18 A number of areas of business giving rise to liquidity risk are not adequately captured (and in some cases are not captured at all) by the predecessor regimes; there is patchy coverage of off balance sheet items, for example. Some significant improvements in coherence of approach also seem possible. The Mismatch regime, for instance, in places concerns itself with contractual cash flows, in others it considers normal behavioural cash flows and also cash flows under some level of stress. In the Sterling Stock regime, there are important issues, which we are considering, concerning the treatment of assets that are both needed as collateral for firms' ordinary-condition payments systems roles and may at present be wholly counted towards meeting their regulatory requirements.
- 2.19 We also view it as important to have a regime that covers significant investment firms, as well as deposit-takers. The boundary between investment firm and deposit-taker has grown less distinct in recent years, as some firms have altered the balance of their business. For an investment firm which, for example, developed a lending portfolio that assumed an increasingly significant place in its business, a separate liquidity risk framework would be a more

effective safeguard against failure than if the risk were to be treated only within its capital adequacy assessment. We expect investment firms that continue mainly to hold liquid assets to be comfortably in excess of the new framework's limits.

- 2.20 We see a maturity 'gap' approach as a superior basis to a stock approach to achieve this (though we think additional requirements are needed for particular kinds of firm). While the Sterling Stock regime has served, and continues to serve, an important function in relation to the largest banks, we think there are a number of areas of possible improvement to that regime. At present, it focuses solely on the immediate, first-week period. It includes no general requirements in relation to the non-sterling parts of firms' business. And its relatively limited set of assets qualifying as part of the stock has some undesirable behavioural (and market-structural) consequences.
- 2.21 Third, there is scope better to reflect our overall regulatory approach. This can be done mainly by working, where feasible, with the grain of firms' own risk management and encouraging improvements to that risk management. We have sought to draw lessons from firms' own approaches – though clearly it is not appropriate to follow all. And the framework includes incentives for improvements in risk management. In particular, if firms meet qualifying conditions relating to their risk management they can use 'advanced adjustments'. These allow them the benefit of less conservative assumptions – based on their internal risk measurement methods – in calculating their positions against the framework's limits. We aim, too, for a framework needing fewer supervisory tailorings to the circumstances of individual firms than a number of the predecessor regimes.

International context

- 2.22 Since this area of standards is one largely at our discretion, we are particularly conscious of the need to take into account their possible impact on the international competitiveness of the UK financial sector. In developing our ideas, we have considered how they compare with the liquidity risk regimes in a number of major developed countries.
- 2.23 For deposit-takers, our approach shares significant features with regimes elsewhere, despite the lack of international harmonisation. Those regimes generally cover all currencies (usually on an aggregate currency basis, but sometimes distinguishing the domestic currency). They incorporate a form of maturity gap analysis (sometimes combined with a liquidity stock ratio element); this usually covers a one-month horizon, with some also assessing the position over the first week. The usual basis of assessment is the incorporated (solo) firm, though sometimes a consolidated test is also applied (occasionally it is an alternative).

- 2.24 For investment firms, our ideas go beyond the majority of existing regimes. But our envisaged scope will include only a limited number of investment firms (for reasons discussed further at the start of Chapter 4). And we are consciously altering the purpose of the requirements for these firms, so that they are as much aimed to reduce the risk of failure or significant loss as to increase the likelihood of an orderly wind-down.
- 2.25 We have seen some recent (or proposed) changes to overseas regimes for deposit-takers moving in similar directions to ours. Changes seen elsewhere include:
- moving away from relying only on a stock of liquid assets;
 - shifting the emphasis from longer-term cash flows (beyond one month) to covering a shorter term, including one week;
 - taking more comprehensive account of off balance sheet items; and
 - including overseas branches of domestically incorporated firms.
- 2.26 Overall then, in our view, in developing our ideas we have considered the differences among regimes seen elsewhere and coherently reflected the conclusions we have drawn – rather than making a radical departure in our approach to liquidity risk.

Guide to the rest of the paper

- 2.27 In the rest of this DP, we set out and seek to justify, in the light of this context, a proposed way forward with the quantitative framework. The DP's structure aims to cater for readers with different angles of interest in our ideas.
- 2.28 Chapter 3 outlines and explains our views so far as the main features of a framework are concerned. Chapter 4 then provides specific ideas for the detail of a framework. Chapter 5 gives two examples of how our gap ratio calculation for different types of firm would work in practice. Chapter 6 flags main potential cost implications, and outlines the next steps that we currently envisage.
- 2.29 Annex 1 lists the questions on which we are seeking reactions. Annex 2 sets out the full detail of our current ideas, including for the stress factors, to seek views on those. Annex 3 provides a form for firms to submit data on their own case to assist development of our final calibration proposals. Annex 4 gives detailed definitions of the components and explanations of how we have derived the stress factors, to help firms to provide input in both Annexes 2 and 3.

3 Main features of a quantitative framework

Purpose of quantitative requirements

- 3.1 The framework of quantitative requirements would establish a minimum standard for adequacy of liquidity. Without a minimum regulatory standard, there is a risk that some firms may choose not to control their exposure to liquidity risk sufficiently. In the case of liquidity risk, problems have a tendency to be contagious, so some of the adverse effects arising from a problem in a particular firm may be external to it. And in deciding how far to control its liquidity risk, a firm may not fully address potential external costs, which are real costs to the wider economy. The potentially wider implications of problems are one main reason why central banks (including the Bank of England), given their roles in relation to financial stability and to the provision of liquidity to the system, have an interest, as well as regulators, in standards in this area.
- 3.2 In relation to the objectives given to us by the Financial Services and Markets Act 2000 (the Act), standards for liquidity risk primarily promote consumer protection and market confidence. Setting an appropriate minimum standard for the adequacy of a firm's liquidity reduces the probability of its suffering significant loss or – in the extreme case – failure as a result of the crystallisation of liquidity risk. So, it reduces the risk of consumer loss and of loss of market confidence.

Means to achieve that purpose

- 3.3 Our proposed objective for the minimum standard is that a firm meeting it should be able to survive a serious liquidity stress. The means we plan to use to achieve this objective is a separate liquidity risk limits framework applied to a firm's current business profile. Under this framework, a firm's profile must at all times be such that, were it subject to a serious stress, it would be in a position to be able to meet its obligations, while adequately maintaining its business franchise.

- 3.4 The objective is related to ability to survive a stress. Consequently, we think it sensible to use a framework based on stressed, rather than normal, behaviour. So, we envisage a limits framework built up by starting from the pattern of flows due contractually in a firm's current business profile, and applying 'stress factors' (or discounts) to the different components making up that profile. These stress factors are designed to reflect, on a prudent basis, the pattern of flows in a temporary serious stress. We have derived our current proposals for them in most cases in a two-stage process: we have considered first how the normal behavioural pattern of flows might vary from the contractual, and then how their stress behaviour might vary from that in normal conditions.

Main requirements

- 3.5 The framework's main requirements on a firm would be that, at the close of every business day, its one-week gap ratio must be greater than or equal to its one-week gap ratio limit, and likewise for its one-month gap ratio. A firm's gap in either period is the difference, for that period, between its stressed outflows and inflows derived using the relevant stress factors. Its gap ratio is that gap expressed as a percentage of its non-capital liabilities. Chapter 5 gives simplified examples of how the gap ratios would be calculated.
- 3.6 Annex 2 lists the separate components into which we currently propose to break down a firm's business profile. For each component, it gives the Standard stress factors that would be used for the one-week and one-month periods, to derive the component's contribution to stressed inflows or outflows in calculating the gap ratio in that period. Annex 4 explains what the input values are for different types of component, and also how we have derived the stress factors. There is a commentary on some of the more important components in the 'Specific areas in the framework' section of the next chapter.

Currencies

- 3.7 The main requirements would apply on an all-currency basis, but an additional level of currency discounting would operate if significant positive or negative gap positions in one currency were counterbalancing positions in other currencies. The Systems and Controls chapter also requires firms with significant exposures in individual currencies to set limits on the amount of liquidity risk they incur in those currencies.

Standard Approach and advanced adjustments

- 3.8 We propose to allow the liquidity risk in the different components of a firm's business to be measured using one of two main bases. The default treatment would be given by the *Standard Approach*, which would *prescribe* the stress factors for the different components. Our ideas for the Standard factors have been derived taking into account the range of deposit-takers and investment firms expected to be subject to them. But in arriving at those factors we have avoided simply taking, for each of the components, a worst-firm estimate of the effect of a serious stress.
- 3.9 The Standard stress factors would not be appropriate for all firms, however, and firms would be able to qualify for *advanced adjustments* to them for particular components. If it qualified in relation to a particular component, the intention is that, instead of using the Standard factor, a firm would be able to use its own internal method of risk measurement as the basis for deriving the appropriate cash flows. Advanced adjustments would be a way of recognising good liquidity risk management – and providing firms with incentives for improving it – by permitting firms that have it to operate in a regulatory structure with lower levels of requirement. They would also be an important means of providing flexibility in the quantitative framework, by enabling firms to use their own risk measurement methods in the calculation of their position.

A static framework

- 3.10 Since our objective is to assure a firm's survival beyond a period of stress, the assessment framework should include some explicit reflection, in relation to a number of the components of business, of a firm's need adequately to maintain its business franchise despite suffering the stress – i.e. to continue to take on new customer business.
- 3.11 Despite the continuation of business element, however, we envisage fundamentally a static approach for the framework. A firm's ratios would be measured in relation to its current business profile; the framework would not attempt to make general allowance for what might happen to that profile over the one-week and one-month periods. For example, it would not make allowance for the likelihood that if there were a threat of a liquidity problem, a firm would act to alter maturities, alter the composition of funding, etc. Our view is that this static approach allows an acceptable framework, while any attempt to take a more dynamic view seems, at this stage at least, likely to be too speculative to produce a robust framework.

‘At firms’ discretion’ versus ‘prescriptive’

- 3.12 What we envisage, therefore, is neither wholly prescriptive nor allows firms complete discretion in how their liquidity risk is measured. We have considered, but rejected, merely requiring firms to do stress testing at a certain level of stress and then to hold what they judge as adequate forms of liquidity to meet the results. At this stage, we do not think there is a way of defining a quantitative regime based solely on firms’ own stress-testing, which would ensure enough commonality of standard and measurement, and so comparability between firms.
- 3.13 We think it right that the Standard Approach should prescribe treatments for the regulatory standard, to provide basic commonality of measurement. For the avoidance of doubt, however, we are not saying that firms in their internal risk management would need to identify and measure liquidity risk in the same way as the Standard Approach. Indeed, we would expect most firms to have risk management methods that are more closely tailored to the nature, scale and complexity of their business than it is possible for a single regulatory framework to be.
- 3.14 But we also think it important to make available to firms, via advanced adjustments, the possibility of basing measurement of the risk on their own internal approaches, provided adequate safeguards are in place. We need to continue work on exactly how much discretion can, and should, be given to firms by that route; the issue is discussed further in the following chapter.

Absence of an Internal Model Approach

- 3.15 In CP128, we said we would look at the case for further differentiation – by having an Internal Model Approach, as well as the Standard Approach and advanced adjustments. By an Internal Model here, we had in mind a developed and detailed methodology for measuring and controlling liquidity risk, supported by the appropriate data and other systems, applied consistently across much or all of a firm’s business. (Firms do, of course, use specific liquidity risk models for particular of their activities, which we think are best accommodated using advanced adjustments; here we were considering the use of a single specified method applied more comprehensively.) Our research since CP128 in this area has led us to conclude that the current state of development of such models does not justify initially offering a separate Internal Model Approach, in addition to the advanced adjustments. However, we are not ruling out such a possibility in the future. And within the initial structure of requirements, if a firm were to make the case that it had an internal liquidity risk model that deserved recognition, we would for example be willing to consider an application for a waiver.

Principles underlying the calibration of the stress factors

- 3.16 We have set our current ideas for the stress factors to achieve an overall calibration for the framework with two broad principles in mind. First, as a guiding idea of the underlying serious stress, we have used the idea of a firm (or group) specific stress, lasting roughly two weeks. To provide an indication of the seriousness, we have been aiming at an initial severity of impact broadly equivalent to that resulting from a two-notch credit rating downgrade (though clearly the impact of a downgrade would be different for different firms, and that is only a direct indicator for firms that have a credit-rating).
- 3.17 Second, and very broadly speaking, we have developed our ideas from a starting-point of not intending, for the average firm, to either significantly tighten or loosen requirements compared with the predecessor regime (to the extent that like-for-like comparison is possible). While, however, this is the aim for the average firm, clearly there will be differences of assessment within the range of firms.

Flexibility of the framework

- 3.18 A major challenge with an integrated framework is to produce a design that does not unacceptably shoe-horn the variety of firms into a one-size-fits-all approach. We believe that we can build in sufficient differentiation among firms, depending on their circumstances – including options for firms to simplify the framework – to meet this challenge.
- 3.19 In our current ideas, we differentiate a relatively large number of components to which different stress factors are attached. This maximises the ability of the general framework to cope with the variety of firms subject to it. Also within the Standard Approach, where feasible we seek to frame treatments to allow differences in firms' circumstances to be reflected. So, to give one important example, the availability of the more favourable 'repo treatment' of marketable assets (see paragraphs 4.51 and following below) would be limited to the amount for which firms judge they would reliably find counterparties in a serious stress. The effect of this is that firms regularly transacting repo business would gain more extensive benefit from the 'repo treatment' than firms less regularly involved.
- 3.20 As explained above, we would reflect the higher quality of the risk management of some firms in the use of advanced adjustments. And there is also scope to differentiate at the other end of the risk management spectrum, as one use of the requirement on firms to carry out an Individual Liquidity Adequacy Review (ILAR). The ILAR requirement responds to the possibility that a serious stress for a particular firm would actually have a more severe effect than that represented by the Standard stress factors.

3.21 And we currently plan to differentiate – by imposing an additional ‘core marketable assets requirement’ on – those firms that play a core role in the provision of liquidity in the financial system more generally (see Chapter 4).

3.22 With this amount of differentiation, we would not regard the framework as imposing a one-size-fits-all approach. But we would ask any firm that is concerned that it would not provide an acceptable framework for its case to explain its concern, given this flexibility.

Q1: What reactions do you have to our views on the appropriate main features of a quantitative framework?

4 Current ideas on the detail of the framework

- 4.1 The previous chapter set out and explained our conclusions concerning the main features of a quantitative framework. This chapter outlines our current ideas for the details of that framework, to stimulate a wider debate on that detail. Chapter 5 then provides examples of how the assessment against its gap ratio limits would be calculated. There is further detail on definitions of the categories used in Annex 4.

Scope of application

- 4.2 In developing our ideas to this stage, we have borne in mind the seven matters to which section 2(3) of the Act requires us to have regard. One of these, the principle of proportionality, means that we need to consider the comparison between the benefits gained from firms meeting the proposed standards and the various types of cost that they would entail. The significance of the risk of liquidity problems crystallising in a firm varies with the nature of that firm's business. So we do not believe that the benefits of applying the quantitative requirements would always justify the cost.
- 4.3 In finalising the Integrated PSB's systems and controls provisions, we have decided that their scope should be all firms in PRU Categories 1 and 2, and all firms in PRU Category 3 other than operators of collective investment schemes; all firms in those categories receive or hold customer or client money in the course of their business.³ For some firms of those types, we feel that the quantitative minimum standards would not add sufficiently to the benefit provided by firms complying with the systems and controls provisions.
- 4.4 We currently propose that the main scope of the quantitative framework should be all firms in PRU Category 1 (deposit-takers) and certain firms in PRU Category 3.

³ Firms in PRU Categories 4A and 4B also receive or hold money in the course of their business, but we are not applying the systems and controls provisions to them, or to operators of collective investment schemes in PRU Category 3, because the burden of application would not be justified by the benefits.

- 4.5 PRU Category 3 includes all firms, not in PRU Categories 1 or 2, that deal as principal (other than incidentally and within low limits). We propose to restrict the scope of the quantitative framework, within this Category, to exclude smaller firms that take principal positions unless those positions are ‘significant’ as a proportion of their capital. For PRU Category 3 firms, the basic source of liquidity risk is that assets may be realised too late or for too low a value. We take the view that generally when this risk is covered by the holders of the firm’s capital, it does not pose a significant enough risk of customer loss to justify application of the framework.
- 4.6 We propose the threshold of ‘significance’ for such a firm be that its principal positions are greater than 150% of its Tier 1 capital (before deductions). We need to consider how best to specify the 150% threshold in detail to meet our objectives, including making it easy for firms to know whether they are within scope and making it workable in practice.
- 4.7 We would propose initially to exclude all PRU Category 2 firms (insurers), rather than setting a ‘significance of risk’ threshold for them similar to that for Category 3 firms. Our view is that, in the present structure of markets for insurance in the UK, for the periods covered by the framework, no insurer’s liquidity risk is sufficiently significant to justify imposing the quantitative framework in addition to the systems and controls provisions. But that is a view predicated on the present structure of markets. There are a number of changes affecting those markets, either currently being implemented or planned. So the situation may change in coming years, either for the sector as a whole or for specific parts; we will keep the position under review.
- 4.8 The proposed scope means that the framework would not apply to firms in PRU Categories 4 or 5 (investment firms not qualifying as PRU Category 3 principal position taking firms), mortgage or general insurance intermediaries, or firms subject to specialist Sourcebooks, such as credit unions.
- 4.9 It would, however, be applied to all incoming deposit-taking branches, of either EEA firms or firms incorporated abroad elsewhere. This reflects our responsibilities for liquidity risk as host state (particularly under the Banking Consolidation Directive). Where there is no lead-supervisor arrangement between us and a home state regulator outside the EEA, the standards would apply to the whole firm rather than to the UK branch. We envisage having arrangements (‘liquidity requirements exemptions’) enabling incoming deposit-taker branches to be exempted from the substantive requirements of the module. We would expect these to have a broadly similar impact to ‘global liquidity concessions’ in the current Mismatch regime. A number of qualifying conditions would have to be met:

- to give assurance that the exemption did not significantly either lessen the regulatory protection given to customers, or increase the risk of a failure affecting the branch;
- in relation to the integration of the branch within the firm's overall liquidity risk management, and to the provision of liquidity to the branch by the head office;
- by that head office, in the form of a commitment to provide liquidity to the branch if needed; and
- in relation to the home country regulator's contentment with the exemption.

Periods and levels of limit

- 4.10 We propose that the one-week period should cover eight calendar days. The underlying rationale for this is that in a serious stress, until the one-week limit is breached, a firm should normally be sufficiently liquid to survive that working day (assumed to be the day following the date for which the calculation is done) and the following five working days (assuming no intervening holidays). So if, before breaching, a firm is assessed adequately liquid for a Thursday calculation date, it should be able to survive through the following Friday.
- 4.11 The first week is clearly important. But we also think it appropriate to apply a gap ratio limit for the one-month period, because it is also important to look further ahead, as many firms do internally, and as other regulators often require (so as to allow more scope to respond to a problem). In its UK Financial System Stability Assessment, the IMF commented on the case for looking at maturity positions beyond the most immediate period.
- 4.12 Our proposed default limits for the gap ratios in both the one-week and one-month periods are 0%. This is because we aim to reflect the differences between the overall levels of stress over the two periods in differences in the stress factors, rather than in the default limits.
- 4.13 We do not see a difficulty of principle with setting limits in relation to one-week and one-month periods while conceptually having a stress of roughly two weeks underlying the derivation of the stress factors. We have chosen a two-week stress based on past observations and anecdotal evidence; we are proposing one week and one-month limits for the reasons set out above. To derive our current proposed stress factors for the one-week period, we have used our estimates of stress behaviour of the components. For the one-month period, we have assumed, broadly, that half the period is subject to stress-behavioural and the other half normal-behavioural conditions.
- 4.14 A firm would be required to meet its gap ratio limits, not necessarily to calculate its position, at the end of each business day. By establishing a

liquidity 'buffer' above the limits and controlling the ways in which its business profile changes, a firm may be able to satisfy itself that it remains above the limits without detailed daily calculation. In calibrating the proposed framework, we aim to take into account that firms will probably wish to maintain a significant buffer above the limits imposed by a rule, more so where changes in their business might rapidly have a significant effect on their gap ratios.

Basis of assessment; groups

- 4.15 The usual basis of assessment of the main requirements would be the (solo) firm. Where, however, a firm was part of a group of entities subject to group liquidity risk management, and we could be confident about the soundness of the arrangements, a firm could opt to be assessed for adequacy of liquidity primarily on a group basis (as an Integrated Liquidity Group (ILG)). In that case, the main requirements it would face would be to ensure that the ILG gap ratios were maintained within ILG limits, calculated on an equivalent basis to the solo requirements. Secondly (and reflecting the focus of our responsibilities), the firm within the ILG would also have to stay within gap ratio limits; however, the firm's limits would not be prescribed but a matter for confirmation between the firm and its supervisor.
- 4.16 We envisage that the conditions for a group of undertakings to qualify as an ILG (see Annex 4 for further detail) would include that:
- all the undertakings are members of a group which is subject to our assessment of group risk⁴;
 - the group is managed and controlled as a single group, and with the integrated liquidity risk management being carried out from within the group subject to our assessment of group risk;
 - each entity has an explicit policy to provide liquidity support to the others, subject to not endangering its own position;
 - there are no significant legal or regulatory constraints on the ability of the group to manage its liquidity risk centrally;
 - the group has stress testing and contingency funding planning for the eventuality of a breakdown of funding received by the UK entities from the overseas entities; and
 - every entity that is not subject to regulatory or legal constraints, that has material liquidity risk and is subject to our assessment of group risk is included in the group. (For the same reasons as explained above in relation to the scope of the requirements, insurance entities will be excluded.)

⁴ See the discussion of group risk in CP204 on Financial Groups.

- 4.17 A group would, alternatively, be able to secure assessment primarily on a group basis as an Integrated Liquidity Sub-Group (ILSG). An ILSG is the UK sub-group of a wider group, which does have integrated liquidity risk management, but where that centralised liquidity risk management is partly or wholly carried out outside the group subject to our assessment of group risk. In this case, the second qualifying condition above would be varied appropriately, and a further condition added that the regulator responsible for the global assessment of the group's liquidity risk management should be content with the arrangement.
- 4.18 A firm that meets the conditions for being assessed on an ILSG rather than an ILG basis cannot be assessed on the basis of the whole group that is subject to integrated liquidity risk management. This is because we do not have oversight of the whole group. But with the addition of the condition related to the regulator of the global group, we would be able to rely on the minimum standard applied to that part of the integrated liquidity group which does fall within our oversight. Although we recognise that being assessed at sub-group level may not always fit well with a group's integrated measurement of liquidity risk, we are envisaging the option since it may suit some firms better than solo assessment.

Framework for advanced adjustments

- 4.19 We are currently envisaging that a firm should meet three main kinds of condition to qualify for advanced adjustments. First, it should have highly effective systems for identifying, measuring, monitoring and controlling its liquidity risk. Second, in relation to a component for which it wishes to use an adjustment, it should have an advanced risk measurement process incorporated into its overall measurement system, and used in its day-to-day liquidity risk management. Where appropriate, this system will need to meet certain minimum standards in relation to the data used, the method of calculation, etc. Third, advanced adjustments for particular components will have certain specific conditions attaching to them, usually including limits on the extent of reductions resulting from firms' own estimates of stress factors ('floors').
- 4.20 On the first of these, we think it important that a firm has high general standards for managing its liquidity risk before it qualifies for an advanced adjustment relating to any business component, since that allows the firm to determine the level of possibly a significant element in the framework. At this stage, we expect that a relatively small number of firms will use advanced adjustments.
- 4.21 We have not yet taken a final view on the process for firms' qualification for advanced adjustments – whether it would be via waiver, or some form of notification or self-certification. We anticipate that we would adopt an approach here that is consistent with that for advanced capital adequacy treatments.

- 4.22 Our ideas so far envisage three main areas for advanced adjustments:
- less conservative stress factors for certain components;
 - inclusion, within particular treatments, of classes of flow not so included under the Standard Approach (e.g. to widen the range of assets a firm may treat as marketable); and
 - to allow firms to sub-divide a Standard component, and then use a less conservative treatment for a particular subset of it.
- 4.23 Where a firm is calculating its own stress factor for a particular component, usually it would derive its estimate taking into account first the normal behaviour of flows and then the impact of a serious temporary liquidity stress, using its risk measurement method. The process of derivation may be slightly different in relation to certain components; one example is intra-group flows, discussed in paragraph 4.50 below.
- 4.24 We propose to include floors (or, where appropriate, ceilings) on the extent to which any firm may, by advanced adjustment, make use of a less conservative stress factor than that in the Standard Approach – viewing them as an important safeguard in the new framework. Annex 2 gives details of our current proposals here. We would review the floors’ operation after an initial implementation period.
- 4.25 From our informal consultation to date, we are aware of some firms’ concerns that these ideas do not allow sufficient flexibility to harness firms’ own approaches towards measuring liquidity risk in the framework. In particular, basing advanced adjustments wholly on the components in the Standard Approach would not allow sufficient scope to incorporate cash flows derived from these own approaches.
- 4.26 We will continue to consider whether the advanced adjustments framework should be developed to allow more flexibility here. Going down that route might mean that a firm could use measures reflecting its risk management across various product types having a common liquidity risk profile, or conducted with a particular customer group. So, for instance, an own approach calculation might cover all types of derivative (and any collateral received or paid) executed with a certain type of customer, rather than distinguishing between types of derivative. In many cases, firms’ own approaches include both statistical analysis of the past behaviour of cash flows, and behavioural predictions based on their experience of the business.
- 4.27 We would need to devise qualitative and quantitative criteria that could both accommodate such approaches and provide us with the necessary assurance that a firm meeting them was able prudently to quantify the liquidity risk. The quantitative criteria would need to include some generalisation of the concept of the floors in our current thinking, which limit the extent of reductions in the stress factors resulting from advanced adjustments. We would welcome views and input from firms in this area at this stage.

Simplifications of the framework

- 4.28 The framework would include a number of options for firms to simplify their gap ratio calculation. They would be able to exclude components from their calculation in either period on materiality grounds. If a firm had reason to believe that one or more components giving rise to outflows in aggregate had an impact of less than 1% on its gap ratio in one of the periods, it would be able to exclude those components from the calculation for that period – and likewise for immaterial inflows. And a ‘combination option’ would allow firms to choose not to break their business down into the full list of components, so long as they applied the most prudent of the stress factors at the more aggregated level. So firms having no difficulty in meeting the minimum standard represented by the limits would be free to simplify their monitoring and calculation.

Individual Liquidity Adequacy Review

- 4.29 We expect the general framework to be sufficiently prudent to assure that the great majority of firms should, in most circumstances, survive a serious stress. Occasionally, however, there may be reasons why it would not be sufficient for a particular firm (or ILG or ILSG). We therefore envisage there would be a requirement for all firms to carry out an Individual Liquidity Adequacy Review (ILAR) annually. The ILAR would consist of an assessment of whether, overall, the Standard stress factors that a firm used were sufficiently prudent estimates of the possible effect of a serious liquidity stress, and whether any advanced adjustments it used were still appropriate.⁵
- 4.30 Some particular circumstances make it more likely that the general framework might not be sufficient, for example:
- weaknesses in a firm’s liquidity risk systems and controls;
 - circumstances which mean that it would be particularly vulnerable to a serious stress (for example where a credit rating downgrade would take it from investment to sub-investment grade);
 - the presence of particular correlations or concentrations of business affecting its liquidity position; or
 - its particular role as provider of liquidity to other parts of its group.
- (In the case of an ILG (or ILSG), there might be sensitivity in its potential support for parts of the group outside the ILG.)
- 4.31 The ILAR would involve a firm in a judgement about the overall adequacy of the framework as it applies to it. If one stress factor in the Standard Approach

⁵ We will be exploring ways in which we can co-ordinate this with the parallel assessment which will take place under the Pillar Two proposals of the Basel Committee’s revised Capital Accord.

which was relatively imprudent in its case were compensated by the level of factors elsewhere, the firm would be entitled to judge that overall the general quantitative framework was appropriate for its case. If, however, it judged that the framework were not sufficiently prudent, it would be required to decide and adopt the most appropriate tightening of the framework. This would usually be either the use of a more conservative stress factor for one or more components, or the use of overall limits that were higher than the normal ones.

- 4.32 A firm's ILAR would be subject to supervisory review, and we would on occasion provide guidance to a firm about the liquidity that would be adequate in its individual circumstances.

Additional requirements for particular kinds of firm

- 4.33 In the UK, as in other markets, there are certain firms that play a role as primary sources or providers of liquidity to the financial system more generally, and which as a result would be likely to find it difficult to find sufficient private sources of liquidity in the event of a serious firm-specific stress. The Bank of England's roles as potential provider of liquidity in such circumstances and overseer of payments systems give it an obvious interest in this area. We have concluded, in collaboration with the Bank, that there is a need for such *core firms* to hold an adequate stock of high-quality assets. So we propose to include a *core marketable assets requirement* for such firms, which will require them to hold sufficient of those assets within their overall liquidity resources. By 'core firm' here, we mean a member of the Clearing House Automated Payment System (CHAPS) sterling payments system.
- 4.34 There is a range of possible ways in which this further requirement could be embedded within the framework. One possibility, for example, would be to specify it as a minimum percentage of the firm's total stressed outflows. We will continue to work up the detail of our proposals for this requirement, and to discuss it with firms directly affected over coming months.
- 4.35 Whatever the eventual detail decided on, after the initial implementation period, we would plan – again in co-operation with the Bank – to review the operation of the core marketable assets requirement.
- 4.36 As a related step, we are also considering a change related to firms' participation in major payments and settlements systems. Firms that are members of real-time payment systems need to hold assets as collateral to raise intra-day liquidity from central banks to support payments, including payments on behalf of indirect members. And some end-of-day payments systems impose obligations on members to lodge collateral in the system.
- 4.37 Under the present Sterling Stock regime, a firm may both use a pool of high-quality assets as collateral for such payment systems operations, and count the

whole pool among the stock of its assets to meet its regulatory liquidity requirements. We are actively considering whether the regulatory framework should recognise an amount of those assets as needed daily by a firm to meet its ordinary-condition payments systems needs. This would be judged an amount that the firm would be unable to realise to mitigate the impact of a liquidity stress, if it was to continue its existing business franchise. So the amount would not be available to be treated as marketable assets in the calculation of the firm's gap ratio.

- 4.38 Such a step, as part of a more refined approach to measuring firms' liquidity risk, would clearly be a significant change to the current position. Consideration here needs to take account of the combined effect of any change and the core marketable asset requirement just discussed. It is not our view nor that of the Bank that the current system-wide level of holding of high-quality liquidity in this area is inadequate, so our overall objective would be broadly to maintain the amount of such liquidity held by core firms. Another key issue in this consideration is how to determine the amount of assets judged as needed for ordinary-condition operational purposes.
- 4.39 Once again in this area, we will continue over coming months to consider the case for – and form of – any change. In doing so, we will need to take account of possible changes in incentives and their effect on the behaviour of payments systems participants. We will continue to discuss this area with the firms most significantly affected, their representatives and other interested parties, including the Bank.

Regulatory reporting

- 4.40 We continue to consider our whole approach to regulatory reporting, and the reporting requirements in relation to the quantitative framework will follow those broader conclusions. It is not expected, however, that all firms within the scope will be required to report the full details of their gap ratio calculation. It is more likely that the baseline reporting obligation would be what was necessary to show compliance with the main requirements. Higher impact firms, particularly where liquidity risk was a significant issue, would, however, be required to provide more data.

Specific areas in the framework

- 4.41 This section explains a few particular points in relation to our current ideas for the framework, and gives two illustrative examples. Component numbers cross-refer to the tables in Annex 2 (there is further detail on the definition of components in Annex 4).

- 4.42 As an illustration of our current thinking behind the stress factors, in the Standard Approach's treatment of exposures to and from unconnected financial firms, we have reflected the fact that other *financial firms' exposures to the firm* (component 1) will be among those most sensitive to a firm-specific stress. So, we have applied a relatively high outflow factor. We have also reflected the view that it would be relatively easy for a firm to reduce the amount of funds that it places with other financial firms in the event of a stress, by assuming low continuation of business factors here (components 59-61).
- 4.43 The treatment of *repos and reverse repos*, and other similar forms of secured funding, is an important area. We propose to have two possible treatments in the Standard Approach.
- 4.44 One would consider the cash flows from each repo and reverse repo individually. At its maturity date a repo, for instance, will contribute a cash outflow and a cash-equivalent inflow, equal to the value of the asset returning to the firm after applying the relevant discount from the marketable asset treatment (see components 18-19 and 88-89).
- 4.45 The other treatment would be available to firms for any business of the sort that they undertake as part of trading a portfolio of assets. Under it, the size of holding of each class of marketable assets would be determined by considering all short and long positions, and repos and reverse repos, of those assets on a portfolio basis, and netting them off to derive a single amount equivalent to a long position in that class of asset. In the process of netting, any repos not netted against shorter-dated reverse repos would give rise to a negative liquidity risk impact, from the effect of the firm paying away cash and receiving a less liquid asset at the maturity of the repo (reflected in components 17 and 87).
- 4.46 We propose to have a more comprehensive treatment of the flows arising from *derivatives* than some of the predecessor regimes (components 29-32 and 109). For the most part, this would reflect more fully the contractual cash flows, using mark-to-market values and stress situation assumptions about the exercise dates of options. For derivatives that are subject to margin or collateral requirements, we also propose to include outflows to reflect the risk that calls on the firm for additional margin or collateral are in excess of calls by the firm. Our treatment aims to capture two possible sources of this risk:
- the net effect of adverse movements in the prices of the underlying instruments; and
 - the effect of clauses in some of the firm's derivative contracts which may trigger calls for additional margin or collateral in the event of a ratings downgrade or other problem affecting the firm.

- 4.47 We envisage that the Standard Approach's treatment of *commitments granted by a firm to unconnected parties* would be built on the assumption that, generally, the level of draw-down of commitments granted would be little affected by the firm's suffering a liquidity stress. The calibration would therefore mainly be a reflection of assumptions about normal behaviour (components 33-45).
- 4.48 The treatment proposed for commitments received by a firm (components 99-107 – see Example A below) is shaped by a few points. First, in a stress, whether a firm draws on a commitment will depend on its ability to draw on it (which depends on the form of the commitment, including any conditions in it), and its willingness to draw on it. This would be reduced if it had fears that drawing would provide a market signal that it was in difficulties. A firm would be able to include a commitment as a source of funding only if, as a genuine business commitment, it judges that it would be willing and able to draw on it in the event of a serious stress. The percentage allowance given to such facilities would be increased as the number of commitments in place increased, as a reflection of the prudence of diversification in this area. We would assume that in a stress, if a firm drew on such a commitment, it would do so to the full extent available in the first period. So, the proposed one-month stress factor is the same as the one-week stress factor.

Example A: POTENTIAL INFLOWS FROM COMMITMENTS HELD (Standard Approach)

Type and number of commitments held	1 week stress factor (%)	1 month stress factor (%)
Committed facilities		
1-5	50	50
6-10	80	80
11+	90	90
Covenanted funding		
1-5	20	20
6-10	30	30
11+	40	40
Standby facilities		
1-5	30	30
6-10	40	40
11+	50	50

- 4.49 We envisage that the Standard Approach would make a small allowance, subject to a number of conditions, for the amounts of funding not within committed facilities that a firm may be able to draw on from other financial firms (component 108). There would be a corresponding assumption about

uncommitted amounts that the firm will be called on to provide to its market counterparties (component 35). An issue to be resolved here is how to devise a robust measure for the total of a firm's uncommitted lines granted and received, to which this treatment can apply.

- 4.50 In the Standard Approach, we think no allowance should be given for intra-group lines received (or given) unless they are committed facilities (components 111 and 112). However, a firm may be able to demonstrate that it has a reliable, prudent method for estimating the size of such lines it has available. It could base this on its history of draw-downs, and as long as it meets the other conditions, it may qualify for an advanced adjustment allowing it to include as an inflow some of this as intra-group funding.
- 4.51 Marketable assets – those assets that are readily realisable – would be included in the gap ratio calculation as generating an inflow in the very short term (usually in the first period), rather than at their contractual maturity. The Standard Approach would include lists of the assets that may be included as marketable. It would then provide two possible treatments of them – a ‘sale’ and a ‘repo’ treatment’. (Example B below summarises our ideas on the discounts for the Standard Approach; see also components 113-149 in Annex 2.)
- 4.52 The sale treatment would be the default treatment. All assets qualifying as marketable could be included using the sale treatment. Additional conditions would apply to the use of the repo treatment:
- the standard range of assets for which the treatment would apply would be narrower;
 - the firm would have to be an active participant in the relevant repo market; and
 - the treatment could only be applied to that portion of its holding that a firm could reasonably expect, in a stress, to be able to repo in the first period, either in the market or with a central bank.

The discounts applied under the repo treatment to the value of assets to calculate the inflow they would generate would be lower than those in the sale treatment.

- 4.53 This repo treatment is one area where we propose to limit the availability of a treatment to reflect a view on the extent to which assets could be used. We are similarly considering whether there should be limitations on the extent to which holdings of certificates of deposit (CDs) (and perhaps other instruments) should be counted as marketable assets for core (or other) firms, when there is doubt about the ability to generate cash rapidly in a stress.

Example B: Marketable asset discounts (Standard Approach)

Asset (by type and residual maturity)	Sale treatment			Repo treatment
	Daily MTM	Weekly MTM	Monthly MTM	Daily MTM (only)
Sovereign debt				
AAA/AA rated				
< 1 year or floating rate	2%	2.5%	3%	1%
1 – 5 years	5%	6%	7%	3%
> 5 years	12%	13%	16%	7%
A/BBB rated				
< 1 year or floating rate	2.5%	3%	4%	1.5%
1 – 5 years	9%	10%	12%	5%
> 5 years	17%	19%	25%	11%
BB rated				
< 1 year or floating rate	40%	45%	55%	N/A
1 – 5 years	40%	45%	55%	N/A
> 5 years	40%	45%	55%	N/A
Corporate debt				
AAA/AA rated				
< 1 year or floating rate	3.5%	4%	5%	2%
1 – 5 years	12%	13%	16%	7%
> 5 years	25%	27%	30%	14%
A/BBB rated				
< 1 year or floating rate	5%	6%	7%	N/A
1 – 5 years	17%	19%	25%	N/A
> 5 years	35%	40%	45%	N/A
Other				
Main index equities	30%	35%	45%	25%
Other equities listed on a recognised investment exchange	50%	55%	65%	N/A
Gold	30%	35%	45%	N/A

4.54 By assessing gap ratios across all currencies, the framework would allow for positive gaps in one currency to offset negative gaps in another. But where such offsetting occurs to a significant extent, an additional level of discounting would be applied, to reflect the possible impact of adverse currency movement before any conversion. So where a currency forms

a significant element in a firm's liquidity risk profile – where it contributes 10% or more to either the firm's total stressed inflows or its total stressed outflows in one of the periods – allowance of the positive net gap in that currency to meet negative gaps in other currencies (or vice versa) would be made after currency discounting. The Standard Approach would prescribe the discounts, using four broad groupings of currencies, from 'majors' to 'non-convertibles' (listed in Tables W and X of Annex 2).

- Q2: What are your views about our current ideas of the detailed elements to realise such a framework, their definition, or the derivation of input values – as set out in the DP and its Annexes?
- Q3: Using Annexes 2 and 3, can your firm now provide input on our current proposed stress factors and data, to assist the finalisation of our proposals for a calibrated framework?

5 Examples of the gap ratio calculation

- 5.1 This chapter gives two examples of how, under the detail as currently envisaged, gap ratios would be calculated – one for a deposit-taker and one for a principal position taking investment firm. Both examples are stylised and do not represent the position of any particular firm, and both show only the one-week gap ratio. They are in some respects summary; for example only the overall position with respect to marketable assets is shown. To see the full details of the framework, including definitions of the components used and details of stress factors applied, please see Annexes 2-4.

Example of a deposit-taker

- 5.2 The tables below summarise the calculation for a deposit-taking firm, with a balance sheet of approximately £5.5 billion, including capital of £0.5 billion.
- 5.3 The first part, ‘outflows’, lists the firm’s business components that give rise to outflows in the one-week period. Some, such as ‘wholesale funding’, are on-balance sheet items. Others, such as ‘commitments given’ or ‘contingent liabilities’, represent off-balance sheet items. In each case, a stress factor is applied to an input value, based on the contractual position of the component, with that factor approximating (on a prudent basis) the percentage outflow to which the component may give rise in a serious stress. For example, while the firm may have commitments to lend, only a portion of the total is taken to be drawn in the period. The ‘continuation of business’ lines reflect the fact that the firm is a going concern. Despite the assumed stress, it will continue to write new customer business, for example corporate lending, to maintain its business franchise.
- 5.4 The ‘inflows’ figures have three main components:
- holdings of cash and marketable assets, which are available to meet the firm’s liquidity requirements;
 - maturing on-balance sheet obligations, such as corporate lending; and
 - potential inflows from off-balance sheet commitments held, including bank lines.

Component	Input value (£mns)	One week stress factor	Stress adjusted flow (£mns)
OUTFLOWS – in relation to:			
On balance sheet items			
Wholesale funding received: (committed)	1,000	10%	100
Wholesale funding received (not committed)	300	90%	270
Retail deposits	2,000	5%	100
Cash outflows from maturing funding secured on marketable assets	95	100%	95
Cash equivalent outflows from funding provided secured on marketable assets	100	98%	98
Cash outflows from maturing connected funding	20	70%	14
Off balance sheet items			
Interest rate swaps and FRAs	10	100%	10
Commitments given	500	10%	50
Contingent liabilities	300	1%	3
Continuation of business items			
Continuation of business: corporate lending	10	40%	4
Continuation of business: debt buy backs	100	40%	40
Total stress adjusted outflows			784
INFLOWS – in relation to:			
On balance sheet items			
Marketable assets and cash	200	98%	196
Wholesale and retail inflows	400	100%	400
Cash inflows from secured funding provided	98	100%	98
Cash equivalent inflows from funding obtained on marketable assets	100	95%	95
Cash inflows from connected lending	50	20%	10
Off balance sheet items			
Potential inflows from commitments held	100	90%	90
Other off balance sheet inflows	100	100%	100
Total stress adjusted inflows			989
GAP RATIO CALCULATION			
Total stress adjusted outflows			(784)
Total stress adjusted inflows			989
Currency discount			(5)
Liquidity gap (+surplus/-deficit)			+200
Non capital liabilities (ncls)			5,000
Gap ratio (Gap as % of ncls)			4%

- 5.5 To calculate the one-week gap ratio, first the sum of stressed outflows is added to the sum of stressed inflows over one week. An additional charge is then made for significant liquidity mismatches in particular currencies. This gives the firm's one-week gap. That amount expressed as a percentage of non-capital liabilities is the firm's one-week gap ratio. To calculate the one-month ratio, the cumulative input values for the one-month period would be used, and the one-month stress factors (shown in Annex 2) applied. The normal gap ratio limits for firms would be 0% for both periods.
- 5.6 In this example, the firm is assumed to have stressed US dollar outflows of £166 million equivalent, with the remainder of its business in sterling. Since this US dollar amount is above our threshold of 10% of total outflows, and is covered by sterling inflows, the one-week currency discount for dollar against sterling of 3% applies (see Annex 2). On £166 million, this produces a currency discount of £5 million.
- 5.7 The figures for secured funding activity relate to the firm's repo business, covering both repo and reverse repo transactions. For example, the firm is assumed to have repoed securities with a mark-to-market value of 100, to which the framework applies a 5% discount; the firm has obtained 95 of cash. Assuming the repo matures in the first-week period, it will generate outflows of 95, reflecting the full extent of the cash outflow. On the other side, it will generate an inflow of 95, reflecting the input value of 100 of the security which will return to the firm, stressed using its 95% discount factor. (We assume that this firm has opted for the transaction-by-transaction approach to repo activity, rather than the trading portfolio treatment which would also be available in the Standard Approach.)
- 5.8 The £2 billion of retail deposits recorded represents current accounts. (As the more detailed breakdown of the stress factors at Annex 2 shows, the framework differentiates between current and deposit accounts, with lower standard stress factors for the latter.) If the firm meets the qualifying conditions, and can demonstrate that 8% is too conservative an assumed factor for the behaviour of its current accounts in a stress situation, it can qualify for an advanced adjustment. In this example, the firm has an advanced adjustment of 5%, instead of the Standard stress factor.

Example of an investment firm

- 5.9 This following set of tables gives an example calculation for an investment firm, with a balance sheet of approximately £100 billion and non-capital liabilities of £45 billion.

Component	Input value (£mns)	One week stress factor	Stress adjusted flow (£mns)
OUTFLOWS – in relation to:			
On balance sheet items			
Wholesale funding: Bank funding (committed)	200	10%	20
Wholesale funding: Linked transactions	5,000	3%	150
Cash outflows from maturing funding secured on marketable assets	50,000	100%	50,000
Cash equivalent outflows from funding provided secured on marketable assets	40,000	98%	39,200
Secured funding: pending trades cash	3,000	100%	3,000
Secured funding: pending trades stock	2,500	100%	2,500
Cash outflows from maturing connected funding	200	70%	140
Off balance sheet items			
Interest rate swaps and FRAs	5,000	100%	5,000
Total stress adjusted outflows			100,010
INFLOWS – in relation to:			
On balance sheet items			
Marketable assets and cash	8,000	98%	7,840
Wholesale and retail inflows	400	100%	400
Cash inflows from secured funding provided	40,000	100%	40,000
Cash equivalent inflows from funding obtained on marketable assets	50,000	95%	47,500
Secured funding: pending trades cash	2,500	100%	2,500
Secured funding: pending trades stock	3,000	100%	3,000
Cash inflows from connected lending	50	20%	10
Off balance sheet items			
Potential inflows from commitments held	10,000	90%	9,000
Other off balance sheet inflows	1,000	100%	1,000
Total stress adjusted inflows			111,250
GAP RATIO CALCULATION			
Total stress adjusted outflows			(100,010)
Total stress adjusted inflows			111,250
Currency discount			(1,000)
Liquidity gap (+surplus/-deficit)			10,240
Non capital liabilities (ncls)			45,000
Gap ratio (Gap as % of ncls)			22.7%

5.10 An element of this investment firm's outflows are customer funds, in theory repayable on demand. 'Linked transactions' refer to those contractual obligations to customers that are, in the normal course, linked to other transactions. Here it is assumed that a portion of the funds are related to the firm's prime brokerage business. So, there would be trading positions that a customer would have to unwind before they could exit and remove their funds. The firm undertakes custody business for customers and the main part of these funds relate to that activity. Only by moving its custody business elsewhere could a customer withdraw the funds. Because it would be operationally very difficult (and expensive) for the customer to do this within the framework's time horizon, it is reasonable to assume that the stress factor on this potential flow would be relatively small compared with other wholesale flows.

6 Cost implications; next steps

Potential cost implications

- 6.1 We outlined in Chapter 2 what we see as the main benefits of an effective integrated quantitative framework. As mentioned above, in developing our ideas to this stage, we have taken into account the potential cost implications of our proposals. With the assistance of trade associations, we have obtained input from a number of firms across the range of those that would be within scope, relating to a number of the main potential areas. We will include a full cost benefit analysis with our final proposals for the quantitative requirements, but the following spells out some of the main issues at this stage.
- 6.2 We see five main areas of potential cost implication, related to:
- the on-going costs of being sufficiently liquid under the new framework (i.e. will it require firms to be more liquid than they have been hitherto?);
 - the costs to the FSA itself;
 - the costs to firms of initial implementation;
 - on-going monitoring and compliance costs to firms; and
 - other costs, e.g. from any adverse effect on the operation of markets, or reduction in the products available.
- 6.3 In the first area, as noted, in constructing the framework our intention is not generally to increase the required level of liquidity, but better to allocate the limits among firms. So, the degree to which the requirements may be tightened for some firms compared with their predecessor regimes should broadly match the degree to which they will be loosened for others, to the extent that like-for-like comparison with a firm's predecessor regime is feasible. In some cases, it is not; for example in relation to the foreign currency business of firms subject to the Sterling Stock regime. To give one example of the type of firm which might tend to face a higher level of requirement, among those firms currently assessed as having just adequate liquidity, it is likely that some firms will have a more

than average proportion of business in areas generating outflows that the new framework would capture more completely than its predecessors. Clearly the cost implications here depend critically on our final proposals for the calibration. But we would welcome any views from firms at this stage.

- 6.4 For core firms, a particular aspect of the on-going cost of being sufficiently liquid would be the cost of holding high-quality liquid assets, under the proposed core marketable assets requirement (see paragraphs 4.33-4.35). As noted, our objective is to broadly maintain the total amount of such assets held by core firms, while possibly recognising that some portion of that total is needed daily by firms to meet ordinary-condition payments systems needs, and so is not available to mitigate the impact of a liquidity stress. We will need to compare the combined cost of the core marketable assets requirement and any recognition of payment systems needs, with the cost of the current requirement to hold such assets under the Sterling Stock regime, which applies to most core firms.
- 6.5 In relation to our costs, the main implications will arise from the need for training of supervisory staff and other one-off implementation costs. As far as on-going supervisory costs are concerned, we think that the implications of processes connected with features such as the ILAR are likely to be at least counterbalanced by the elimination of the individual tailorings necessary in the predecessor regimes. There will also be savings from having a single framework – especially from supervisors having to be familiar with only one liquidity risk framework.
- 6.6 In relation to ‘monitoring costs’ for firms – both initial implementation and on-going – we think the main elements will be those associated with IT systems development and data provision. Some interesting preliminary views emerged here from the responses from firms in our sample, but we are aware that these firms did not have available the full details of our proposals. Some of the smaller firms affected suggested it might be possible to reduce cost implications for them by sharing systems development. Consultancy fees (not associated with the development of IT systems) were generally expected to be relatively small. Most firms gave strongest emphasis to the one-off costs of transition.
- 6.7 One issue here is, in allowing enough differentiation to make the framework acceptable, avoiding making it too elaborate, so that the costs (particularly of on-going compliance) will outweigh the benefits. As currently envisaged, the framework distinguishes more components of business than predecessor regimes. That results from seeking to capture all the components that can significantly affect a firm’s liquidity risk position, and attempting to differentiate between them where (but only where) they are likely to exhibit significant differences in stress behaviour.

- 6.8 Against that, we plan to provide considerable scope for a firm whose business is relatively simple, or subject to relatively low liquidity risk, to benefit from the options for simplifying its gap ratio calculation. (The inclusion of these features has led us to conclude that it is not necessary to offer transitional Simplified Approaches – a possibility which we raised in CP128.) There is a particular issue here in relation to investment firms, given that – as we said in Chapter 2 – we expect those that continue mainly to hold liquid assets to be comfortably in excess of the framework’s limits. Among investment firms, the main benefit of the new framework will be as a tool in relation to those that move away from this traditional balance of business.
- 6.9 On the ‘other’ cost implications, we expect certain features of the changes to improve market efficiency. For example, some of the predecessor regimes possibly distort the prices of components which they include in their assessment relative to those which they exclude. So the inclusion of a wider range of components than in those regimes should help move relative prices closer to economically efficient levels.

Q4: Do you believe at this stage that the requirements will mean a significant change in your firm’s balance of business and liquidity costs of complying with the regime? What other input relevant to assessment of the main areas of cost would you give at this stage?

Next steps

- 6.10 We would be very interested in reactions to the current state of our proposals by 27 February 2004. We would ask all those firms that are likely to fall within the scope of the framework to provide data and input on our current proposals for the framework’s calibration.
- 6.10 Having received this feedback, we plan to finalise our proposals for the text of the quantitative requirements, on which we will consult formally. That consultation will include a full cost-benefit analysis of the proposed requirements. The timetable here will depend on the reactions to this paper, and the implications of the data input. But we hope to make that further consultation in autumn 2004.
- 6.11 We will firm up the timetable for the later stages to implementation at the time of that consultation. However, our current thinking is to aim to publish ‘near-final’ text of the requirements in the first half of 2005 and – allowing a year for firms to prepare – to implement the module as a whole in the first half of 2006.

List of questions in this paper

- Q1: What reactions do you have to our views on the appropriate main features of a quantitative framework?
- Q2: What are your views about our current ideas of the detailed elements to realise such a framework, their definition, or the derivation of input values – as set out in the DP and its Annexes?
- Q3: Using Annexes 2 and 3, can your firm now provide input on our current proposed stress factors and data, to assist the finalisation of our proposals for a calibrated framework?
- Q4: Do you believe at this stage that the requirements will mean a significant change in your firm's balance of business and liquidity costs of complying with the regime? What other input relevant to assessment of the main areas of cost would you give at this stage?

Views on stress factors and discounts

Please give us your views on both the stress factors currently proposed for the Standard Approach and the floors for advanced adjustments. Please also give us views on the discounts applied to marketable assets and currencies. Where you consider that a stress factor does not represent a reasonable assessment of the impact of a liquidity stress it would be helpful if you could indicate the change you would recommend and also explain your recommendation. Similarly, comments on the appropriateness of the discounts for marketable assets and currencies would be helpful. It would be most helpful if you used the electronic version of this Annex, which is available on our website next to the electronic version of the paper (at <http://www.fsa.gov.uk/pubs/discussion/24/annex2.xls>).

The tables below set out our current proposals. For definitions of the components shown and how we have arrived at the stress factors, please see Annex 4. If you think that stress factors should be changed, please indicate recommended percentages in the shaded columns. Based on the data analysed so far, we consider the overall calibration represented by the set of standard stress factors broadly appropriate, to the extent that like-for-like comparison with predecessor regimes has been possible. In giving your views, we therefore ask, if you are suggesting less conservative stress factors in one area, to consider whether there are other areas where you can see the need for changes in the opposite direction.

Please use the shaded comment boxes in table T to explain your recommendations on the stress factors and on the discounts applied to marketable assets. Table Y provides space for comments on the currency treatment.

You may also wish to suggest additional components and it would be helpful if you could set these out at table U below with your comments. For marketable assets, please list any additional assets in tables R and S together with the proposed discount.

OUTFLOWS – in relation to:

Component	Standard stress factors		Recommended factors		Advanced adjustment floors		Recommended floors		
	1 week	1 month	1 week	1 month	1 week	1 month	1 week	1 month	
A WHOLESALE FUNDING									
1	Bank and other financial institution funding (non-committed)	90	60			58	39		
2	Bank funding (committed)	10	5			6	3		
3	Large corporate funding	70	40			45	26		
4	SME funding	50	30			32	19		
5	Government/public sector/supranational/not for profit	70	40			45	26		
6	Private customers	50	30			32	19		
7	Linked transactions	3	6			2	4		
8	MTNs maturing	100	100			65	65		
9	CDs/CP maturing	90	60			58	39		
10	Other	20	12			13	8		
B RETAIL FUNDING									
11	Current accounts	8	12			5	8		
	Savings accounts								
12	Instant access – no penalty	4	8			2	5		
13	Instant access – with penalty	2	4			1	2		
14	Fixed term bonds	20	12			13	8		
15	Other	3	6			2	4		
16	Large retail funding	6	10			2	4		
C SECURED FUNDING									
17	Repos using portfolio treatment	See Annex 4				N/A	N/A		
18	Cash outflows from maturing funding obtained secured on marketable assets	100	100			N/A	N/A		
19	Cash equivalent outflows from funding provided secured on marketable assets	Discounted MTM	Discounted MTM			N/A	N/A		
20	Cash outflows from maturing funding obtained secured on non-marketable assets	80	50			52	32		
21	Pending trades cash (DvP)	100	100			N/A	N/A		
22	Pending trades stock (DvP)	100	100			N/A	N/A		
23	Pending trades cash (non-DvP)	90	95			N/A	N/A		
24	Pending trades stock (non-DvP)	90	95			N/A	N/A		

Component	Standard stress factors		Recommended factors		Advanced adjustment floors		Recommended floors	
	1 week	1 month	1 week	1 month	1 week	1 month	1 week	1 month
D OUTFLOWS FROM MATURING CONNECTED FUNDING								
ILG/ILSG treatment firms only – funding provided to the firm by any member of its ILG or ILSG								
25	All funding	30	20			20	13	
ILG/ILSG firms – funding provided to the firm by connected undertakings not members of its ILG or ILSG Other firms – all funding provided by connected counterparties								
26	Connected funding from treasury (firm is non-treasury)	30	20			20	13	
27	Connected funding from non-treasury (firm plays treasury role)	70	60			45	39	
28	Non-treasury connected funding (firm is non-treasury)	60	70			39	45	
E OUTFLOWS FROM DERIVATIVES								
29	Net placings of margin or collateral on derivatives subject to margin or collateral requirements	5	10			N/A	N/A	
30	Net takings of margin or collateral on derivatives subject to margin or collateral requirements	5	10			N/A	N/A	
31	Firm's estimate of potential outflows arising from calls for additional margin or collateral on derivatives	N/A	N/A			Refer to Annex 4		
32	Contractual outflows on derivatives	100	100			N/A	N/A	
F OUTFLOWS FROM POTENTIAL NEW LENDING TO UNCONNECTED PARTIES (COMMITTED OR OTHER)								
Wholesale								
Committed facilities and undrawn wholesale loans/advances								
33	364-day	10	20			6	13	
34	Multi-year	10	20			6	13	
35	Potential new uncommitted lending	5	10			3	6	
36	Standby facilities (non CP linked)	3	6			2	4	
37	CP-linked standby facilities	2	4			1	2	
38	Liquidity facilities to SPVs	2	4			1	2	
39	Wholesale overdrafts	8	16			5	10	
40	Other commitments	5	10			3	6	

Component	Standard stress factors		Recommended factors		Advanced adjustment floors		Recommended floors	
	1 week	1 month	1 week	1 month	1 week	1 month	1 week	1 month
Retail commitments								
41	Mortgages	20	40			13	26	
42	Personal loans/advances	10	20			6	13	
43	Credit cards	8	16			5	10	
44	Overdrafts	20	40			13	26	
45	Other	10	20			6	13	
G OUTFLOWS FROM FACILITIES GRANTED TO CONNECTED COUNTERPARTIES								
46	Committed facilities granted if firm provides central treasury function	25	50			16	32	
47	Committed facilities granted if firm does not provide central treasury function.	15	30			9	19	
H OUTFLOWS FROM CONTINGENT LIABILITIES								
48	Acceptances	4	16			2	10	
49	Endorsements	5	20			3	13	
50	Guarantees	1	4			1	2	
51	Credit derivatives sold	1	4			1	2	
52	Underwriting	100	100			N/A	N/A	
53	Standby letters of credit in support of trade or commercial transactions	2	8			1	5	
54	Documentary credits and trade related transactions	5	20			3	13	
55	Warrants and indemnities	5	20			3	13	
56	Undrawn note issuance facilities	2	8			1	5	
57	Other revolving underwriting facilities	2	8			1	5	
58	Other	5	20			3	13	
I CONTINUATION OF BUSINESS								
Wholesale lending								
59	Banks committed facility maturing	30	60			19	39	
60	Banks non-committed	10	20			6	13	
61	Other financial institutions	30	60			19	39	
62	Large corporates	40	80			26	52	
63	SMEs	30	60			19	39	
64	Personal customers	30	60			19	39	
65	Government/public sector/supranationals	20	40			13	26	
66	Other	20	40			13	26	

Component	Standard stress factors		Recommended factors		Advanced adjustment floors		Recommended floors		
	1 week	1 month	1 week	1 month	1 week	1 month	1 week	1 month	
Retail lending									
67	Mortgages	10	15			6	10		
68	Personal loans/ advances	10	15			6	10		
Debt buy-backs									
69	CP	40	65			26	42		
70	CD	40	65			26	42		
71	MTNs	10	15			6	10		
72	Bonds	10	15			6	10		
73	Other	10	15			6	10		

INFLOWS – in relation to:

Component	Standard stress factors		Recommended factors		Advanced adjustment ceilings		Recommended ceilings	
	1 week	1 month	1 week	1 month	1 week	1 month	1 week	1 month

J INFLOWS FROM ON-BALANCE SHEET ITEMS

Wholesale credit repayments and interest income

Credit to financial institutions (committed and uncommitted)									
74	Banks	100	100			100	100		
75	Other financial institutions	100	100			100	100		
Corporate loans									
76	Large corporates	100	100			100	100		
77	SMEs	100	100			100	100		
78	Government/public sector/ supranationals	100	100			100	100		
79	Private customers	100	100			100	100		
80	Other	100	100			100	100		

Retail loan repayment and interest income

81	Mortgages	100	100			100	100		
82	Personal loans/ advances	100	100			100	100		
83	Credit cards	4	10			6	15		
84	Overdrafts	4	10			6	15		
85	Other	100	100			100	100		
86	Non-marketable securities	100	100			100	100		

Secured wholesale funding provided

87	Repos using portfolio treatment	See Annex 4				N/A	N/A		
88	Cash inflows from secured funding provided	100	100			N/A	N/A		
89	Cash equivalent inflows from funding obtained secured on marketable assets	Discounted MTM	Discounted MTM			N/A	N/A		
90	Cash inflow from funding provided secured on non-marketable assets.	100	100			100	100		
91	Pending trades cash (DvP)	100	100			N/A	N/A		
92	Pending trades stock (DvP)	100	100			N/A	N/A		
93	Pending trades cash (non-DvP)	90	95			N/A	N/A		
94	Pending trades stock (non-DvP)	90	95			N/A	N/A		

K INFLOWS FROM LENDING TO CONNECTED COUNTERPARTIES

ILG/ILSG treatment firms – lending provided by the firm to any member of its ILG or ILSG								
95	All lending	20	10			30	15	
ILG/ILSG firms – lending provided by the firm to connected undertakings not members of its ILG or ILSG Other firms – all lending by the firm to connected counterparties								
96	Firm provides treasury function	20	10			30	15	
97	Firm is non-treasury, borrower provides treasury function	50	40			77	62	
98	Firm is non-treasury, borrower is non-treasury	40	50			62	77	

L POTENTIAL INFLOWS FROM UNCONNECTED PARTIES (COMMITTED OR OTHER)**Type and number of commitments held****Committed facilities**

99	1-5	50	50			Refer to Annex 4		
100	6-10	80	80					
101	11+	90	90					

Covenanted funding

102	1-5	20	20			Refer to Annex 4		
103	6-10	30	30					
104	11+	40	40					

Standby facilities

105	1-5	30	30			N/A	N/A	
106	6-10	40	40			N/A	N/A	
107	11+	50	50			N/A	N/A	

Non-committed facilities

108	New wholesale borrowing not within committed lines	5	10			N/A	N/A	
-----	--	---	----	--	--	-----	-----	--

M OTHER INFLOWS

109	Contractual inflows on derivatives	100	100			N/A	N/A	
110	Inflows from fees and other income	80	95			100	100	

N NEW BORROWING FROM CONNECTED COUNTERPARTIES (COMMITTED AND OTHER)

111	Uncommitted borrowing from connected counterparties	0	0			Refer to Annex 4		
112	Funding within committed facilities from connected counterparties (Maximum % of connected c'parties' non-capital liabilities)	Refer to Annex 4				Refer to Annex 4		

0 MARKETABLE ASSETS AND CASH (sale treatment)

Asset	Discount			Recommended changes			Advanced adjustment floors	
	Daily MTM	Weekly MTM	Monthly MTM	Daily MTM	Weekly MTM	Monthly MTM	Recommended changes	
113 Cash	0%	N/A	N/A		N/A	N/A	N/A	N/A
Sovereign debt								
AAA/AA rated								
114 < 1 year or floating rate	2%	2.5%	3%				1%	
115 1 – 5 years	5%	6%	7%				2.5%	
116 > 5 years	12%	13%	16%				5%	
A/BBB rated								
117 < 1 year or floating rate	2.5%	3%	4%				1.5%	
118 1 – 5 years	9%	10%	12%				4%	
119 > 5 years	17%	19%	25%				8%	
BB rated								
120 < 1 year or floating rate	40%	45%	55%				25%	
121 1 – 5 years	40%	45%	55%				25%	
122 > 5 years	40%	45%	55%				25%	
Corporate debt								
AAA/AA rated								
123 < 1 year or floating rate	3.5%	4%	5%				2%	
124 1 – 5 years	12%	13%	16%				5%	
125 > 5 years	25%	27%	30%				10%	
A/BBB rated								
126 < 1 year or floating rate	5%	6%	7%				2.5%	
127 1 – 5 years	17%	19%	25%				8%	
128 > 5 years	35%	40%	45%				15%	
Other assets								
129 Main index equities	30%	35%	45%				20%	
130 Other equities listed on a Recognised Investment Exchange	50%	55%	65%				30%	
131 Gold	30%	35%	45%				20%	

P MARKETABLE ASSETS AND CASH (repo treatment)

Asset	Standard discounts		Advanced adjustment floors	
		Recommended changes		Recommended changes
Sovereign debt				
AAA/AA rated				
132	< 1 year or floating rate	1%		0.75%
133	1 – 5 years	3%		2%
134	> 5 years	7%		4%
A/BBB rated				
135	< 1 year or floating rate	1.5%		1%
136	1 – 5 years	5%		3%
137	> 5 years	11%		6%
BB rated				
138	< 1 year or floating rate	N/A		20%
139	1 – 5 years	N/A		20%
140	> 5 years	N/A		20%
Corporate debt				
AAA/AA rated				
141	< 1 year or floating rate	2%		1.5%
142	1 – 5 years	7%		4%
143	> 5 years	14%		8%
A/BBB rated				
144	< 1 year or floating rate	N/A		2%
145	1 – 5 years	N/A		6%
146	> 5 years	N/A		12%
Other assets				
147	Main index equities	25%		15%
148	Other equities listed on a Recognised Investment Exchange	N/A		25%
149	Gold	N/A		15%

Q MARKETABLE ASSETS AND CASH (discount window treatment)

Asset	Discount applied
150	

R ADDITIONAL SECURITIES FOR SALE TREATMENT

Asset	Discount applied

S ADDITIONAL SECURITIES FOR REPO TREATMENT

Asset	Discount applied

T COMMENTS ON PROPOSED CHANGES TO STRESS FACTORS AND DISCOUNTS

Component to which the proposed change relates	Comments on proposed change

U ADDITIONAL COMPONENTS PROPOSED

Additional business component	Comments on proposed new component, including details of how the input value would be defined

TABLE V RELEVANT TO ANNEX 3 ONLY

--

W DISCOUNTS FOR CONVERSIONS WITHIN AND BETWEEN CURRENCY BUCKETS AT ONE WEEK

	GBP, USD, EUR, JPY Bucket 1		CHF, CAD, AUD, HKD Bucket 2		Other convertible Bucket 3	
	Discount	Recommended changes	Discount	Recommended changes	Discount	Recommended changes
Bucket 1	3%		N/A	N/A	N/A	N/A
Bucket 2	4%		4%		N/A	N/A
Bucket 3	8%		8%		10%	

X DISCOUNTS FOR CONVERSIONS WITHIN AND BETWEEN CURRENCY BUCKETS AT ONE MONTH

	GBP, USD, EUR, JPY Bucket 1		CHF, CAD, AUD, HKD Bucket 2		Other convertible Bucket 3	
	Discount	Recommended changes	Discount	Recommended changes	Discount	Recommended changes
Bucket 1	8%		N/A	N/A	N/A	N/A
Bucket 2	10%		10%		N/A	N/A
Bucket 3	15%		15%		20%	

Y COMMENTS ON CURRENCY TREATMENT

--

TABLE Z RELEVANT TO ANNEX 3 ONLY

Firms' data to assist calibration

This Annex offers a format for firms to provide data. Providing data will help us further develop our proposals for the calibration of the framework. For comparative purposes it would be helpful if you could choose a reporting date that matches one under your existing regime. Please indicate in the key information box below the date at which the information has been taken. It would also be helpful if you could set out the basis on which you are providing the data, for example, are you providing data as a solo firm or as an Integrated Liquidity Group and, if a group, of which entities? The information provided by firms will, of course, be treated confidentially.

When providing data, please enter input values in the shaded columns. If you feel that your firm would be likely to qualify for an advanced adjustment, please indicate the advanced stress factor you consider appropriate in the shaded columns. The advanced adjustment floors can be found in Annex 2. Annex 4 contains explanations of the components shown below.

For this exercise, we will accept best estimate data. It is not necessary to provide data to the same standard of accuracy that is required in completing prudential returns. Please could you indicate roughly the nature and extent of any approximations you have used.

We would appreciate your input using the electronic version of this Annex which is available on our website next to the electronic version of the paper (at <http://www.fsa.gov.uk/pubs/discussion/24/annex3.xls>).

Key information

Data provided as at :

Solo or group basis:

OUTFLOWS – in relation to:

Component	Input value		Appropriate level of advanced adjustment (if relevant)	
	1 week	1 month	1 week	1 month
A WHOLESALE FUNDING				
1 Bank and other financial institution funding (non-committed)				
2 Bank funding (committed)				
3 Large corporate funding				
4 SME funding				
5 Government/public sector/supranational/not for profit				
6 Private customers				
7 Linked transactions				
8 MTNs maturing				
9 CDs/CP maturing				
10 Other				
B RETAIL FUNDING				
11 Current accounts				
Savings accounts				
12 Instant access – no penalty				
13 Instant access – with penalty				
14 Fixed term bonds				
15 Other				
16 Large retail funding				
C SECURED FUNDING				
17 Repos using portfolio treatment				
18 Cash outflows from maturing funding obtained secured on marketable assets				
19 Cash equivalent outflows from funding provided secured on marketable assets				
20 Cash outflows from maturing funding obtained secured on non-marketable assets				
21 Pending trades cash (DvP)				
22 Pending trades stock (DvP)				
23 Pending trades cash (non-DvP)				
24 Pending trades stock (non-DvP)				

Component	Input value		Appropriate level of advanced adjustment (if relevant)	
	1 week	1 month	1 week	1 month
D OUTFLOWS FROM MATURING CONNECTED FUNDING				
ILG/ILSG treatment firms only – funding provided to the firm by any member of its ILG or ILSG				
25	All funding			
ILG/ILSG firms – funding provided to the firm by connected undertakings not members of its ILG or ILSG				
Other firms – all funding provided by connected counterparties				
26	Connected funding from treasury (firm is non-treasury)			
27	Connected funding from non-treasury (firm plays treasury role)			
28	Non-treasury connected funding (firm is non-treasury)			
E OUTFLOWS FROM DERIVATIVES				
29	Net placings of margin or collateral on derivatives subject to margin or collateral requirements			
30	Net takings of margin or collateral on derivatives subject to margin or collateral requirements			
31	Firm's estimate of potential outflows arising from calls for additional margin or collateral on derivatives			
32	Contractual outflows on derivatives			
F OUTFLOWS FROM POTENTIAL NEW LENDING TO UNCONNECTED PARTIES (COMMITTED OR OTHER)				
Wholesale				
Committed facilities and undrawn wholesale loans/advances				
33	364-day			
34	Multi-year			
35	Potential new uncommitted lending			
36	Standby facilities (non CP linked)			
37	CP-linked standby facilities			
38	Liquidity facilities to SPVs			
39	Wholesale overdrafts			
40	Other commitments			
Retail commitments				
41	Mortgages			
42	Personal loans/advances			
43	Credit cards			
44	Overdrafts			
45	Other			

Component	Input value		Appropriate level of advanced adjustment (if relevant)	
	1 week	1 month	1 week	1 month
G	OUTFLOWS FROM FACILITIES GRANTED TO CONNECTED COUNTERPARTIES			
46	Committed facilities granted if firm provides central treasury function			
47	Committed facilities granted if firm does not provide central treasury function.			
H	OUTFLOWS FROM CONTINGENT LIABILITIES			
48	Acceptances			
49	Endorsements			
50	Guarantees			
51	Credit derivatives sold			
52	Underwriting			
53	Standby letters of credit in support of trade or commercial transactions			
54	Documentary credits and trade related transactions			
55	Warrants and indemnities			
56	Undrawn note issuance facilities			
57	Other revolving underwriting facilities			
58	Other			
I	CONTINUATION OF BUSINESS			
Wholesale lending				
59	Banks committed facility maturing			
60	Banks non-committed			
61	Other financial institutions			
62	Large corporates			
63	SMEs			
64	Personal customers			
65	Government/public sector/ supranationals			
66	Other			
Retail lending				
67	Mortgages			
68	Personal loans/ advances			
Debt buy-backs (amount of debt outstanding with maturity exceeding 1 month)				
69	CP			
70	CD			
71	MTNs			
72	Bonds			
73	Other			

INFLOWS – in relation to:

Component	Input value		Appropriate level of advanced adjustment (if relevant)	
	1 week	1 month	1 week	1 month

J INFLOWS FROM ON-BALANCE SHEET ITEMS

Wholesale credit repayments and interest income

Credit to financial institutions (committed and uncommitted)					
74	Banks				
75	Other financial institutions				
Corporate loans					
76	Large corporates				
77	SMEs				
78	Government/public sector/ supranationals				
79	Private customers				
80	Other				

Retail loan repayment and interest income

81	Mortgages				
82	Personal loans/ advances				
83	Credit cards				
84	Overdrafts				
85	Other				
86	Non-marketable securities				

Secured wholesale funding provided

87	Repos using portfolio treatment				
88	Cash inflows from secured funding provided				
89	Cash equivalent inflows from funding obtained secured on marketable assets				
90	Cash equivalent inflows from funding obtained secured on non-marketable assets.				
91	Pending trades cash (DvP)				
92	Pending trades stock (DvP)				
93	Pending trades cash (non-DvP)				
94	Pending trades stock (non-DvP)				

Component	Input value		Appropriate level of advanced adjustment (if relevant)	
	1 week	1 month	1 week	1 month
K INFLOWS FROM LENDING TO CONNECTED COUNTERPARTIES				
ILG/ILSG treatment firms – lending provided by the firm to any member of its ILG or ILSG				
95	All lending			
ILG/ILSG firms – lending provided by the firm to connected undertakings not members of its ILG or ILSG Other firms – all lending by the firm to connected counterparties				
96	Firm provides treasury function			
97	Firm is non-treasury, borrower provides treasury function			
98	Firm is non-treasury, borrower is non-treasury			
L POTENTIAL INFLOWS FROM UNCONNECTED PARTIES (COMMITTED OR OTHER)				
Type and number of commitments held				
Committed facilities				
99	1-5			
100	6-10			
101	11+			
Covenanted funding				
102	1-5			
103	6-10			
104	11+			
Standby facilities				
105	1-5			
106	6-10			
107	11+			
Non-committed facilities				
108	New wholesale borrowing not within committed lines			
M OTHER INFLOWS				
109	Contractual inflows on derivatives			
110	Inflows from fees and other income			
N NEW BORROWING FROM CONNECTED COUNTERPARTIES (COMMITTED AND OTHER)				
111	Uncommitted borrowing from connected counterparties			
112	Funding within committed facilities from connected counterparties (Maximum % of connected c'parties' non-capital liabilities)			

Asset	Input Value			Advanced adjustment discount applied		
	Daily MTM	Weekly MTM	Monthly MTM	Daily MTM	Weekly MTM	Monthly MTM
0 MARKETABLE ASSETS AND CASH (sale treatment)						
113 Cash		N/A	N/A	N/A	N/A	N/A
Sovereign debt						
AAA/AA rated						
114 < 1 year or floating rate						
115 1 – 5 years						
116 > 5 years						
A/BBB rated						
117 < 1 year or floating rate						
118 1 – 5 years						
119 > 5 years						
BB rated						
120 < 1 year or floating rate						
121 1 – 5 years						
122 > 5 years						
Corporate debt						
AAA/AA rated						
123 < 1 year or floating rate						
124 1 – 5 years						
125 > 5 years						
A/BBB rated						
126 < 1 year or floating rate						
127 1 – 5 years						
128 > 5 years						
Other assets						
129 Main index equities						
130 Other equities listed on a Recognised Investment Exchange						
131 Gold						

Asset	Input Value	Advanced adjustment
-------	-------------	---------------------

P MARKETABLE ASSETS AND CASH (repo treatment)

Sovereign debt

AAA/AA rated

132	< 1 year or floating rate		
133	1 – 5 years		
134	> 5 years		

A/BBB rated

135	< 1 year or floating rate		
136	1 – 5 years		
137	> 5 years		

BB rated

138	< 1 year or floating rate		
139	1 – 5 years		
140	> 5 years		

Corporate debt

AAA/AA rated

141	< 1 year or floating rate		
142	1 – 5 years		
143	> 5 years		

A/BBB

144	< 1 year or floating rate		
145	1 – 5 years		
146	> 5 years		

Other assets

147	Main index equities		
148	Other equities listed on an RIE		
149	Gold		

Q MARKETABLE ASSETS AND CASH (discount window treatment)

	Asset	Input Value
150		

TABLES R, S, T and U RELEVANT TO ANNEX 2 ONLY

V MATERIAL CURRENCIES

List of all significant currencies, including base currency	Total stressed inflows		Total stressed outflows	
	One week	One month	One week	One month
	1			
2				
3				
4				
5				
6				
7				
8				
9				
10				

TABLES W, X and Y RELEVANT TO ANNEX 2 ONLY

Z TOTAL NON-CAPITAL LIABILITIES	
--	--

Guidance notes to firms' input in Annexes 2 and 3

This Annex serves two purposes:

- to help firms complete Annex 3 with data on their own business for the components listed there; and
- to help them in feeding in their views through Annex 2 on the proposed stress factors for those components. We are seeking that input in relation to our current ideas for the detail of the quantitative framework.

This Annex starts with general guidance on how firms should provide the data for Annex 3. It then sets out the general principles we have followed in setting the stress factors. Next it goes through the components in Annexes 2 and 3 in order, clarifying the definition of components and explaining how we have arrived at the stress factors for each. Finally, it gives guidance on a few tables which are specific either to Annex 2 or to Annex 3.

General notes on completing Annex 3

Input values

- 1 Unless otherwise stated in the definitions section below, input values should include all cash flows for the components included according to their expected contractual maturity. The time periods are 'one week' and 'one month'; these should be measured from the business day for which firms are providing data (the 'calculation date'). The one-week period includes cash flows in all days from the calculation date up to and including the eighth calendar day following. The one-month period includes all cash flows in all days from the calculation date up to and including the day one calendar month following. In other words, data for the second period should be cumulative (covering the whole of the first month).

- 2 The main exceptions to using contractual maturity are where it is appropriate to apply a stress factor to the entire amount of a particular component and not just those payments falling within the time period, for example for debt issued and marketable assets.

Reporting date

- 3 For this data-gathering exercise, it would be helpful if firms could choose a calculation date which matches a reporting date under their existing regime. That will enable us to compare better the impact of the proposals with that of the existing regime.

Accuracy

- 4 For this exercise, we will accept 'best estimate' data. If you are providing data, please could you indicate roughly the nature and extent of any approximations you have used.

Currencies

- 5 Data for each component should be provided in the firm's base currency. This should be the sum of amounts for that component in all convertible currencies, converted into the firm's base currency using a consistent approach. Total stressed outflows and total stressed inflows should also be provided separately for each currency which qualifies as material (see guidance on Table V below). (See the discussion of currency discounts under the heading of Tables W and X below.)

Materiality exemptions and 'combination options'

- 6 Where it is reasonable to assume that one or more components give rise to outflows that have an aggregate negative impact of less than 1% on the firm's gap ratio, in either the one-week or the one-month period, we envisage that a firm will be able to exclude those components from the calculation for that period. The same applies to a component or components giving rise to inflows that have an aggregate positive impact of less than 1% on the firm's gap ratio. However, for the purposes of this calibration input, it would be helpful if, so far as possible, firms could provide data for all the components shown.
- 7 Similarly by using a combination option, we propose to allow a firm to choose to aggregate components, provided it applies the most conservative of the stress factors in that combination. Again, for the purposes of this exercise, it would be helpful if, so far as possible, firms would not use the combination option but rather break data down fully to the components shown.

Exclusions

- 8 A firm should only include in the input values in Annex 3 arrangements undertaken as part of its business, which it judges it would be willing and able to draw on in a stress. Any arrangements which are not for such normal purposes, including any whose primary purpose is to improve a regulatory position (whether entered into on a bilateral basis or via a third party), should be excluded.

Basis of assessment

- 9 The default basis of assessment for the framework will be on a solo basis, and data should be provided accordingly. However, if a firm and other members of its group meet the envisaged conditions for an integrated liquidity group (ILG) or an integrated liquidity sub-group (ILSG) as set out below, the firm may be assessed primarily on that basis.
- 10 The conditions that a group of undertakings would need to satisfy to qualify as an ILG are:
 - (a) every undertaking in the ILG is a member of the firm's group, and the firm and every other member of the ILG are members of the same group subject to assessment of group risk by the FSA;
 - (b) the ILG is managed and controlled as a single group, with integrated management of any liquidity surpluses and potential shortfalls carried out from within the group subject to our assessment of group risk;
 - (c) each member of the ILG has an explicit policy to provide financial support to the other members of the ILG to ensure their continued ability to meet obligations as they fall due. This is subject to not endangering their own liquidity and not infringing any legal or regulatory requirement;
 - (d) each member of the ILG has informed other ILG members of the terms of that policy and recorded that policy in writing, and has had it approved by its board of directors or other governing body;
 - (e) there are no significant legal or regulatory constraints on the ability of the members of the ILG to carry on their affairs with a view to benefiting the ILG as a whole;
 - (f) the integrated management of liquidity risk includes stress and scenario testing to examine the effect of any breakdown of:
 - (i) the funding provided by overseas members of the ILG to UK-incorporated members of the ILG in aggregate;
 - (ii) the funding provided by overseas members of the ILG to the firm; and
 - (iii) the funding provided to members of the ILG in aggregate, by members of the firm's group that are not members of the ILG;

- (g) there is a contingency funding plan for taking action to ensure, so far as possible, that, in each of the scenarios tested, the firm and the ILG would still have sufficient liquid financial resources to meet liabilities as they fall due;
 - (h) every undertaking in the firm's group which meets all the following conditions is included in the ILG:
 - (i) the undertaking belongs to the group subject to the assessment of group risk by the FSA;
 - (ii) the undertaking is subject to 'material' liquidity risk (see paragraph 11);
 - (iii) the undertaking is included within the same integrated liquidity risk management arrangements as the firm; and
 - (iv) the inclusion of the undertaking does not cause the ILG to fail to satisfy the condition on 'significant legal or regulatory constraints' in paragraph 10(e).
- 11 In the above conditions, an undertaking's liquidity risk is material if:
- (a) its liabilities contractually due within one week are likely to regularly exceed 3% of the total non-capital liabilities of the group to which it belongs; or
 - (b) unsecured deposits taken by the firm on wholesale market terms, and contractually due within one week, are likely to regularly exceed 2% of the total non-capital liabilities of the group to which it belongs; or
 - (c) its one week or one month net liquidity gap is likely to regularly be negative and more than 1% of the total non-capital liabilities of the group to which it belongs.
- 12 The qualifying conditions for an ILSG would be the same, except that integrated liquidity risk management takes place in part or wholly outside the group subject to the assessment of group risk by the FSA. So the ILSG is a sub-group of a group with integrated management of liquidity. In this case, there must still be a supervisor responsible for global assessment of the group's integrated liquidity management function. But, that supervisor will not be the FSA; that supervisor would have to be content with the FSA's arrangements for imposing liquidity requirements on that ILSG.
- 13 A firm that considers that it would qualify, and opt for, assessment on an ILG or ILSG basis in this way, should provide the data requested covering all members of its ILG or ILSG. Ideally, the technique for compiling the data for all the entities included should be line-by-line consolidation, with stress factors applied to the consolidated data. For the purposes of this exercise, a firm may use an alternative approach, for instance the consolidation technique normally used for preparing the group's management accounts. Such approaches may readily allow the accurate calculation of the group's all-currency gap position.

However, the firm may need to adapt its approach to calculate with reasonable accuracy the group's total stressed inflows and outflows in each currency that is material for the group (see Table V).

- 14 It would be helpful if firms could explain the method of consolidation they have used, and the level of materiality of any simplifying assumptions or approximations. It would also be helpful if such firms could also provide the data on a solo basis.

Advanced adjustments

- 15 To qualify to use any advanced adjustment, a firm would need to have highly effective systems for identifying, measuring, monitoring and controlling its liquidity risk. In relation to the specific component for which it proposes to use an adjustment, the firm would need to have an advanced risk measurement process, incorporated into its overall liquidity risk measurement system, which includes that component within its scope. The key features of such a measurement process are that it is used by the firm as part of its day-to-day management of liquidity risk, and normally incorporates and meets certain minimum data calculation and other standards.
- 16 Our current thinking on advanced adjustments assumes that in most cases they will involve a firm estimating its own stress factors for individual components using statistical techniques. In these cases we envisage our framework would set a floor (or ceiling, as appropriate) on firms' own estimates of stress factors. Annex 2 sets out our current ideas for these floors and ceilings alongside the standard stress factors. However, as discussed in paragraphs 4.25 – 4.27 of the paper, we plan to carry out further work to see if we can develop a more flexible approach.
- 17 On current thinking, an advanced liquidity risk measurement process should use an appropriate method, and time series data of appropriate frequency and length, to forecast the actual cash flows of the particular component under normal market conditions, from the contractual cash flows. The process should also use periodic back-testing to compare actual cash flows with those forecast and a mechanism to ensure adjustment of the forecast based on back-testing results. The forecast behaviour in normal conditions should be used as a base for assessing the changes that might occur to that behaviour in a scenario at least as acute as a serious liquidity stress. And the results of that scenario test should be used to decide what is the appropriate advanced adjustment, taking into account both the normal and stressed behaviour of the particular component.
- 18 For most advanced adjustments, one year's observations should be sufficient for forecasting the normal behaviour of the component. Normally, a longer time series should be used if a firm wishes to have an adjustment to take

account of annual seasonal variations. For most advanced adjustments simple parametric statistics are adequate to forecast cash flows under normal conditions. The value of the cash flow should normally be calculated using a 99% one-tailed confidence interval.

- 19 If a firm considers that it would qualify and wishes to use an advanced adjustment for a component, it should indicate the level of stress factor it deems appropriate, within the limits set by the floors (and ceilings) in the framework. For the purposes of this exercise it would be helpful if firms could explain the method underlying any advanced adjustments proposed.

Current stress factors in Annex 2

- 20 The stress factors listed represent a prudent assessment of the expected behaviour of the components in the event of the liquidity stress envisaged by the framework. So for example, for many of the outflow components, the stress factor shows the level of outflow expected on funds contractually due to mature in the relevant period during a liquidity stress. For instance, non-committed bank funding has a stress factor of 90% for one week. This means that, in a stress, the framework expects the actual outflow of funds for this component over the one-week period to be 90% of the amount of such funding due to mature over one week.
- 21 The values of the Standard stress factors are based on our own research and an analysis of the findings of our initial data-gathering exercise in the industry. We have set the levels of stress factors relative to one another to capture the different ways we expect the components to behave in a stress. And we have calibrated their general level with the intention that, for the average firm, the framework should neither significantly tighten nor loosen requirements compared with the predecessor regime (where like-for-like comparison of that kind is possible).
- 22 The framework would adopt essentially a static approach. For example, it would not allow for the likelihood that in the event of a liquidity problem, a firm would act to:
 - alter maturities;
 - alter the composition of funding; or
 - replace an existing customer, if the firm loses that customer's funds.
- 23 Since it assumes a liquidity stress lasting roughly two weeks, the stress impact is built into the first two weeks, with a return to normal conditions for the remaining two weeks (roughly) of the month. The one month stress factors are on a cumulative basis, thus incorporating both the stress and the return to normal.

- 24 In terms of their behaviour in a stress, components fall broadly into three types.
- (a) Components where we expect the counterparty regularly to actively review its funding with the firm, but in normal conditions usually to roll over this funding at contractual maturity on similar terms. In a stress there is resistance to this roll-over, assumed to last at a roughly constant level for the two week period. Over one month, for the framework we make a prudent assumption that the liquidity stress occurs in a period when the level of funds maturing over each of the initial two weeks is greater than the weekly average. So, if the stress in the first week results in a 90% non-renewal, this means a one month stress of less than 90% but greater than would be expected if normal behavioural flows in each of the four weeks were evenly distributed. Most wholesale funding falls into this category.
 - (b) Components where we expect the normal behaviour at contractual maturity to be for the counterparty to leave their funds with the firm, without active review. In effect the funds remain with the firm. In a stress, a relatively small proportion of counterparties are assumed to withdraw their funds. For the framework, we assume that this withdrawal occurs at a steady rate over the two weeks of the stress, with a return to normal behaviour in weeks three and four. Over the short term (ie one month), we do not expect this withdrawn funding to return. So, if the one week stress factor is 5%, it is assumed that the total non-renewal across the first month will be 10%. Most retail funding falls into this category.
 - (c) Components which are not expected to be affected materially by the liquidity stress. Here the framework's stress factors represent a prudent assessment of the normal behavioural flow at one week and one month. Most commitments to lend and inflows fall into this category.
- 25 The current floors for advanced adjustment stress factors for outflows are, in most cases, proposed as approximately 65% of the Standard treatment. This is based on our perception of how much firms' outflows could potentially deviate from their Standard stress behaviour, and incorporates a prudent margin. On the inflow side many of the Standard stress factors are 100%. In these cases the ceilings for the advanced treatment stress factors are set at the same level, on the basis that it is unlikely that there will be significant overpayment of funds contractually due in the one week and one month time periods. (In effect, no advanced adjustment is available.) The exceptions to this (such as credit cards and connected lending, where the Standard inflow stress factors are less than 100%) are considered in the definitions section below.

Definitions

A Wholesale funding

Items 1-10 should include all unsecured funding received from bodies corporate, including banks, partnerships, sole traders and mutual associations, attributed to the appropriate component. With the exception of item 7, 'linked transactions', providers of such funding are expected regularly to consider whether to roll it over at maturity, which makes it susceptible to being withdrawn when the firm is under stress.

Item 1 'bank ...funding (non-committed)': Because this funding is not committed, significant resistance to rollover is assumed, hence the relatively high Standard stress factors.

Item 2 'bank funding (committed)': This covers funding drawn down under a *continuing* committed facility. It is assumed that the firm would largely continue to be able make draw-downs under such facilities, hence the proposed Standard stress factors.

Items 3 and 5 'large corporate funding' and 'government/public sector...': This funding is assumed to behave broadly similarly to non-committed bank funding, though with the provider assumed not as sensitive to the assumed stress, leading to somewhat lower stress factors.

Item 4 'SME funding': Small and medium-sized enterprises are defined as undertakings with annual sales of less than £35mn in their most recent audited accounts; or, if the undertaking is a member of a group, whose group has reported sales of less than £35mn in its most recent audited group accounts.

Item 6 'private customers': Deposits from individual retail customers who are offered a specific rate for a particular deposit for a particular period should be included here.

Item 7 'linked transactions': Certain kinds of securities-related transaction are classed as linked. There are two types of linked transaction, 'charged' and 'non-charged'. Charged transactions encompass, for example, firms' holdings of customer funds which, in the normal course of business, are taken as collateral. Where, at the calculation date, a formal legal charge is in effect over customer liabilities, or they are otherwise taken as collateral under a formal legal arrangement, treat the contractual maturity of the liability as the term of the transactions to which the liability is linked. Non-charged linked transactions encompass, for example, holdings of customer funds resulting from an ongoing contractual trading relationship with the firm. The input value for both charged and non-charged is the resulting customer liability falling due in the one-week and one-month time periods.

The framework would treat linked transactions as only slightly affected by a stress, given that a counterparty would incur a potential loss of trading income by prematurely unwinding positions or may face operational costs in moving a trading relationship to a different firm. This would also act as a deterrent to the movement of funds.

Items 8 and 9 'MTNs and CDs/CP maturing': Medium-term notes (MTNs) are corporate debt instruments continuously offered to investors over a period of time by an agent of the issuer. Certificates of deposit (CDs) are short- or medium-term negotiable debt instruments normally issued by financial firms. Commercial paper (CP) is normally an unsecured obligation issued by a corporation or bank to finance its short-term credit needs. Maturities typically range from 2 to 270 days.

It is assumed that the full value of MTNs will be repaid at maturity and that firms will not approach the market with a replacement MTN issue at a point where pricing could only be obtained on unfavourable terms. CDs and CP are assumed to behave in a similar way to non-committed bank funding.

Item 10 'other': Include here any funding which is taken on terms where the provider of funds is offered a specific rate for a particular deposit for a particular period, and which does not fall within any of the specified components of 'unsecured wholesale funding'.

B Retail funding

All funding from individual customers which does not fall within the definition of wholesale funding should be included within one of items 11-16 covering retail funding. Retail funding is normally taken at an advertised rate or standard tariff. With the exception of item 14 'fixed term bonds', the framework expects retail funding to stay with the firm at contractual maturity in normal conditions. It is assumed that, in a stress, a small proportion of customers withdraw their funds.

Item 11 'current accounts': If a retail current account has an overdraft facility, the input value should be nil if that account is overdrawn at the calculation date. (Overdraft lending is assumed to contribute an inflow, see Table J.) Otherwise, the credit balance on the account should be recorded.

Items 12-15 'savings accounts': Savings accounts are defined as those that do not have full service capabilities, such as debit cards. If an account has a notice period but the customer may withdraw funds before the end of that period, subject to a penalty, the contractual repayment date should be taken to be the earliest date at which the customer may withdraw funds. 'Instant access' should include any account on which the customer may request immediate withdrawal of funds, even where the customer may not be able to access cleared funds on the same day. We assume that savings accounts will be

less volatile than current accounts, hence the lower stress factors. Fixed term bonds (item 14), however, are expected to behave more like wholesale funds in a liquidity stress.

Item 15 'other': Other retail funding includes any savings accounts where the contractual terms of the account are such that the customer cannot withdraw their funds before the maturity date, with or without penalty.

Item 16 'large retail funding': This should be the total of funding from individuals of amounts, not received on wholesale terms, greater than the maximum size of protected deposit (currently £35,000) provided for by the Financial Services Compensation Scheme (FSCS). Our assumption here is that these funds will exhibit higher resistance to renewal than other forms of retail funding.

C Secured funding

Item 17 'repos using portfolio treatment': A firm that undertakes repos and reverse repos as part of its trading of a portfolio of assets may use the portfolio treatment to take account of the liquidity risk arising. (A firm may still apply the non-portfolio approach – see items 18 and 19 below – to other repos and reverse repos not related to this portfolio.) Under this treatment, the firm determines the size of holding of marketable assets of each class in that portfolio by taking all short and long positions, and repos and reverse repos, of those assets on a portfolio basis, and netting them off to determine a single amount equivalent to a long or short position in that class of asset. (More detail is in the guidance on tables O, P and Q in this Annex. Details of where marketable assets are reported and the discount factors to be applied are set out in the marketable assets tables O and P in Annex 2.)

In the process of netting, any repo that is netted against a longer-dated reverse repo or against a long securities position would give rise to a negative liquidity impact. This results from the effect of the firm paying away cash and receiving a less liquid asset at the maturity of the repo. This impact is reflected as an outflow in item 17. To calculate the input value in a given period, a firm should identify all repos which are treated in this way in the netting process and which mature within the period. It should then calculate a net outflow as the cash outflow on each such repo minus an inflow equal to the discounted mark-to-market (MTM) value of the asset returning. The discount should be that applying in the marketable asset treatment of the asset. (The discount factors to be applied are set out in the marketable asset tables O and P in Annex 2.) If the sum of all such amounts is an outflow it should be reported as the input value in item 17; if it is an inflow (which could occur if the firm has significantly over-collateralised its repo funding), it should be reported as the input value in item 87.

Items 18-19 'cash outflows ... and cash equivalent outflows': These items capture a firm's repo and reverse repo business, where such business does not fall under the portfolio treatment in item 17. For convenience, explanation of the corresponding inflows in table J items 88-89 is given here. Cash flows from each repo and reverse repo transaction are included individually. A repo will, for instance, contribute, at its maturity date, a cash outflow, and a cash-equivalent inflow equal to the value of the asset returning to the firm after applying the relevant discount from the marketable asset treatment. So for a given period, only repos and reverse repos maturing during that period will contribute to the input values for that period.

Repos: Where the firm has repoed out a security and obtained cash, the full extent of the cash outflow at the maturity of the repo is reflected on the outflow side (item 18), by including the sum received in the input value and applying a 100% stress factor. On the inflow side (item 89) the input value for the repo is the mark-to-market (MTM) value of the security repoed out, discounted by the relevant discount factor. (When the firm enters into the repo, its holdings of marketable assets fall by the discounted MTM value of the securities and its cash holdings increase by the amount of the funds received.)

Reverse repos: On the outflow side the transaction is recognised in item 19 ('cash equivalent outflows from funding provided secured on marketable assets') by including the discounted MTM value of the security reversed in. The inflow side (item 88 – 'cash inflows from secured funding provided') will record the value of the cash returning to the firm when the reverse repo matures. (When the firm enters into the reverse repo, its holdings of marketable assets increase by the discounted MTM value of the security and its holdings of cash fall by the same amount.)

The treatments in items 17-19 and 87-89 apply to any other forms of securities lending and borrowing equivalent to repo and reverse repo.

Item 20 'cash outflows from maturing funding obtained secured on non-marketable assets': This item captures all forms of secured funding not included within items 17-19. The input value should be equivalent to the sum received. The stress factor assumes some resistance to renewal of funds.

Items 21-24 'pending trades...': The input value should be the sum of flows of either cash or the MTM value of stocks, due to be paid, at the calculation date. Where simultaneous exchange of value takes place (delivery-versus-payment – DvP), the item should be included in the DvP component line. Non-DvP items have a stress factor less than 100%, reflecting the possibility of delays in payment in a liquidity stress.

D Outflows from maturing connected funding

This section covers the treatment of both connected outflows (items 25-28) and connected inflows (items 95-98 on table K). The input values for these items are all determined according to contractual maturity. The stress factor for each type of connected outflow is higher than the stress factor for the corresponding inflow: this builds prudent asymmetry into the overall intra-group treatment. For instance, if the firm has borrowed from the group treasury, the framework assumes 30% outflow on such borrowing maturing within one week. But if the firm is the group treasury and has lent to a group company, it assumes only 20% inflow on such lending maturing within one week.

Generally, we assume that the two-week stress affecting the firm also affects other parts of its group to some extent. We assume that connected entities will not willingly endanger the position of the firm by withdrawing funding, but that because they are also under pressure they may have no choice but to do so to some extent.

Items 25 and 95: If both the lender and recipient of funds are within the same ILG, we assume mutual support, so a high proportion of any maturing borrowing (outflows) by a firm from entities within its ILG is rolled over. We assume the same applies to any maturing lending (inflows) by the firm to other parts of the ILG.

Items 26-28 and 96-98: In cases where either the firm is not within an ILG, or it has opted for ILG treatment but its counterparty is not within the firm's ILG, the treasury/ non-treasury distinction set out below applies. A treasury role typically involves the overseeing of the management of monetary assets and liabilities, financial risks and banking relationships of the firms involved. This definition includes treasury activities such as cash management and transmission, placing and liquidating investments, raising and redeeming finance and managing foreign exchange and interest rate exposures. One or more entities may play a treasury role within a group: when we refer to 'the treasury', this can refer to several group entities. The treasury treatment applies only to lending to or from those entities which is carried out as part of their treasury role (for instance, an entity may only play a group treasury role in a particular currency).

Treasury (items 26-27 and items 96-97): When the treasury is involved, we assume that lending in place (to or from the treasury) mostly represents normal levels of funding, i.e. most of it rolls over in normal circumstances. During the two-week stress, we assume less rolls over. For instance, if the firm is the treasury, it is unable to roll over all the funding it has provided (and provides regularly). But it can still roll over more than other group members, as we assume it has the main group access to external funds: hence the 20% inflow stress factor for item 96 over one week. Likewise, a non-treasury firm that is normally a net placer of surplus funds with its group treasury retains

more of what it would normally roll over, and to a greater extent than the treasury (hence the 50% inflow stress factor for item 97 over one week).

Non-treasury (items 28 and 98): For lending between two non-treasury entities, there is no particular assumption that lending would normally be rolled over. This is because lending of this type is assumed to be more ad hoc. In a stress the framework assumes that both sides have greater funding pressure, and no external funding source. The lender needs to be repaid as much as possible on maturity, the borrower needs to roll over as much as possible. So the stress factors start from an assumption of balance, but build in prudent asymmetry.

E Outflows (and inflows) from derivatives

Items 29 and 30 'net placings/takings of margin or collateral on derivatives subject to margin or collateral requirements': A firm which believes it would qualify for and use an advanced adjustment for the treatment of margin or collateral on derivatives need not fill in these items, but should complete item 31. (Even so, it would be helpful for the purpose of this exercise if such firms would also complete items 29 and 30.) The input value for item 29 is the total amount of margin or collateral on derivative contracts posted by the firm with counterparties with whom the firm is a net placer of margin or collateral. The input value for item 30 is the corresponding amount received from counterparties from whom the firm is a net taker of margin or collateral. For both items 29 and 30, the input value is the same for one week as for one month.

Our current proposed standard treatment is to calculate the firm's aggregate net margin and collateral position (placings less takings). We would then take the absolute value of this figure, and multiply that by 5% to give the one week stress-adjusted outflow, and 10% to give the one month stress-adjusted outflow. This is intended to capture in a simple way the potential outflows arising from:

- (i) adverse price movements in the underlying instruments, which result in the firm having to place additional margin or collateral with counterparties, or return margin or collateral which it holds; and
- (ii) additional calls for margin or collateral triggered by a downgrade of the firm's external rating.

We would welcome any comments on both the appropriateness of this treatment, and of the suggested stress factors.

Item 31 'firm's estimate of potential outflows arising from calls for additional margin or collateral on derivatives': A firm which believes it would qualify for and use an advanced adjustment for the treatment of outflows arising from margin or collateral on derivatives should complete this item. The firm should

provide its own estimate of the potential outflows over one week and one month in the respective boxes. The estimate should take account of both the potential outflow arising from adverse price movements in the underlying instruments, and the potential outflow from additional calls for margin or collateral triggered by a downgrade of two notches in the firm's external rating. If the firm does not have an external rating, the estimate should be based on the effect of a firm-specific event of broadly equivalent initial impact. A firm completing item 31 should provide us with details of the method used to obtain the estimates, including any assumptions on which they are based.

Items 32 (outflow) and 109 (inflow) 'contractual outflows/inflows on derivatives': Contractual cash flows on various types of derivative are calculated on a net basis, and so may contribute either an inflow or an outflow (or in some cases both), as explained below for each type. If the net result is an outflow, it should be included in the input total for item 32 in Table E, if an inflow, in item 109 in Table M. (Item 109 is covered here for convenience of presentation.) The input values for these items are derived by summing the outflows and inflows arising from the treatments specified in the following.

Interest rate swaps and forward rate agreements (FRAs), and other cash-settled derivatives not covered below: The input value is derived by:

- (a) identifying all inflows and outflows on such contracts due to take place within that period;
- (b) estimating the value of any such cash flows that are unknown at the calculation date by using the appropriate forward rate; and
- (c) summing all such cash flows to produce a net stress-adjusted cash flow (outflow or inflow) in each period.

Forward FX and currency swaps: A firm should calculate the input value for its stress-adjusted cash flows in each period arising from FX forwards and FX swaps on which exchange of currencies takes place by:

- (a) identifying all cash flows on such contracts due to take place within that period; and
- (b) summing all such cash flows to produce a net stress-adjusted cash flow (outflow or inflow) in that period.

FX options: A firm should calculate the input value for its stress-adjusted cash flows in each period arising from FX options which it has purchased or written, on which exchange of currencies takes place, by:

- (a) identifying all cash flows on such contracts that will fall within that period if the contract is exercised at its earliest possible date;

- (b) multiplying each cash flow identified in (a) by the option delta at the calculation date; and
- (c) summing all the delta-equivalent cash flows calculated to produce a net stress-adjusted cash flow (outflow or inflow) in each period.

Cash-settled option contracts: A firm should calculate the input value for its stress-adjusted outflows in each period arising from cash-settled option contracts by:

- (a) identifying all such contracts on which there will be an outflow within that period if the contract is exercised at its earliest possible date; and
- (b) summing the mark-to-market value of each contract thus identified to produce a combined stress-adjusted outflow in each period.

A firm should calculate its stress-adjusted inflow in each period arising from cash-settled options which it has purchased by:

- (a) identifying all such contracts on which there will be an inflow within that period if the firm exercises that contract at its earliest possible date; and
- (b) summing the mark-to-market value of each contract thus identified to produce a combined stress-adjusted inflow in each period.

Contracts with physical delivery of assets: A firm should calculate its stress-adjusted outflows in each period arising from contracts under which the firm has the obligation or the option to take physical delivery of an asset by:

- (a) identifying all such contracts for which the earliest possible exercise date (if the contract is an option) or the expiry date (otherwise) will fall within that period; and
- (b) calculating the outflow by summing the delta-equivalent of each option contract identified, and the contractual amount due to be paid by the firm on each other type of contract identified, to produce a combined stress-adjusted outflow in each period.

A firm should calculate its stress-adjusted inflows in each period from such contracts by:

- (c) marking to market the asset at the calculation date;
- (d) if the contract is an option, multiplying the value obtained in (c) by the option delta at the calculation date; and
- (e) if the asset qualifies for treatment as a 'marketable asset' (see guidance on tables O, P and Q for definition), calculating the appropriate inflow for that period using the value obtained in (c) or (d) as the input value;
- (f) if the asset does not qualify for treatment as a marketable asset:

- (i) taking the inflow as the book value of the asset, if the asset has a final maturity date and that date falls within the period in question, multiplied by the option delta at the calculation date if the contract is an option; and
- (ii) taking the inflow as nil otherwise.

F Outflows from potential new lending to unconnected parties (committed or other)

Items 33, 34, 36-45: The input value for each component on table F other than item 35 is the total undrawn amount of commitments granted by the firm of that type at the close of business on the calculation date. Exceptions to this are that the amount of any overdraft facility attached to a current account that is in credit at the calculation date should not be included in the input value.

Item 35 'potential new uncommitted lending:' We have yet to resolve the issue of how to define a robust measure of the total of a firm's potential new lending and borrowing of this sort to and from its regular wholesale counterparties (see also item 108). However, where a firm provides an input value for this component we would welcome an explanation of the reasoning behind the figure entered. The approach should be consistent with that for item 108. For example, if the figure for item 108 is based on a firm's estimation of the credit limits set by other firms on their lending to it, item 35 could be based on its own credit limits to other firms. If a firm includes an amount for item 108, it should also include an amount for item 35.

Item 38: a special purpose vehicle (SPV) is normally a business interest formed solely to accomplish some specific task or tasks.

Item 41 'mortgages': The input value should be the value of mortgages in the 'pipeline', ie which the firm is contractually committed to provide conditional on certain terms (eg satisfactory survey) being met.

Items 43 and 44, 'credit cards' and 'overdrafts': We distinguish 'active' from 'non-active' accounts. We define a non-active account as one in which the facility to borrow has not been used in the twelve months up to the calculation date. The input value should relate to active accounts only, and should be the amount of credit available on those accounts.

The framework assumes that the level of draw-down for items 33-45 will be little affected by the liquidity stress. So, the stress factors reflect assumptions about normal behaviour.

G Outflows from facilities granted to connected counterparties

Items 46-47: The input value equals the undrawn amount of commitments granted by the firm at close of business on the calculation date. Because a firm providing a central treasury function has greater access to external funding sources than one which does not, during a liquidity stress the likelihood of draw-down is higher in the former case than in the latter. Hence the higher stress factors when the firm provides a central treasury function.

H Outflows from contingent liabilities

In most cases, the input value of each component is the full contractual value of all contingent liabilities of that type to which the firm is subject at close of business on the calculation date. The exceptions to this are items 51 and 52 as explained below. It is assumed that the level of outflow for items 48-58 will be little affected by a stress. The stress factors are, therefore, a reflection of assumptions about normal behaviour.

Item 51 'credit derivatives sold': The input value for credit derivatives sold should be calculated as the credit event payment, namely the maximum amount that would be paid following a credit event.

Item 52 'underwriting': An underwriting commitment is assumed to give rise to a cash outflow of an amount calculated as below, on the date at which the funds are contractually due to be paid to the client. So the input value for a given period is nil unless that date falls within that period. Otherwise, the input value for underwriting outflows should be calculated as the net underwriting position (defined as the firm's gross underwriting commitment, plus purchases, minus sales, minus sub-underwritings), reduced by the following discount factors depending on where in the underwriting timetable the calculation date falls:

Initial commitment date to Working Day 0	90%
Working Day 1	90%
Working Day 2	75%
Working Day 3	75%
Working Day 4	50%
Working Day 5	25%
Working Day 6	0%

'Working Day 0' is defined as the day on which the firm becomes unconditionally committed to accepting a known quantity of securities at a known price.

I Continuation of business

Items 59-68: The input value is the total amount of maturing lending by the firm of that type (seen in the corresponding items in inflow Table J for on balance sheet items) at close of business on the calculation date. In the case of the one week calculation, the input value is the amount contractually due to be repaid to the firm in not more than eight calendar days from the calculation date, i.e. the one-week inflows. In the case of the one-month calculation, the input value is the amount contractually due to be repaid to the firm in not more than one month from the calculation date, i.e. the one-month inflows.

In order to remain viable beyond the period of the liquidity stress, the firm needs to be sufficiently liquid not only to survive the duration of a stress but also to maintain its business franchise. The framework builds in requirements that a firm will need to roll over a certain portion of its maturing assets, and also to be able to continue, at least in part, any regular programme of buying back issued debt.

Items 59-66 'wholesale lending': The stress factors reflect the degree to which the firm can temporarily reduce the level of its new lending to that type of counterparty without significantly damaging its ability to resume business of that type after the stress. So the stress factors are higher, the more likely it is that potential recipients of new funds from the firm, once turned away, will not come back.

Item 59 'banks committed facility maturing': The input value for this item is any maturing lending by the firm to a bank, which was provided under a committed facility which matures with the period. The stress factor is higher than for item 60 (non-committed lending) on the grounds that the existence of a commitment may indicate a closer relationship with the borrower than otherwise, and hence more pressure to renew funding to preserve that relationship.

Item 67 'mortgages': The firm has significant control over the extent to which it can add new business to the mortgage pipeline (ie the input value for item 41) without damaging its customer relationships. Similarly, for item 68 'personal loans/advances' the firm can exercise significant control over the extent to which it can add new business to the input value for item 42 without significant adverse impact upon its customer franchise. The stress factors are therefore relatively low.

Items 69-73 'debt buy-backs': The input value is the total amount of all debt of that type issued by the firm that is outstanding at close of business on the calculation date, less the amount of such debt that is due to mature within the period.

During a liquidity stress, a firm is assumed to repurchase a portion of its outstanding debt in order to demonstrate to counterparties that a two-way market continues to be made in its paper and to maintain the longer term viability of its debt issuance programmes. Because CP and CDs are more frequently issued by firms to fund their business, the repurchase rate, and therefore the stress factors, are higher than for other types of debt.

J Inflows from on balance sheet items

Items 74-86: We assume that a liquidity stress does not affect counterparty behaviour for these items, so the stress factors represent normal behaviour.

Items 74-82 and 85-86: The input value is the total amount of principal and interest on loans made, or securities held, at close of business on the calculation date. Any amounts in arrears should be excluded.

Item 83 'credit cards': The input value is the total of balances owing at the close of business on the calculation date. We assume that less than the full amount of the sum due is repaid: the stress factor of 4% for one week represents normal repayment behaviour.

Item 84 'overdrafts': The input value is the total amount of overdraft lending by the firm outstanding at the close of business on the calculation date.

Item 87: Refer to the definition of Table C, item 17.

Items 88-89: Refer to the definition of Table C, items 18-19.

Item 90 'cash inflow from funding provided secured on non-marketable assets': The input value is the total amount of non-repo secured funding, provided by the firm, that is outstanding at close of business on the calculation date and is due to be repaid within the period. The behaviour of this item is not expected to be affected by the liquidity stress.

Items 91-94 'pending trades...': The input value for these items should be sum of flows of either cash or the MTM of stocks, due to be received, at the calculation date. Where simultaneous exchange of value takes place (DvP), the input values should go in the DvP items. Non-DvP items have a stress factor less than 100%, reflecting the possibility of delays in payment if counterparties are concerned that they will not receive the full value of the cash/stocks due.

K Inflows from lending to connected counterparties

Items 95-98: See the guidance to table D.

L Potential inflows from unconnected parties (commitments or other)

The input value for committed funding in items 99-107 is the total of undrawn balances at close of business on the calculation date. The stress factor reflects the probability that the firm will be in a position to access the funds during a stress. If the firm can draw down any funds from a given source, we assume that it will be able to draw down the full available amount in the first week of the stress. Total draw-down does not therefore increase between one week and one month.

Items 99-101 'committed facilities': All committed facilities not falling within the definitions of items 102-107 below should be included in this category.

A firm that qualifies for advanced adjustments may treat any facility which would normally fall within the definition of covenanted funding in the standard approach (items 102-104) as a committed facility (items 99-101) provided that:

- the firm regularly reviews the covenants attached to the facility;
- the firm has concluded in its most recent review of those covenants that the probability of any of them being breached before its next review is very low; and
- the firm assesses that in the event that it suffers a serious liquidity stress, the probability of any of the covenants being breached is low.

Items 102-104 'covenanted funding': This refers to facilities which are subject to specific covenants which have a significant likelihood of being triggered at the same time that the firm suffers a serious liquidity stress. Such covenants include material adverse change clauses which are worded in such general terms that the lender has considerable discretion in determining when a default event has occurred, and covenants linked to a firm's authorisation or prudential requirements.

Items 105-107 'standby facilities': This includes facilities which a firm reserves solely for emergency use. A facility under which a firm regularly draws down funds should not be included in this component, even if the facility documentation describes it as a 'standby facility'.

Item 108 'new wholesale borrowing not within committed lines': The input value should be based on the firm's assessment of amounts available to be drawn from counterparties with whom it has a regular borrowing relationship. This might for instance be based on a firm's estimation of the limits set by other firms on their lending to it. For the purposes of this data-gathering

exercise it would be helpful if firms, wherever possible, could explain how they have estimated this value. In calculating the input value the firm should be able to demonstrate that non-committed funding could be accessed in the event of stress, namely that it has been tested as a reliable source.

M Other inflows

Item 109 'contractual inflows on derivatives': For input values, refer to the guidance for table E, item 32. We assume that this component is not affected by the liquidity stress.

Item 110 'inflows from fees and other income': The input value is the total amount of fees and other income due at close of business on the calculation date. Any amounts in arrears or disputed amounts should be excluded. We assume that counterparties may delay payments in the event of a liquidity stress, so the stress factor is less than 100%.

N New borrowing from connected counterparties (committed and other)

Item 111 'uncommitted borrowing': In the normal course we would not expect firms to include any inflow of new borrowing from connected counterparties which is not within a committed lending facility. This is because in the event of a liquidity stress, which is likely to affect all members of the same group, this will present an unreliable source of funds. However, a firm may apply for an advanced adjustment to include this type of funding if the connected firm provides a treasury function, and the firm can demonstrate that in the event of a stress such funding would be available. For the purposes of this exercise, we would like to hear from any firm that can explain how it would produce a prudent estimate of the amount that would be available in a stress from connected parties playing a group treasury role, and what that estimate is at the reporting date.

Item 112 'funding within committed facilities from connected counterparties': The framework differentiates between the following two categories:

'Category A': The firm has elected for treatment as an ILG/ILSG and the facility is provided by any member of the firm's ILG/ILSG, or by a connected treasury entity that is not a member of the firm's ILG/ILSG. Or the firm does not fall under the ILG/ILSG treatment and the facility is provided by a connected treasury entity.

'Category B': The firm has elected for treatment as an ILG/ILSG and the facility is provided by a non-treasury connected entity that is not a member of the ILG/ILSG. Or the firm does not fall under the ILG/ILSG treatment and the facility is provided by a non-treasury connected entity.

The input value for both categories is the total undrawn amount of committed facilities of that type at close of business on the calculation date.

The calculation of stress-adjusted inflows in the all-currency case is as follows.

The stress-adjusted inflow in the one-week period for Category A is calculated as:

- a) 100% x the input value up to 10% of the firm's non-capital liabilities (ncls); plus
- b) 50% x the input value between 10% and 25% of the firm's ncls; plus
- c) 20% x the input value between 25% and 50% of the firm's ncls.

The stress-adjusted inflow in the one-month period for Category A is calculated as:

- d) 100% x the input value up to 10% of the firm's ncls; plus
- e) 60% x the input value between 10% and 25% of the firm's ncls; plus
- f) 30% x the input value between 25% and 50% of the firm's ncls.

The stress-adjusted inflow in the one-week period for Category B is calculated as:

- g) 100% x the input value up to 5% of the firm's ncls; plus
- h) 50% x the input value between 5% and 10% of the firm's ncls; plus
- i) 20% x the input value between 10% and 25% of the firm's ncls.

The stress-adjusted inflow in the one-month period for Category A is calculated as:

- j) 100% x the input value up to 5% of the firm's ncls; plus
- k) 60% x the input value between 5% and 10% of the firm's ncls; plus
- l) 30% x the input value between 10% and 25% of the firm's ncls.

To calculate the stress-adjusted inflows separately in material currencies, in either period and in either Category, a firm may choose how to allocate the all-currency total inflow between those currencies. This is subject to the total of inflows in material currencies being no greater than the all-currency total, and subject to the amount chosen for each currency being no greater than the input value for that currency.

O, P and Q Marketable assets and cash

An asset should be treated as marketable only if it is of a type listed in tables O and P, the firm has good title to the asset, and there is a deep and liquid market for the asset. Also:

- the firm should mark the asset to market at least once a month;
- there should be a standard, reliable settlement mechanism for settling trades in that asset which has an agreed settlement period which is not longer than one month; and

- there should be no significant likelihood that, because the value of the asset is correlated with market perceptions of the firm, the asset will fall sharply in price or become illiquid at the same time as the firm faces a serious liquidity stress.

A firm which is not using the portfolio treatment for repos and reverse repos (see guidance under C above) should calculate the input value for each of the categories of marketable asset set out in the tables, for each MTM frequency, and in each currency as follows. The firm should sum the most recent MTM of the firm's total holding of each asset of that type less any short positions in assets of that type. If the firm has an overall net short position in assets of that category and currency, then that short position must be deducted from long positions in that currency in any other asset category to which smaller discounts apply.

Fixed interest debt should be categorised by its residual maturity; floating rate debt of any maturity should be included in the appropriate under one year category.

A firm which is using the portfolio treatment for repos and reverse repos should calculate its marketable asset input value in each asset category, in each currency, by setting off short and long positions, repos and reverse repos involving assets of those types, as follows:

- a) the firm should allocate short positions in such assets against reverse repos in such assets, starting from the shortest dated reverse repos;
- b) the firm should allocate any reverse repos not allocated in step (a) against repos, starting from the shortest-dated reverse repos and longest-dated repos;
- c) the firm should allocate any repos not allocated in step (b) against long positions in such assets; and
- d) any net long position in the assets remaining after step (c), and any reverse repos remaining after step (b) give rise to a net holding of marketable assets in that category and currency, which feed in to the input value for that category.

Any repos which are allocated against reverse repos of longer maturity in step (b), and any repos allocated against long securities positions in step (c), give rise to a negative liquidity impact. This is reflected in a net outflow in item 17 (see guidance under C: Secured Funding).

Items 113-131 'sale treatment': A firm must apply the sale treatment to each holding or part of a holding of a marketable asset which is not eligible for the repo treatment. The earliest date on which an asset can be realised corresponds to the number of days needed to enter into a sale contract plus

the number of days needed for standard settlement. So, if this earliest date is more than eight calendar days ahead, the asset contributes an inflow in the one-month period, but not the one-week period. If a firm holds a concentrated position in an asset, then double the standard discount applies, but only to that portion of the holding in excess of the concentration limit. A concentrated holding is a holding which is in excess of either 10% of the total amount of that asset outstanding; or 10% of the average daily turnover of that asset.

Item 113 'cash': Cash refers to holdings of banknotes and coin. This should include all non-sterling and sterling notes including Bank of England notes and also notes issued by the Scottish and Northern Irish banks.

Items 132-149 'repo treatment': A firm should only apply the repo treatment to an asset if it is an active participant in a repo market in which that asset is regularly repoed in amounts which are material for that market. A firm is deemed to be an active participant where it normally participates every day in the repo market and it has participated in the repo market for at least one calendar year. The repo treatment only applies to assets that the firm marks to market on a daily basis; and we assume that any asset eligible for the repo treatment can always provide cash in the one week period.

Item 150 'discount window treatment': A firm may regard as repoable to a central bank that part of its holding of a particular asset which the firm could repo to a central bank in not more than eight calendar days. Additional conditions for this treatment are:

- the firm has a direct dealing relationship with that central bank;
- the asset is eligible for repo to the central bank; and
- the firm's holdings of the asset satisfies any other requirements imposed by that central bank, including on the location of the assets.

When a firm holds assets repoable to a central bank, the discounts it applies to those assets should be the actual discounts at which that central bank is prepared to accept those assets. There is no corresponding allowance for sale of assets to central banks.

Marketable asset discounts

We are seeking views on the discount factors to be applied to marketable assets in Tables O and P of Annex 2. We have based our method for deriving these discounts on that for the 'haircuts' proposed in Basel 2 for securities held as collateral against credit risk. Those haircuts are based on price volatility over a 10-working day period: we have adjusted them to correspond to potential price changes over an appropriate holding period given the frequency with which the firm marks to market. We have also included conservative assumptions about the extent to which a firm suffering a

liquidity stress might have to accept forced-sale prices. We assume that this forced-sale element is smaller for assets meeting the conditions for repo treatment than for sale, as the repo treatment assumes that a firm has regular access to reliable repo counterparties.

R and S Additional securities for sale treatment (Annex 2 only)

Please give details of those assets which you consider should be available for inclusion in the framework as marketable assets and cash in addition to those listed under the sale and repo treatments above. This should include the marketable asset type, term to maturity (where applicable) and the appropriate discount.

T Comments on proposed changes to stress factors and discounts (Annex 2 only)

Please enter here comments on your proposed changes to stress factors and discounts, saying which components your comments relate to.

U Additional components proposed (Annex 2 only)

Please enter here any components you would like to propose be added to the framework. It would be helpful if firms could describe the component, how its input value would be calculated, the stress factors for both Standard and advanced adjustment and why these are appropriate.

V Material currencies (Annex 3 only)

A material currency is defined as any currency in which total stressed inflows or outflows are more than 10% of all-currency total stressed inflows or outflows, in either period. A firm should identify each material currency in Table V and should report total stressed outflows and inflows for that currency, in each of the time periods, converted into the firm's base currency on a consistent basis. In addition to this, firms may wish to provide a full breakdown of each of their material currencies on separate copies of Annex 3. These should clearly indicate to which currencies they refer.

W and X Discounts for conversions within and between currency buckets (Annex 2 only)

The framework will require firms to apply a currency discount when positive gaps in one material currency are used to meet negative gaps in another (or vice versa). The rationale for this is that where a firm has a significant liquidity gap in a currency it faces the risk that the exchange rate could move against the firm and the gap increase.

In the Standard Approach, we envisage four broad blocks of currencies:

- a) Sterling, US dollar, Euro and Japanese yen;
- b) Swiss Franc, Canadian dollar, Australian dollar and Hong Kong dollar;
- c) all other convertible currencies; and
- d) non-convertible currencies.

We specify discounts to apply to any currency pair within and between any of the first three blocks. The discounts applied represent a prudent estimate of the average volatility in these currencies relevant to the one week and one month time periods. We have estimated these on a basis of the 99th percentile of the absolute value of exchange rate movements taking into account the most significant of the currency pairs in the relevant pairs of buckets.

Please enter any suggested alternative values for these discounts in Tables W and X.

Y Comments on the currency treatment (Annex 2 only)

Please enter here any other comments on the proposed currency treatment.

Z Non-capital liabilities (Annex 3 only)

We propose defining non-capital liabilities (ncls) as the firm's on balance sheet liabilities excluding the sum of its eligible tier one capital (after deductions), tier two and tier three capital. Liabilities generated by repo transactions are also excluded from the calculation. Under the accounting treatment for repos (in contrast to the treatment of reverse repo), the cash collateral received is recorded as a liability. If the liabilities generated by repo transactions were not excluded from the total of non-capital liabilities, a firm's gap ratio denominator would rise – and so the size of the gap ratio fall – when additional repo business was put on, even though the liquidity risk impact of the transaction would be small.

ISBN: 0-11704-911-5

The Financial Services Authority
25 The North Colonnade Canary Wharf London E14 5HS
Telephone: +44 (0)20 7066 1000 Fax: +44 (0)20 7066 1099
Website: <http://www.fsa.gov.uk>

Registered as a Limited Company in England and Wales No. 1920623. Registered Office as above.