CEBS

Committee *of* European Banking Supervisors

Guidelines on Liquidity Buffers & Survival Periods

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Executive summary

1. Liquidity risk management in banks makes use of a broad range of measures, including among others: funding ratios and limits for maturity gaps, stress test-based liquidity buffers and refinancing limits for shorter and longer periods and contingency planning. These guidelines are focused on liquidity buffers at the short end of the counterbalancing capacity only. The guidelines elaborate upon the appropriate size and composition of liquidity buffers to enable credit institutions to withstand a liquidity stress for a period of at least one month without changing their business models. It should be read as a follow-up to CEBS's Recommendations on Liquidity Risk Management (September 2008), in particular to Recommendation 16.

2. The guidelines are aimed primarily at banks' internal risk management processes, although they may be helpful for supervisory review purposes as well.

3. A wide range of liquidity buffer approaches can be found in the industry and in different regulatory regimes. Building on good practices, CEBS proposes enhancements to these approaches, which should remain tailored to the liquidity management strategy, the business model and complexity of a bank, and its risk tolerance. The more liquidity risk a bank runs, the larger its buffer should be.

4. A liquidity buffer is defined as the short end of the counterbalancing capacity under a "planned stress" view. It needs to be available outright over a defined short period of time (the 'survival period[1]').

5. The liquidity buffer is dependant on three dimensions: the severity and characteristics of the stress scenarios, the time horizon, and the characteristics of the assets in the buffer.

6. These guidelines provide a framework for deriving the overall level of the buffer as well as its relative composition from stress tests conducted over a long time horizon and their short-term impact over two time horizons: at least the first week and at least the first month. No pre-defined parameters for the stress tests are proposed, as a one-size-fits-all approach may not cover all the risks faced by an individual institution. CEBS's view is that each institution must engineer its own individual counterbalancing framework in the context of its own exposure, the exposure of its clients, and the nature of its business, aligning that framework with the approved risk policy.

[1] The term "survival period" does not imply that a bank would plan only to survive for those periods, but that it would maintain buffers as "insurance" for such periods to assure its ability to cope with a crisis while taking other measures in line with its overall liquidity policies and risk appetite for longer-term survival

7. Liquidity buffers must be built using cash and assets that ensure the generation of liquidity within a short time at a predictable value. This paper acknowledges the need for a greater degree of confidence in the liquidity-generating capacity of these assets for the very short term, leading to the recommendation that only assets that are both highly liquid in private markets and eligible at central bank standard facilities count towards the liquidity buffers. For the longer end of the buffer (at least one month), other highly liquid assets might be appropriate as well.

8. For liquidity buffers' purposes, banks should avoid holding large concentrations in particular assets: attempts to liquidate large concentrated positions, in particular for less liquid assets, could trigger illiquidity in the market itself, with declines in market prices (fire sales) causing other institutions to revalue their securities..

9. On the whole, the guidance has been kept fairly simple in order to facilitate implementation and communication with stakeholders. This simple approach needs to be complemented by on-going dialogue between institutions and their supervisors.

10. CEBS expects its members to make sure that institutions will apply the guidelines by 30 June 2010 at the latest.

Guidelines

Guideline 1 **– A liquidity buffer represents available liquidity, covering the additional need for liquidity that may arise over a defined short period of time under stress conditions.**

Guideline 2 **– Institutions should apply three types of stress scenarios: idiosyncratic, market specific, and a combination of the two. The core of the idiosyncratic stress should assume no rollover of unsecured wholesale funding and some outflows of retail deposits. The market-wide stress should assume a decline in the liquidity value of some assets and deterioration in funding-market conditions.**

Guideline 3 **– A survival period of at least one month should be applied to determine the overall size of the liquidity buffer under the chosen stress scenarios. Within this period, a shorter time horizon of at least one week should also be considered to reflect the need for a higher degree of confidence over the very short term.**

Guideline 4 **- The liquidity buffer should be composed of cash and core assets that are both central bank eligible and highly liquid in private markets. For the longer end of the buffer, a broader set of liquid assets might be appropriate, subject to the bank demonstrating the ability to generate liquidity from them under stress within the specified period of time.**

Guideline 5 **– Credit institutions need to manage their stocks of liquid assets to ensure, to the maximum extent possible, that they will be available in times of stress. They should avoid holding large concentrations of particular assets, and there should be no legal, regulatory, or operational impediments to using these assets.**

Guideline 6 **– The location and size of liquidity buffers within a banking group should adequately reflect the structure and activities of the group in order to minimize the effects of possible legal, regulatory or operational impediments to using the assets in the buffer.**

Introduction

11. In March 2009, CEBS published an Interim Report on liquidity buffers and survival periods as a response to the recommendation of the Economic and Financial Committee of the European Council for EU regulators to "develop and implement procedures to ensure that financial firms implement policies to better manage liquidity risk, including the creation of strong liquidity cushions". The Interim Report constituted one element of the general follow-up work undertaken by CEBS after the publication in September 2008 of its Advice to the European Commission on liquidity risk management, which included 30 recommendations for credit institutions and banking supervisors.

12. The Interim Report made broad proposals for the implementation of Recommendation 16 on liquidity buffers. Drawing on the positive feedback to the Interim Report, this paper proposes guidelines on the composition, the time horizon to be covered and the stress test scenarios to be considered when building a liquidity buffer. These guidelines have been prepared by the CEBS Task Force on Liquidity Risk Management in coordination with CEBS's Industry Expert Group on Liquidity (IEGL)[2].

13. The guidelines are not intended to provide an all-encompassing solution to the management of liquidity, liquidity risk, and liquidity stresses, but rather only an approach to managing their 'front end'[3].

14. CEBS's Guidelines are principle-based. They are subject to the overarching principle of proportionality.

15. The guidance set out in this paper is expected (for the majority of banks) to represent a significant strengthening of firms' liquidity positions compared with current positions (and positions as they were before the recent period of stress). It is important that increases in firms' holdings of liquid assets are made with due regard to the broader economic climate, taking into account (where appropriate) the need to avoid unnecessary constraints on bank lending as economies recover.

16. These guidelines are follow-up work on the CEBS's Recommendations on Liquidity Risk Management from September 2008. CEBS expects its members to make sure that institutions will apply the guidelines by 30 June 2010 at the latest.

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[2] The List of Members of the Industry Expert group on Liquidity is available on the CEBS website at http://www.c-ebs.org/Aboutus/Organisation/Consultative-Panel/Industry-expert-groups/Liquidity.aspx

[3] This paper does not explicitly consider intraday liquidity risks, and consequently any buffer calibrated against end-of-day positions could under or overestimate the liquidity risks it is designed to mitigate. The CPSS and the BCBS will be undertaking further work to consider the impact of intraday liquidity risk.

Considering economic impact

17. The default of a bank that plays a key role in the financial system can lead to broader costs for the economy. In economic terms this is a negative externality, a form of market failure. To make institutions "internalise" the social cost of their failure, and to mitigate the impact of other market failures[4] that may induce banks to make less provision for liquidity risk than they would in a perfectly well-functioning market, regulators may need to intervene by, for example, recommending the composition and size of liquidity buffers.

18. Such intervention may have important effects on banks' costs, which, in turn, influence economic activity indirectly. For example, such intervention may restrict lending capacity, raise the cost of financing for borrowers, and eventually lead to reduced investment and output.

19. On the other hand, recommendations on the size and composition of liquidity buffers may lower the probability of bank liquidity crises and mitigate ensuing effects such as interest rate volatility, increased insolvency rates, increased equity risk premiums and a drop in sustainable output.

20. CEBS is aware that there is a balance to be struck. CEBS has given further consideration to the possible economic implications of its recommendations during the consultation period. The comments made by various stakeholders during the public consultation period have also been helpful.

21. CEBS would like first to recall that this guidance is not prescriptive or specific, either in the shock scenario which determines the size of the buffer or in the composition of the buffer. Therefore, the impact is institution-specific. In addition, this means that a detailed and accurate impact assessment is not possible. Also, a quantitative assessment of the economic impact of requirements for the liquidity buffer would require institution-specific data. Nevertheless, it is possible to draw some qualitative conclusions regarding the impact of the new requirements.

22. Institutions can meet their buffer requirements in a number of different ways. In general, if the new guidelines do not correspond to banks' natural preference over portfolio choice, they are likely to result in structural changes in financial institutions' balance sheets, such as the restructuring of assets, changes in funding structure and/or deleveraging.

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[4] Examples of such market failures may be where banks may be tempted to hold less liquidity than they should, due to the immediate and higher cost that this imposes relative to the long-term benefits it may provide, or due to asymmetric information problems and deposit insurance schemes which reduce banks' exposure to market discipline and exacerbate moral hazard.

23. All other things being equal, a restructuring of institutions' balance sheets may lead to a reduction in their profitability, due to a fall in institutions' return on assets (through the holding of more low return liquid assets) and/or an increase in their cost of funding. This may create incentives for institutions to take on additional risk in areas of their balance sheet that are not covered by the present guideline.

24. This restructuring may also result in a reduction in institutions' capital requirements. For example, lower-yielding liquid assets are likely to be attributed lower risk weights (depending on the definition of the buffer). This could be countered if institutions take on additional risk elsewhere on their balance sheets.

25. However, the real impact on institutions' profits and preferred choices for balance sheet restructuring will depend on the extent to which institutions can adjust the pricing of their assets and liabilities. To understand the potential for this, it is necessary to understand the impact and potential response of the markets in which banks provide services.

26. Ultimately, it is important to assess whether the benefits of holding the buffer outweigh the costs. From an individual institution's perspective, the ideal size and quality of the buffer is the one where the marginal benefits of holding it are equal to the marginal costs. However, this ignores the externalities associated with liquidity distress (e.g. spill-over effects and the systemic impact of banking failures), as well as moral hazard issues (institutions might not bear the full consequences of the risks they are bearing due to possible state aid).

27. In any case, holding an adequate buffer is beneficial in the sense that it is an insurance against future losses. The quality of this insurance is a combination of the size of the buffer and the quality of the assets the buffer comprises

1. Definition of liquidity buffer and survival period

28. Liquidity risk management in banks makes use of a broad range of measures including, among others, funding ratios and limits for maturity gaps, stress-test-based liquidity buffers or refinancing limits for shorter and longer periods and contingency planning. These guidelines are focused on liquidity buffers at the short end of the counterbalancing capacity only

29. The main principles underlying the function and composition of liquidity buffers are set out in Recommendation 16 of CEBS's Advice on Liquidity Risk Management.

> ***Recommendation 16 -*** Liquidity buffers are of the utmost importance in times of stress, when an institution has an urgent need to raise liquidity within a short timeframe and normal funding sources are no longer available or do not provide enough liquidity. These buffers, composed of cash and other highly liquid unencumbered assets, should be sufficient to enable an institution to weather liquidity stress during its defined 'survival period' without requiring adjustments to its business model.

30. This Consultation Paper introduces formal definitions of "liquidity buffer" and "survival period", and provides a common understanding of cash flow projections and the determination of liquidity risk. Using this concept, the paper further defines the liquidity buffer and survival period as a subset of overall liquidity and liquidity risk management.

1.1 Cash flows and Counterbalancing Capacity

31. Institutions should develop cash-flow projections covering expected cash inflows, expected cash outflows, and expected counterbalancing capacity, broken down along major business lines, instruments, and maturity buckets. When determining expected cash-flows and expected counterbalancing capacity, institutions should distinguish between contractual and behavioural flows and choose the type that is most appropriate and/or most conservative in estimating their liquidity situation over time.

32. For each maturity bucket, the sum of expected outflows should be determined and subtracted from the sum of expected inflows. Whenever this leads to a funding gap – i.e., when outflows outweigh inflows within a given maturity bucket – that gap should be filled by liquidity available from various funding sources that are part of the counterbalancing capacity, or carried over from other longer maturities.

33. Two types of cash-flow projections should be made, one under business-as-usual assumptions for day-to-day liquidity management purposes and one under stress conditions. The application of stress scenarios should be based on the business-as-usual projections. All expected flows in all lines and for all maturity buckets should then be

revised according to the assumptions made under the stress scenarios. The number of scenarios and their granularity in terms of the business and the positions/sources should adequately reflect the level of complexity, business model, and size of the institution.

34. All three types of flows should be subjected to stress assumptions, namely the inflows, outflows, and the counterbalancing capacity according to the relevant scenarios. The insights gained from this exercise should be instrumental in developing the liquidity risk management approach, including the institution's liquidity risk tolerance, funding strategy, and contingency funding plans. The institution should, as a result, plan its liquidity generation capability, its liquidity holdings, its business strategy and its funding approach according to its risk tolerance.

35. Whereas cash inflows and outflows are a function of the business strategy and the business model, counterbalancing capacity is a derived plan to ensure the necessary funding to allow the execution of the planned business activity and strategy over a longer term.

36. In other words, the counterbalancing capacity should be a plan to hold, or have access to, excess liquidity over and above a business-as-usual scenario over the short, medium and long-term time horizons in response to stress scenarios, as well as a plan for further liquidity generation capabilities, whether through tapping additional funding sources, making adjustments to the business, or through other more fundamental measures. The latter element should be addressed through the establishment of contingency funding plans. Counterbalancing capacity, therefore, includes – but is much broader than – the liquidity buffer.

1.2 Liquidity buffers

37. The liquidity buffer should be the short end of the counterbalancing capacity. It is defined as the excess liquidity available outright to be used in liquidity stress situations within a given short-term period. In other words, it is the availability of liquidity, which obviates the need to take any extraordinary measures. The size of the buffer should be determined according to the funding gap under stress conditions over specified time horizons (the "survival periods"). The survival period and the related liquidity buffer should not supersede or replace other measures taken to manage the net funding gap and funding sources, and the institution's focus should be on surviving well beyond the stress period. Therefore, the survival period should only be the period during which an institution can continue operating without needing to generate additional funds and still meet all its payments due under the assumed stress scenarios.

Guideline 1 **– A liquidity buffer represents available liquidity, covering the additional need for liquidity that may arise over a defined short period of time under stress conditions.**

38. The liquidity buffer should be determined in three dimensions: the severity and characteristics of the stress scenarios, the time horizon fixed as the survival period, and the characteristics of the assets in the buffer. The remainder of the paper sets out guidance for credit institutions' choices on these three dimensions. The first two dimensions are covered in Section 2, and the third is covered in Section 3.

2. Assumptions driving the size of the buffer

2.1 General principles

39. As liquidity risk is largely institution-specific, banks are expected to tailor their liquidity management, stress tests and liquidity reserves to their specific needs. This, however, does not preclude the approach which aims to capture liquidity risk factors that are common to all banks.

40. The combination of tiered market structure and concentration of activity imply that the potential severity of contagion is higher for large banks, - assuming a function of money centre - than for small banks at the fringe of the market. This provides a rationale for authorities to focus on the liquidity risk management, stress tests, liquidity buffers and contingency funding plans of money centre banks and underlines the case for proportionality.

41. Liquidity risk varies across credit institutions, and the underlying risk should be properly reflected. This provides a rationale for a risk-based approach. In line with CEBS's Advice on Liquidity Risk Management, the banks' liquidity stress tests are subject to supervisory review.

42. All material sources of liquidity risk should be included under any approach, regardless of their nature as liabilities or assets, on-balance-sheet or off-balance-sheet, currency denomination etc.

2.2 Types of stresses to be considered

43. The calibration of the buffer in the first dimension will depend on the assumptions used to define the stress conditions that a banking group should be able to withstand. Three fundamental types of stresses should be considered: idiosyncratic stress; market specific stress; and a combination of the two. The combination of the two should not be an automatic addition as there could be many interactions to take into consideration. The three types of stress tests have the advantage of covering most possible types of scenarios a banking group could face and of providing insights into the dynamics of each of these scenarios. In these three types of stress scenarios, wholesale funding should be divided into financial corporates, large non-financial corporates and small and medium-sized enterprises (SME), including companies in a single person name. The speed of reaction of the depositors depends on the strength of their relationships with the institution.

44. Idiosyncratic stress is typically defined by a loss of market confidence in an individual bank or banking group, equivalent to a multi-notch downgrade. It is likely to affect all of the institution/the group's funding sources. A plausible assumption would be no rollover of unsecured wholesale funding in the acute phase of the stress. Secured funding would potentially be less affected than unsecured funding. Some outflow of retail funding is likely. As well as having an impact upon funding sources, a multi-notch downgrade can trigger demands for collateral and margin from counterparties (for example, under the agreed terms of widely accepted documentation), which will have an impact upon the size of the buffer just at the time when it might most be needed. Experience has also shown that single name headlines or a sudden loss of market confidence in an institution - for instance – can have a severe direct effect on the institutions funding situation.

45. Market-wide stress is typically defined as the simultaneous tightening of available funding in several markets and uncertainty about, or a general decline in, the value of financial assets and the impact of economic recession (or slowdown). In a market-wide shock, a general negative impact on the value of marketable assets (as well as on the marketability of some types of assets) should be assumed. Wholesale funding (both unsecured and secured, if there is a general lack of trust in financial instruments used to secure funding) should be assumed to decline first and be most affected. Wholesale funding outflows should be assumed to consist of a gradual leakage of funds, with a reduction in the maturity profile of the funding available. Significant potential liquidity requirements beyond their expected and historic levels from off-balance sheet contingent lines should also be assumed.

***Guideline 2* – Institutions should apply three types of stress scenarios, idiosyncratic, market specific and a combination of the two. The core of the idiosyncratic stress should assume no rollover of unsecured wholesale funding and some outflows of retail deposits. The market-wide stress should assume a decline in the liquidity value of some assets and deterioration in funding market conditions.**

46. Each type of stress should be characterised by specific assumptions.

47. These stress scenarios should be consistent with other bank-wide stress tests to ensure that the entire risk management system is consistent and logically integrated.

48. For detailed guidance on stress tests' assumptions, please refer to CEBS's guidelines on stress testing[5].

[5] CEBS's guidelines on stress testing are available at http://www.c-ebs.org/getdoc/e68d361e-eb02-4e28-baf8-0e77efe5728e/GL03stresstesting.aspx

2.3 Time horizons

49. The time period considered should be divided into two phases: a short acute phase of stress (for example, up to one or two weeks) followed by a longer period of less acute, but more persistent stress (for example, up to one or two months). This approach has the merit of looking at different levels of severity for the stress scenarios, linked to different ways of addressing the stress within the liquidity buffer. Beyond these time horizons, other measures should be considered such as contingency funding planning, activity adjustment, business model change, etc.

50. The two-tiered construction of the buffer will not influence the buffer's total size, which is driven purely by the total anticipated needs over the longer of the two sub-periods; but it will ensure that the buffer is composed of appropriate assets which can be liquidated under the assumed stresses in the given sub-periods. The relative size of each of the tiers will determine the amounts of the buffer to be held in various forms with various degrees of liquidity of the assets. For the shorter end, only very cash-near assets would qualify, whereas for the remainder of the period, other funds could qualify, respecting the progressive need for liquidity anticipated over the entire survival period.

***Guideline 3* – A survival period of at least one month should be applied to determine the overall size of the liquidity buffer under the chosen stress scenarios. Within this period, a shorter time horizon of at least one week should also be considered to reflect the need for a higher degree of confidence over the very short term.**

51. The resulting buffer requirements should reflect the assumed liquidity strains in the respective sub-periods as determined by the stress scenarios.

52. The distribution of the buffer, in terms of composition and relative size over the two horizons, should reflect the projected liquidity needs, given the underlying assumptions.

53. In any period chosen as the survival horizon, it will be necessary to ensure that the buffer will allow the institution to survive each day of this period as cumulative flows build up. Banks should establish appropriate action plans to regularise the situation in the event that the buffer falls below the required minimum amount of the stress scenario.

3. Composition of the buffer

54. The buffer should be composed mainly of cash and the most reliably liquid assets, even in stressed circumstances, which banks can sell or repo regardless of their own condition (short of a complete loss of confidence) without accepting large 'fire sale' discounts, which would further erode the market's confidence in them and generate mark-to-market losses for other banks holding similar instruments.

55. While highly liquid marketable assets should constitute the core of the buffer, allowing it to cover the acute phase of stress, other assets, which require a longer time to liquidate, could be included in the buffer, which, therefore, would be available for the longer end of the survival period. Assets chosen for the core of the buffer need to be liquidable with a greater degree of confidence.

***Guideline 4* – The liquidity buffer should be composed of cash and a core of assets that are both central bank eligible and highly liquid in private markets. For the longer end of the buffer, a broader set of liquid assets might be appropriate, subject to the bank demonstrating the ability to generate liquidity under stress from them within the specified period of time.[6]**

56. The liquidity buffer is a key component of any firm's liquidity risk management, being more particularly, but not exclusively, available in the event that the institution suffers an institution-specific short-term stress.

57. Eligible cash is the cash corresponding to the monetary base as defined by the central banks. It should exclude cash that is unavailable due to business-as-usual requirements such as cash held in ATMs, etc. For the purpose of determining the amount of cash available, sight deposits held in the interbank market should be treated consistently and symmetrically with assumptions made in the stress scenarios.

58. When considering the eligibility of reserves held at the central bank, it is important to take account of the particularities of the facilities at different central banks. For example, some central banks have voluntary reserve systems and some have compulsory minimum reserves.

59. In the case of voluntary reserve systems, all reserves held at the central bank should be considered eligible for the liquidity buffer.

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[6] One member's favoured approach is to define the liquidity buffer as comprising high quality securities that have low credit risk (not correlated with the credit risk of the banking sector) and which are resiliently liquid in private markets, even in stressed circumstances.

60. In the case of compulsory minimum reserves, banks need to consider the time horizon over which the reserves may be available. For the shorter time horizon (i.e., at least one week) the entire O/N cash holdings at central banks, including reserves, can be included in the liquidity buffer. In the absence of an averaging mechanism in the reserve requirement regime, banks should, however, establish predefined action plans to regularise the reserve requirements in the event of a breach and define formal trigger points for implementing these plans. When an averaging mechanism in the reserve requirement regime applies, banks should establish predefined action plans to regularise the reserve requirements when the risk of a breach starts to arise and define formal trigger points for implementing these plans. Over the longer time horizon (at least one month), only excess cash above reserve requirements may be included.

61. Firms should hold a core of assets that are both central bank eligible and highly liquid in private markets (such as high quality unencumbered government bonds, covered bonds, etc.; qualifying assets vary according to specific jurisdictional circumstances) to guard against severe, but short-term (at least one week) periods of liquidity stress where market liquidity is under strain and the institution needs to be able to generate liquidity immediately and at predictable values without adding to the market strain.

62. For the longer time horizon of at least one month, banks may hold a wider set of liquid assets, subject to the bank demonstrating the ability to generate liquidity from them under stress[7] within the specified period of time. In their internal policies, credit institutions could specify criteria relevant for distinguishing assets that are more likely than others to remain liquid under stress. Such criteria could, for example, encompass characteristics of the issuer of a security; the depth and breadth of the relevant market over a sufficiently long period of time (e.g. 10 years); etc. These examples are provided as mere suggestions, with a view to prompting discussion during the consultation period. It should be clearly noted that credit institutions remain responsible for the market liquidity risk associated with the assets they hold in their liquidity buffer.

63. As previously indicated in CEBS's Interim Report on Liquidity Buffers[8], central bank eligibility plays a role in identifying the liquid assets composing the liquidity buffer, since central bank collateral lists are defined in normal times predominantly around marketability criteria. Furthermore, the reference to central bank eligibility in this paper

[7] "under stress" means not only stressed liquidity, but also stress on value of these assets (especially in the case of market and combined stress, since the value of such assets is more likely to be negatively affected).

[8] Please see CEBS's Interim Report on Liquidity Buffers & Survival Periods (March 2009), Section 3, page 12.

excludes emergency facilities that may be offered by central banks in stressed times.

64. It will be important for banks to have a clear understanding of the terms and conditions under which central banks may provide funding against assets eligible as collateral under stressed conditions. Banks should periodically test whether central banks will effectively provide funding against such assets and should apply appropriate haircuts to reflect the amount of funding that central banks might actually provide in stressed scenarios (for the assets in question and for the banks themselves). Furthermore, banks will have to demonstrate adequate diversification in the total composition of the buffer so as to guarantee to supervisors that they are not relying too heavily on access to central bank facilities as their main source of liquidity. Regular participation in open market operations should not, per se, be interpreted as a close dependence on central banks.

65. As banks are often subject to various forms of regulatory requirements related to liquidity in several jurisdictions, a potential conflict between these requirements and the demand for liquidity buffers might arise. Where such a conflict is present, the overlap between the pools of liquid assets that banks would hold in response to the present guidelines and other pools of liquid assets that banks hold to meet regulatory requirements has to be assessed.

66. The buffer is meant to be used to withstand a liquidity stress, whereas a regulatory requirement should be complied with at all times. As the liquidity buffer is determined as excess liquidity over business-as-usual conditions, banks should assess to what extent any regulatory requirement also exceeds their business-as-usual liquidity needs. In this case, a conflict potentially arises and a delineation of qualifying assets for both purposes should be made. Where assets qualify for both purposes, the liquidity buffer should be calculated as an excess over the regulatory requirement. In any other case, no conflict exists and both should be met separately without influencing each other. The only exception would be where supervisors allow a diminution of the regulatory requirement in times of stress. In this case, and where an overlap is clearly present, this part of the overlap could be included in the buffer. In any case, it is important for banks to establish a dialogue with regulators concerning possible overlaps or conflicts between the two.

***Guideline 5* – Credit institutions need to manage their stocks of liquid assets to ensure, to the maximum extent possible, that they will be available in times of stress. They should avoid holding large concentrations of single securities and there should be no legal, regulatory, or operational impediments to using these assets.**

67. Depending on the structure of the asset, issuer-specific factors (such as the issuer's credit quality), issuance-specific factors (such as the

maturity and size of the issuance), and institutional factors (such as whether the asset is traded in centralised markets or over the counter and whether it has a diversified investor base) can be important factors in determining the liquidity of asset classes and whether they will remain liquid in times of stress. Investors are more likely to regard an asset as a safe haven when the issuer's credit quality is high; the issuance is large; it is actively traded in organised markets and it has a diversified investor base.

68. Concentrations of particular securities should be avoided, as a market breakdown for these asset types could severely damage the institution's funding capacity. Banks should seek to diversify, for example, by issuer, maturity, and currency. The need to diversify holdings of assets becomes greater as the liquidity of the asset becomes lower (as indicated by the above factors). For example, it is more important to diversify a portfolio of high-quality corporate bonds than a portfolio of high-quality government bonds. Attempts to liquidate large concentrated positions of less liquid assets could trigger illiquidity in the market itself, with declines in market prices (fire sales), which may force other institutions to take write-downs on similar assets that they hold. That, in turn, could weaken the liquidity position of other banks, prompting further asset sales and an evaporation of market liquidity, adversely affecting the financial system as a whole.

69. Firms should seek to be active on a regular basis in each market in which they hold assets for liquidity purposes. Accessing the market regularly will help to reduce the potential stigma of firms suddenly accessing markets, alerting other firms to the fact that they may be under liquidity pressure (in turn, causing more investors to withdraw funds, thereby accentuating the liquidity pressure)[9].

70. In addition, as there may be legal or cross-border regulatory constraints that restrict firms' ability to use their buffer of liquid assets at particular times, or for particular purposes, firms should also ensure that they are aware of the specific constraints that apply in particular jurisdictions.

71. To use certain funding markets (e.g., repo or securitisation), banks need to have well-established platforms that allow them to raise more funds promptly. Setting up arrangements from scratch typically requires significant due diligence and thus time. If such operational arrangements are not in place as a matter of normal business, rapid access in stressed times should not be relied upon.

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[9] Based on the proportionality principle, smaller banks which access markets through another institution, will, in most cases, not have to be active in several advanced money and capital markets.

72. The specification of the liquidity buffer (type and amount of assets) should also be driven by the degree to which legal entities should be self-sufficient in terms of liquidity, taking into account intra-group dependencies and the extent to which liquidity should be allocated to different currencies because of potential disruptions in swap markets, etc.

***Guideline 6* – The location and size of liquidity buffers within a banking group should adequately reflect the structure and activities of the group in order to minimize the effects of possible legal, regulatory or operational impediments to using the assets of the buffer.**

73. The buffer should differentiate between currencies, and should reflect legal entity specificities where appropriate, especially with regard to intra-group exposures. Determining the adequate location and size of buffers for legal entities, jurisdictions, and regions should be responsive to individual needs and situations. In general, several drivers of the decision process can be identified, such as operational risk considerations, the degree of centralisation of liquidity management, jurisdictional specificities in terms of winding up directives, deposit guarantee schemes and local regulatory requirements, different treatment of branches and subsidiaries, and differences in local business models, time zones and access to capital markets. A final decision should be made and applied through the dialogue between the group and its home and host supervisors.

74. There is no single model for the organisation of liquidity management: they range from fully centralised management to the fully decentralised independent local management of liquidity. Centralised management of the buffers may be acceptable once it has been established that there are no impediments to the transfer of liquidity within the group and the relevant regulators are satisfied that the ability to move funds between entities would be resilient in a stress situation[10].

75. As a general principle, when an entity responsible for liquidity management has a material holding of a currency, it, by implication, has a material level of liquidity risk in this currency and should hold a buffer for it. The holding of several buffers may impose additional costs on banks, but it addresses the risk of potential disruptions in the foreign exchange market that may impair the ability to convert across currencies.

[10] See CEBS' Technical Advice to the European Commission on Liquidity Risk Management, September 2008, paragraphs 94-96, for a discussion on the complexities that may arise in a banking group using centralised liquidity management.

Annex 1 - Cash flows and Counterbalancing Capacity

1. Institutions should develop cash-flow projections covering expected cash inflows and outflows and expected counterbalancing capacity. Each of these projections should be further broken down into separate lines equivalent to the categories (origins/types) of the cash flows and/or the counterbalancing capacity. The breakdown into individual lines of categories of flows should be individual by bank and should reflect its business model, size, and complexity. The breakdown should allow an adequate representation of the main sources of inflows, outflows, and funds. Within each line, a further allocation of flows to the different time horizons in which they are expected to occur should be applied. The time horizons should be mutually exclusive and collectively exhaustive, and should be broken down into several buckets. These buckets should reflect the expected maturity of the various flows, and will be called maturity buckets. The maturity buckets shall range from overnight to one year, with intermediate categories of more than one day and up to one week, more than one week and up to one month, more than one month and up to three months, more than three months and up to six months, and finally more than six months and up to one year. Institutions are at liberty to extend their projections further if relevant to their business.

2. When determining expected cash flows and counterbalancing capacity, institutions should distinguish between contractual and behavioural flows and choose the most appropriate or most conservative type in estimating their liquidity situation over time. Indeed, there could be a huge divergence between what normally happens as a matter of day-to-day reality and what the contractual entitlements of the liability holders actually are. Contractual flows are those determined by the contractual determinants of cash-flows, such as the term period of a term deposit. In reality, term deposits are generally rolled over, and as such, a reasonable assumption could be the continuing availability of these deposits over a much longer period of time under normal circumstances. The impact of such a behavioural assumption would be to postpone the expected outflow of a specific deposit in time to a later maturity bucket than the pure contractual assumptions would imply. Where such assumptions are made, they must be based on observed behaviour and regularly back-tested where possible. Assumptions should be revised appropriately when applying stress scenarios to expected cash-flows.

3. For each maturity bucket, the sum of expected outflows should be determined and subtracted from the sum of expected inflows. Whenever this leads to a funding gap – i.e., when outflows outweigh inflows within a given time bucket – this gap should be filled by liquidity available from various funding sources that are part of the counterbalancing capacity or carried over from other periods. A cumulative view over time of the inflows, outflows, and counterbalancing capacity should be constructed to take into account

carryovers from one period to the next and to give a view off the total balance between the flows and counterbalancing capacity over time. Carryovers should be reasonable and conservative where possible. Carryovers from fairly distant periods or of major importance should be avoided, as they will increase uncertainty and hence risk.

4. Cash-flow projections of this type allow an institution to gain insight into its future liquidity situation, to plan its liquidity management, to manage its activities, and to develop alternative tactics or strategies, by uncovering potential problem areas early on. It also forms the basis for the application of stress scenarios at a later stage and hence the active management of liquidity risk, the determination of required liquidity buffers and the dialogue with the authorities.

5. The example outlined below illustrates this concept of cash-flow projections for up to three months:

Date	Currency					
Flow Type	**Position/Souce**	**Up to 1 day**	**1 to 7 days**	**7 to 30 days**	**1 to 3 months**	**> 3 months**
Cash Inflows						
	Sum of cash inflows					
Cash Outflows						
	Sum of cash outflows					
	Net Funding Gap					
	Cumulated Funding Gap					
Counterbalancing Capacity						
	Sum of counterbalancing capacity					
	Cumulated counterbalancing capacity					

6. The example below shows a possible construction of a cash-flow projection for up to six months. The template comprises money market lending and FX-swaps, so that short-term net-gaps are not negative under business-as-usual. For the purpose of supervision, the template also presents net-funding gaps and cumulated counterbalancing capacity before money market and FX-swaps. The calculations are based on projected cash-flows. For the 6 to 12 months bucket contractual/planned cash-flows could be used, as projections are increasingly unreliable over longer horizons.:

		Credit Institute						
	Date	Currency: EUR Mio (extra sheets for USD, CHF, GBP, YEN, other currencies in Euro equivalents)						
		Positions	up to 5 days	> 5 days ≤ 1 month	> 1 month ≤ 3 months	> 3 months ≤ 6 months	> 6 months ≤ 12 months	Comments
Cash Inflows	1.1.	Loans due from credit institutions (interbank deposits)						
	1.2.	Fixed issuances (short term, e.g. CP, CD, FRN) [incl. private placements] [conservative estimate]						
	1.3.	Fixed issuances (long-term, e.g. bonds) [incl. private placements] [conservative estimate]						
	1.4.	Expected issuances (short term, e.g. CP, CD, FRN) [incl. private placements] [conservative estimate]						
	1.5.	Expected issuances (long term, e.g.bonds) [incl. private placements] [conservative estimate]						
	1.6.	Expected inflow of unsecured interbank deposits [conservative est.]						
	1.7.	Expected inflow of secured interbank deposits (Repos) [conservative est.]						
	1.6.	Expected inflow of wholesale deposits [conservative estimate]						
	1.7.	Expected inflow of retail deposits [conservative estimate]						
	1.8.	Expected loans due from non-banks						
	1.11.	Expected inflow due to new FX-swaps [conservative est.]						
	1.12.	Expected inflow due to maturing FX-swaps						
	1.13.	Expected inflow from maturing assets in own portfolio						
	1.9.	Other (e.g. reverse repos)						
	1.0.	**Sum Cash Inflows**	0	0	0	0	0	
Cash Outflows	2.1.	Wholesale Funding						
	2.1.1.	Tender (due)						
	2.1.2.	Liabilities due to credit institutions (interbank deposits)						
	2.1.3.	Repos (due)						
	2.1.4.	Short-term paper due (e.g. CP, CD, FRN) [incl. private placements]						
	2.1.5.	Long-term paper due (e.g. bonds, incl. coupon) [incl. private placements]						
	2.1.6.	Planned advances to credit institutions (money market)						
	2.2.	Outflow of wholesale-deposits (estimated/modelled) [conservative est.]						
	2.3.	Outflow of retail-deposits (estimated/modelled) [conservative est.]						
	2.2.	Expected/modelled outflow of deposits [conservative estimate]						
	2.3.	Expected new loans						
	2.4.	Liquidity support of subsidiaries/branches (actually required)						
	2.5.	Other (e.g. payments for long-term liabilities, coupons)						
	2.6.	Expected outflow due to new FX-swaps						
	2.7.	Expected outflow due to maturing FX-swaps						
	2.6.	Expected calling of credit committments [non-banks, conservative estimate, no stress]						
	2.7.	Expected calling of credit committments [banks, conservative estimate, no stress]						
	2.8.	Expected financial investments						
	2.0.	**Sum Cash Outflows**	0	0	0	0	0	
	3.0.	**Net Funding Gap**	0	0	0	0	0	
	4.0.	**Cumulated Net Funding Gap**	0	0	0	0	0	
	5.0.	**Counterbalancing Capacity****	0	0	0	0	0	
	5.1.	Tender/unencumbered collateral						
	5.2.	Liquid Assets*** (Marketable Securities, excl. Collateral posted with CBs)						
	5.2.1.	Cash, excess reserves at CBs						
	5.2.2.	AAA rated [average haircut: in %]						
	5.2.3.	AA rated [average haircut: in %]						
	5.2.4.	A rated [average haircut: in %]						
	5.2.5.	BBB rated [average haircut: in %]						
	5.2.6.	Others [average haircut: in %]						
	5.3.	Other assets assets available for collateralisation [e.g. credit claims and other illiquid assets)						
	5.4.	Callable, committed creditlines						
	5.5.	Liquidity support received from holding company (binding committment)****						
	6.0.	**Cumulated counterbalancing capacity**	0	0	0	0	0	Self-assessment

* Consolidated/sub-consolidated level.
** NB.: If the entire counterbalancing capacity can be liquidised within the first week, 5.0. will remain 0 for all other maturity bucketts [non-cumulated].
*** How much liquidity can be generated in the respective maturity buckett under the current market situation (e.g. by repo or sale)?
**** Only applicable on if completed on sub-consolidated level.

7. Two types of cash-flow projections should be made, one under business-as-usual assumptions for day-to-day liquidity management purposes, and one under stressed conditions, following various stressed scenarios for liquidity risk management purposes. The application of stress scenarios should be based on the business-as-usual projections. All expected flows in all lines and for all maturity buckets should then be revised according to the assumptions made under the stress scenarios. The number of scenarios, their granularity in terms of the business, and the positions/sources should adequately reflect the level of complexity, the business model, and the size of the individual institution.

8. All three types of flows should be subjected to stress assumptions concerning the inflows, outflows, and the counterbalancing capacity according to the relevant scenarios. The insights gained from this exercise should be instrumental in developing the liquidity risk management approach, including the institution's liquidity risk tolerance, funding strategy, and contingency funding plans. The institution should, as a result, plan its liquidity generation capability, its

liquidity holdings, its business strategy, and its funding approach according to its risk tolerance.

9. Whereas cash inflows and outflows are a function of the business strategy and the business model of the bank under normal circumstances, counterbalancing capacity will be viewed as a derived plan to ensure the necessary funding to allow the execution of the planned business activity and strategy over a longer term. Counterbalancing capacity should, therefore, provide for greater requirements for funding under stress conditions, as well as a possible decrease in the value of any planned, or future funds, and hence it should always exceed normal levels assumed under business-as-usual in order to mitigate risks. Also, the availability of certain funds, funding sources, etc., which are part of the normally assumed counterbalancing capacity should not be assumed equally under all scenarios; alternatives have to be developed and planned for. This should be reflected in a contingency funding plan.

10. In other words, the counterbalancing capacity should entail a plan to hold, or have access to, excess liquidity over and above a business-as-usual scenario over the short, medium, and long-term time horizons in response to stress scenarios, as well as a plan for further liquidity generation capabilities, whether through tapping additional funding sources, making adjustments to the business, or through other more fundamental measures. The latter element should be addressed through the establishment of contingency funding plans. Counterbalancing capacity, therefore, includes – but is much broader than – the liquidity buffer.

11. For the purposes of determining a liquidity buffer, counterbalancing capacity shall be viewed as the necessary and available funding under stress assumptions of a foreseeable nature.

12. Below is an illustration of these alternative views of counterbalancing capacity:

<table>
<tr><th colspan="2">Counterbalancing Capacity under different views</th><th colspan="3">Timeframe</th></tr>
<tr><th>View</th><th>Definition</th><th>Short-term</th><th>Medium-term</th><th>Long-term</th></tr>
<tr><td>Business-as-Usual view</td><td>Projections according to business plan</td><td colspan="3">Readily available funds to offset Business-as-Usual Net Funding Gap</td></tr>
<tr><td>"Planned Stress" view</td><td>Projections according to stressed business plan under "Planned" scenarios</td><td colspan="3">Readily available funds to offset Business-as-Usual Net Funding Gap
+
Planned additional funds to offset Incremental "Planned Stress" Net Funding Gap</td></tr>
<tr><td rowspan="2">"Protracted Stress" view</td><td rowspan="2">Readying the business for "Protracted Stress" scenarios, more severe and/or longer stresses</td><td colspan="3">Readily available funds to offset Business-as-Usual Net Funding Gap
+
Planned additional funds to offset Incremental "Planned Stress" Net Funding Gap
+</td></tr>
<tr><td colspan="2"></td><td>Other fund generation through Contingency Funding Plan to offset Incremental "Protracted Stress" Net Funding Gap</td></tr>
</table>

13. The liquidity buffer should be the short end of the counterbalancing capacity. It is defined as the excess liquidity available outright to be

used in liquidity stress situations within a given short-term period. In other words, it is liquidity available without the need to take any extraordinary measures. The size of the buffer should be determined according to the funding gap under stress conditions over defined time horizons (the “survival periods”). The survival period and the related liquidity buffer should not supersede or replace other measures taken to manage the net funding gap and funding sources, and the institution’s focus should be on surviving well beyond the stress period. Therefore, the survival period should only be the time period during which an institution can continue operating without needing to generate additional funds and still meet all its payments due under the assumed stress scenarios.

14. The liquidity buffer as a subset of counterbalancing capacity is defined conceptually below:

Liquidity Buffer as Subset of Counterbalancing Capacity		**Timeframe**		
View	**Definition**	**Short-term**	**Medium-term**	**Long-term**
Business-as-Usual view				
"Planned Stress" view	Projections according to stressed business plan under "Planned" scenarios	Readily available funds to offset Business-as-Usual Net Funding Gap + Planned additional funds to offset Incremental "Planned Stress" Net Funding Gap		
"Protracted Stress" view				

Annex 2 - What constitutes a reliably liquid asset in the market

1. The recent turbulence has reinforced the need to examine carefully the liquidity of asset markets, and relatedly, the characteristics that allow some markets to remain liquid with predictable prices in times of stress. Banks need to be careful not to be misled by the wide range of liquid markets during booms; as the recent turbulence has demonstrated, liquidity in some markets can dry up quickly during periods of banking sector stress. This note outlines some factors which influence whether or not the market for an asset can be relied upon to raise liquidity, when considered in the context of possible idiosyncratic and market-wide stresses. It also raises some issues that are important in any consideration of the holder's ability to convert the asset reliably and predictably into cash.

Market-related liquidity factors

2. Assets are considered to be high quality liquid assets if they can be easily and immediately converted into cash at little or no loss of value. The liquidity of an asset depends on the underlying stress scenario, the volume to be monetized and the time-frame considered. Nevertheless, there are certain assets that have a demonstrable track-record of generating funds without large fire-sale discounts, even in times of stress.

3. Bid-ask spreads are often used as a direct measure of market liquidity: they summarise, in a transparent way, the price at which traders will be willing to take on the risk of finding a matching purchaser. They will be affected by the competitiveness of the market: that is, the number of active market participants (market-makers or otherwise) who are prepared to deal in the asset and the resources they are willing to commit to it. In other words, bid-ask spreads are narrowest, and the asset most liquid, when it is not costly/risky to hold inventory for sale and, relatedly, when many parties are willing to deal in the asset.

4. Characteristics that tend to increase the liquidity of an asset include:

Market-related characteristics

- Active and sizable market: A deep and liquid market makes it easier for the asset to be traded in size and at a competitive price. Also, ceteris paribus, large issuance size may cause the asset to be

more liquid. Indicators of depth include high normal market volume and a large number of active traders. This means that the market will represent a range of views and that it will be difficult for any one large trader to price against a distressed seller, or to gain counterparty-specific information from the pattern of trading. The holder is less likely to drive the market price against them or to attract unwarranted attention to their disposal. The asset should have active outright sale and repo markets under most foreseeable conditions.

- Presence of committed market makers[11]: The presence of committed market-makers provides a degree of additional certainty for the continued availability of a market to sell into, and should improve the liquidity of relevant assets.
- Low market concentration: Having a diverse group of buyers and sellers in an asset's market increases the reliability of its liquidity.

Fundamental characteristics

- Low credit and market risk: assets which are less risky tend, in general, to have higher liquidity and their price volatility will be lower. On the credit risk front, the issuer having a high credit standing and there being a low degree of subordination increase an asset's liquidity. On the market risk front, low duration, low volatility, low inflation risk and being denominated in a convertible currency with low exchange rate risk all enhance an asset's liquidity
- Ease of valuation: an asset's liquidity increases if market participants are more likely to agree on its valuation. For some asset classes, the holders (or specialised intermediaries) are perceived to have higher-quality information on the underlying value than other market participants. For example, a bank's valuation of its own loans may be significantly better informed than the market's valuation. For such assets, counterparties may demand a wider than usual bid-ask spread or require lengthier due-diligence, which reduces their usefulness to a bank under liquidity stress. The complexity of a market instrument also reduces the

[11] Note of caution: if the liquidity in an asset is solely dependent on a small number of committed market-makers, their market power may enable them to manipulate the market. For example, they may refuse to provide quotes to a bank, which may lead to the bank's demise if it were dependent on the asset for liquidity.

certainty over its valuation. Valuing complex assets invariably involves forming expectations about many more future cash flows or returns. Counterparties are more likely to disagree on the valuation of complex instruments, so – particularly in stressed conditions – the holder may not be able to liquefy the asset at a 'reasonable' price. For similar reasons, counterparties may also need much longer to conduct necessary due-diligence.

- Low correlation with risky assets: Banks should ensure that their liquidity buffers are not subject to 'wrong-way risk'. This is the risk that an asset's price and liquidity are positively and highly correlated with banking sector stress. Such an asset should not be eligible for liquidity buffers as it would be illiquid exactly when the liquidity buffer needs to be mobilised.
- Listed on a developed and recognized market: Increases an asset's transparency.

Central bank eligibility

5. Eligibility for 'normal' central bank operations may be useful to assess the marketability of an asset and may contribute to its overall liquidity. There are two reasons why this may be the case.

6. First, eligibility may help to increase market demand for an asset if banks believe that they will be able to generate liquidity from the central bank and as central banks act in some ways as significant additional market participants/counterparties (Note though that this effect will be limited, because the quantity of liquidity available from central banks is limited).

7. Second, some central banks use marketability as the key criterion for determining their own eligibility lists for normal operations. Therefore, eligibility criteria may be perceived as a "quality check" of assets. However, in some other cases there is clear evidence that central bank eligibility does not confer marketability, e.g. note the illiquidity of asset – backed securities in the euro – area during the recent crises.

Delivering liquidity in practice

8. Even if a market is itself liquid, whether a specific holder can use the assets to generate cash depends on a bank's operational capability to mobilise its liquid resources and any economic impediments that may hinder it from doing so. Knowledgeable users of the market, familiar with its operational practices and known to other participants, will be able to lend or sell their holdings efficiently to deliver maximum liquidity value. But holders will differ in their abilities to achieve this outcome: the same asset may have different liquidity characteristics in different hands and situations. The following factors are important:

   - Maintaining private market repo capability: To use repos effectively, banks need to have well-established counterparty relationships and adequate headroom in counterparty credit limits: setting up repo arrangements *de novo* typically requires significant due-diligence, and thus time; and may alert counterparties to the possibility of distress.
   - Regular turning-over of assets in the liquidity buffer: As part of their scenario preparation, banks[12] may want to maintain a regular presence in the markets of their liquid assets. This ensures that the contingency funding plan is based on realistic operational information, and has the added advantage of minimising the possibility of market stigma which might arise from trading high quality assets under stress.
   - Not holding a large proportion of the market: If a bank holds a significant proportion compared to liquidity of the market, then even if that asset is relatively liquid in normal times the bank is likely to seriously disrupt liquidity in the asset if it attempts to liquidate a substantial part of its holding.

[12] See foot note 11