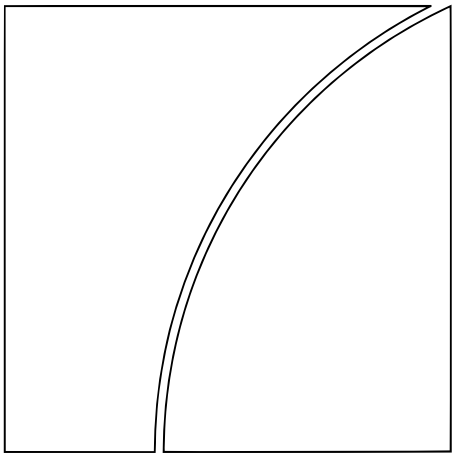
Basel Committee on Banking Supervision

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Supervisory review process

SRP50

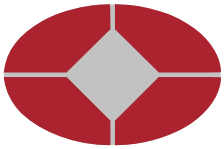
Liquidity monitoring metrics



This chapter liquidity monitoring metrics to aid supervisors in assessing liquidity risk. The tools cover contractual maturity mismatch, funding concentration, available unencumbered assets, LCR by currency, market-related monitoring tools and intraday metrics.

Version effective as of 15 December 2019

First version in the format of the consolidated framework.



BANK FOR INTERNATIONAL SETTLEMENTS

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Introduction

50.1

In addition to the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) standards, the minimum quantitative standards that banks must comply with, the Committee has developed a set of liquidity risk monitoring tools to measure other dimensions of a bank's liquidity and funding risk profile. These tools promote global consistency in supervising ongoing liquidity and funding risk exposures of banks, and in communicating these exposures to home and host supervisors. These metrics capture specific information related to a bank's cash flows, balance sheet structure, available unencumbered collateral and certain market indicators.

50.2

These metrics, together with the LCR and NSFR standard, provide the cornerstone of information that aid supervisors in assessing the liquidity risk of a bank. In addition, supervisors may need to supplement this framework by using additional tools and metrics tailored to help capture elements of liquidity risk specific to their jurisdictions. In utilising these metrics, supervisors should take action when potential liquidity difficulties are signalled through a negative trend in the metrics, or when a deteriorating liquidity position is identified, or when the absolute result of the metric identifies a current or potential liquidity problem. Examples of actions that supervisors can take are outlined in the Committee's Sound Principles (paragraphs 141-143).[1]

1 Footnote

1 *The Basel Committee's "Principles for Sound Liquidity Risk Management and Supervision" also contain more general guidance for banks and supervisors on liquidity risk management (www.bis.org/publ/bcbs144.htm).*

50.3

Consistent with their broader liquidity risk management responsibilities, bank management will be responsible for collating and submitting the monitoring data for the tools to their banking supervisor.[2] It is recognised that banks may need to liaise closely with counterparts, including payment system operators and correspondent banks, to collate the data. However, banks and supervisors are not required to disclose these reporting requirements publicly. Public disclosure is not intended to be part of these monitoring tools.

1 Footnote

2 *As agreed by national authorities in a particular jurisdiction, the monitoring data may be collected by a relevant domestic oversight authority (eg payments system overseer) instead of the banking supervisor.*

50.4

The tools in this chapter are for monitoring purposes only. Internationally active banks must apply these tools. These tools may also be useful in promoting sound liquidity management practices for other banks, whether they are direct participants[3] of a large-value payment system (LVPS)[4] or use a correspondent bank to settle payments. National supervisors will determine the extent to which the tools apply to non-internationally active banks within their jurisdictions.[5]

3 Footnotes

3 *"Direct participant" means a participant in a large-value payment system that can settle transactions without using an intermediary. If not a direct participant, a participant will need to use the services of a direct participant (a correspondent bank) to perform particular settlements on its behalf. Banks can be a direct participant in a large-value payment system while using a correspondent bank to settle particular payments, for example, payments for an ancillary system. Not all tools will be relevant to all reporting banks as liquidity profiles will differ between banks (eg whether they access payment and settlement systems directly or indirectly or whether they provide correspondent banking services and intraday credit facilities to other banks).*

4 *An LVPS is a funds transfer system that typically handles large-value and high-priority payments. In contrast to retail payment systems, many LVPSs are operated by central banks, using a real-time gross settlement (RTGS) system or equivalent mechanism. See Section 1.10 of CPSS/IOSCO Principles for financial market infrastructures, April 2012.*

5 *Throughout this document, all references to banks subject to the monitoring tools (in some instances the term reporting bank is used for the sake of clarity) should be interpreted in accordance with the scope of application set forth in this paragraph.*

50.5

The intraday monitoring tools should be reported monthly, alongside the LCR reporting requirements (see LCR20.7). Banks should agree with their supervisors the scope of application and reporting arrangements between home and host authorities.[6]

1 Footnote

6 *In some cases, it will also require co-operation between home and host authorities.*

Contractual maturity mismatch

50.6

The contractual maturity mismatch profile identifies the gaps between the contractual inflows and outflows of liquidity for defined time bands. These maturity gaps indicate how much liquidity a bank would potentially need to raise in each of these time bands if all outflows occurred at the earliest possible date. This metric provides insight into the extent to which the bank relies on maturity transformation under its current contracts. The metric is defined as contractual cash and security inflows and outflows from all on- and off-balance sheet items, mapped to defined time bands based on their respective maturities.

50.7

A bank should report contractual cash and security flows in the relevant time bands based on their residual contractual maturity. Supervisors in each jurisdiction will determine the specific template, including required time bands, by which data must be reported. Supervisors should define the time buckets so as to be able to understand the bank's cash flow position.

Possibilities include requesting the cash flow mismatch to be constructed for the overnight, 7 day, 14 day, 1, 2, 3, 6 and 9 months, 1, 2, 3, 5 and beyond 5 years buckets. Instruments that have no specific maturity (non-defined or open maturity) should be reported separately, with details on the instruments, and with no assumptions applied as to when maturity occurs. Information on possible cash flows arising from derivatives such as interest rate swaps and options should also be included to the extent that their contractual maturities are relevant to the understanding of the cash flows.

50.8

At a minimum, the data collected from the contractual maturity mismatch should provide data on the categories outlined in the LCR. Some additional accounting (non-dated) information such as capital or non-performing loans may need to be reported separately.

50.9

The following assumptions should be made with regard to contractual cash flows.

1. No rollover of existing liabilities is assumed to take place. For assets, the bank is assumed not to enter into any new contracts.
2. Contingent liability exposures that would require a change in the state of the world (such as contracts with triggers based on a change in prices of financial instruments or a downgrade in the bank's credit rating) need to be detailed, grouped by what would trigger the liability, with the respective exposures clearly identified.
3. A bank should record all securities flows. This will allow supervisors to monitor securities movements that mirror corresponding cash flows as well as the contractual maturity of collateral swaps and any uncollateralised stock lending/borrowing where stock movements occur without any corresponding cash flows.
4. A bank should report separately the customer collateral received that the bank is permitted to rehypothecate as well as the amount of such collateral that is rehypothecated at each reporting date. This also will highlight instances when the bank is generating mismatches in the borrowing and lending of customer collateral.

50.10

Banks will provide the raw data to the supervisors, with no assumptions included in the data. Standardised contractual data submission by banks enables supervisors to build a market-wide view and identify market outliers vis-à-vis liquidity.

50.11

Given that the metric is based solely on contractual maturities with no behavioural assumptions, the data will not reflect actual future forecasted flows under the current, or future, strategy or plans, ie, under a going-concern view. Also, contractual maturity mismatches do not capture outflows that a bank may make in order to protect its franchise, even where contractually there is no obligation to do so. For analysis, supervisors can apply their own assumptions to reflect alternative behavioural responses in reviewing maturity gaps.

50.12

As outlined in the Sound Principles, banks should also conduct their own maturity mismatch analyses, based on going-concern behavioural assumptions of the inflows and outflows of funds in both normal situations and under stress. These analyses should be based on strategic and business plans and should be shared and discussed with supervisors, and the data provided in

the contractual maturity mismatch should be utilised as a basis of comparison. When firms are contemplating material changes to their business models, it is crucial for supervisors to request projected mismatch reports as part of an assessment of impact of such changes to prudential supervision. Examples of such changes include potential major acquisitions or mergers or the launch of new products that have not yet been contractually entered into. In assessing such data supervisors need to be mindful of assumptions underpinning the projected mismatches and whether they are prudent.

50.13

A bank should be able to indicate how it plans to bridge any identified gaps in its internally generated maturity mismatches and explain why the assumptions applied differ from the contractual terms. The supervisor should challenge these explanations and assess the feasibility of the bank's funding plans.

Concentration of funding

50.14

This metric is meant to identify those sources of wholesale funding that are of such significance that withdrawal of this funding could trigger liquidity problems. The metric thus encourages the diversification of funding sources recommended in the Committee's Sound Principles. It is defined as follows:

1. Funding liabilities sourced from each significant counterparty as a % of total liabilities
2. Funding liabilities sourced from each significant product / instrument as a % of total liabilities
3. List of asset and liability amounts by significant currency

50.15

The numerator for SRP50.14(1) and SRP50.14(2) is determined by examining funding concentrations by counterparty or type of instrument/product. Banks and supervisors should monitor both the absolute percentage of the funding exposure, as well as significant increases in concentrations.

50.16

The numerator for counterparties is calculated by aggregating the total of all types of liabilities to a single counterparty or group of connected or affiliated counterparties, as well as all other direct borrowings, both secured and unsecured, which the bank can determine arise from the same counterparty[7] (such as for overnight commercial paper / certificate of deposit (CP/CD) funding).

1 Footnote

7 *For some funding sources, such as debt issues that are transferable across counterparties (such as CP/CD funding dated longer than overnight, etc), it is not always possible to identify the counterparty holding the debt.*

50.17

A "significant counterparty" is defined as a single counterparty or group of connected or

affiliated counterparties accounting in aggregate for more than 1% of the bank's total balance sheet, although in some cases there may be other defining characteristics based on the funding profile of the bank. A group of connected counterparties is, in this context, defined in the same way as in the “Large Exposure” regulation of the host country in the case of consolidated reporting for solvency purposes. Intra-group deposits and deposits from related parties should be identified specifically under this metric, regardless of whether the metric is being calculated at a legal entity or group level, due to the potential limitations to intra-group transactions in stressed conditions.

50.18

The numerator for type of instrument/product should be calculated for each individually significant funding instrument/product, as well as by calculating groups of similar types of instruments/products.

50.19

A “significant instrument/product” is defined as a single instrument/product or group of similar instruments/products that in aggregate amount to more than 1% of the bank's total balance sheet.

50.20

In order to capture the amount of structural currency mismatch in a bank’s assets and liabilities, banks are required to provide a list of the amount of assets and liabilities in each significant currency.

50.21

A currency is considered “significant” if the aggregate liabilities denominated in that currency amount to 5% or more of the bank's total liabilities.

50.22

The above metrics should be reported separately for the time horizons of less than one month, 1-3 months, 3-6 months, 6-12 months, and for longer than 12 months.

50.23

In utilising this metric to determine the extent of funding concentration to a certain counterparty, both the bank and supervisors must recognise that currently it is not possible to identify the actual funding counterparty for many types of debt.[8] The actual concentration of funding sources, therefore, could likely be higher than this metric indicates. The list of significant counterparties could change frequently, particularly during a crisis. Supervisors should consider the potential for herding behaviour on the part of funding counterparties in the case of an institution-specific problem. In addition, under market-wide stress, multiple funding counterparties and the bank itself may experience concurrent liquidity pressures, making it difficult to sustain funding, even if sources appear well diversified.

1 Footnote

8 *For some funding sources, such as debt issues that are transferable across counterparties (such as CP/CD funding dated longer than overnight, etc), it is not always possible to identify the counterparty holding the debt*

50.24

In interpreting this metric, one must recognise that the existence of bilateral funding transactions may affect the strength of commercial ties and the amount of the net outflow.[9]

1 Footnote

[9] *Eg where the monitored institution also extends funding or has large unused credit lines outstanding to the "significant counterparty".*

50.25

These metrics do not indicate how difficult it would be to replace funding from any given source.

50.26

To capture potential foreign exchange risks, the comparison of the amount of assets and liabilities by currency will provide supervisors with a baseline for discussions with the banks about how they manage any currency mismatches through swaps, forwards, etc. It is meant to provide a base for further discussions with the bank rather than to provide a snapshot view of the potential risk.

Available unencumbered assets

50.27

These metrics provide supervisors with data on the quantity and key characteristics, including currency denomination and location, of banks' available unencumbered assets. These assets have the potential to be used as collateral to raise additional high-quality liquid assets (HQLA) or secured funding in secondary markets or are eligible at central banks and as such may potentially be additional sources of liquidity for the bank. The metrics are defined as:

1. available unencumbered assets that are marketable as collateral in secondary markets; and
2. available unencumbered assets that are eligible for central banks' standing facilities.

50.28

A bank is to report the amount, type and location of available unencumbered assets that could serve as collateral for secured borrowing in secondary markets at prearranged or current haircuts at reasonable costs.

50.29

Likewise, a bank should report the amount, type and location of available unencumbered assets that are eligible for secured financing with relevant central banks at prearranged (if available) or current haircuts at reasonable costs, for standing facilities only (ie excluding emergency assistance arrangements). This would include collateral that has already been accepted at the central bank but remains unused. For assets to be counted in this metric, the bank must have already put in place the operational procedures that would be needed to monetise the collateral.

50.30

A bank should report separately the customer collateral received that the bank is permitted to deliver or re-pledge, as well as the part of such collateral that it is delivering or re-pledging at each reporting date.

50.31

In addition to providing the total amounts available, a bank should report these items categorised by significant currency. A currency is considered "significant" if the aggregate stock of available unencumbered collateral denominated in that currency amounts 5% or more of the associated total amount of available unencumbered collateral (for secondary markets or central banks).

50.32

In addition, a bank must report the estimated haircut that the secondary market or relevant central bank would require for each asset. In the case of the latter, a bank would be expected to reference, under business as usual, the haircut required by the central bank that it would normally access (which likely involves matching funding currency – eg European Central Bank for euro-denominated funding, Bank of Japan for yen funding, etc).

50.33

As a second step after reporting the relevant haircuts, a bank should report the expected monetised value of the collateral (rather than the notional amount) and where the assets are actually held, in terms of the location of the assets and what business lines have access to those assets.

50.34

These metrics are useful for examining the potential for a bank to generate an additional source of HQLA or secured funding. They will provide a standardised measure of the extent to which the LCR can be quickly replenished after a liquidity shock either via raising funds in private markets or utilising central bank standing facilities. The metrics do not, however, capture potential changes in counterparties' haircuts and lending policies that could occur under either a systemic or idiosyncratic event and could provide false comfort that the estimated monetised value of available unencumbered collateral is greater than it would be when it is most needed. Supervisors should keep in mind that these metrics do not compare available unencumbered assets to the amount of outstanding secured funding or any other balance sheet scaling factor. To gain a more complete picture, the information generated by these metrics should be complemented with the maturity mismatch metric and other balance sheet data.

LCR by significant currency

50.35

While the LCR is required to be met in one single currency, in order to better capture potential currency mismatches, banks and supervisors should also monitor the LCR in significant currencies. This will allow the bank and the supervisor to track potential currency mismatch issues that could arise. This metric is defined as follows.[10]

$$\textit{Foreign currency LCR} = \frac{\textit{Stock of HQLA in each significant currency}}{\textit{Total net cash outflows over a } 30 \textit{ day time period in each significant currency}}$$

1 Footnote

10 *Amount of total net foreign exchange cash outflows should be net of foreign exchange hedges.*

50.36

The definition of the stock of high-quality foreign exchange assets and total net foreign exchange cash outflows should mirror those of the LCR for common currencies.[11]

1 Footnote

11 *Cash flows from assets, liabilities and off-balance sheet items will be computed in the currency that the counterparties are obliged to deliver to settle the contract, independent of the currency to which the contract is indexed (or "linked"), or the currency whose fluctuation it is intended to hedge.*

50.37

A currency is considered “significant” if the aggregate liabilities denominated in that currency amount to 5% or more of the bank's total liabilities.

50.38

As the foreign currency LCR is not a minimum requirement but a monitoring tool, it does not have an internationally defined minimum required threshold. Nonetheless, supervisors in each jurisdiction could set minimum monitoring ratios for the foreign exchange LCR, below which a supervisor should be alerted. In this case, the ratio at which supervisors should be alerted would depend on the stress assumption. Supervisors should evaluate banks’ ability to raise funds in foreign currency markets and the ability to transfer a liquidity surplus from one currency to another and across jurisdictions and legal entities. Therefore, the ratio should be higher for currencies in which the supervisors evaluate a bank’s ability to raise funds in foreign currency markets or the ability to transfer a liquidity surplus from one currency to another and across jurisdictions and legal entities to be limited.

50.39

This metric is meant to allow the bank and supervisor to track potential currency mismatch issues that could arise in a time of stress.

Market-related monitoring tools

50.40

High-frequency market data with little or no time lag can be used as early warning indicators in monitoring potential liquidity difficulties at banks.

50.41

While there are many types of data available in the market, supervisors can monitor data at the following levels to focus on potential liquidity difficulties:

1. market-wide information;
2. information on the financial sector; and

3. bank-specific information.

50.42

Supervisors can monitor information both on the absolute level and direction of major markets and consider their potential impact on the financial sector and the specific bank. Market-wide information is also crucial when evaluating assumptions behind a bank's funding plan.

50.43

Valuable market information to monitor includes, but is not limited to, equity prices (ie overall stock markets and sub-indices in various jurisdictions relevant to the activities of the supervised banks), debt markets (money markets, medium-term notes, long term debt, derivatives, government bond markets, credit default spread indices, etc); foreign exchange markets, commodities markets, and indices related to specific products, such as for certain securitised products (eg the ABX asset-backed securities index).

50.44

To track whether the financial sector as a whole is mirroring broader market movements or is experiencing difficulties, information to be monitored includes equity and debt market information for the financial sector broadly and for specific subsets of the financial sector, including indices.

50.45

To monitor whether the market is losing confidence in a particular institution or has identified risks at an institution, it is useful to collect information on equity prices, credit default swap (CDS) spreads, money-market trading prices, the situation of roll-overs and prices for various lengths of funding, the price/yield of bank debenture or subordinated debt in the secondary market.

50.46

Information such as equity prices and credit spreads are readily available. However, the accurate interpretation of such information is important. For instance, the same CDS spread in numerical terms may not necessarily imply the same risk across markets due to market-specific conditions such as low market liquidity. Also, when considering the liquidity impact of changes in certain data points, the reaction of other market participants to such information can be different, as various liquidity providers may emphasise different types of data.

Monitoring tools for intraday liquidity management

50.47

A bank's failure to effectively manage intraday liquidity could leave it unable to meet its payment and settlement obligations on a timely basis, which could lead to liquidity dislocations that cascade quickly across many systems and institutions. As such, the bank's management of intraday liquidity risk should be considered as a crucial part of liquidity risk management. It should also actively manage its collateral positions and have the ability to calculate all of its collateral positions.

50.48

For the purpose of this chapter, the following definitions will apply to the terms stated below.

1. intraday liquidity: funds which can be accessed during the business day, usually to enable banks to make payments in real time;[12]
2. business day: the opening hours of the LVPS or of correspondent banking services during which a bank can receive and make payments in a local jurisdiction;
3. intraday liquidity risk: the risk that a bank fails to manage its intraday liquidity effectively, which could leave it unable to meet a payment obligation at the time expected, thereby affecting its own liquidity position and that of other parties; and
4. time-specific obligations: obligations which must be settled at a specific time within the day or have an expected intraday settlement deadline.

1 Footnote

12 *See the Committee on Payments and Market Infrastructures' glossary of payments and market infrastructure terminology as a reference to the standard terms and definitions used in connection with payment, clearing, settlement and related arrangements (www.bis.org/cpmi/publ/d00b.htm).*

Intraday liquidity sources and usage

50.49

The following sets out the main constituent elements of a bank's intraday liquidity sources and usage.[13] The list should not be taken as exhaustive.

1. Sources
    1. Own sources
    (i)

    Reserve balances at the central bank;

    (ii)

    Collateral pledged with the central bank or with ancillary systems[14] that can be freely converted into intraday liquidity;

    (iii)

    Unencumbered assets on a bank's balance sheet that can be freely converted into intraday liquidity;

    (iv)

    Secured and unsecured, committed and uncommitted credit lines[15] available intraday;

    (v)

    Balances with other banks that can be used for intraday settlement.

    2. Other sources
    (i)

    Payments received from other LVPS participants;

(ii)

Payments received from ancillary systems;

(iii)

Payments received through correspondent banking services.

2. Usage
    1. Payments made to other LVPS participants;
    2. Payments made to ancillary systems;[16]
    3. Payments made through correspondent banking services;
    4. Secured and unsecured, committed and uncommitted credit lines offered intraday;
    5. Contingent payments relating to a payment and settlement system's failure (eg as an emergency liquidity provider).

4 Footnotes

13 *Not all elements will be relevant to all reporting banks as intraday liquidity profiles will differ between banks (eg whether they access payment and settlement systems directly or indirectly or whether they provide correspondent banking services and intraday credit facilities to other banks etc.)*

14 *Ancillary systems include other payment systems such as retail payment systems, CLS, securities settlement systems and central counterparties.*

15 *Although uncommitted credit lines can be withdrawn in times of stress (see stress scenario (i) in SRP50.82), such lines are an available source of intraday liquidity in normal times.*

16 *Some securities settlement systems offer self-collateralisation facilities in co-operation with the central bank. Through these, participants can automatically post incoming securities from the settlement process as collateral at the central bank to obtain liquidity to fund their securities settlement systems' obligations. In these cases, intraday liquidity usage are only those related to the haircut applied by the central bank.*

50.50

In correspondent banking, some customer payments are made across accounts held by the same correspondent bank. These payments do not give rise to an intraday liquidity source or usage for the correspondent bank as they do not link to the payment and settlement systems. However, these "internalised payments" do have intraday liquidity implications for both the sending and receiving customer banks and should be incorporated in their reporting of the monitoring tools.

Summary of the intraday liquidity monitoring tools

50.51

A number of factors influence a bank's usage of intraday liquidity in payment and settlement

systems and its vulnerability to intraday liquidity shocks. As such, no single monitoring tool can provide supervisors with sufficient information to identify and monitor the intraday liquidity risk run by a bank. To achieve this, seven separate monitoring tools have been developed (see Table 1). As not all of the tools will be relevant to all reporting banks, the tools have been classified in three groups to determine their applicability as follows:

1. Category A: applicable to all reporting banks;
2. Category B: applicable to reporting banks that provide correspondent banking services; and
3. Category C: applicable to reporting banks which are direct participants.

The set of monitoring tools		Table 1
Tools applicable to all reporting banks		
A(i)	Daily maximum intraday liquidity usage	
A(ii)	Available intraday liquidity at the start of the business day	
A(iii)	Total payments	
A(iv)	Time-specific obligations	
Tools applicable to reporting banks that provide correspondent banking services		
B(i)	Value of payments made on behalf of correspondent banking customers	
B(ii)	Intraday credit lines extended to customers	
Tool applicable to reporting banks which are direct participants		
C(i)	Intraday throughput	

Scope of application of the intraday liquidity monitoring tools

50.52

Banks generally manage their intraday liquidity risk on a system-by-system basis in a single currency, but it is recognised that practices differ across banks and jurisdictions, depending on the institutional set up of a bank and the specifics of the systems in which it operates. The following considerations aim to help banks and supervisors determine the most appropriate way to apply the tools. Should banks need further clarification, they should discuss the scope of application with their supervisors.

50.53

Banks which are direct participants to an LVPS can manage their intraday liquidity in very different ways. Some banks manage their payment and settlement activity on a system-by-system basis. Others make use of direct intraday liquidity "bridges"[17] between LVPS, which allow excess liquidity to be transferred from one system to another without restriction. Other formal arrangements exist, which allow funds to be transferred from one system to another (such as agreements for foreign currency liquidity to be used as collateral for domestic

systems).

1 Footnote

17 *A direct intraday liquidity bridge is a technical functionality built into two or more LVPS that allows banks to make transfers directly from one system to the other intraday.*

50.54

To allow for these different approaches, direct participants should apply a ‘bottom-up’ approach to determine the appropriate basis for reporting the monitoring tools. The following sets out the principles which such banks should follow:

1. As a baseline, individual banks should report on each LVPS in which they participate on a system-by-system-basis;
2. If there is a direct real-time technical liquidity bridge between two or more LVPS, the intraday liquidity in those systems may be considered fungible. At least one of the linked LVPS may therefore be considered an ancillary system for the purpose of the tools;
3. If a bank can demonstrate to the satisfaction of its supervisor that it regularly monitors positions and uses other formal arrangements to transfer liquidity intraday between LVPS which do not have a direct technical liquidity bridge, those LVPS may also be considered as ancillary systems for reporting purposes.

50.55

Ancillary systems (eg retail payment systems, CLS, some securities settlement systems and central counterparties), place demands on a bank’s intraday liquidity when these systems settle the bank’s obligations in an LVPS. Consequently, separate reporting requirements will not be necessary for such ancillary systems.

50.56

Banks that use correspondent banking services should base their reports on the payment and settlement activity over their account(s) with their correspondent bank(s). Where more than one correspondent bank is used, the bank should report per correspondent bank. For banks which access an LVPS indirectly through more than one correspondent bank, the reporting may be aggregated, provided that the reporting bank can demonstrate to the satisfaction of its supervisor that it is able to move liquidity between its correspondent banks.

50.57

Banks which operate as direct participants of an LVPS but which also make use of correspondent banks should discuss whether they can aggregate these for reporting purposes with their supervisor. Aggregation may be appropriate if the payments made directly through the LVPS and those made through the correspondent bank(s) are in the same jurisdiction and same currency.

50.58

Banks that manage their intraday liquidity on a currency-by-currency basis should report on an individual currency basis.

50.59

If a bank can prove to the satisfaction of its supervisor that it manages liquidity on a cross-currency basis and has the ability to transfer funds intraday with minimal delay – including in periods of acute stress – then the intraday liquidity positions across currencies may be aggregated for reporting purposes. However, banks should also report at an individual currency level so that supervisors can monitor the extent to which firms are reliant on foreign exchange swap markets.

50.60

When the level of activity of a bank's payment and settlement activity in any one particular currency is considered de minimis, with the agreement of the supervisor,[18] a reporting exemption could apply and separate returns need not be submitted.

1 Footnote

18 *As an indicative threshold, supervisors may consider that a currency is considered "significant" if the aggregate liabilities denominated in that currency amount to 5% or more of the bank's total liabilities. See SRP50.37.*

50.61

The appropriate organisational level for each bank's reporting of its intraday liquidity data should be determined by the supervisor, but it is expected that the monitoring tools will typically be applied at a significant individual legal entity level. The decision on the appropriate entity should consider any potential impediments to moving intraday liquidity between entities within a group, including the ability of supervisory jurisdictions to ring-fence liquid assets, timing differences and any logistical constraints on the movement of collateral.

50.62

Where there are no impediments or constraints to transferring intraday liquidity between two (or more) legal entities intraday, and banks can demonstrate this to the satisfaction of their supervisor, the intraday liquidity requirements of the entities may be aggregated for reporting purposes.

50.63

For cross-border banking groups, where a bank operates in LVPS and/or with a correspondent bank(s) outside the jurisdiction where it is domiciled, both home and host supervisors will have an interest in ensuring that the bank has sufficient intraday liquidity to meet its obligations in the local LVPS and/or with its correspondent bank(s).[19] The allocation of responsibility between home and host supervisor will ultimately depend upon whether the bank operating in the non-domestic jurisdiction does so via a branch or a subsidiary.

1. For a branch operation:
    1. The home (consolidated) supervisor should have responsibility for monitoring through the collection and examination of data that its banking groups can meet their payment and settlement responsibilities in all countries and all currencies in which they operate. The home supervisor should therefore have the option to receive a full set of intraday liquidity information for its banking groups, covering both domestic and non-domestic payment and settlement obligations.
    2. The host supervisor should have the option to require foreign branches in their jurisdiction to report intraday liquidity tools to them, subject to materiality.
2. For a subsidiary active in a non-domestic LVPS and/or correspondent bank(s):

1. The host supervisor should have primary responsible for receiving the relevant set of intraday liquidity data for that subsidiary.
2. The supervisor of the parent bank (the home consolidated supervisor) will have an interest in ensuring that a non-domestic subsidiary has sufficient intraday liquidity to participate in all payment and settlement obligations. The home supervisor should therefore have the option to require non-domestic subsidiaries to report intraday liquidity data to them as appropriate.

1 Footnote

[19] *Paragraph 145 of the Sound Principles states that "the host supervisor needs to understand how the liquidity profile of the group contributes to risks to the entity in its jurisdiction, while the home supervisor requires information on material risks a foreign branch or subsidiary poses to the banking group as a whole.*

Intraday monitoring tools applicable to all reporting banks

Daily maximum intraday liquidity usage

50.64

The daily maximum intraday liquidity usage tool will enable supervisors to monitor a bank's intraday liquidity usage in normal conditions. It will require banks to monitor the net balance of all payments made and received during the day over their settlement account, either with the central bank (if a direct participant) or over their account held with a correspondent bank (or accounts, if more than one correspondent bank is used to settle payments). The largest net negative position during the business day on the account(s), (ie the largest net cumulative balance between payments made and received), will determine a bank's maximum daily intraday liquidity usage. The net position should be determined by settlement time stamps (or the equivalent) using transaction-by-transaction data over the account(s). The largest net negative balance on the account(s) can be calculated after close of the business day and does not require real-time monitoring throughout the day.

50.65

For illustrative purposes only, the calculation of the tool is shown in Figure 1. A positive net position signifies that the bank has received more payments than it has made during the day. Conversely, a negative net position signifies that the bank has made more payments than it has received.[20] For direct participants, the net position represents the change in its opening balance with the central bank. For banks that use one or more correspondent banks, the net position represents the change in the opening balance on the account(s) with its correspondent bank(s).

1 Footnote

[20] *For the calculation of the net cumulative position, "payments received" do not include funds obtained through central bank intraday liquidity facilities.*
Daily maximum intraday liquidity usage
Figure 1

50.66

Assuming that a bank runs a negative net position at some point intraday, it will need access to intraday liquidity to fund this balance. The minimum amount of intraday liquidity that a bank would need to have available on any given day would be equivalent to its largest negative net position. (In the illustration above, the intraday liquidity usage would be 10 units.)

50.67

Conversely, when a bank runs a positive net cumulative position at some point intraday, it has surplus liquidity available to meet its intraday liquidity obligations. This position may arise because the bank is relying on payments received from other LVPS participants to fund its outgoing payments. (In the illustration above, the largest positive net cumulative position would be 8.6 units.)

50.68

Banks should report their three largest daily negative net cumulative positions on their settlement or correspondent account(s) in the reporting period and the daily average of the negative net cumulative position over the period. The largest positive net cumulative positions, and the daily average of the positive net cumulative positions, should also be reported. As the reporting data accumulates, supervisors will gain an indication of the daily intraday liquidity usage of a bank in normal conditions.

Available intraday liquidity at the start of the business day

50.69

The available intraday liquidity at the start of the business day tool will enable supervisors to monitor the amount of intraday liquidity a bank has available at the start of each day to meet its intraday liquidity requirements in normal conditions. Banks should report both the three smallest sums by value of intraday liquidity available at the start of each business day in the reporting period, and the average amount of available intraday liquidity at the start of each business day in the reporting period. The report should also break down the constituent elements of the liquidity sources available to the bank.

50.70

Drawing on the liquidity sources set out in SRP50.49 and SRP50.50, banks should discuss and agree with their supervisor the sources of liquidity which they should include in the calculation of this tool. Where banks manage collateral on a cross-currency and/or cross-system basis, liquidity sources not denominated in the currency of the intraday liquidity usage and/or which are located in a different jurisdiction, may be included in the calculation if the bank can demonstrate to the satisfaction of its supervisor that the collateral can be transferred intraday freely to the system where it is needed.

50.71

As the reporting data accumulates, supervisors will gain an indication of the amount of intraday liquidity available to a bank to meet its payment and settlement obligations in normal conditions.

Total payments

50.72

The total payments tool will enable supervisors to monitor the overall scale of a bank's payment activity. For each business day in a reporting period, banks should calculate the total of their gross payments sent and received in the LVPS and/or, where appropriate, across any account(s) held with a correspondent bank(s). Banks should report the three largest daily values for gross payments sent and received in the reporting period and the average daily figure of gross payments made and received in the reporting period.

Time-specific obligations

50.73

The time-specific obligations tool will enable supervisors to gain a better understanding of a bank's time specific obligations.[21] Failure to settle such obligations on time could result in financial penalty, reputational damage to the bank or loss of future business.

1 Footnote

[21] *These obligations include, for example, those for which there is a time-specific intraday deadline, those required to settle positions in other payment and settlement systems, those related to market activities (such as the delivery or return of money market transactions or margin payments), and other payments critical to a bank's business or reputation (see footnote 10 of the Sound Principles). Examples include the settlement of obligations in ancillary systems, CLS pay-ins or the return of overnight loans. Payments made to meet the throughput guidelines are not considered time-specific obligations for the purpose of this tool.*

50.74

Banks should calculate the total value of time-specific obligations that they settle each day and report the three largest daily total values and the average daily total value in the reporting period to give supervisors an indication of the scale of these obligations.

50.75

A sample reporting template for banks that use correspondent banks (but do not provide correspondent banking services nor are direct participants), and so report only these monitoring tools, is provided in Table 2.

Sample reporting form for banks that use correspondent banks — Table 2

Reporting month				
Name of the correspondent bank				
A(i) Daily maximum intraday liquidity usage	Max	2d max	3d max	Average
Largest positive net cumulative position				
Largest negative net cumulative position				

A(ii) Available intraday liquidity at the start of the business day	Min	2d min	3d min	Average
Total of which: Balance with the correspondent bank				
Total credit lines available from the correspondent bank[22] of which: Secured Committed				
Collateral pledged at the correspondent bank				
Collateral pledged at the central bank				
Unencumbered liquid assets on a bank's balance sheet				
Central bank reserves				
Balances with other banks				
Other				
A(iii) Total payments	Max	2d max	3d max	Average
Gross payments sent				
Gross payments received				
A(iv) Time-specific obligations	Max	2d max	3d max	Average
Total value of time-specific obligations				

1 Footnote

22 *Paragraph 145 of the Sound Principles states that "the host supervisor needs to understand how the liquidity profile of the group contributes to risks to the entity in its jurisdiction, while the home supervisor requires information on material risks a foreign branch or subsidiary poses to the banking group as a whole.*

Additional intraday monitoring tools applicable to reporting banks that provide correspondent banking services

Value of payments made on behalf of correspondent banking customers

50.76

The value of payments made on behalf of correspondent banking customers[23] tool will enable supervisors to gain a better understanding of the proportion of a correspondent bank's payment flows that arise from its provision of correspondent banking services. These flows may have a significant impact on the correspondent bank's own intraday liquidity management.[24]

2 Footnotes

23 *The term "customers" includes all entities for which the correspondent bank provides correspondent banking services.*

24 *Paragraph 79 of the Sound Principles states that: "[T]he level of a bank's gross cash inflows and outflows may be uncertain, in part because those flows may reflect the activities of its customers, especially where the bank provides correspondent or custodian services."*

50.77

Correspondent banks should calculate the total value of payments they make on behalf of all customers of their correspondent banking services each day and report the three largest daily total values and the daily average total value of these payments in the reporting period.

Intraday credit lines extended to customers

50.78

The intraday credit lines extended to customers[25] tool will enable supervisors to monitor the scale of a correspondent bank's provision of intraday credit to its customers. Correspondent banks should report the three largest intraday credit lines extended to their customers in the reporting period, including whether these lines are secured or committed and the use of those lines at peak usage.[26]

2 Footnotes

25 *Not all elements will be relevant to all reporting banks as intraday liquidity profiles will differ between banks (eg whether they access payment and settlement systems directly or indirectly or whether they provide correspondent banking services and intraday credit facilities to other banks)*

26 *The figure to be reported for the three largest intraday credit lines extended to customers should include uncommitted and unsecured lines. This disclosure does not change the legal nature of these credit lines.*

50.79

A sample reporting template for banks that relates to their provision of correspondent banking services is provided in Table 3.

Sample reporting form for banks that provide correspondent banking services				Table 3
Reporting month				
B(i) Value of payments made on behalf of correspondent banking customers	Max	2d max	3d max	Average
Total gross value of payments made on behalf of correspondent banking customers				
B(ii) Intraday credit lines extended to customers	Max	2d max	3d max	
Total value of credit lines extended to customers[27] of which: Secured Committed				
Used at peak usage				

1 Footnote

[27] *This figure includes all credit lines extended, including uncommitted and unsecured.*

Additional intraday monitoring tool applicable to reporting banks which are direct participants

Intraday throughput

50.80

The intraday throughput tool will enable supervisors to monitor the throughput of a direct participant's daily payments activity across its settlement account. Direct participants should report the daily average in the reporting period of the percentage of their outgoing payments (relative to total payments) that settle by specific times during the day, by value within each hour of the business day.[28] Over time, this will enable supervisors to identify any changes in a bank's payment and settlement behaviour.

1 Footnote

[28] *It should be noted that some jurisdictions already have throughput rules or guidelines in place.*

50.81

A sample reporting template for banks that are direct participants (and which do not use nor provide correspondent banking services) is provided in Table 4.

Sample reporting form for direct participants				Table 4
Reporting month				
Name of the large value payment system				
A(i) Daily maximum intraday liquidity usage	Max	2d max	3d max	Average
Largest positive net cumulative position				
Largest negative net cumulative position				
A(ii) Available intraday liquidity at the start of the business day	Min	2d min	3d min	Average
Total of which: Central bank reserves				
Collateral pledged at the central bank				
Collateral pledged at ancillary systems				
Unencumbered liquid assets on a bank's balance sheet				
Total credit lines available[29] of which: Secured Committed				
Balances with other banks				
Other				
A(iii) Total payments	Max	2d max	3d max	Average
Gross payments sent				
Gross payments received				
A(iv) Time-specific obligations	Max	2d max	3d max	Average
Total value of time-specific obligations				

C(i) Intraday throughput (%)	Average
Throughput at 0800	
Throughput at 0900	
Throughput at 1000	
Throughput at 1100	
Throughput at 1200	
Throughput at 1300	
Throughput at 1400	
Throughput at 1500	
Throughput at 1600	
Throughput at 1700	
Throughput at 1800	

1 Footnote

29 *This figure includes all available credit lines, including uncommitted and unsecured.*

Intraday liquidity stress scenarios

50.82

The monitoring tools in SRP50.64 to SRP50.81 will provide banking supervisors with information on a bank's intraday liquidity profile in normal conditions. However, the availability and usage of intraday liquidity can change markedly in times of stress. In the course of their discussions on broader liquidity risk management, banks and supervisors should also consider the impact of a bank's intraday liquidity requirements in stress conditions. As guidance, four possible (but non-exhaustive) stress scenarios have been identified and are described below.[30] Banks should determine with their supervisor which of the scenarios (or other scenarios) are relevant to their particular circumstances and business model.

1. Own financial stress: a bank suffers, or is perceived to be suffering from, a stress event.
    1. For a direct participant, own financial and/or operational stress may result in counterparties deferring payments and/or withdrawing intraday credit lines. This, in turn, may result in the bank having to fund more of its payments from its own intraday liquidity sources to avoid having to defer its own payments.
    2. For banks that use correspondent banking services, an own financial stress may result in intraday credit lines being withdrawn by the correspondent bank(s), and/or its own counterparties deferring payments. This may require the bank having

either to prefund its payments and/or to collateralise its intraday credit line(s).

2. Counterparty stress: a major counterparty suffers an intraday stress event which prevents it from making payments. A counterparty stress may result in direct participants and banks that use correspondent banking services being unable to rely on incoming payments from the stressed counterparty, reducing the availability of intraday liquidity that can be sourced from the receipt of the counterparty's payments.
3. A customer's bank's stress: a customer bank of a correspondent bank suffers a stress event. A customer bank's stress may result in other banks deferring payments to the customer, creating a further loss of intraday liquidity at its correspondent bank.
4. Market-wide credit or liquidity stress: this may have adverse implications for the value of liquid assets that a bank holds to meet its intraday liquidity usage. A widespread fall in the market value and/or credit rating of a bank's unencumbered liquid assets may constrain its ability to raise intraday liquidity from the central bank. In a worst case scenario, a material credit downgrade of the assets may result in the assets no longer meeting the eligibility criteria for the central bank's intraday liquidity facilities.
    1. For a bank that uses correspondent banking services, a widespread fall in the market value and/or credit rating of its unencumbered liquid assets may constrain its ability to raise intraday liquidity from its correspondent bank(s).
    2. Banks which manage intraday liquidity on a cross-currency basis should consider the intraday liquidity implications of a closure of, or operational difficulties in, currency swap markets and stresses occurring in multiple systems simultaneously.

1 Footnote

[30] *Banks are encouraged to consider reverse stress scenarios and other stress testing scenarios as appropriate (for example, the impact of natural disasters, currency crisis, etc). In addition, banks should use these stress testing scenarios to inform their intraday liquidity risk tolerance and contingency funding plans.*

Application of the stress scenarios

50.83

For the own financial stress and counterparty stress, all reporting banks should consider the likely impact that these stress scenarios would have on their daily maximum intraday liquidity usage, available intraday liquidity at the start of the business day, total payments and time-specific obligations.

50.84

For the customer bank's stress scenario, banks that provide correspondent banking services should consider the likely impact that this stress scenario would have on the value of payments made on behalf of its customers and intraday credit lines extended to its customers.

50.85

For the market-wide stress, all reporting banks should consider the likely impact that the stress would have on their sources of available intraday liquidity at the start of the business day.

50.86

Banks need not report the impact of the stress scenarios on the monitoring tools to supervisors

on a regular basis. They should use the scenarios to assess how their intraday liquidity profile in normal conditions would change in conditions of stress and discuss with their supervisor how any adverse impact would be addressed either through contingency planning arrangements and/or their wider intraday liquidity risk management framework.

50.87

While each of the monitoring tools has value in itself, combining the information provided by the tools will give supervisors a comprehensive view of a bank's resilience to intraday liquidity shocks. The following is a non-exhaustive set of examples which illustrate how the tools could be used in different combinations by banking supervisors to assess a bank's resilience to intraday liquidity risk.

1. Time-specific obligations relative to total payments and available intraday liquidity at the start of the business day: if a high proportion of a bank's payment activity is time critical, the bank has less flexibility to deal with unexpected shocks by managing its payment flows, especially when its amount of available intraday liquidity at the start of the business day is typically low. In such circumstances the supervisor might expect the bank to have adequate risk management arrangements in place or to hold a higher proportion of unencumbered assets to mitigate this risk.
2. Available intraday liquidity at the start of the business day relative to the impact of intraday stresses on the bank's daily liquidity usage: if the impact of an intraday liquidity stress on a bank's daily liquidity usage is large relative to its available intraday liquidity at the start of the business day, it suggests that the bank may struggle to settle payments in a timely manner in conditions of stress.
3. Relationship between daily maximum liquidity usage, available intraday liquidity at the start of the business day and the time-specific obligations: if a bank misses its time-specific obligations, it could have a significant impact on other banks. If it were demonstrated that the bank's daily liquidity usage was high and the lowest amount of available intraday liquidity at the start of the business day were close to zero, it might suggest that the bank is managing its payment flows with an insufficient pool of liquid assets.
4. Total payments and value of payments made on behalf of correspondent banking customers: if a large proportion of a bank's total payment activity is made by a correspondent bank on behalf of its customers and, depending on the type of the credit lines extended, the correspondent bank could be more vulnerable to a stress experienced by a customer. The supervisor may wish to understand how this risk is being mitigated by the correspondent bank.
5. Intraday throughput and daily liquidity usage: if a bank starts to defer its payments and this coincides with a reduction in its liquidity usage (as measured by its largest positive net cumulative position), the supervisor may wish to establish whether the bank has taken a strategic decision to delay payments to reduce its usage of intraday liquidity. This behavioural change might also be of interest to the overseers given the potential knock-on implications to other participants in the LVPS.

Practical example of the intraday monitoring tools

50.88

The following example illustrates how the tools would operate for a bank on a particular business day. Assume that on the given day, the bank's payment profile and liquidity usage is as in Table 5:

Example of bank payment profile			Table 5
Time	Sent	Received	Net
0700	Payment A: 450		-450
0758		200	-250
0855	Payment B: 100		-350
1000	Payment C: 200		-550
1045		400	-150
1159		300	+150
1300	Payment D: 300		-150
1345		350	+200
1500	Payment E: 250		-50
1532	Payment F: 100		-150
1700		150	0

50.89

As a direct participant, the details of the bank's payment profile are as follows. The bank has 300 units of central bank reserves and 500 units of eligible collateral.

1. Payment A: 450
2. Payment B: 100 – to settle obligations in an ancillary system
3. Payment C: 200 – which has to be settled by 10am
4. Payment D: 300 – on behalf of a counterparty using some of a 500 unit unsecured credit line that the bank extends to the counterparty
5. Payment E: 250
6. Payment F: 100

50.90

The intraday monitoring tools are as follows.

1. A(i) Daily maximum liquidity usage
    1. Largest negative net cumulative position: 550 units
    2. Largest positive net cumulative position: 200 units
2. A(ii) available intraday liquidity at the start of the business day: 300 units of central bank reserves + 500 units of eligible collateral (routinely transferred to the central bank) = 800 units
3. A(iii) total payments:

1. Gross payments sent: 450 + 100 + 200 + 300 + 250 + 100 = 1400 units
2. Gross payments received: 200+ 400 +300 + 350 + 150 = 1400 units

4. A(iv) Time-specific obligations: 200 + value of ancillary payment (100) = 300 units
5. B(i) Value of payments made on behalf of correspondent banking customers: 300 units
6. B(ii) Intraday credit line extended to customers:
    1. Value of intraday credit lines extended: 500 units
    2. Value of credit line used: 300 units
7. C(i) Intraday throughput

Intraday throughput Table 6

	Cumulative sent	% sent
0800	450	32.14
0900	550	39.29
1000	750	53.57
1100	750	53.57
1200	750	53.57
1300	1050	75.00
1400	1050	75.00
1500	1300	92.86
1600	1400	100.00
1700	1400	100.00
1800	1400	100.00

50.91

For a bank that uses a correspondent bank, the details of the bank's payment profile are as follows. The bank has 300 units of account balance at the correspondent bank and 500 units of credit lines of which 300 units are unsecured and also uncommitted.

1. Payment A: 450
2. Payment B: 100
3. Payment C: 200 – which has to be settled by 10am
4. Payment D: 300
5. Payment E: 250
6. Payment F: 100 – which has to be settled by 4pm

50.92

The intraday monitoring tools are as follows.

1. A(i) Daily maximum liquidity usage
    1. Largest negative net cumulative position: 550 units
    2. Largest positive net cumulative position: 200 units
2. A(ii) available intraday liquidity at the start of the business day: 300 units of account balance at the correspondent bank + 500 units of credit lines (of which 300 units unsecured and uncommitted) = 800 units
3. A(iii) total payments:
    1. Gross payments sent: 450 + 100 + 200 + 300 + 250 + 100 = 1400 units
    2. Gross payments received: 200+ 400 +300 + 350 + 150 = 1400 units
4. A(iv) Time-specific obligations: 200 + 100 = 300 units