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Notification of the Bank of Thailand
No. FPG. 9 /2558
Re: The Liquidity Coverage Ratio (LCR) Requirement

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1. Rationale

Liquidity risk is important to the depositors' confidence on financial institutions. Financial institutions may have sound financial position, but if they cannot pay their depositors and creditors according to their commitment, such financial institutions may not be able to continue their operations. Therefore, The Bank of Thailand has prescribed the guideline and regulation on liquidity risk supervision including both qualitative requirements, namely, the Notification of the Bank of Thailand No. FPG. 41/2551 Re: Liquidity Risk Management of Financial Institutions dated 3 August 2008 and Policy Guideline of the Bank of Thailand Re: Liquidity Risk Management of Financial Institutions dated 28 January 2010, and quantitative requirement, namely, the Notification of the Bank of Thailand No. FPG. 7/2555 Re: Stipulation on Maintenance of Liquid Assets of Commercial Banks (Reserve Requirement) dated 11 June 2012.

Previously, the Bank of Thailand has issued the Reserve Requirement to require commercial banks to have an adequate stock of liquid assets to meet their potential outflows arising from withdrawal of fund from both deposits and certain types of borrowings including bill of exchange and promissory note issued by commercial banks. Such requirement may have been appropriate to commercial banks' business models in the past which focused on deposit taking and lending (Traditional banking businesses). Nonetheless, given the evolution in banking business models, the current requirement can no longer reflect liquidity risk well. That is, each type of funding bears the same regulatory cost in maintaining liquid assets or stable funds even though the sensitivity and probability that each type of funding will be withdraw or called is different, reflecting the different levels of liquidity risk. Moreover, it does not reflect the potential declines in the value of liquid assets when converting into cash in the market.

During 2007-2008, many countries experienced the global financial crisis and financial institution problems where the liquidity risk was one of the major causes of these crises. The Basel Committee on Banking Supervision (BCBS), thus, established the minimum quantitative standards on liquidity (Basel III framework for liquidity), which comprise the Liquidity Coverage Ratio (LCR), the Net Stable Funding Ratio (NFSR), and the liquidity risk monitoring tools for the supervisors to have additional information for comprehensive supervision. The quantitative standards shall be implemented together with the existing qualitative guideline which focuses on the principles of liquidity risk management.

As the LCR requirement reflects each commercial bank's liquidity risk profile or is more risk sensitive than the existing Reserve Requirement, the Bank of Thailand believes that the LCR requirement would help reduce potential risk of one commercial bank being the cause of liquidity problem in the financial institution system and would ensure that commercial banks hold an adequate stock of liquid assets to meet their potential outflows influenced by external factors. This shall, in turn, help preventing volatility in the financial system which may have significant impact on the real economy. In particular, the LCR requirement specifies assumptions for expected cash outflows and inflows to reflect different withdrawal behaviours for different counterparty types as well as reflect different cash inflows and outflows for different types of transactions, both on- and off-balance sheet. Furthermore, the assumptions reflect the structure of financial group which may require the commercial banks to provide liquidity for other entities within the group during continuously severe liquidity stress scenarios. The different types of liquid assets in the LCR requirement also reflect the different volatilities of asset value when converting into cash during severe liquidity stress scenarios. The Bank of Thailand deemed that the LCR requirement is consistent with the behaviour of depositors or counterparties in Thailand. Additionally, imposing the risk sensitive requirement will encourage commercial banks to improve their assets and liabilities management as well as risk management systems, thus reducing the risks of both commercial banks and the financial institution system.

To replace the Reserve Requirement[1], the Bank of Thailand hereby prescribes the LCR requirement to withstand severe liquidity stress scenarios in line with the BCBS standard (Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools (January 2013)). For qualitative requirement, commercial banks shall comply with the Policy Guideline of the Bank of Thailand on Liquidity Risk Management

[1] For the minimum maintenance of current deposit account at the Bank of Thailand, the commercial bank shall comply with the relevant regulations prescribed by the Bank of Thailand.

of Financial Institutions dated 28 January 2010. The Notification of the Bank of Thailand No. FPG. 41/2551 Re: Liquidity Risk Management of Financial Institutions dated 3 August 2008 will be repealed once this Notification become effective.

2. Statutory power

By virtue of Section 63 and Section 64 of the Financial Institutions Business Act B.E. 2551 (2008), the Bank of Thailand hereby issues the Liquidity Coverage Ratio (LCR) requirement for commercial banks to comply with as specified in this Notification.

3. Scope of application

This Notification shall apply to all commercial banks according to the laws on financial institution business.

4. Repealed notification and guideline

4.1 The Notification of the Bank of Thailand No. FPG. 41/2551 Re: Liquidity Risk Management of Financial Institutions dated 3 August 2008

4.2 The Notification of the Bank of Thailand No. FPG. 7/2555 Re: Stipulation on Maintenance of Liquid Assets of Commercial Banks dated 11 June 2012.

5. Content

5.1 Definition

In this Notification

"High-Quality Liquid Assets: HQLA" means unencumbered high-quality liquid assets that can be immediately converted into cash at little or no loss of value even under severe liquidity stress scenarios.

"Run-off rate" means the percentage of outstanding balance of each type of liabilities and off-balance sheet items that is expected to generate cash outflows over 30 days under severe liquidity stress scenarios.

"Inflow rate" means the percentage of outstanding balance of each type of assets and off-balance sheet items that is expected to generate cash inflows over 30 days under severe liquidity stress scenarios.

"Deposit and borrowing" means all types of deposits, including various deposit accounts, certificate of deposit, deposit receipt, and certain types of borrowing, for instance, bill of exchange, promissory note, debenture or other debt instruments issued by commercial banks and offered through private placement according to the regulation of the Securities and Exchange Commission.

5.2 Principle

The LCR requirement aims to ensure that the commercial bank have adequate liquidity to support their liquidity need under short-term severe liquidity stress scenarios by requiring commercial bank to maintain unencumbered high quality liquid assets (HQLA) that can immediately convert into cash without significant loss in value to cover total net cash outflows over the next 30 days under severe liquidity stress scenarios according to the calculation prescribed by the Bank of Thailand. This is to allow the commercial bank to have enough time in solving their liquidity problem as well as to allow the Bank of Thailand and relevant Authorities to prescribe appropriate measures to deal with the situation.

The scenario for this requirement will affect the expected net cash outflows as well as types and haircuts of HQLA. The scenario entails a combined idiosyncratic and market-wide shock that would result in:

- the run-off of retail deposits;
- loss of unsecured wholesale funding capacity;
- loss of secured, short-term financing with certain types of collaterals and counterparties;
- reduction of credit line as a result of a downgrade in the commercial bank’s public credit rating by up to 3 notches which may cause additional cash outflows;
- increased market volatilities that impact the quality of collateral and potential future exposure of derivative positions and thus lead to additional cash outflows, for instance, additional collateral required to be posted;
- unscheduled draws on committed but unused facilities that the commercial bank has provided to its clients; and
- cash outflows arising from the potential need for the commercial bank to buy back debt or honour non-contractual obligations in the interest of mitigating reputational risk.

5.3 LCR requirement

5.3.1 Minimum requirement

In order for management of assets and off balance sheet items to be consistent with deposit-taking, borrowing, or receiving money from the public, the commercial bank is required to maintain an adequate stock of HQLA at month end in the amount of no less than the total net cash outflows for the subsequent 30 days estimated under the specified stress scenario. The calculation methodology is described in 5.3.2. Locally-incorporated banks in Thailand shall include positions of all offices both in Thailand and overseas, while foreign bank branches shall include positions of all their offices in Thailand.

$$\frac{\text{Stock of high quality liquid assets (HQLA)}}{\begin{array}{c}\text{Total net cash outflows over the next 30 days}\\ \text{estimated under severe liquidity stress scenario}\end{array}} >= 100\%$$

Locally-incorporated bank in Thailand whose overseas branch is located in a country that impose the LCR requirement on branches may choose to apply the LCR requirement of the host country in calculating expected cash outflows for deposits and borrowings from retails and small business customers of the branch.

The Bank of Thailand may require the commercial bank to maintain additional HQLA if the examiners view that the commercial bank has higher liquidity risk than the minimum requirement calculated according to this requirement.

The Bank of Thailand may allow the commercial bank to maintain the HQLA below the minimum requirement prescribed in this Notification if the examiners view that it is necessary, unavoidable and temporary occurrence whereby the commercial bank have an appropriate backup plan. In giving such permission, the Bank of Thailand may impose any additional conditions.

In case where the commercial bank anticipates that it cannot meet the minimum requirement specified in this Notification, it must notify Financial Institutions Monitoring and Analysis Department, the Bank of Thailand as soon as possible. Upon informing the Bank of Thailand, the commercial bank shall provide the opinion of Assets and Liabilities Committee (ALCO) or other committees delegated to oversee liquidity risk of the commercial bank describing the situation, reasons, and necessity as well as the reasons for not being able to notify in advance (if applicable). In addition, the commercial bank shall submit a plan to rectify its liquidity position to

Financial Institution Applications Department, the Bank of Thailand within one week from the notifying date.

5.3.2 LCR Calculation

The calculation of the amount of HQLA to be maintained according to the LCR requirement comprises 2 components, the calculation of HQLA and the calculation of total net cash outflows over the next 30 days under the severe liquidity stress scenario. With regard to the transaction relating to securities investment, the commercial bank shall use trade date accounting. The LCR calculation can be summarised as follows:

Component 1 High quality liquid assets (HQLA)

The commercial bank shall comply with the HQLA calculation as specified by the Bank of Thailand (the details are set out in Attachment 1) as summarised below:

Characteristics of HQLA

HQLA under the LCR requirement shall have the following characteristics: 1) fundamental characteristics, for instance, low risk, ease and certainty of valuation; and 2) market-related characteristics, for instance, actively traded, low volatility and flight to quality (the details are set out in Section I of Attachment 1).

Types of HQLA

There are 2 main categories of liquid assets that can be accounted as HQLA (the details are set out in Section II of Attachment 1) as summarised below:

(1) HQLA level 1, for instance, cash, deposits and reserves at central banks, and debt securities issued or guaranteed by sovereigns, central banks, local government organisations, state agencies, state enterprises, multilateral development banks (MDBs) assigned a 0% risk-weight under the Standardised Approach for credit risk. Debt securities issued by firms undertaking financial businesses are excluded. (the details are set out in Section II item 1.1 of Attachment 1).

(2) HQLA level 2 comprise 2 sub categories as follows:

(2.1) HQLA level 2A, for instance, debt securities issued or guaranteed by sovereigns, central banks, local government organisations, state agencies, state enterprises or MDBs assigned a 20% risk-weight under the Standardised

Approach for credit risk, and corporate debt securities with assigned rating of at least AA- or equivalent. Debt securities issued by firms undertaking financial businesses are excluded. (the details are set out in Section II item 1.2.1 of Attachment 1).

(2.2) HQLA level 2B, for instance, debt securities issued or guaranteed by sovereigns, central banks, local government organisations, state agencies, state enterprises or MDBs assigned a 50% risk-weight under the Standardised Approach for credit risk, and corporate debt securities with assigned rating of at least A to A+ or equivalent. Debt securities issued by firms undertaking financial businesses are excluded. (the details are set out in Section II item 1.2.2 of Attachment 1).

The aforementioned liquid assets shall qualify all criteria specified under the operational requirements in Section III of Attachment 1 and the commercial bank shall take into consideration the diversification of liquid assets according to Section IV of Attachment 1.

Calculation methodology

The commercial bank shall calculate the amount of HQLA by adjusting the value of each type of liquid assets with relevant haircuts as specified by the Bank of Thailand. HQLA level 2 shall not exceed 40% and HQLA level 2B shall not exceed 15% of the sum of HQLA level 1 and HQLA level 2 after the application of required haircuts, and after taking into account the unwind of short-term securities financing transactions and collateral swap transactions maturing within 30 days that involve the exchange of HQLA (the details of HQLA calculation are set out in Section II of Attachment 1 and the calculations of the cap on HQLA level 2 and HQLA level 2B are set out in Attachment 1.1).

Foreign bank branches can take into account the amount of undrawn contractual committed facilities from its head office as HQLA up to 40% of the minimum HQLA required to meet the LCR requirement. The Bank of Thailand may reduce the cap of the undrawn committed facilities or cancel the eligibility of such facilities as it deems appropriate after taking into consideration the possibility of the head office support.

<u>Component 2</u> Total net cash outflows

Total net cash outflows over the next 30 days under the severe liquidity stress scenario is calculated from expected cash outflows over the next 30 days under the severe liquidity stress scenario deducted by expected cash inflows over the next 30 days under the severe liquidity stress scenario. The expected cash inflows are capped at 75% of the expected cash outflows and shall not be included in the stock of HQLA.

In calculating the expected cash outflows and inflows, the commercial bank can choose to exclude interest paid and interest received from the calculation if they are insignificant. If they were to be excluded, the commercial bank shall exclude them from both expected cash outflows and inflows calculations.

The commercial bank can also net the expected cash outflows and inflows of on-balance sheet intra-group transactions over the next 30 days, including transactions with head office and other branches, parent company, affiliates, and subsidiaries both in Thailand and overseas. Such netting shall not include operational deposits placed at the commercial bank by the companies in the same financial business group and deposits that the commercial bank place at the companies in the same financial business group.

The commercial bank should follow the calculation of the total net cash outflows as specified by the Bank of Thailand (the details are set out in Attachment 2) as summarised below:

Total net cash outflows over the next 30 days under severe liquidity stress scenarios	= Expected cash. outflows over the next 30 days under severe liquidity stress scenarios	-	Expected cash inflows over the next 30 days undersevere liquidity stress scenarios

A. Expected cash outflows

In calculating the expected cash outflows over the next 30 days under the severe liquidity stress scenario, the commercial bank shall take into account all types of transaction both on- and off- balance sheet and with or without contractual agreement in all currencies, which shall incur severe and continuous cash outflows over the next 30 days (the details are set out in Section I of Attachment 2) as summarised below.

(1) Types of cash outflows

Cash outflows can be categorised into 5 types as follows

(1.1) Retail deposits and borrowings which are divided into 2 sub categories:

(1.1.1) Deposits and borrowings with established relationship with the commercial bank which are categorized into 2 types; transactional account and relationship account. The latter refers to a depositor who has a close relationship with the commercial bank in such a way that makes deposit withdrawal highly unlikely.

(1.1.2) Deposits and borrowings without established relationship with the commercial bank

(1.2) Unsecured wholesale funding which are divided into 4 sub categories:

(1.2.1) Deposits and borrowings from small business customers

(1.2.2) Deposits and borrowings from wholesale customers that are not small business customers which are categorised into 2 types; operational deposits and non-operational deposits

(1.2.3) Unsecured debt issuance

(1.2.4) Other deposits and borrowings

(1.3) Secured funding

(1.4) Contractual obligations

(1.5) Non-contractual obligations

(2) Calculation methodology

The commercial bank shall calculate the total expected cash outflows using the calculation methodologies which are categorized into 3 groups as follow:

<u>Group 1</u> Deposits and borrowings

The commercial bank shall multiply the outstanding deposits and borrowings that can incur cash outflows over the next 30 days by the specified run-off rates based on various factors, for instance, types of counterparty, types of transaction, and deposit insurance scheme.

Group 2 Credit-like contractual obligations which may lead to credit granting

The commercial bank shall multiply the credit line of credit-like contractual obligations, for instance, all types of undrawn committed facilities, guarantees, acceptance, and aval, as well as letter of credit that can incur cash outflows over the next 30 days by the specified run-off rates based on various factors such as types of counterparty and transaction.

Group 3 Other contractual and non-contractual obligations

The commercial bank shall estimate cash outflows of other obligations which are not similar to credit granting, both with contractual agreement such as derivatives transactions and without contractual agreement, for instance, liquidity support for mutual fund managed by companies within the financial business group in accordance with the regulation prescribed by the Bank of Thailand.

B. Expected cash inflows

In calculating the expected cash inflows over the next 30 days under the severe liquidity stress scenario, the commercial bank should take into account all types of transaction with contractual agreement covering both on- and off-balance sheet in all currencies, which are classified as fully performing loans or equivalent and which will incur cash inflows over the next 30 days under the severe liquidity stress scenario (the details are set out in Section II of Attachment 2) as summarised below:

(1) Types of cash inflows

Cash inflows can be categorised into 3 types as follows

(2.1) Secured lending

(2.2) Fully Performing loans

(2.3) Contractual obligations

(2) Calculation methodology

The commercial bank shall calculate the expected cash inflows using calculation methodologies which are categorized into 2 groups as follows:

<u>Group 1</u> Loans and other on-balance sheet assets

The commercial bank shall multiply the contractual outstanding of fully performing loans that will incur cash inflows over the next 30 days by the specified inflow rates based on various factors, for instance, types of transaction, types of counterparty, and re-hypothecation.

<u>Group 2</u> Contractual obligations

The commercial bank shall estimate cash inflows of other contractual obligations, for instance, derivatives transactions in accordance with the regulation prescribes by the Bank of Thailand.

6. Transitional provisions

(1) The commercial bank shall maintain HQLA to the total net cash outflows over the next 30 days under the severe liquidity stress scenario of at least 60% starting from 1 January 2016 and increase by 10% each year to reach 100% as prescribed in item 5.3.1 on 1 January 2020 onwards.

(2) In case that the commercial bank has launched deposit and borrowing products that prohibit early withdrawal, but the commercial bank allows its customers to withdraw such deposits and borrowings before maturity, including any cash outflows before maturity related to these products, for instance, using the deposits and borrowings as collateral for loan. If such action occurs before the LCR requirement is published in the Government Gazette, such deposits and borrowings shall not be taken into consideration for significant early withdrawal behaviour in accordance with Attachment 2.

(3) The commercial bank shall maintain the minimum current account deposit at the Bank of Thailand as specified by the Notification of the Bank of Thailand No. FPG. 7/2555 Re: Stipulation on Maintenance of Liquid Assets by Commercial Banks dated 11 June 2012 until 5 January 2016.

7. Effective Date

This Notification shall come into force as from 1 January 2016.

Announced on 27th May 2015.

(Mr Prasarn Trairatvorakul)
Governor
Bank of Thailand

Attachment 1

High quality liquid assets (HQLA)

HQLA under the LCR requirement shall have the characteristics as specified in Section I. Characteristics of HQLA. The Bank of Thailand specified types and calculation of HQLA in accordance with the LCR requirement in Section II. HQLA calculation.

HQLA that the commercial bank uses for the LCR calculation shall be able to convert into cash in coherence with the operational requirements specified in Section III. Operational requirements. The commercial bank shall take into consideration the concentration risk of HQLA in accordance with the guidelines in Section IV. Diversification of HQLA.
The details are as follows:

I. Characteristics of HQLA

HQLA shall be assets that the commercial bank can immediately convert into cash without significant loss in value in a secondary market either through outright or repo transactions especially under the severe liquidity stress scenarios. There are 2 key characteristics of HQLA which are fundamental characteristics and market-related characteristics.

1. Fundamental characteristics

1.1 Low risk

Low risk assets tend to have higher liquidity than high risk assets. Thus, HQLA characteristics shall include high credit rating, a low degree of subordination, low duration, low inflation risk, low legal risk, and denomination in a convertible currency with low exchange rate risk.

1.2 Ease and certainty of valuation

Assets that are certain in value and widely accepted in the market are more likely to have high liquidity since the trade agreement can be reached quickly. Therefore, HQLA generally has simple structures and are easy to calculate using inputs that are publicly available. The pricing formula of the HQLA should be widely accepted and simple.

1.3 Low correlation with risky assets

HQLA shall not be subject to wrong-way risk, that is, the risk of asset is correlated with market risk factors under stress scenarios. For instance, financial instruments issued by financial institutions are more likely to have high market liquidity risk in times of stress in the banking sector.

1.4 Listed on a recognised exchange

Being assets listed on an organised exchange would enhance price transparency and data availability of an asset.

2. Market-related characteristics

2.1 Actively traded in sizable secondary market

HQLA should have active outright sale or repo markets. This could be demonstrated by low bid-ask spreads or high trading volume, and a large and diverse number of market participants, which will help reduce concentration risk and increase reliability of the liquidity in the market. Moreover, there shall be robust market infrastructure as well as multiple market makers in order to maintain market liquidity during stress scenarios.

2.2 Low volatility

HQLA shall have low price volatility, that is, asset prices shall remain relatively stable and are less prone to sharp price declines, which contribute to low probability of triggering forced sales during stressed periods.

2.3 Flight to quality

HQLA shall, historically, be the types of assets that market has shown tendencies to move into these types of assets in a systemic crisis. The correlation between proxies of market liquidity and banking system stress is on simple measure that could be considered.

As outlined by above characteristics, HQLA are expected to remain liquid even in the periods of severe idiosyncratic and market stresses. While, low quality liquid assets will have low liquidity-generating capacity that the commercial bank may have to accept a large fire-sale discount to compensate for high market risk. Such a case, it will not only erode the market's confidence in the commercial bank but will also affect others holding similar financial instruments due to mark-to-market losses. This may encourage further fire sales of assets by the commercial bank so as to adjust their liquidity position by accepting high discount. Thus, this will make market liquidity of such assets in the secondary market disappears quickly.

HQLA under the LCR requirement (except HQLA level 2B) shall be eligible as collateral for Intraday Liquidity Facilities (ILF) and Overnight liquidity facilities with central banks because the commercial bank can use these groups of assets to access to liquidity during stressed periods without damaging the broader financial system.

II. HQLA calculation guidelines (Types of HQLA and calculation methodology)

1. Type of HQLA

There are 2 types of HQLA as specified by the Bank of Thailand as follows:

1.1 HQLA level 1

1.1.1 Cash in all currencies

1.1.2 Deposit and reserves at central banks in all currencies

1.1.3 Debt securities issued or guaranteed by sovereigns, central banks, local government organisations, state agencies, state enterprises, Bank for International Settlements (BIS), International Monetary Fund (IMF), European Central Bank (ECB), European Community (EC) or Multilateral Development Banks (MDBs) that are assigned a 0% risk-weight[1] under the Standardised Approach for credit risk, excluding debt securities issued by commercial banks, companies in the financial business group of commercial banks including head offices and other branches, parent company, affiliates and subsidiaries in Thailand and overseas, finance companies, credit foncier companies and other firms undertaking financial business[2].

In considering the aforementioned debt securities, the commercial bank shall take into account unlimited amount of debt securities issued in Thai Baht or in domestic currencies of the country where the branch of the locally-incorporated bank is located. The debt securities issued in other foreign currencies are eligible as HQLA up to the amount of the commercial bank's stressed net cash outflow in that specific foreign currency.

[1] Excluding preferential risk weight

[2] The commercial bank shall refer to the definition of "financial business" in the Notification of the Bank of Thailand on Consolidated Supervision. Debt securities whose holders have the right to recourse against financial institutions and other companies undertaking financial business, for instance, debt securities issued by the financial institution that are guaranteed by the sovereign shall not be considered as HQLA.

For debt securities issued in other foreign currencies which the commercial bank does not have stressed net cash outflows in that currency, only debt securities issued in domestic currencies of that country or in specified currencies[3] by the sovereign or the central bank shall be taken into account as HQLA and treated as HQLA level 2A.

1.1.4 For debt securities issued or guaranteed by the Thai sovereign or the Bank of Thailand[4], excluding debt securities issued by commercial banks, companies in the financial business group of commercial banks including head offices and other branches, parent company, affiliates and subsidiaries both in Thailand and overseas, finance companies, credit foncier companies and other firms undertaking financial business[2], or debt securities issued by the sovereign or the central bank that are assigned a non-0% risk-weight under the Standardised Approach for credit risk but the locally-incorporated bank has a branch in that country, the following 2 cases are applied:

1.1.4.1 Thai Baht debt securities issued or guaranteed by the Thai sovereign or the Bank of Thailand or debt securities issued in domestic currencies by the sovereign or the central bank of the country where the branch of the locally-incorporated bank is located are eligible as HQLA up to unlimited amount.

1.1.4.2 Foreign currency debt securities issued or guaranteed by the Thai sovereign or the Bank of Thailand or debt securities issued in foreign currencies by the sovereign or the central bank of the country where the branch of the locally-incorporated bank is located are eligible as HQLA up to the amount of the commercial bank's stressed net cash outflow in that specific foreign currency stemming from the commercial bank's operations in the country where the commercial bank's liquidity risk is being taken.

1.2 HQLA level 2

HQLA level 2 can be classified into 2 types as follow:

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[3] Only refer to debt securities issued in US dollar, Pound sterling, Euro, Yen and Chinese Yuan Reminbi.

[4] Including counterparties categorised as claims on sovereigns and central banks according to the Notifications of the Bank of Thailand on the calculation of credit risk-weighted asset under the Standardised Approach approach, for instance, Financial Institution Development Fund (FIDF), Deposit Protection Agency (DPA) and Bangkok Asset Management Corporation limited (BAM).

1.2.1 HQLA level 2A

1.2.1.1 Debt securities issued or guaranteed by sovereigns, central banks, local government organisations, state agencies, state enterprises, or Multilateral Development Banks (MDBs) that are assigned a 20% risk-weight[1] under the Standardised Approach for credit risk, excluding debt securities issued by commercial banks, companies in the financial business group of commercial banks including head offices and other branches, parent company, affiliates and subsidiaries located in both domestic and overseas, finance companies, credit foncier companies and other firms undertaking financial business[2].

In considering the aforementioned debt securities, the commercial bank shall take into account unlimited amount of debt securities issued in Thai Baht or in domestic currencies of the country where the branch of the locally-incorporated bank is located. The debt securities issued in other foreign currencies are eligible as HQLA up to the amount of the commercial bank's stressed net cash outflow in that specific foreign currency.

For debt securities issued in other foreign currencies which the commercial bank does not have stressed net cash outflows in that currency, only debt securities issued in domestic currencies of that country or in specified currencies[3] by the sovereign or the central bank shall be taken into account as HQLA and treated as HQLA level 2B.

1.2.1.2 Corporate[5] debt securities that have a credit rating at least AA-[6] or equivalent and the issuers are not commercial banks, companies in the financial business group of commercial banks including head offices and other branches, parent company, affiliates and subsidiaries both in Thailand and overseas, finance companies, credit foncier companies and other firms undertaking financial business[2].

1.2.1.3 Promissory note issued by the Ministry of Finance

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[5] The commercial bank shall refer to the definition of 'corporate' in the Notification of the Bank of Thailand on the Calculation of Credit Risk-Weighted Assets for Commercial Banks under the Standardised Approach (SA).

[6] In absence of a long-term rating, the commercial bank shall use a short-term rating equivalent to the rating specified. In terms of rating reference, the Bank of Thailand allows the commercial bank to use local-scale rating from an external credit assessment institution (ECAI) that is recognised by the Bank of Thailand or by the supervising authority in the respective country. By using the local-scale rating, the commercial bank shall take into account unlimited amount of debt securities issued in Thai Baht with the specified rating, and shall take into account foreign currency debt securities issued in domestic currencies of the country where the branch of the locally-incorporated bank is located up to the amount of the commercial bank's stressed net cash outflow in that specific foreign currency stemming from the commercial bank's operations in the country where the commercial bank's liquidity risk is being taken.

1.2.1.4 Debt securities issued by state enterprises or Specialised Financial Institutions (SFIs)[7] whose principals and interests are not guaranteed by the Ministry of Finance and the debt securities or issuers shall have credit rating at least A[6] or equivalent. In case of no credit rating, such state enterprises or SFIs shall have the status of "no problem" according to the regulations prescribed by the State Enterprises Policy Committee (SEPO).

1.2.1.5 Covered bonds that have a credit rating at least AA-[6] or equivalent and the issuer is not the commercial bank itself or companies in its financial business group including head office and other branches, parent company, affiliates and subsidiaries both in Thailand and overseas.

1.2.2 HQLA level 2B

1.2.2.1 Debt securities issued or guaranteed by sovereigns, central banks, local government organisations, state agencies, state enterprises, or Multilateral Development Banks (MDBs) that are assigned a 50% risk-weight under the Standardised Approach for credit risk, excluding debt securities issued by commercial banks, companies in the financial business group of commercial banks including head offices and other branches, parent company, affiliates and subsidiaries located in both domestic and overseas, finance companies, credit foncier companies and other firms undertaking financial business[2].

In considering the aforementioned debt securities, the commercial bank shall take into account unlimited amount of debt securities issued in Thai Baht or in domestic currencies of the country where the branch of the locally-incorporated bank is located. The debt securities issued in other foreign currencies are eligible as HQLA up to the amount of the commercial bank's stressed net cash outflow in that specific foreign currency.

1.2.2.2 Corporate[5] debt securities that have a credit rating of A to A+[6] or equivalent and the issuers are not commercial banks, companies in the financial business group of commercial banks including head offices and other branches, parent company, affiliates and subsidiaries both in Thailand and overseas, finance companies, credit foncier companies and other firms undertaking financial business[2]..

1.2.2.3 Bills of exchange or promissory notes issued by SFIs[7]

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[7] Specialised financial institutions include Bank for Agriculture and Agricultural Cooperatives, Government Savings Bank, Government Housing Bank, Export Import Bank of Thailand, and SME Bank.

The debt securities eligible as HQLA shall only be a plain vanilla instrument and shall not be a subordinated debt.

2. Calculation of haircut and cap of HQLA

In calculating the amount of HQLA, the commercial bank shall apply the related haircut to the value of the eligible HQLA as detailed in Table 1.

Table 1 Summary of haircut and cap of each type of HQLA

Type of asset	Haircut (percent)	Cap of HQLA (percent of total HQLA level 1 and level 2)
HQLA level 1	0	
HQLA level 2		40
- HQLA level 2A	15	
- HQLA level 2B	50	15

The Bank of Thailand requires the commercial bank to include the amount of HQLA level 2 for no more than 40% and HQLA level 2B for no more than 15% of the sum of HQLA level 1 and level 2 held by the commercial bank after the application of required haircuts, and after taking into account the unwind of short-term securities financing transactions and collateral swap transactions maturing within 30 days that involve the exchange of HQLA (the calculation details are set out in Attachment 1.1).

III. Operational requirements

HQLA in the LCR calculation is subject to the following operational requirements to ensure that, during the stressed periods, the commercial bank shall be able to convert such assets into cash in a timely manner through a secondary market either using outright sale or repo. Furthermore, the assets shall be used as a source of contingent funds to fill funding gaps between cash inflows and outflows at any time during the 30-day stressed period, with no restriction on the use of the liquidity generated.

(1) The commercial bank shall periodically test the monetisation of each type of sample assets in the stock of HQLA in order to assess the ability of its access to the market, the effectiveness of the processes for monetisation, the availability of the assets, and to minimise the risk of negative signaling during a period of actual stress.

(2) All assets in the stock shall be unencumbered[8] and shall not be pledged (either explicitly or implicitly) to secure or collateralise any borrowing, or credit-enhanced any transaction, nor be designated to cover operational cost such as rents and salaries.

The commercial bank shall include assets received in reverse repo and securities borrowing and lending that have not been rehypothecated, and are legally and contractually available for the commercial bank's use in the stock of HQLA. In addition, assets which qualify for the stock of HQLA that have been deposited or pre-positioned with, or pledged to, the central bank or a local government organisation, a state agency, and a state enterprise but have not been used to generate liquidity may be included in the stock of HQLA for the LCR calculation.

Nevertheless, the commercial bank shall exclude assets that, although meeting the definition of "unencumbered" specified above, the commercial bank would not have the operational capacity to monetise to meet outflows during the stressed period due to the lack of available and appropriate process or systems to monetise the assets within the standard payment and settlement period.

(3) The assets shall be under the control of the function in charge with managing liquidity of the commercial bank (eg treasury), meaning the function has the continuous authority, and legal and operational capability, to monetise any asset in the stock. In general, such function will manage a separate pool of assets with intent for use as a source of contingent funds, or be able to monetise the assets at any point in the 30-day stressed period, without conflicting with the risk management strategy of the commercial bank. For example, banks shall not include assets that are used for hedging purpose in the stock of HQLA, if the sale of that assets would create an open risk position in excess of internal limits.

(4) The commercial bank shall include assets that are already hedged for the market risk. However, the commercial bank shall take into account the cash outflow that would arise if the hedge were to be closed out early, for instance, in the event of the hedged assets being sold.

(5) The commercial bank shall have a policy in place that identifies legal entities, geographical locations, currencies and specific custodial or bank accounts where HQLA are held. In addition, the commercial bank shall determine the composition and adequacy of HQLA on a daily basis to ensure that, during the stressed period, the

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[8] Unencumbered means free of legal, regulatory, contractual or other restrictions on the ability of the commercial bank to liquidate, sell, transfer, or assign the assets.

commercial bank shall be able to monetise the assets in a timely manner without any limitation on the operational requirements.

(6) The commercial bank shall not include excess HQLA of the branch that is located in the country with restrictions on asset transfer and currency convertibility during the stressed period, unless the amount is insignificant. In assessing restrictions on asset transfer, the commercial bank shall also take into consideration legal, tax, accounting, or any other associated impediments that would make the commercial bank unable to transfer assets between branches.

(7) In certain countries, large, deep, and active repo markets do not exist for eligible asset classes; therefore, the commercial bank need to monetise such assets through outright sale only. In such circumstance, the commercial bank shall exclude those assets from the stock of HQLA where there are impediments to sale, for instance, large fire-sale discounts which would cause them to breach minimum requirements.

(8) The commercial bank shall not include, in the stock of HQLA, assets or liquidity generated from assets received under right of rehypothecation, if the beneficial owner has the contractual right to withdraw those assets during the 30-day stressed period.

(9) The commercial bank shall include, in the stock of HQLA, assets received as collateral for derivatives transactions that are not segregated, provided that banks have the legal right to monetise the assets. However, the commercial bank shall also be aware of potential cash outflows from the risk associated with the derivatives transactions.

(10) Maintenance of HQLA under the LCR requirement does not include intraday liquidity management of the commercial bank. Therefore, the commercial bank shall comply with the prudential guidelines on liquidity risk management of financial institutions, where the commercial bank shall be aware and have in place a system to manage intraday liquidity and risks to meet payment and settlement obligations on a timely basis. In this connection, the commercial bank shall identify and set priority of key intraday payment and settlement transactions, as well as taking into consideration funding sources, accessibility of the funding sources, and allocation of assets to be placed as collateral for intraday borrowing. This is to ensure complete and timely functioning of payment and settlement process both under normal and stressed conditions.

(11) While the LCR requirement requires the commercial bank to maintain the minimum HQLA and report in Thai Baht (single currency), the commercial bank shall be

able to maintain HQLA in a currency that is consistent with its liquidity need. This is to ensure that the commercial bank can convert the assets into cash that is consistent with its net cash outflows in each currency, and the liquidity risk in the country where its branch is located.

The commercial bank shall take into account the liquidity risk that may arise from foreign exchange liquidity risk by assessing the ability to swap currencies, the ability to access to relevant foreign exchange markets or sources of foreign currency needed under the stressed scenarios, as well as sudden adverse movements of exchange rates which may affect cash inflows and outflows, and liquidity mismatches.

(12) In case of cliff effects which make an asset become ineligible, for instance, due to rating downgrade, the commercial bank is permitted to keep such assets in its stock of HQLA for an additional 30 days from the day the asset becomes ineligible. This would allow the commercial bank to adjust its stock of HQLA or replace the assets.

IV. Diversification of the stock of HQLA

The stock of HQLA shall be well diversified although some asset classes of liquid assets are more likely to remain liquid both under normal and stressed conditions. However, these assets may become illiquid unexpectedly under certain conditions. The commercial bank shall therefore have policies and limits in place in order to avoid the concentration, for instance, the policies and limits with respect to asset types, issue and issuer types, and currency within asset classes.

Attachment 1.1

Calculation of the cap on HQLA level 2 and HQLA level 2B with regard to short-term securities financing transactions

In calculating the cap on HQLA level 2 and HQLA level 2B, the commercial bank shall comply as follow:

1. Adjustment of HQLA amount

In adjusting the amount of HQLA, the commercial bank shall apply relevant haircuts as specified in Attachment 1 to each type of HQLA and shall take into account the impact of repo/reverse repo, securities borrowing and lending, and collateral swap transactions maturing within 30 days as follows:

- Adjusted amount of HQLA level 1 is defined as the total amount of HQLA level 1 after unwinding the repo/reverse repo, securities borrowing and lending, and collateral swaps transactions maturing within 30 days that are unencumbered and meet the operational requirements.

- Adjusted amount of HQLA level 2A is defined as the total amount of HQLA level 2A after unwinding the repo/reverse repo, securities borrowing and lending, and collateral swaps transactions maturing within 30 days that are unencumbered and meet the operational requirements.

- Adjusted amount of HQLA level 2B is defined as the total amount of HQLA level 2B after unwinding the repo/reverse repo, securities borrowing and lending, and collateral swaps transactions that are maturing within 30 days that are unencumbered and meet the operational requirements.

2. Calculation of the cap on HQLA level 2 and HQLA level 2B

In calculating the 40% cap on HQLA level 2, the commercial bank shall take into account the 15% cap on HQLA level 2B as well. That is, the adjusted amount of HQLA level 2B shall not exceed 15 of 85 of the sum of adjusted amount of HQLA level 1 and adjusted amount of HQLA level 2A. If the sum of adjusted amount of HQLA level 2A and adjusted amount of HQLA level 2B exceed 40% of total HQLA, the adjusted amount of HQLA level 2B shall not exceed 15 of 60 of the adjusted amount of HQLA level 1 and the total adjusted amount of HQLA level 2 shall not exceed 2 of 3 of the adjusted amount of HQLA level 1.

Calculation formula is summarised in Table 1 and Table 2

Table 1 Summarised formula for calculation of the cap on HQLA level 2 and HQLA level 2B

Total HQLA = HQLA level 1 + HQLA level 2A + HQLA level 2B - adjustment for 15% cap on HQLA level 2B - adjustment for 40% cap on HQLA level 2A and 2B. Where, **Adjustment for 15% cap on HQLA level 2B is the maximum amount between** 1) Adjusted amount of HQLA level 2B - (15/85)*(adjusted amount of HQLA level 1 + adjusted amount of HQLA level 2A) **or** 2) Adjusted amount of HQLA level 2B - (15/60)*(adjusted amount of HQLA level 1) **or** 3) 0 **Adjustment for 40% cap on HQLA level 2 is the maximum amount between** 1) (Adjusted amount of HQLA level 2A + adjusted amount of HQLA level 2B - adjustment for 15% cap on HQLA level 2B) - (2/3)* adjusted amount of HQLA level 1 **or** 2) 0

Table 2 Example of calculation

Example If the commercial bank has the adjusted amount of HQLA level 1 for 100 baht, the adjusted amount of HQLA level 2A for 50 baht, and the adjusted amount of HQLA level 2B for 30 baht, From the formula in Table 1, the commercial bank shall calculate the cap on HQLA by the following steps: 1. Calculate the adjustment for 15% cap on HQLA level 2B by choosing the maximum amount between a) 30 - (15/85)*(100 + 50) = 3.53 **or** b) 30 - (15/60)*(100) = 5 **or** c) 0 Therefore the adjustment of 15% cap on HQLA level 2B is 5 baht (HQLA level 2B shall not exceed 30-5 = 25 baht) 2. Calculate the adjustment for 40% cap on HQLA level 2 by choosing the maximum amount between a) (50 + 30 - 5) - (2/3)*(100) = 8.33 **or** b) 0 Therefore the adjustment of 40% cap on HQLA level 2 is 8.33 baht (HQLA level 2 shall not exceed (50 + 25) - 8.33 = 66.67 baht and HQLA Level 2A shall not exceed 66.67 - 25 = 41.67 baht) Thus, **total HQLA** = HQLA level 1 + HQLA level 2A + HQLA level 2B - adjustment for 15% cap on HQLA level 2B - adjustment for 40% cap on HQLA level 2A and 2B = 100 + 50 + 30 – 5 - 8.33 = 166.67 baht

Attachment 2

Net Cash Outflows

To calculate of the total net cash outflows according to the LCR requirement, the commercial bank shall deduct the expected cash outflows over 30 days under the severe liquidity stress scenario according to Section I. by the expected cash inflows over 30 days in the severe liquidity stress scenario according to Section II. The expected cash inflows shall be capped at 75% of the expected cash outflows. The commercial bank shall comply with the calculation guidelines as specified in this attachment, comprising the definition of each outflow and inflow item and the calculation methodology of each item of the expected cash outflows and inflows.

I. Expected cash outflows

There are 5 categories of cash outflows as follow:

1. Retail deposits and borrowings[1]

Retail deposits and borrowings mean deposits and borrowings from a natural person, including both demand and term deposits, comprising 2 types as follows:

1.1 Deposits and borrowings with other established relationships with the commercial bank

Refer to deposits and borrowings from a natural person that meet either one of the following criteria:

1.1.1 Transactional accounts, which mean main deposit accounts that the depositors regularly use. These are deposits with monthly automated credit or debit or deposits with average transaction over 1 year of no less than 3 transactions per month.

1.1.2 Relationship accounts, which mean accounts that the depositors have other established relationships with the commercial bank which make deposit withdrawal highly unlikely. These are deposits that the depositors use other financial products of the commercial bank or companies in the same financial business group of the commercial bank, other than deposits, such as loan outstanding, credit facilities, credit cards, insurance, and investment in mutual funds, etc.

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[1] The commercial bank shall have in place guidelines to regularly (at least annually) review the categorisation of deposits and borrowings and shall undertake an additional review if there is a factor that significantly affects the behaviours of the depositors and lenders.

1.2 Deposits and borrowings without established relationship with the commercial bank

Refer to deposits and borrowings from a natural person that are not eligible as deposits and borrowings with established relationship with the commercial bank in 1.1.

<u>Calculation methodology</u>

The commercial bank shall multiply the amount of the following retail deposits and borrowings that could incur cash outflows within 30 days[2] by associated run-off rates according to the type of contract, the deposit insurance scheme, and the characteristics of the deposits and borrowings. The details are shown in Table 1.

(1) Demand deposits and borrowings

(2) Term deposits and borrowings maturing within 30 days

(3) Term deposits and borrowings with maturity of greater than 30 days where the depositors have the legal right to withdraw before the maturity without a penalty or with an insignificant penalty[3]

(4) Term deposits and borrowings with maturity of greater than 30 days where the commercial bank has the legal right to withdraw before the maturity and the commercial bank's reputation would be adversely affected if it fails to exercise such right

(5) Term deposits and borrowings with maturity of greater than 30 days where the depositors have the legal right to withdraw before the maturity but are subject to a significant penalty[3]

(6) Term deposits and borrowings with maturity of greater than 30 days where an early withdrawal is not allowed

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[2] Retail deposits and borrowings that could incur cash outflows within 30 days do not include deposits placed as collaterals for loans with maturity of greater than 30 days, and term deposits and borrowings with maturity of greater than 30 days where the depositors have legal right to withdraw before the maturity but are subject to the penalty which significantly affects to the principal.

[3] Contract with a significant penalty means a contract that subject the depositor who withdraw the money before maturity to the penalty which significantly affects interest received between the deposit and the withdrawal dates.

Table 1 Run-off rates of retail and small business customer deposits and borrowings

Unit: percent

Retail deposits and borrowings	Contract type	Eligible to be Transactional account / Relationship account		Not eligible to be Transactional account / Relationship account	
		With insured deposit	Without insured deposit	With insured deposit	Without insured deposit
	(1) - (4)	5	10	10	10
	(5)	5			
	(6)	5			

Term deposits and borrowings where an early withdrawal is not allowed in (6) above which has a run-off rate of 5% shall meet all of the following criteria: 1) the clause "early withdrawal is not allowed" is clearly stated in the contract, and 2) the past behaviours do not show early withdrawal behaviours including no cash outflows related to the product before the maturity, for instance, placing the product as a collateral for loan.

Shall any commercial bank has term deposits and borrowings with significant early withdrawal behaviours, the Bank of Thailand may order such commercial bank to estimate cash outflows for the term deposits and borrowings where an early withdrawal is not allowed in (6) and apply the same run-off rate as term deposits and borrowings with maturity of greater than 30 days where the depositors have the legal right to withdraw before the maturity instead. The commercial bank shall prepare the information relating to the aforementioned criteria for the term deposits and borrowings where early withdrawal is not allowed and keep the relevant documents ready upon examiners' request.

2. Unsecured wholesale funding[1]

Unsecured wholesale funding means all types of deposits and unsecured borrowings from a non-natural person, namely, small businesses, corporates, sovereigns, central banks, local government organisations, state agencies, state enterprises, multilateral development banks (MDBs), commercial banks, companies in the financial business group of commercial banks including head offices and other branches, parent company, affiliates and subsidiaries located both in Thailand and overseas, finance companies, credit foncier companies, firms undertaking financial business[4], specialised financial institutions, and other legal entities, for instance, special purpose vehicles, securities investment vehicles, and conduits. There are 4 types of unsecured wholesale funding as follows:

[4] The commercial bank shall refer to the definition of "financial business" in the Notification of the Bank of Thailand on Consolidated Supervision.

2.1 Unsecured funding from small business customers

Deposits and borrowings from a non-natural person that meet all of the following criteria:

2.1.1 Having similar liquidity risk characteristics to retail customers that the commercial bank manages the liquidity risk in consistent with the retail customers. The commercial bank shall consider customers’ transaction characteristic and the commercial bank’s services as deemed appropriate.

2.1.2 Total aggregated funding from one small business custormer (including those of related parties[5]) does not exceed 50 million baht.

In addition, for the customers meeting the criteria in 2.1.1 and 2.1.2 above and also having loans with the commercial bank, such customers shall be the customers that the commercial bank manages as a portfolio on a pooled basis, where the portfolio comprises several borrowers with similar characteristics. Moreover, the total credit granting including contingent liabilities of the customer and related parties[5] shall not exceed 50 million baht.

2.2 Unsecured funding from wholesale customers

Deposits and borrowings from a non-natural person that do not meet the criteria of unsecured funding from small business customers in 2.1. There are 2 types of unsecured funding from wholesale customers as follows:

2.2.1 Operational deposits

Deposits and borrowings placed for the purpose of fulfilling operation activities, which are clearing, custody, or cash management activities. Operational deposits shall meet all the following criteria, and excludes vostro accounts,

[5] Please refer to the definition of "related parties" in Article 4 of the Financial Institutions Business Act B.E. 2551 (2008). Shall the commercial bank be able to prove that it has exercised great care in checking the related parties but fail to include all related parties (best effort), the commercial bank shall be treated as 'having no intention for wrong-doings'.

prime brokerage accounts as a service offered to large active investors, and excess balances[6] that could be withdrawn and would still leave enough funds to fulfil such operational activities.

(1) Deposits and borrowings where the customers are reliant on the commercial bank to perform the services as an intermediary within 30 days. Shall the commercial bank acknowledges that the customers have other adequate arrangement plans without having to rely on the commercial bank, such deposits and borrowing should not be considered as operational deposits and borrowings.

(2) The services are binding by legal contract, including service agreements that are legally binding.

(3) Termination of the services is legally and clearly subject to a notice period of at least 30 days in advance or if the services are terminated before 30 days after notice, there shall be a signification termination cost, for instance, early termination fee, legal expenses, IT expenses, etc.

Operational deposits shall be deposits and borrowings held in specifically designed operational accounts and priced without giving an economic incentive to the customers to leave any excess funds on the accounts.

Definitions of clearing, custody and cash management are as follows:

- **Clearing** refers to a service arrangement that enables customers to transfer funds or securities through the settlement systems to final recipients, which are transmission, reconciliation and confirmation of payment orders, daylight overdraft, overnight financing and maintenance of post-settlement balances, and determination of intra-day or final settlement positions.

- **Custody** refers to the provision of safekeeping, reporting, processing of assets or the facilitating of the operational and administrative elements of related activities, which are the settlement of securities transactions, the transfer of contractual payments, the processing collateral, the execution of customers' orders

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[6] During the first 3 years from the effective date of this Notification, shall the ccommercial bank be able to prove that they have exercise great care in estimating excess balance but fail do so (best effort), the commercial bank will be treated as 'having no intention for wrong-doings. Afterward, if the commercial bank fail to estimate the excess balances, all such deposits and borrowings will be considered as non-operational deposits. Nonetheless, the commercial bank are allowed to categorised such accounts in accordance to the internal guidelines provided that the internal guidelines are more stringent than the guidelines by the Bank of Thailand.

pertaining to foreign exchange transaction, the provision of custody related cash management services, the receipt of dividends or other income, client subscriptions or redemptions, the cash management according to a specified time period, payments of fee, tax or other expenses.

- **Cash management** refers to services or products provided to a customer to manage its cash flows, assets and liabilities or conduct financial transactions necessary to the customer's ongoing operations, which are information providing services and data systems administration services relating to customer's financial transaction management, payment remittance, collection and aggregation of funds, payroll administration, control over disbursement of funds, automatic payments and other transactions facilitating financial operations.

2.2.2 Non-operational deposits

Deposits and borrowings which are not eligible as operational deposits in 2.2.1 above, including deposits and borrowings in vostro and prime brokerage accounts[7], as well as, excess balances and deposits from customer's funds transferred out of operational deposit accounts which are temporarily placed for future operations.

2.3 Unsecured debt issuance

All types of unsecured debt securities including bills of exchange, promissory notes issued by the commercial bank and offered through public offering in accordance with the guidelines of the Securities and Exchange Commission.

2.4 Other deposits and borrowings

Borrowings under the soft loan program of the Bank of Thailand, and other additional borrowings to be specified by the Bank of Thailand, including account payables from purchase of securities.

<u>Calculation methodology</u>

In calculating deposits and borrowings of small business customers in 2.1, the commercial bank shall apply the same calculation methodology as retail deposits and borrowings' in 1., using the run-off rates in Table 1.

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[7] Alhough the nature of deposits and borrowings in vostro and prime brokerage accounts may be similar to operational deposits, the nature of liquidity risk of vostro and prime brokerage accounts is different from the operational deposits. Therefore, they are categorised as non-operational deposits.

The commercial bank shall multiply the amount of the following wholesale deposits and borrowings in 2.2, unsecured debt issuance in 2.3, and other deposits and borrowings in 2.4 that could incur cash outflows within 30 days[8] by associated run-off rates according to the types of counterparties and transactions, the deposit insurance scheme and the characteristics of deposit and borrowing accounts. The details are shown in Table 2.

(1) Total demand deposits and borrowings

(2) Term deposits and borrowings maturing within 30 days

(3) Term deposits and borrowings with the maturity of greater than 30 days where the depositors have the legal right to withdraw before the maturity

(4) Term deposits and borrowings with the maturity of greater than 30 days where the commercial bank has the legal right to withdraw before the maturity and the commercial bank's reputation would be adversely affect if it fails to exercise such right

(5) Term deposits and borrowings with the maturity of greater than 30 days where an early withdrawal is not allowed

(6) All types of unsecured debt issuances maturing within 30 days

(7) Other term deposits and borrowings maturing within 30 days

[8] Wholesale deposits and borrowings that could incur cash outflow within 30 days do not include deposits placed as collateral for loan with maturity of greater than 30 days.

Table 2 Run-off rates of unsecured wholesale funding

Unit: percent

<table>
<tr><th rowspan="2"></th><th rowspan="2">Counterparty type</th><th colspan="2">Eligible as operational deposits</th><th colspan="2">Not eligible as operational deposits</th></tr>
<tr><th>Insured deposit</th><th>Uninsured deposit</th><th>Insured deposit</th><th>Uninsured deposit</th></tr>
<tr><td rowspan="2">Deposits and borrowings (1)-(4)</td><td>Corporates / sovereigns / central banks / local government organisations / state agencies / state enterprises / MDBs</td><td>5</td><td>25</td><td>20
(only in the case that the entire amount is insured)</td><td>40</td></tr>
<tr><td>Commercial banks, companies in financial business group of the commercial banks / finance companies / credit foncier companies / companies undertaking financial business / SFIs / other legal entities</td><td>5</td><td>25</td><td colspan="2">100</td></tr>
<tr><td rowspan="2">Deposits and borrowings (5)</td><td>Corporates / sovereigns / central banks / local government organisations / state agencies / state enterprises / MDBs</td><td colspan="4">20</td></tr>
<tr><td>Commercial banks, companies in financial business group of the commercial banks / finance companies / credit foncier companies / companies undertaking financial business / SFIs / other legal entities</td><td colspan="4">50</td></tr>
<tr><td colspan="2">(6) Unsecured debt issuance</td><td colspan="4" rowspan="2">100</td></tr>
<tr><td colspan="2">(7) Other deposits and borrowings</td></tr>
</table>

Term deposits and borrowings where an early withdrawal is not allowed in (5) above shall be applied the run-off rate of 20% or 50% depending on counterparty types and shall meet all of the following criteria: 1) the clause "early withdrawal is not allowed" is clearly stated in the contract, and 2) do not show early withdrawal behaviours including no cash outflow related to the products before the maturity, for instance, placing the product as a collateral for loan.

Shall any commercial bank has term deposits and borrowings with significant early withdrawal behaviours, the Bank of Thailand may order such commercial bank to estimate cash outflows for the term deposits and borrowings where an early withdrawal is not allowed in (5) by applying the same run-off rate as term deposits and borrowing with the maturity of greater than 30 days where the depositors have the legal right to withdraw before the maturity instead. The commercial bank shall prepare the information related to the aforementioned criteria for the term deposits and borrowings where an early withdrawal is not allowed and keep relevant documents ready upon examiner's request.

3. Secured funding

Secured funding includes repo, security lending, collateral swap, and short position.

Calculation methodology

The commercial bank shall multiply the amount of cash received from secured funding including repo, security lending, security lending to cover customers' short positions, and collateral swaps that are maturing within 30 days and the amount of cash received from security lending to cover customers' short positions with undetermined maturity by the run-off rates according to the types of counterparties and collateral.
The details are shown in Table 3.

Table 3 Run-off rates of secured funding

Unit: percent

Counterparty \ Collateral	HQLA Level 1	HQLA Level 2A	HQLA Level 2B	Non-HQLA
• Central banks[9]	0	0	0	0
• Sovereign[10] • Local government organisations / state agencies / state enterprises[11] • MDBs	0	15	25	25
• Others	0	15	50	100

In case where the commercial bank places several types of collaterals as a pool, some of which are eligible and some are not eligible as HQLA, and where the secured funding transaction does not clearly specify the type of collateral, the least liquid assets shall be used as collateral first. That is, assets that are not eligible as HQLA shall be used as collateral for the transaction first, followed by HQLA level 2 and HQLA level 1, respectively.

For security lending to cover the customer's short positions using the commercial bank's securities, the commercial bank shall multiply the amount of cash received from the transaction by the 100% run-off rate.

4. Contractual obligations

Details of contractual obligations that could incur cash outflows are as follows:

4.1 Derivatives cash outflows

4.2 Additional collateral to be posted or contractual cash outflows from derivatives or other transactions as follows:

4.2.1 Additional collateral to be posted or contractual outflows associated with the commercial bank's credit downgrade up to 3 notches, which results from the contract governing the transactions have clauses that require the posting of

[9] Central banks here refer to the Bank of Thailand and the central bank of country where the branch of the commercial bank is located.

[10] Sovereigns here refer to the Thai sovereign and the sovereign of country where the branch of the commercial bank is located.

[11] Local government organisations, state agencies, and state enterprises here refer to local government organisations, state agencies, and state enterprises of Thailand and of the country where the branch of the commercial bank is located that are assigned the risk weight of 20% or better.

additional collateral, early repayment of existing liabilities, drawdown of contingent facilities, etc. upon the commercial bank's downgrade.

4.2.2 Potential loss of market value on the posted collateral securing derivatives and other transactions.

4.2.3 Excess collateral posted for the derivatives and other transactions held by the commercial bank that could contractually be called at any time by the counterparties.

4.2.4 Additional collateral for derivatives and other transactions that contractually required for which the counterparty has not yet demanded the collaterals to be posted.

4.2.5 HQLA collateral posted for derivatives and other transactions with the commercial bank for which the counterparty has the contractual right to substitute with lower levels of HQLA or non-HQLA, without receiving the commercial bank's consent, where such HQLA collateral is held in a non-segregated account, thereby the commercial bank is able to treat it as HQLA.

4.2.6 Market valuation changes on derivatives or other transactions

4.3 Redemption of asset backed securities, structured financing instruments, and covered bonds issued by the commercial bank or companies in the financial business group

4.4 Cash outflows associated with short-term instruments from Asset-Backed Commercial Papers (ABCPs), Special Purpose Vehicles (SPVs), conduits, Securities Investment Vehicles (SIVs) and other financing activities, as the commercial bank is a redemption agent, sponsor, or liquidity provider of the debt securities

4.5 Undrawn portion of committed facilities

Customers' undrawn portion of committed facilities that approved by the commercial bank which is irrevocable or conditionally revocable agreed in advance. These can be divided into 2 types based on purposes of the facilities as follows:

4.5.1 Liquidity facilities which refer to the facilities that would be utilised to refinance the redemption of maturing debt securities issued by the customers

4.5.2 Credit facilities which refer to the facilities other than liquidity facilities, including working capital and liquidity facilities that have not been assigned for redemption of debt securities

4.6 Undrawn portion of unconditionally revocable uncommitted facilities

Customers' undrawn portion of uncommitted facilities approved by the commercial bank which is unconditionally revocable any time and the customers acknowledge the approval of the facilities[12]. The uncommitted facilities cover both liquidity facilities and credit facilities.

4.7 Trade finance related obligations

All types of trade finance instruments, guarantees, acceptances, and avals granted by the commercial bank, including letters of credit issued by the commercial bank, and other trade finance related transactions of the commercial bank.

4.8 Guarantees, acceptances, avals, and letter of credits unrelated to trade finance obligations

Guarantees, acceptances, avals, and letters of credit which are issued by the commercial bank and unrelated to the trade finance obligations

4.9 Commercial bank's short positions covered by customers' collateral placed with the commercial bank

Commercial bank's short positions which are covered by customers' collateral from reverse repo and securities borrowing

4.10 Other contractual obligations that would incur cash outflows

Contractual obligations that would subject the commercial bank to pay or lend to counterparties, for instance, dividend payments, unsecured securities borrowing, commercial bank's short positions where the securities received from an unsecure securities borrowing, as well as other contractual obligations that do not meet the definition of in 4.1 to 4.9. However, these exclude cash outflows relating to operating cost of the commercial bank.

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[12] Excluding non-contractual facilities internally set for customers / counterparties. However, if the commercial bank deem that the customers acknowledge the approval of the facilities and the rejection of the facilities may significantly affect the reputation as well as the liquidity risk of the commercial bank, such facilities shall be included.

Calculation methodology

There are 2 groups of calculation methodology as follows:

Group 1: Non-credit-like contractual obligations

The commercial bank shall calculate the expected cash outflows within 30 calendar days as specified by the Bank of Thailand; details are shown in Table 4.

Table 4 Estimation of cash outflows for contractual obligations

Item	Estimation of cash outflows
4.1 Net cash outflows from derivatives transactions	The commercial bank shall multiply the amount of net cash outflows expected to incur[13] over 30 days from derivatives transactions after taken into account the collateral value[14] and cash flows from in-the-money transactions (from the view point of option buyer) for contingent cash flow[15], for instance, option transactions, by the run-off rate of **100%**.
4.2 Additional collateral to be posted and cash outflow from derivatives or other transactions	
4.2.1 Additional collateral to be posted and contractual outflows associated with credit downgrade	The commercial bank shall multiply the amount of additional collateral to be posted and contractual cash outflows associated with the commercial bank's credit downgrade up to 3 notches by the run-off rate of **100%**
4.2.2 Potential loss of market value of collateral posted securing derivatives and other transactions	
• HQLA level 1	The commercial bank shall multiply the market value, at the report date, of the HQLA level 1 posted as collateral by the run-off rate of **0%**
• Non-HQLA level 1	The commercial bank shall multiply the market value, at the report date, of the assets other than the HQLA level 1 posted as collateral, after taking into account haircut by collateral type, by the run-off rate of **20%**
4.2.3 Excess collateral posted for derivatives and other transactions held by the commercial bank that could contractually be call at any time by the counterparties	The commercial bank shall multiply the amount of excess collateral posted by counterparties securing derivatives and other transactions, which can be called by the counterparties, by the run-off rate of **100%**
4.2.4 Additional collateral for derivatives and other transactions that is contractually required for which the counterparties have not yet demanded to be posted	The commercial bank shall multiply the amount of additional collateral to be posted upon request of the counterparties by the run-off rate of **100%.**
4.2.5 Collateral posted for derivatives and other transactions for which	The commercial bank shall multiply the difference between (1) the value of HQLA collateral posted with the commercial bank for derivatives and other

[13] The commercial bank can net the cash flows that may incur within 30 days from derivatives transactions of each counterparty without having to sign an eligible netting agreement. However, the netting across counterparties is not allowed.

[14] The net cash flows after taking into account the collateral value shall be used in the calculation (only in the case where such assets are eligible as HQLA and are not included as HQLA in the LCR calculation.

[15] Contingent cash flows also include prorata forward.

Item	Estimation of cash outflows
the counterparties have the right to substitute the collateral assets	transactions and (2) the value of lower levels of assets posted as substitute collateral, after taking into account haircut, by the run-off rate of **100%**
4.2.6 Market valuation changes on derivatives or other transactions	The commercial bank shall multiply the maximum absolute value of net collateral flows within 30 days, using two-year historical data, by the run-off rate of **100%**
4.3 Redemption of asset backed securities, structured financing instruments, and covered bonds	The commercial bank shall multiply the value of asset-backed securities, structured financing instruments and covered bonds issued by commercial banks or companies in the financial business group that are maturing within 30 days by the run-off rate of **100%**.
4.4 Cash outflow associated with short-term instruments from ABCP, SPV, conduits, SIV and other financing activities as a redemption agent, sponsor, or liquidity provider of the debt securities	The commercial bank shall multiply the amount of cash outflows associated with ABCPs, SPVs, conduits, SIVs, and other financing activities where the commercial bank is a redemption agent, sponsor or liquidity provider of the debt securities, which the associated financing instruments or contracts are maturing within 30 days, or the ones with maturity of greater than 30 days but have early redemption period within 30 days, by the run-off rate of **100%**
For contractual obligations under 4.5 - 4.8, banks shall use calculation methodology of Group 2 below.	
4.9 Commercial bank's short positions covered by customers' collateral placed with the commercial bank	The commercial bank shall multiply the value of securities received from reverse repo and securities borrowing by the run-off rate of **0%**
4.10 Other contractual obligations that would incur cash outflows	The commercial bank shall multiply the amount of cash to be paid or lend to the counterparties within 30 days by the run-off rate of **100%**

<u>Group 2</u>: Credit-like contractual obligations

(1) For committed facilities in 4.5, the commercial bank shall estimate cash outflows within 30 days as specified by the Bank of Thailand as follows:

(1.1) For credit facilities, the commercial bank shall multiply the undrawn portion of the credit facilities by the run-off rate according to the types of counterparties and facilities. The details are shown in Table 5.

(1.2) For liquidity facilities, the commercial bank shall multiply the outstanding debt securities issued by the customers that are maturing within 30 days by the run-off rate according to the types of counterparties and facilities. The details are shown in Table 5.

Table 5 Run-off rates for committed facilities

4.5 Committed facilities / Counterparty	Credit facilities (percent)	Liquidity facilities (percent)
Retail and small business customers	5	
Corporates, sovereigns, central banks, local government organisations, state agencies, state enterprises, and MDBs	10	30
Commercial banks	40	
Finance companies, credit foncier companies, SFIs, other companies undertaking financial business	40	100
Other legal entities[16]		100

Undrawn committed facilities that have a certain drawdown period within 30 days shall have the run-off rate of 100%.

The commercial bank can estimate cash outflows with the net of collateral posted by customers to secure the facilities or that are contractually obliged to receive when the customers drawdown the facilities, which are similar to secured lending transaction, if the collateral comply with all the following criteria:

- the collaterals are eligible as HQLA but not yet included in the LCR calculation
- the commercial bank are legally entitled and operationally capable to reuse the collateral for liquidity
- the value of the collateral has no correlation with the probability of the customer drawing the facilities

(2) For other types of facilities, the commercial bank shall estimate cash outflows within 30 days as specified by the Bank of Thailand. The details are shown in Table 6.

Table 6 Estimation of cash outflows for facility obligations

Item	Estimation of cash outflows
4.6 Uncommitted facilities	The commercial bank shall multiply the undrawn portion of uncommitted facilities by the run-off rate of **0%.**
4.7 Trade finance related obligations	The commercial bank shall multiply the remaining outstanding of all types of guarantees, acceptances, avals, as well as letters of credit (L/C) that are related to trade finance obligations by the run-off rate of **0.5%**

[16] All types of committed facilities to other legal entities, for instance, mutual funds, special purpose vehicles etc. shall be treated as liquidity facilities.

Item	Estimation of cash outflows
4.8 Guarantees, acceptances, avals, and L/C unrelated to trade finance obligations	The commercial bank shall multiply the remaining outstanding of all types of guarantees, acceptances, avals, as well as L/C that are not related to trade finance obligations by the run-off rate of **1%**

If the total contingent obligations to extend the loans given to retails, small business customers, corporates, sovereigns, local government organisations, state agencies, state enterprises, and other legal entities within 30 days, which are not eligible in 4.1 –4.10 above, exceed 50% of the total cash inflows from fully performing loan given to retails, small business customers, corporates, sovereigns, local government organisations, state agencies, state enterprises, and other legal entities maturing within 30 days, the difference shall be subject to the run-off rate of 100%.

5. Non-contractual obligations

Details of non-contractual obligations that could incur cash outflows are as follows:

5.1 Debt-buy back requests

Securities issued by the commercial bank or an entity, for instance, SPVs sponsored by the commercial bank, with the maturity of greater than 30 days, but the commercial bank may have to buy back since the buyers have specific expectations regarding the liquidity and marketability of the products or instruments.

5.2 Provision of liquidity to funds managed by companies in the financial business group

Provision of liquidity to funds managed by companies in the financial business group in accordance with the Notification of the Bank of Thailand on Consolidated Supervision, even without any contract, in order to protect negative impacts on the commercial bank's reputation.

5.3 Provision of liquidity to companies in the financial business group and other businesses that the commercial bank has a minority investment in the entities.

Provision of liquidity to companies in the financial business group in accordance with the Notification of the Bank of Thailand on Consolidated Supervision, and to other businesses that the commercial bank has a minority investment in the entities where there is an expectation that the commercial bank will be the main liquidity provider when the businesses need liquidity.

Calculation methodology

The commercial bank shall calculate the expected cash outflows within 30 days as specified by the Bank of Thailand. The details are shown in Table 7.

Table 7 Estimation of cash outflows for non-contractual obligations

Item	Estimation of cash outflows
5.1 Debt buy back requests	
- In case that the commercial bank or companies in the financial business group are a not dealer or a market marker.	The commercial bank shall multiply the outstanding of debt securities that are issued by the commercial bank or other entities, for instance, SPV, which the commercial bank is a financial supporter, with the maturity of greater than 30 days, by the run-off rate of **5%**
- In case that the commercial bank or companies in the financial business group are a dealer or a market marker.	The commercial bank shall multiply the outstanding of debt securities that are issued by the commercial banks or other entities, for instance, SPV, which the commercial bank is a financial supporter, with the maturity of greater than 30 days, by the run-off rate of **10%**
5.2 Provision of liquidity to funds managed by companies in the financial business group	The commercial bank shall multiply the NAV of the fixed income funds and money market funds according to the Notifications of the Securities and Exchange Commission on Establishment of Mutual Funds and Contract to Manage Private Fund, which are under the management of the companies in the financial business group (excluding open-end funds whose behaviours are similar to close-end funds), by the run-off rate of **5%**[17]
5.3 Provision of liquidity to companies in the financial business group and other businesses that commercial bank have minority investment	The commercial bank shall calculate the amount of cash flows that the commercial bank may have to assist companies in the financial business group or other businesses, in which the commercial bank has a minority investment, within 30 days by the run-off rate of **100%**

II. Expected cash inflows

There are 3 categories of cash inflows as follows:

[17] The run-off rate of 5% is derived from multiplying the average proportion of investment in corporate and financial institutions debt securities, and the haircuts of corporate and financial institutions debt securities according to the LCR requirement. If the net cash outflows from liquidity providing to mutual funds or asset management companies, for instance, undrawn committed line) which are estimated by the commercial bank is higher than those calculated as specified by the Bank of Thailand, the commercial bank shall use its estimation instead.

1. **Secured lending**

Secured lending includes reverse repo and securities borrowing that will result in the commercial bank receiving cash inflows and delivering securities in the future, which are divided into 2 cases as follows:

1.1 The case where the collateral obtained through the transaction is not rehypothecated or is rehypothecated but the collateral is encumbered for not more than 30 days

Reverse repo and securities borrowing where the collateral received is not rehypothecated or is rehypothecated, for instance, to open a short position or placed as collateral for borrowing, and result in the collateral being encumbered for not more than 30 days.

1.2 The case where the collateral obtained through the transaction is rehypothecated and the collateral is encumbered for more than 30 days

Reverse repo and securities borrowing where the collateral received is rehypothecated, for instance, to open short a position or placed as collateral for borrowing, and result in the collateral being encumbered for more than 30 days

Calculation methodology

The commercial bank shall multiply the amount of loans from reverse repo and securities borrowing maturing within 30 days by the inflow rates according to the types of collateral and rehypothecation. The details are shown in Table 8.

Table 8 Inflow rate for reverse repo and securities borrowing

Unit: percent

Collateral / Inflow rate	HQLA			Non HQLA
	Level 1	Level 2A	Level 2B	
Collateral is not rehypothecated or rehypothecated for not more than 30 days	0	15	50	100
Collateral is rehyphothecated for more than 30 days	0			

1. **Fully performing loans**

Cash inflows from repayment of loans and deposits from fully performing counterparties and debt securities held by the commercial bank. Details are as follows:

2.1 Loans and deposits at other financial institutions

Repayment of loans and deposits at other financial institutions from a fully-performing counterparty means borrowers classified as performing or equivalent in accordance with the Notification of the Bank of Thailand on Loan Classification and Provisioning for Financial Institutions.

2.2 Other type of loans specified by the Bank of Thailand to receive the inflow rate of 100%

Loans under soft loan program of the Bank of Thailand, account receivables from sale of securities, cheque in the process of collection, and other additional loans to be specified by the Bank of Thailand.

2.3 Debt securities held by the commercial bank

Debt securities held by the commercial bank that are classified as performing or equivalent and are not included in HQLA for the LCR calculation.

<u>Calculation methodology</u>

(1) The commercial bank shall multiply the outstanding amount of fully performing loans and deposits at other financial institutions, only the portion that matures within 30 days[18] by the inflow rate according to the types of counterparties and transactions. The details are shown in Table 9. For revolving credits, for instance, overdraft, credit card loan etc., the commercial bank shall use the minimum payment to be paid by the customers in the calculation.

(2) The commercial bank shall multiply the amount of contractual cash inflow to incur within 30 days from account receivables as a result of sale of securities by the inflow rate. The details are shown in Table 9.

(3) The commercial bank shall multiply the outstanding amount of debt securities held by the commercial bank maturing within 30 days by the inflow rate. The details are shown in Table 9.

[18] When considering due dates of loan repayment or cash inflow received from borrowers, the commercial bank shall use the latest possible date. As for call loans, it shall be assumed that the commercial bank can recall the full amount of loan within 30 days, before multiplying by the inflow rate according to counterparty types.

Table 9: Inflow rate for fully performing loans

Unit: percent

Counterparty / Inflow rate	Retails / small business customers / corporates / sovereigns / local government organizations / state agencies / state enterprises / other legal entities	Central bank	Commercial banks /companies in the financial business group of the banks / finance companies / credit foncier companies / SFIs / other companies undertaking financial businesses	
			Operational deposits	Other deposits maturing within 30 days
2.1 Loans and deposits at other financial institutions	50	100	0	100
2.2 Other types of loans specified by the Bank of Thailand to receive 100% inflow rate	100			
2.3 Debt securities held at the commercial bank	100			

2. Contractual obligations

Detail of contractual obligations that could incur cash inflows are as follows:

3.1 Derivatives cash inflows

3.2 Other cash inflows

Contractual cash inflows from other transactions or financial revenues[19] as specified by the Bank of Thailand.

<u>Calculation methodology</u>

The commercial bank shall estimate cash inflows within 30 days as specified by the Bank of Thailand. The details are shown in Table 10.

Table 10 Estimation of cash inflows for contractual obligations

Item	Estimation of cash inflow
3.1 Net cash inflows from derivatives transactions	The commercial bank shall multiply the amount of net cash inflows expected to incur[13] within 30 days from derivatives transactions after taken into account the collateral value[14], and the cash flows from in-the-money transactions (from view point of option buyer) for contingent cash flow[15], for instance, option transactions, , by the inflow rate of **100%**.
3.2 Other transactions	The commercial bank shall multiply the amount of cash inflows from other transactions as specified by the Bank of Thailand by the inflow rate of **100%**

[19] Non-financial revenues, for instance, sale of land, building, equipment and other special incomes.