Markets Committee

MC Compendium

Monetary policy frameworks and central bank market operations

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BANK FOR INTERNATIONAL SETTLEMENTS

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A. Introduction

Central banks' decisions and actions are shaped by their operational frameworks, which evolve as market conditions, policy goals, and the structure of financial markets change. While these monetary policy operating frameworks share a number of similarities, there are also noticeable differences.

The Markets Committee (MC) serves as a key forum for central banks to discuss the specific features of their own market operations and the impact of these operations on financial markets. To facilitate its discussions, the MC summarised key features of the monetary policy frameworks and market operations of its members into a single and easily accessible document. This compendium provides a comprehensive cross-country overview of the relevant aspects for monetary policy implementation, such as institutional features of monetary policy frameworks, communication of policy, as well as the "nuts and bolts" of operations (including reserve requirements, the modalities of standing facilities, as well as the tools for open market operations etc.).

The Committee believes that sharing such detailed information with the broader public enhance market transparency and the understanding of central bank actions. The descriptions of monetary policy frameworks presented in the Compendium have been submitted by the respective central banks and either reproduce or summarise information which is already publicly available in their publications or on their websites. The original central bank publications shall remain the ultimate references.

B. Descriptions of operational frameworks (by currency area)

1. Australia

Institutional framework

The RBA sets monetary policy with the objective of maintaining price stability, full employment, and contributing to the economic prosperity and welfare of the Australian people. To achieve these objectives, the RBA has an 'inflation target' and seeks to keep consumer price inflation in the economy to 2–3 per cent, on average, over time.

To implement its monetary policy objectives, the RBA sets a target for the cash rate, the interest rate on overnight unsecured loans between banks. The cash rate influences other interest rates in the economy, affecting the behaviour of borrowers and lenders, economic activity and ultimately the rate of inflation.

The cash rate target is determined by the RBA Board, which meets on the first Tuesday of each calendar month, except January. The Board's monetary policy decision is announced in a media release which is distributed through market data services and published on the RBA's website at 2.30 pm on the day of each Board meeting. Any change to the cash rate target is effective the following day. The RBA's domestic market operations are designed to ensure that the actual cash rate remains close to the cash rate target.

Key features of the implementation framework

On a day-to-day basis, the cash rate is determined by the supply and demand for exchange settlement (ES) funds. Banks (and a small number of other financial institutions) hold ES funds in their accounts at the RBA to meet their payment obligations. Every day, and during the course of the day, banks must maintain a positive balance of ES funds. The RBA does not operate a reserves averaging framework or use reserves maintenance periods.

While the RBA does not require banks to hold a pre-specified amount of ES funds (eg minimum reserves), some banks maintain a certain amount of ES funds as a buffer against payments that settle after the interbank market has officially closed. These buffers are agreed in advance with the RBA and funds held for this purpose are remunerated at the cash rate target (this is discussed below under the standing facilities).

To maintain incentives for banks to trade their ES balances in the interbank market, the RBA operates an interest rate corridor. Overnight ES funds held by banks are remunerated 25 basis points below the cash rate. Where banks require use of RBA overnight repo, a margin of 25 basis points over the cash rate applies. Banks are not expected to make frequent use of the overnight lending facility and instead source funds in the interbank market.

To ensure that the cash rate trades closely to the cash rate target, the RBA gauges the demand for ES funds and conducts open market operations (OMOs) almost every day to keep the supply of ES funds at the right level. This is because transactions between the RBA (and its customers) and banks (and their customers) change the supply of ES funds. As the Australian Government is a customer of the RBA, these gross flows can be very large. In deciding when and how much to transact in its OMOs, the RBA seeks to offset the impact of all its other payment obligations and those of its clients. This liquidity forecasting and management helps the RBA maintain the supply of ES funds at the appropriate level.

Each morning, the RBA announces its OMO dealing intentions, inviting eligible counterparties to submit approaches. OMOs are conducted as fixed amount, variable repo rate tenders, with pre-specified terms that suit the RBA's liquidity management (generally between 1-week and up to 6-months).

There is no limit on the size or number of approaches a counterparty can make (counterparties with multiple approaches can set an aggregate limit). Where successful, counterparties must collateralise their transactions by selling highly rated debt securities to the RBA either under repo or outright sale (only short-term Australian government securities can be sold outright). More information on the RBA's collateral framework can be found in The Reserve Bank's Collateral Framework - December Quarter 2017. Eligible OMO counterparties include banks with ES accounts, but also other financial institutions that are not ES account holders. The RBA publishes counterparty eligibility rules on its website, see Eligible Counterparties.

At 5.10 pm each afternoon, the RBA announces whether an additional OMO is required, for example in the case where liquidity forecast errors result in the amount of aggregate ES funds being to large or too small, thus potentially disrupting orderly trading conditions in the interbank market. To prevent such an outcome, the RBA conducts additional OMOs to either drain or replenish aggregate ES funds, giving banks the opportunity, respectively, to lend undesired funds to the RBA or borrow required funds, on a secured basis. The RBA assesses the need for these additional rounds on a system-wide basis, not on the position of individual ES account holders, thereby preserving the incentives for banks to participate in the interbank market. Detailed information on OMOs is available on the RBA website, see Open Market Operations.

To fine-tune its liquidity management, the RBA also uses foreign exchange (FX) swaps in its domestic market operations. Unlike OMOs which are contracted for same-day value of funds, FX swaps are contracted for deferred settlement (generally T+1 to T+3) with maximum terms of up to 3-months. FX swaps are contracted bilaterally with pre-approved counterparties. FX swaps supplement the range of financial instruments used by the RBA to manage Australian dollar liquidity and are particularly useful to offset lumpy liquidity flows, such as the maturity of Australian Government Securities, or large Government flows (taxes and outlays).

Separate to OMOs which support the implementation of monetary policy, the RBA also provides standing facilities (SFs) to eligible counterparties, which include mostly ES account holders. SFs are designed to support the smooth functioning of the payments system. Banks access SFs by contracting repos against high-quality collateral. The RBA specifies in advance the price and terms of repos used in its SFs. Intraday repos are free of charge and allow banks to raise ES funds in order to make payments ahead of receiving covering funds later in the day. This smooths the volume of payments settlements throughout the day, avoiding gridlock in the payments system. If a bank fails to unwind an intraday repo, the RBA provides overnight repos, applying a margin of 25 basis points over the cash rate as a disincentive to use the facility. As mentioned above, banks are expected to source funds in the interbank market and not make frequent use of overnight repos.

Banks can also have open repo arrangements, ie repos without a specified maturity date. Open repos allow banks to hold a certain amount of ES funds that can be used to settle payments that occur outside of normal business hours. These arrangements support the trend for 24/7 payments as payments systems become more sophisticated and real-time. In Australia, examples of such 24/7 payments include those made under the New Payments Platform – infrastructure that enables Australian consumers, businesses and Government agencies to make real-time payments between accounts at participating banks. NPP payments are settled across banks' ES accounts via the RBA's Fast Settlement System.

2. Brazil

Institutional framework

At the beginning of March 1999, the Brazilian Government announced its intention to start conducting the monetary policy based on an inflation targeting framework. Brazil formally adopted the inflation targeting regime as monetary policy guideline with the edition of the Decree 3,088 by the President of the Republic, on 21 June 1999. On 30 June 1999, the National Monetary Council (CMN) issued the Resolution 2,615, which defined the reference price index and inflation targets for 1999 and for the two years thereafter.

In Brazil, the inflation target is set in terms of the year-over-year rate of increase in the Broad National Consumer Price Index (IPCA), one of the Brazilian CPIs. This index is calculated by the Brazilian Institute of Geography and Statistics (IBGE). The Brazilian regime considers a headline index as reference, in line with most countries that adopt formal targets for inflation.

Most central banks use a short-term interest rate as the main instrument of policy. Likewise, the Brazilian inflation targeting regime uses the Selic rate as the primary instrument of monetary policy. The Selic rate is the average interest rate charged on the daily loans with a maturity of one day (overnight) backed by government securities registered in the Special System for Settlement and Custody (Selic), ie, the interest rate that balances the market for bank reserves. The Monetary Policy Committee (Copom) sets the target for the Selic rate, and it is up to the open market desk operations of the Banco Central do Brasil (BCB) to keep the effective Selic rate close to the target.

Key features of the implementation framework

1. Open market operations

Open market operations (OMO) comprise purchases and sales of securities in the secondary market, either outright transactions or considering resale and repurchase agreements (repos). On its OMO, the BCB uses exclusively federal public debt securities under custody in Selic.

The BCB manages excess bank liquidity. To manage this excess liquidity, the BCB conducts daily sales operations of federal securities, from its portfolio, with a commitment to repurchase at a future date (reverse repo), through competitive auctions. Nowadays, the term of these operations ranges from 1 to 180 days.

Early in the morning, around 9 am, the BCB conducts overnight auctions to drain excess liquidity. The 45-day reverse repo operation occurs on the day after the Copom's meeting and lasts until the next Committee meeting.

The long-term reverse repo (3 and 6-month) takes place every day, alternately, at the end of the morning.

Still at the end of the day, the open market trading desk injects and/or drains liquidity at punishing rates (standing facility).

To define its strategy for managing bank liquidity, the BCB develops liquidity forecasts for up to 6 months, with daily adjustments.

The main factors affecting bank liquidity in Brazil are US dollar buying/selling, banks' reserve requirements movements and the National Treasury operations (revenues, expenses, redemption/placement of debt securities).

2. Reserve requirements and standing credit facilities

In order to set a cap on money market rates (repo market) and fine tune liquidity, BCB has standing credit facilities, available in two different terms: intraday and overnight. Liquidity is provided through repo operations, accepting only government securities as collateral. These facilities have "zero" costs and 100 bps over the policy rate, respectively.

Within the monetary policy operational framework, reserve requirements (RR) have also a role for liquidity absorption. They represent an exogenous factor in determining the setup of liquidity absorption OMO. Currently, the RR framework consist of three different types, according to types of financial institutions liabilities. They aim not only at contributing to sterilisation of bank reserves, but also at keeping liquidity buffers for financial stability reasons.

RR on demand deposits have an objective of creating a demand for bank reserves to assure adequate functioning of the money market and of the Brazilian Payment System. It has also a role in monetary policy by limiting the multiplier effect on commercial bank money. RR on demand deposits are met through the average of balances within a two-week maintenance period and reserve balances are not remunerated.

RR on time deposits have the objectives of keeping liquidity buffers that can be used in liquidity shortage situations, and of absorbing liquidity as a secondary instrument. They have neutral effect on market rates, once they are remunerated at the policy rate (Selic). RR on savings deposits work as a liquidity buffer that aids the management of assets and liabilities related to earmarked credit (real estate lending and rural credit) in the financial system. They are remunerated at same rates as those of savings deposits. Both remunerated required reserves are kept in different accounts at BCB, that can be drawn, without cost, for intraday usage.

3. Canada

Institutional framework

The Bank of Canada Act[1] establishes that the principal role of the Bank of Canada (BoC) is "to promote the economic and financial welfare of Canada". To achieve this mandate, the BoC has four main areas of responsibility, which are: Monetary Policy, Financial System, Currency and Funds Management.

The objective of monetary policy in Canada is to preserve the value of money by keeping inflation low, stable and predictable. The main tools in Canada's monetary policy framework are the inflation-control target and the flexible exchange rate. In 2016, the Government of Canada and the BoC renewed Canada's inflation-control target for a further five-year period, ending December 31, 2021 and will aim to keep inflation[2] at 2 per cent, with a control range of 1 to 3 per cent. The BoC's Governing Council is responsible for the day-to-day conduct of monetary policy.

The inflation-control target guides the BoC's decisions on the appropriate setting for the policy interest rate, which is aimed at maintaining a stable price environment over the medium term, The BoC announces its policy rate settings on 8 fixed announcement dates[3] throughout the year.

Canada's flexible exchange rate, or floating dollar, permits the BoC to pursue an independent monetary policy that is best suited to Canada's economic circumstances and is focused on achieving the inflation target.

Key features of the monetary policy implementation framework[4]

The Bank of Canada implements monetary policy by influencing short-term interest rates. It does this by setting the target for the overnight rate (often referred to as the policy rate), which determines the rates at which banks and other financial system participants borrow and lend at the shortest end of the yield curve. The level of the overnight interest rate and expectations about its future path, also influences other longer-term interest rates, as well as a broader range of asset prices. Key features of the BoC's framework that function together to help achieve the targeted policy rate are as follows:

1. **Target for the overnight rate**: the key policy interest rate that the BoC sets to meet its monetary policy objectives, which serves as a signal to major participants in the money markets as to what rate the BoC is aiming for participants to lend/borrow money in the overnight market;
2. **Operating band and standing deposit/liquidity facilities**: a 50 basis point interest rate corridor around the BoC's target for the overnight rate that steers market participants to lend/borrow money in the overnight market near the target rate, with the BoC lending money at the top of the band (at target plus 25 basis points) or taking deposits at the bottom of the band (at target minus 25 basis points) through its standing facilities;
3. **Settlement Balances or Cash Setting**: the amount of excess or deficit deposits supplied to Large Value Transfer System (LVTS) participants on a daily basis to reinforce the target rate;
4. **Open market operations**: open market Overnight Repo (OR) / Overnight Reverse Repo (ORR) reverse repo transactions that are conducted to reinforce the target overnight rate.

For the overnight target rate, the Bank of Canada targets the rate on collateralised, market-based overnight transactions. The BoC uses the general collateral (GC) repo rate as its guide to conditions

[1] https://laws-lois.justice.gc.ca/eng/acts/B-2/.

[2] Measured by the total consumer price index (CPI).

[3] https://www.bankofcanada.ca/core-functions/monetary-policy/key-interest-rate/.

[4] For additional detail see https://www.bankofcanada.ca/markets/market-operations-liquidity-provision/framework-market-operations-liquidity-provision/.

in the overnight market to signal to major participants in money markets the level that the BoC would like to see them borrow and lend funds for a term of one business day. It is the primary and most transparent collateralised overnight rate in Canada and is actively traded in the over-the-counter repo market and via the inter-dealer brokers. The BoC monitors transactions in the overnight market to determine whether open market operations are required to reinforce the target for the overnight rate.

The Bank of Canada's implementation of monetary policy is closely linked to Canada's main payment system – the LVTS, whereby almost all payments (measured by value) flow through. One key feature of the BoC's framework is the operating band, otherwise known as the interest rate corridor, which is supported by standing deposit and lending facilities. The BoC's target for the overnight rate is the midpoint of this 50 basis point band, which is bound by the BoC's standing facilities available to direct members in the LVTS. This encourages transactions for overnight funds in the market at rates within the band. If no excess balances are left in the system, the aggregate position of all LVTS members in their settlement accounts at the BoC will, at the end of the day, be zero. As such, members with a deficit/positive balance are aware that an offsetting positive/deficit position exists with one or more other members. Positive balances are remunerated at target rate minus 25 bps (known as the Deposit Rate), while members with a deficit position must take an overnight collateralised advance from the BoC at the target rate plus 25 bps (known as the Bank Rate).

Another key feature of the Bank of Canada's framework is the ability to adjust the level of the settlement balances available in the system to address frictions in the payments system and to further support trading at the target for the overnight rate. However, unexpected payment frictions in the market can sometimes cause the overnight rate to move away from the BoC's target rate during the day. In cases where the BoC judges that the deviation is a result of generalised pressure on liquidity, it can offset this pressure by adding or withdrawing liquidity with open market operations. Changing the level of settlement balances to reinforce the target rate has been an effective policy tool for implementing monetary policy. In the early 2000s, soon after the introduction of the LVTS, settlement balances were actively used to influence the overnight rate. In subsequent years, the targeted level of settlement balances has been adjusted in anticipation of seasonal or temporary upward pressure on the overnight rate, for example around quarter-ends. Increasing settlement balances provides a strong incentive for market players to lend their cash earlier in the day, thus putting downward pressure on the overnight rate.

The last key feature of the Bank of Canada's framework is the ability to reinforce the target for the overnight rate throughout the day by conducting open market operations at the target rate. When the conditions in the Canadian general collateral overnight repo market so warrant, the BoC may intervene and inject intraday liquidity through repurchase agreements (OR operations), or withdraw intraday liquidity through reverse repurchase agreements (ORR operations). These operations are conducted through a competitive auction to channel funds to the counterparties that need them most, and if necessary the BoC is prepared to enter into multiple rounds of open market operations.

4. China

Institutional framework

Article 3 of the Law of the People's Republic of China on the People's Bank of China establishes that "the objective of monetary policy is to maintain the stability of the value of the currency and thereby promote economic growth."

Article 2 of the Law of the People's Republic of China on the People's Bank of China establishes that "the People's Bank of China shall, under the leadership of the State Council, formulate and implement monetary policy"

Article 23 of the Law of the People's Republic of China on the People's Bank of China establishes that "to implement monetary policy, the People's Bank of China may use the following monetary policy instruments: (1) requiring banking financial institutions to place deposit reserves at a prescribed ratio; (2) deciding on the benchmark interest rates of the central bank; (3) providing discount services to banking financial institutions that have opened accounts in the People's Bank of China; (4) providing loans to commercial banks; (5) purchasing and selling central government bonds and other government securities, financial bonds, and foreign exchange on the open market; and (6) other monetary policy instruments decided by the State Council".

Key features of the implementation framework

First, a series of monetary-policy instruments, including **Open Market Operation (OMO), Required Reserve Ratio (RRR), Medium-term Lending Facility (MLF), and Standing Lending Facility (SLF)** etc are employed to manage liquidity in the banking system.

With recent reform, the PBC established a new RRR framework featuring "**three tranches of reserve requirements and two additional preferential treatments**" to guide small and medium-sized banks to provide services to local enterprises and to the real economy. **"Three tranches"** refer to three levels of the RRR based on the systemic importance, the institution type, and service positioning of the financial institutions. The first tranche applies to large banks to reflect the requirements to prevent systemic risks and maintain financial stability. The second tranche, whose RRR is slightly lower, applies to medium-sized banks, including joint-stock commercial banks and city commercial banks. The third tranche applies to small banks, which include rural credit cooperatives, rural cooperative banks, village banks and rural commercial banks operating and providing services to counties. **"Two additional preferential treatments"** refer to two preferential policies based on the three-tranches. First, first and second tranche banks that have met the evaluation criteria for the targeted RRR cuts for inclusive finance will be eligible for further RRR cuts of 0.5 percentage point or 1.5 percentage points. Second, for banks that operate and provide services to counties, when their local lending accounts for a certain proportion of the increment in their deposits, they will be eligible for a further RRR cut of 1 percentage point. And besides, the PBC also adjusted the criteria for assessing inclusive Micro and Small Businesses (MSBs) loans to expand coverage of the preferential policy on targeted reserve requirement ratio cuts for inclusive financing.

Second, the PBC established a preliminary policy interest-rate system including short-term policy rate which is **OMO rate**, mid-term policy rate which is **MLF rate**, and interest rate corridor, the ceiling of the corridor is **SLF rate**, and the bottom of the corridor is **excessive reserve rate**.

With recent reform, the PBC worked to improve the **LPR formation mechanism** among commercial banks and to have the LPR play a guiding role in the formation of real interest rates so as to improve the market-based interest-rate formation and transmission mechanism, which smoothed the transmission of policy rates to market rates and promoted a reduction in the real interest rates for the financing of enterprises. The quote is formed by adding a few basis points to the interest rate of open market operations, which mainly refers to the rate of Medium-term Lending Facility, or MLF, with a maturity of one year in most cases. In addition to the previous one-year maturity. The LPR will also cover the maturity longer than five years, which will serve as the pricing reference for bank's long-term loans such as housing mortgage, and facilitate a steady transition of outstanding long-term loan contracts with floating rates to the ones adopting LPR in the future.

Third, the PBC leverages **targeted RRR reductions, central-bank lending, rediscounts, Pledged Supplementary Lending (PSL), Targeted MLF (TMLF)** etc. to guide financial institutions to increase support for the key sectors and weak areas in the economy, such as MSBs and private firms.

Fourth, the PBC enhanced macro-prudential management and gave full play to the role of the **macro-prudential assessment (MPA)** in counter-cyclical adjustments and structural guidance.

Fifth, the exchange-rate regime reform has achieved great progress. The flexibility of exchange rate of RMB has been obviously increased, which is mainly driven by market forces. The RMB exchange rate fluctuated in both ways based on market supply and demand in reference to a basket of currencies and it was basically stable at a reasonable and equilibrium level.

Sixth, the PBC paid great attention to enhance the communication with public through a variety of channels, like press conferences, monetary policy reports, statements on PBC website, newspaper and official account of some popular social media, for example, Wechat and Weibo.

5. Eurosystem

Institutional framework

The primary objective of the Eurosystem is to maintain price stability. The Eurosystem, which consists of the ECB and the National Central Banks (NCBs) of the countries which have adopted the euro, defines and implements monetary policy for the euro area according to this objective. In 2003, the Governing Council of the ECB clarified that, in the pursuit of price stability it aims to maintain inflation rates below, but close to, 2% over the medium term.

To implement the decisions made by the Governing Council of the ECB on monetary policy in the euro area, the Eurosystem uses a range of instruments and procedures under its monetary policy implementation framework through which it steers very short term market rates close to its policy rates, the former being considered as the operational target of the monetary policy (as opposed to the ultimate target of price stability).

Key features of the standard implementation framework

Under its operational framework, the Eurosystem conducts open market operations, offers standing facilities and requires credit institutions to hold minimum reserves on accounts with the NCBs. The operations are executed under uniform terms and conditions in all Member States whose currency is the euro. The actual implementation of the single monetary policy is made in a decentralised manner and conducted by the euro area NCBs

The monetary policy framework allows for the participation of a broad range of counterparties under uniform eligibility criteria specified by the Eurosystem to ensure equal treatment across the euro area. Credit institutions are eligible as Eurosystem counterparties if they fulfil the following criteria. They must be: i) located in the euro area (subsidiary or branch) and subject to minimum reserve requirements; ii) subject to harmonised EU/EEA-supervision or comparable third country regime; iii) financially sound; and iv) fulfil the operational criteria. Eligible counterparties may access the Eurosystem's standing facilities and participate in Eurosystem open market operations which are based on standard tenders. Currently, there are around 2,050 eligible counterparties with access to standing facilities and about 1,800 with access to open market operations. As a rule, NCBs conduct the single monetary policy only with counterparties located or domiciled within their respective countries.

The Eurosystem uses open market operations for steering interest rates, managing the liquidity situation in the market and signalling the stance of monetary policy, using either liquidity providing or absorbing operations. These operations can be divided into four categories: (a) main refinancing operations (MROs) which are usually weekly reverse repo transactions; (b) longer-term refinancing operations (LTROs) which are offered every month with a 3-month maturity to provide longer-term refinancing to the banking sector; (c) fine-tuning operations which may be used to fine-tune the amount of liquidity on the last day of the maintenance period but also to deal with liquidity fluctuations in the market; and (d) structural operations. Structural operations, by means of reverse transactions, the issuance of ECB debt certificates or outright transactions[5], may be carried out whenever the structural position of the Eurosystem needs to be adjusted with regard to the financial sector but have never been implemented.

The standing facilities consist of the marginal lending facility (MLF) and the deposit facility (DF). Eligible counterparties may use the MLF to obtain overnight liquidity from the Eurosystem through

a reverse transaction with their home NCB at the rate for the MLF using eligible assets as collateral. There is no limit on the amount of liquidity that may be provided under the MLF, subject to eligible

[5] For outright transactions, no a priori restrictions are placed on the range of counterparties.

collateral availability. A negative balance on a counterparty's settlement account at the end of a business day is automatically considered as a request for recourse to the MLF. Counterparties may use the DF to make overnight deposits with the Eurosystem through the home NCB, to which the DF rate shall be applied. As in the case of the MLF, there is no limit on the amount a counterparty can deposit under the DF. The interest rates on the two facilities form an interest rate corridor for short-term money market rates among eligible counterparties and, together with the rate applied to MROs, signal the general stance of monetary policy.

The minimum reserve system pursues the aims of stabilising money market interest rates and potentially creating (or enlarging) a structural liquidity shortage. All credit institutions are subject to minimum reserve requirements (unless individual exemptions are provided on a case by case basis). The Eurosystem's minimum reserve system enables institutions to make use of averaging provisions, implying that compliance with reserve requirements is determined on the basis of the average of the end-of-calendar-day balances on the counterparties' reserve accounts over a maintenance period (around six to seven weeks). The reserve ratio, currently at 1%, is applied to banks' short-term liabilities (mainly deposits up to 2 years) and the remunerated reserves (at the MRO rate) are to be held on current accounts with the counterparties' home central bank.

Pursuant to Article 18.1 of the Statute of the ESCB, all Eurosystem credit operations (ie liquidity-providing monetary policy operations and intraday credit) are conducted against adequate collateral aimed at protecting the Eurosystem against financial losses in case of default of a counterparty. To ensure a smooth implementation of its monetary policy the Eurosystem accepts as collateral a wide range of marketable debt instruments and non-marketable assets. Eligible assets can be used across all credit operations as long as they fulfil transparent, uniform eligibility criteria specified by the Eurosystem. These are mainly based on the classification of the asset, credit quality, listing market, the type of issuer, country of residence or incorporation and the currency of denomination. There are currently around 25,000 marketable assets eligible as collateral, which are published in the list of eligible marketable assets (C2D/EA).

Every eligible collateral is subject to specific risk control measures (primarily haircuts) that are calibrated for different asset classes to ensure compliance with the risk tolerance defined by the Eurosystem in a neutral fashion.

Due to the inherent flexibility in the monetary policy implementation, the Governing Council of the ECB may, at any time, change the instruments, conditions, criteria and procedures for the execution of Eurosystem operations.

Non-standard monetary policy measures

In response to the banking, financial and sovereign debt crisis, and the ensuing macroeconomic impact and risks for price stability, the ECB Governing Council has taken a series of non-standard monetary policy measures. As part of the non-standard measures, MROs and LTROs are currently being conducted as fixed rate tender procedures with full allotment (FRFA). The maturity of additional LTROs has been extended to up to 3 years, the minimum reserve requirements have been lowered, the collateral framework has (temporarily) been expanded, foreign currency liquidity has been offered and securities lending programmes were set up.

Moreover, since 2009, the Governing Council of the ECB has adopted several asset purchase programmes with the aim to support the functioning of the transmission mechanism. Additionally, since 2014, it has carried out large-scale outright purchases in the context of the Asset Purchase Programme (APP)[6], as well as targeted longer-term refinancing operations (TLTROs), with the aim of safeguarding price stability and further enhancing the transmission of monetary policy. With these

[6] The APP consists of the third covered bond, the asset-backed securities, the public sector and the corporate sector purchase programmes. Via broad-based purchases and smooth and flexible implementation, the Eurosystem adheres to

tools the Eurosystem seeks to fulfil its mandate through intermediary objectives going beyond the steering of the short term money market. In the current environment of large excess liquidity very short term interest rates are anchored to the lower bound of the corridor.

To support the bank-based transmission of monetary policy, while preserving the positive contribution of negative rates to the accommodative stance of monetary policy, the Eurosystem introduced a two-tier system for reserve remuneration, which exempts part of credit institutions' excess liquidity holdings (ie reserve holdings in excess of minimum reserve requirements) from negative remuneration.

Finally, the ECB has also provided forward guidance on the future path of the ECB's interest rate policy conditional on the outlook for price stability.

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the principle of market neutrality. As regards the public sector purchase programmes, 80% of the asset purchases are not subject to risk-sharing.

6. Hong Kong SAR

Institutional framework

The Basic Law of the Hong Kong Special Administrative Region of the People's Republic of China provides that the monetary and financial systems of Hong Kong shall be prescribed by law and the Government of Hong Kong shall, on its own, formulate monetary and financial policies.

The Financial Secretary shall be responsible for determining the monetary policy objective and the structure of the monetary system of Hong Kong. The Monetary Authority, who is the Chief Executive of the Hong Kong Monetary Authority (HKMA), shall on his/her own be responsible for achieving the monetary policy objective, including determining the strategy, instrument and operational means for doing so, and for maintaining the stability and integrity of the monetary system of Hong Kong.

The monetary policy objective of Hong Kong shall be currency stability, defined as a stable external exchange value of the currency of Hong Kong, in terms of its exchange rate in the foreign exchange market against the US dollar, at around HKD 7.80 to USD 1. The Exchange Fund Ordinance establishes the Exchange Fund under the control of the Financial Secretary. The Fund shall be used primarily for affecting the exchange value of the Hong Kong dollar.

Currency Board Arrangement

The structure of the monetary system, which is called the **Linked Exchange Rate System (LERS),** shall be characterised by **Currency Board** arrangements, requiring the Hong Kong dollar monetary base to be at least 100 per cent backed by, and changes in it to be 100 per cent matched by corresponding changes in, US dollar reserves held in the Exchange Fund at the fixed exchange rate of HKD 7.80 to USD 1.

Key features of the implementation framework

The Monetary Base comprises: 1) **Certificates of Indebtedness** issued by the Financial Secretary, which provide full backing to the banknotes issued by the note-issuing banks in Hong Kong 2) Government-issued **notes and coins** in circulation 3) The **Aggregate Balance**, which is the sum of banks' clearing account balances kept with the HKMA 4) **Exchange Fund Bills and Notes** issued by the HKMA on behalf of the Government.

A specific portion of the Exchange Fund assets has been allocated to back the Monetary Base. Under the LERS, while specific Exchange Fund assets have been designated for backing the Monetary Base, all Exchange Fund assets are available to support the Hong Kong dollar exchange rate. The stability of the Hong Kong dollar exchange rate is maintained through an **automatic interest rate adjustment mechanism** and the firm commitment by the HKMA to honour the **Convertibility Undertakings (CUs)**.

When the demand for Hong Kong dollars is greater (or smaller) than the supply and the market exchange rate strengthens (or weakens) to the strong-side (or weak-side) CU of HKD 7.75 (or HKD 7.85) to USD 1, the HKMA stands ready to sell (or buy) Hong Kong dollars to (or from) banks for US dollars. The Aggregate Balance will then expand (or contract) to push down (or up) Hong Kong dollar interest rates, creating monetary conditions that move the Hong Kong dollar exchange rate away from the strong-side (or weak-side) limit to within the **Convertibility Zone of HKD 7.75–7.85**.

There are settlement facilities (Intraday Repo and Discount Window) through which banks can borrow Hong Kong dollar funds intraday or overnight from the HKMA through repurchase agreements using Exchange Fund Bills and Notes, which are fully backed by US dollar reserves, as collateral.

7. India

Institutional framework

The RBI Act, 1934 provides the legislative mandate to the Reserve Bank of India (RBI) to operate a modern monetary policy framework and it has adopted flexible inflation targeting (FIT) as the framework of monetary policy. The primary objective of monetary policy is to maintain price stability while keeping in mind the objective of growth. The Government of India, in consultation with RBI, has set the inflation target in terms of the Consumer Price Index (CPI), for five years (from August 2016 to March 2021).

To achieve the objectives of monetary policy, the RBI uses an interest rate framework with the overnight call money market rate, measured by the weighted average call money rate (WACR), as the operating target. A Monetary Policy Committee (MPC), with the Governor of the RBI as its chairperson, determines the policy rate, ie, the repo rate required to achieve the mandated inflation target. The RBI endeavours to anchor the operating target, ie, WACR, to the policy repo rate through the instruments available under monetary policy implementation framework.

A bi-annual Monetary Policy Report (MPR) is issued by the RBI, elucidating the macroeconomic framework, analysis of developments along with forecasts of inflation and output, liquidity conditions and financial market developments along with global environment and outlook.

Key features of the monetary policy implementation framework

The monetary policy framework aims at setting the policy repo rate at an appropriate level to achieve the monetary policy objectives based on an assessment of the current and evolving macroeconomic situation. Once the repo rate is announced, the operating framework envisages modulation of liquidity conditions on a day-to-day basis, aimed at anchoring the WACR to the policy repo rate. Within its implementation framework, the RBI undertakes Open Market Operations in both forms, ie, repurchase operations under Liquidity Adjustment Facility (LAF) as well as outright sale and purchase of eligible securities, offers standing facilities and requires banks to hold minimum reserves in their current accounts with it.

The current minimum reserve requirement has been set at 4 per cent of the net demand and time liabilities (NDTL) of banks and the reserves are held in the form of Cash Reserve Ratio (CRR) by banks in their current account with the RBI. These reserves are not remunerated. RBI allows limited averaging of reserves within the maintenance period, ie, a fortnight, to allow banks to absorb liquidity shocks at their discretion and to help in stabilising short-term interest rates in the money markets.

All the liquidity management operations of the RBI are collateralised by the eligible collateral notified by the RBI from time to time. Under the LAF, the Reserve Bank conducts daily fixed rate overnight repo and reverse-repo operation. The interest rate for the daily overnight fixed-rate repo operation is the policy rate set by the MPC. The interest rate on the daily overnight fixed-rate reverse-repo operation sets the lower-end of the policy corridor (currently 25 bps below the repo-rate). Reverse-repo is a standing facility for deposit of funds by the eligible entities with the RBI. In addition, the RBI has provided standing lending facility viz, Marginal Standing Facility (MSF), which eligible entities can access to meet their overnight reserve requirements arising out of unforeseen frictional factors. The interest rate on the MSF sets the upper-end of the corridor (currently 25 bps above the repo-rate). Thus, the MSF together with the fixed-rate reverse-repo rate constitute the corridor for overnight money market rates. To further strengthen the operating framework, a Standing Deposit Facility (SDF) has been notified but this is yet to be operationalised. The RBI also conducts 14-day variable-rate repo operations twice a week to supply reserves covering the whole reserve maintenance period. Apart from the daily fixed-rate operations and the twice-weekly 14-day variable rate repo auction, the RBI conducts variable-rate repo and reverse-repo auctions of varying tenors, as and when needed, to steer liquidity conditions consistent with the monetary policy objective.

Outright Open Market Operations (OMOs) and long-term FX swap auctions are conducted for supplying/withdrawing liquidity for longer duration.

The operating framework is fine-tuned and revised as and when required to achieve the monetary policy objectives.

8. Japan

Institutional framework

The Bank of Japan Act states that the Bank's monetary policy should be "**aimed at achieving price stability, thereby contributing to the sound development of the national economy**". The Bank set the "price stability target" at 2 percent in terms of the year-on-year rate of change in the consumer price index (CPI) in January 2013, and has made a commitment to achieving this target at the earliest possible time.

The basic stance for monetary policy is decided by the Policy Board at Monetary Policy Meetings (MPMs). At MPMs, the Policy Board discusses the economic and financial situation, decides the guideline for market operations and the Bank's monetary policy stance for the immediate future, and announces decisions immediately after the meeting concerned. Based on the guideline, the Bank sets the amount of daily market operations and chooses types of operational instruments, and provides and absorbs funds in the market.

The current policy framework, **Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control**, consists of two major components: the first is "yield curve control" in which the **Bank controls short-term and long-term interest rates** through market operations; and the second is an "inflation-overshooting commitment" in which **the Bank commits itself to expanding the monetary base** until the year-on-year rate of increase in the observed consumer price index exceeds the price stability target of 2 percent and stays above the target in a stable manner.

Key features of the monetary policy implementation framework

For policy implementation, the bank conducts the following measures in market operations.

The Bank adopts a **three-tier system** in which the outstanding balance of each financial institution's current account at the Bank is divided into three tiers, to which a positive interest rate (the basic balance), a zero interest rate (the macro add-on balance), or a negative interest rate is applied (the policy-rate balance), respectively. The interest rate applied to the policy-rate balance is regarded as the "**short-term policy interest rate**" and its level is to be decided at every MPM. The three-tier system encourages arbitrage trading at negative interest rates in money markets. Financial institutions have an incentive to ensure profit margins (reduce their policy-rate balances) by borrowing (lending) cash at interest rates that are lower (higher) than those applied according to their current account balances at the Bank and depositing funds in their current accounts at the Bank (supplying funds from their current accounts). The Bank reviews the "**Benchmark Ratio Used to Calculate the Macro Add-on Balance**" once every three months in principle to adjust the macro add-on balance and thereby the policy-rate balance to the appropriate levels.

The Bank offers **outright purchases of T-Bills**. The Bank decides the purchase size per auction considering the effects on financial markets.

The Bank **purchases JGBs** so that 10-year JGB yields would remain at around the "**operating target for the long-term interest rate**". While purchasing JGBs, the yields may move upward and downward to some extent mainly depending on developments in economic activity and prices. With regard to the amount of JGBs to be purchased, the Bank conducts purchases in a flexible manner so that their amount outstanding will increase at an annual pace determined at the MPMs. In situations involving a rapid increase in the yields, the Bank would purchase JGBs promptly and appropriately.

The Bank **purchases ETFs and J-REITs** so that the amounts outstanding of its holdings will increase at annual paces in accordance with the guidelines decided at the MPMs. With a view to lowering risk premia of asset prices in an appropriate manner, the Bank may increase or decrease the amounts of purchases depending on market conditions.

The Bank purchases other assets, including CP and corporate bonds, in accordance with the guidelines for asset purchases decided at the MPMs. Also, the Bank conducts other operations, including the funds-supplying operations against pooled collateral, growth-supporting funding facility, stimulating bank lending facility, funds-supplying operation to support financial institutions in disaster areas, funds-supplying operation to support financial institutions in disaster areas of the 2016 Kumamoto earthquake, securities lending facility, US dollar funds-supplying operations, securities lending to provide JGSs as collateral for the US dollar funds-supplying, and the complementary lending facility.

Under QQE with Yield Curve Control, the Bank carefully examines the developments and functioning of financial markets as well as the impact of the Bank's operations on financial markets. Also, with a view to further deepening dialogue with market participants, the Bank conducts daily market monitoring and various market surveys and holds various meetings with market participants.

9. Korea, Republic of

Institutional framework

The Bank of Korea Act stipulates the goal of monetary policy as follows: "The Bank shall contribute to the sound development of the national economy through ensuring price stability, while giving due consideration to financial stability in carrying out its monetary policy.

The Bank of Korea maintains a **flexible inflation targeting system** to effectively achieve price stability, which is the primary objective of monetary policy. The inflation target is currently set at 2.0% in terms of consumer price inflation (year-on-year). In ensuring price stability over the medium-term, the Bank pays careful attention to the impact of monetary policy on financial stability.

The **Monetary Policy Board**, the supreme policy-setting body of the Bank of Korea, deliberates and decides Korean monetary policy at the highest level. The Monetary Policy Board is made up of seven members, including the Governor and the Senior Deputy Governor of the Bank of Korea. The decisions made at its meetings are adopted through a simple majority with at least five members in attendance, unless otherwise specified. The meetings to determine the direction of monetary policy, mainly setting the Base Rate, are hosted eight times a year. After the meeting, a press release is made available and the Governor of the Bank of Korea holds a press conference to explain the details of and the background to the decision. The minutes detailing the discussions during the meeting are made public after two weeks.

Key features of the monetary policy implementation framework

The Bank of Korea adopts an **interest rate-oriented monetary policy operation**. Thus, the Bank determines its policy rate, the Bank of Korea Base Rate, and maintains the overnight call rate closely aligned with the policy rate using its policy instruments. The Base Rate is the reference rate applied in transactions such as RPs between the Bank of Korea and its financial institution counterparts, functioning both as the fixed rate for its sales of securities to absorb excess liquidity and as the minimum tender rate for its purchases to provide liquidity. The Bank uses open market operations, lending and deposit facilities, and a reserve requirement system as policy instruments.

The Bank of Korea predicts the supply of reserves, compares it with the demand for reserves, and calculates the amount of reserve surplus or deficit. If a deficit is expected, the Bank of Korea will inject liquidity, and if a surplus is expected, it will absorb liquidity. In this way, it conducts **open market operations** so that call rates do not deviate significantly from the Base Rate. The main instruments of open market operations include the issuance of Monetary Stabilisation Bonds (MSBs), transactions of securities, and deposits with the Monetary Stabilisation Account (MSA). MSBs have relatively long maturities. Thus, they are used as a major structural adjustment tool with long-lasting policy effects. Securities transactions are used to supply or withdraw funds by buying or selling government and public bonds. Eligible securities are confined to government bonds, government-guaranteed bonds, MSBs, and mortgage backed securities (MBSs) issued by the Korea Housing-Finance Corporation. However, if necessary, certain bonds specified by the Monetary Policy Board can be included. While securities transactions consist of outright transactions and RP transactions, most of them are RP transactions. The longest RP maturity is 91 days, but the majority of RP transactions involve seven-day RPs. The MSA, a term-based deposit facility, is one of the open market operation instruments that the Bank of Korea uses to control short-term liquidity.

Currently, the **lending and deposit facilities** at the Bank of Korea that are available to financial institutions consist of Liquidity Adjustment Loans and Deposits, the Bank Intermediated Lending Support Facility, Intraday Overdrafts, and Special Loans. Liquidity Adjustment Loans and Deposits, which are standing facilities, constrain excessive volatility of money market interest rates by enabling financial institutions to borrow shortage funds from the central bank or to deposit surplus funds at an interest rate level within a certain margin above or below the Base Rate. Interest rates applied to those facilities are the Bank of Korea Base Rate±100bp. Liquidity Adjustment Loans and Deposits carry overnight maturities. The Bank Intermediated Lending Support Facility is a lending system operated by the Bank of Korea to support financial institutions' lending to SMEs. The Bank of Korea provides low-interest rate funds, within certain ceilings, to financial institutions based on their performance in extending loans to SMEs. The interest rates for these programs are usually lower than the Base Rate and their maturities are one month. Intraday Overdrafts are facilities to extend financial support to banks experiencing transient shortages of settlement funds in the course of a day. They should be redeemed before the close of business that day. Special loans are those that the Bank of Korea extends as the lender of last resort in order to secure financial market stability, after obtaining special approval from the Monetary Policy Board. Their rates and maturities are determined in each case.

With regard to the **reserve requirement system**, the Bank of Korea Act stipulates that financial institutions hold a certain ratio of their liabilities subject to reserve requirements in their accounts with the central bank. The reserve requirement ratio on time deposits, time installment deposits, mutual installment savings for non-payment accounts, installments for home buying, and CDs is 2%, and that on other deposits is 7%. The reserve calculation period is from the first day to the last day of every month, and the reserve maintenance period is from the Thursday of the second week of the following month to the Wednesday of the second week of the month after the following month. In principle, no interest payments are made on reserve deposits with the central bank. However, if necessary, reserve deposits can be remunerated, as determined by the Monetary Policy Board.

10. Mexico

Institutional framework

The Mexican Constitution determines, in Article 28, that the State "shall have a Central Bank, whose primary objective shall be to attain the stability of the purchasing power of the national currency". Moreover, Bank of Mexico's Law establishes that " Bank of Mexico's purpose shall be to provide the country's economy with domestic currency. In pursuing this purpose, its primary objective shall be to seek the stability of the purchasing power of said currency." However, the Law also gives the Bank of Mexico additional objectives, such as "promoting the sound development of the financial system and fostering the proper functioning of payment systems."

The same Law establishes that the Board of Governors has, among its attributions, "the power to establish the Bank's operational policies and guidelines and determine the characteristics of those transactions". **Therefore, the Board of Governors is the solely responsible for the decision making process related to monetary policy**.

Key features of the monetary policy implementation framework

The key policy rate in Mexico is determined as the Overnight Interbank Funding Rate, which has been used since 21 January 2008. On a daily basis, the Bank of Mexico provides or withdraws liquidity to the system through Open Market Operations performed by the Domestic Operations Department, in order to guarantee that short-term rates remain near the target rate. The amount of daily interventions is determined based on the variations of autonomous factors, aiming for a daily balance of zero in the banks aggregate accounts within the Bank of Mexico at the end of each day.

Every day, the Bank of Mexico executes short-term **Open Market Operations**, through repos or deposits, in order to manage the liquidity in the system and provide money market participants with certainty regarding their liquidity needs, assuring that the Bank will satisfy their demand. This credibility contributes to provide stability in money markets, leading market participants to engage in funding operations at a similar rate to the target rate.

In addition, whenever the Bank of Mexico needs to sterilise liquidity for longer periods of time, it also uses medium or long-term Open Market Operations through outright sell or exchange auctions of government securities such as FRNs and zero-coupon bonds. These operations are carried either through scheduled weekly auctions or in the form of extraordinary auctions[7]. Furthermore, the Bank of Mexico has other available instruments in its toolkit, such as **Monetary Regulation Deposits (MRDs)**. MRDs are set indefinitely for a fixed amount based on a percentage of banks´ liabilities at a determined point in time. In particular, a percentage of MRDs can be held in the form of debt instruments called Monetary Regulation Bonds (BREMS R) issued by the Bank of Mexico. These securities are non-negotiable in secondary markets and can only be used as repo collateral with the Central Bank and/or with commercial and development banks.

Finally, the Bank of Mexico also has other instruments within its operational framework, such as **standing facilities** (lending and deposit) to satisfy end of day needs from banks. The lending facility provides the required overnight funds to banks that ask for end-of-day liquidity; however, the use of this facility is penalised with by charging twice the target rate (and in a symmetric way, deposits constituted within the Central Bank are remunerated at zero). The reason behind the width of the aforementioned corridor is to create conditions that incentivise market participants to compensate liquidity excesses or shortages between themselves, and not with the Bank of Mexico.

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[7] Legal support for these operations stems from Articles 7 and 9 of the Law that governs the Bank of Mexico. The Bank of Mexico is prohibited by law from financing the government. A mechanism was designed that allows the Central Bank to use government securities without acting as its lender.

11. Singapore

Institutional framework[8]

The primary objective of Singapore's monetary policy is price stability for sustainable economic growth. Since 1981, Singapore's monetary policy has been centred on the exchange rate. This is because the exchange rate has a much stronger influence on inflation than the interest rate in a small and open economy such as Singapore, where gross exports and imports of goods and services are more than 300 percent of GDP, and almost 40 cents of every dollar spent domestically is on imports.

MAS manages the Singapore dollar against a basket of currencies of Singapore's major trading partners, and maintains it within an undisclosed target band. When necessary, MAS intervenes in the foreign exchange market to maintain the trade-weighted Singapore dollar exchange rate, also known as the SGD nominal effective exchange rate (SDG NEER), within the policy band, to ensure that it remains aligned with domestic price stability.

MAS' monetary policy formulation is undertaken by the Economic Policy Group (EPG). The EPG reviews monetary policy semi-annually (ie April and October), and recommends the appropriate level, slope and width for the exchange rate policy band to ensure consistency with domestic price stability. The review is approved by MAS' Monetary and Investment Policy Meeting. After each review, a Monetary Policy Statement is released, which provides information on the recent movements of the exchange rate and explains the exchange rate policy stance. An accompanying report, the Macroeconomic Review, provides detailed information on the assessment of macroeconomic developments and trends in the Singapore economy, and is aimed at enhancing market and public understanding of the monetary policy decision.

Key features of the implementation framework

The Monetary and Domestic Markets Management Department (MDD) is responsible for monetary policy implementation. This includes managing: (i) the exchange rate through intervention in foreign exchange markets when necessary; and (ii) banking system liquidity through money market operations and liquidity facilities.

Intervention operations

MAS conducts foreign exchange intervention operations involving the sale or purchase of USD against the SGD to ensure that the SGD NEER is kept within the policy band, and is consistent with domestic price stability. The SGD-USD intervention is the preferred operation since this is by far the most liquid SGD currency pair traded.

Money market operations

Given Singapore's open capital markets and the exchange rate-centred monetary policy, interest rates in Singapore are largely determined by global interest rates and market expectations of the SGD exchange rate. **Accordingly, MAS' liquidity management framework aims to ensure that there is an appropriate amount of liquidity in the banking system to meet banks' demand for precautionary, reserve and settlement balances, and in the process moderate excessive interest rate volatility**.

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8 More information on Singapore's monetary policy can be found at: https://www.mas.gov.sg/publications/monographs-or-information-paper/2013/monetary-policy-operations; https://www.mas.gov.sg/monetary-policy/Singapores-Monetary-Policy-Framework/faqs.

Banks in Singapore maintain cash balances in their current accounts with MAS, and are required to maintain a Minimum Cash Balance (MCB) of 3% of their qualifying liabilities (two-week average computed with a two-week lag) on a two-week-average basis. Over the course of a business day, banks are allowed to utilise the full amount of their cash balances to settle payment obligations. However, they are required to maintain cash balances of at least 2% of their qualifying liabilities by the close of the business day. While the MCB requirement forms a base demand for cash balances, the total demand for reserves could vary across periods as banks may hold excess cash balances for other purposes such as settlement purposes.

MAS carries out money market operations every morning at about 9.45am. Money market operations are carried out exclusively with Primary Dealers in recognition of their role as specialist intermediaries in the Singapore Government Securities (SGS) and money markets. **The instruments used are: (i) direct borrowing; (ii) foreign exchange swaps; (iii) repurchase agreements (repos) on SGS; and (iv) MAS Bills and 6-month Treasury Bills**.

Liquidity facilities[9]

MAS operates two liquidity facilities, the Intraday Liquidity Facility (ILF) and the Standing Facility (SF). While MAS conducts daily money market operations to manage the liquidity of the overall banking system, the liquidity facilities allow eligible financial institutions to fine-tune their intra-day liquidity as necessary. These liquidity backstops reduce volatility in overnight interest rates, and anchor market confidence that temporary shortfall in liquidity needs would be met.

The Intraday Liquidity Facility allows eligible counterparties[10] to obtain Singapore dollar funds on an intraday basis through repo transactions using SGS and MAS Bills. The facility is open from 9am to 5pm.

The Standing Facility allows eligible counterparties[11] to borrow Singapore dollar funds on an overnight and collateralised basis (from 5pm to 6.45pm), or deposit Singapore dollar funds on an overnight basis (from 6.00pm to 6.45pm).

Emergency Liquidity Assistance (ELA)[12]

In extraordinary situations where financial institutions (FIs) come under liquidity stress, MAS is empowered by the Monetary Authority of Singapore Act to provide loans or advances to FIs to safeguard the stability of, or public confidence in, the financial system. **MAS views ELA as the provision of short-term backstop SGD liquidity to address idiosyncratic or system-wide liquidity stress in extraordinary situations**.

MAS expects to provide ELA to banks via two modes: (i) Market-wide ELA provision (this can take the form of a liquidity facility with standardised terms of access to address a sudden and system-wide seizing-up of funding markets); and (ii) Bespoke ELA provision (this relates to loans extended to one or a few domestic systemically important banks (D-SIBs) facing institution-specific liquidity stress.

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[9] More information on MAS' Liquidity Facilities can be found at: https://www.mas.gov.sg/monetary-policy/liquidity-facilities.

[10] Definition of eligible counterparties can be found at: https://www.mas.gov.sg/monetary-policy/liquidity-facilities/mas-intraday-liquidity-facility.

[11] Definition of eligible counterparties can be found at: https://www.mas.gov.sg/monetary-policy/liquidity-facilities/mas-standing-facility.

[12] More information on Emergency Liquidity Assistance can be found at: https://www.mas.gov.sg/monetary-policy/emergency-liquidity-assistance.

12. Sweden

Institutional framework

According to the Sveriges Riksbank Act, the objective for monetary policy is "to maintain price stability". The Riksbank has interpreted this objective to mean a low, stable rate of inflation. More precisely, the Riksbank's target is to hold inflation in terms of the CPIF around 2 per cent a year. The main monetary policy instrument is the policy rate – the repo rate – that the board of governors decides normally 5 times a year.

The Riksbank has chosen to influence the shortest-term rate on loans between banks from one business day and the next, known as the overnight rate. To steer the overnight rate, the Riksbank uses standing facilities and carries out market operations with its monetary policy counterparties. The purpose of this is to stabilise the overnight rate close to the level of the policy rate – the Riksbank's repo rate – as adopted by the Executive Board of the Riksbank.

Key features of the implementation framework

Standing facilities

Only participants of the Riksbank's payment system RIX who are also monetary policy counterparties have access to the Riksbank's standing facilities. By using standing facilities for deposits and loans overnight, the Riksbank sets limits – an "interest rate corridor" – for the overnight rate, in which the deposit rate forms the floor and the lending rate the ceiling in the corridor. The overnight interest rate should lie inside the interest rate corridor because a monetary policy counterparty in need of liquidity can always borrow from the Riksbank against collateral at the lending rate and a monetary policy counterparty with surplus liquidity can deposit the surplus in the Riksbank at the deposit rate. As there is a difference between the deposit and lending rates, counterparties have an incentive with regard to intraday loans to agree on an interest rate that lies between the rates they would pay to or receive from the Riksbank.

The pricing of the standing facilities is such that the deposit rate equals the Riksbank's policy rate minus 0.75 percentage points and the lending rate equals the policy rate plus 0.75 percentage points. If the balance of a monetary policy counterparty's account in RIX shows a deficit when the payment system closes for the day, the counterparty will have to pay the lending rate on the balance overnight (ie until the next business day). If the balance of a monetary policy counterparty's account shows a surplus when the payment system closes, the counterparty will earn the deposit rate on the sum overnight. The sum that can be borrowed in the lending facility is limited by the adjusted value of the collateral provided by the counterparty. There is no limit on how much a counterparty may deposit in the deposit facility.

Market operations

It is important for the Riksbank's ability to steer the overnight rate within the interest rate corridor so that the liquidity of the banking system is in balance at the end of the day. To ensure that this is the case, the Riksbank carries out regular market operations.

Weekly market operations

Since 2008, the banking system has had a liquidity surplus in relation to the Riksbank. Every week, the Riksbank therefore offers Riksbank Certificates with one week's maturity at the policy rate to absorb this liquidity. The Riksbank's monetary policy counterparties are thus given the opportunity to invest in a risk-free security with short maturity. The volume of issues corresponds to the banking system's liquidity surplus in relation to the Riksbank minus an amount deemed appropriate at each issue. If demand for certificates is greater than the offered amount, allocation takes place on a pro rata basis. If the banking system had had a liquidity deficit in relation to the Riksbank, the Riksbank would instead have supplied liquidity via weekly monetary policy repos.

Daily market operations

To stabilise the overnight rate close to the policy rate, the Riksbank offers a daily overnight deposit facility at the policy rate minus 0.10 percentage points if there is a surplus and credit against collateral at the policy rate plus 0.10 percentage points if there is a deficit. The Riksbank does not take in/loan out an amount that is larger than the banking system's total surplus/deficit. These fine-tuning transactions are carried out every business day between 16.00 and 16.40. Allocation takes place on a "first come, first served" basis, as long as there are funds left to lend or deposit.

The total volume that can be fine-tuned is announced just after 16.00 in RIX, after banknote and coin clearing has taken place at 16.00. However, the last banknote and coin clearing does not occur until 16.20 and can affect the volume that is to be fine-tuned. The clearing at both 16.00 and 16.20 only concerns flows in one direction, "banknotes in", ie the monetary policy counterparties' liquidity positions vis-à-vis the Riksbank can only increase and not decrease. In recent years, flows at these two times have virtually never occurred. The window for fine-tuning transactions closes at 16.40 and RIX closes at 17.00.

Non-standard monetary policy measures

To make monetary policy more expansionary and to ensure that the inflation target is reached the Riksbank has bought Swedish government bonds since February 2015.

13. Switzerland

Institutional framework

Article 99 of the Federal Constitution entrusts the Swiss National Bank (SNB), as an independent central bank, with the conduct of monetary policy in the interests of the country as a whole. The mandate is explained in detail in the National Bank Act (art. 5 para. 1), which requires the SNB to ensure price stability and, in so doing, to take due account of economic developments.

The SNB's monetary policy strategy sets out how the SNB implements its monetary policy mandate. It consists of three elements: a definition of price stability, a medium-term inflation forecast, and the SNB policy rate.

The SNB implements its monetary policy by steering the interest rate level on the money market. In so doing, it seeks to keep the secured short-term money market rates close to the **SNB policy rate**. In this regard, the SNB focuses on SARON (Swiss Average Rate Overnight) – a secured, overnight market rate, which is the most representative of the short-term Swiss franc rates.

The SNB can influence money market rates by means of its **open market operations** or **adjust the interest rate on sight deposits** held by banks and other financial market participants at the SNB. In order to influence monetary conditions, the SNB can also **intervene in the foreign exchange market**.

Key features of the monetary policy implementation framework

The SNB distinguishes between **open market operations and standing facilities**. In the case of the former, the SNB takes the initiative in the transaction, whereas the initiative comes from the eligible counterparties in the case of **standing facilities**.

Open market operations include repo transactions, the issuance of SNB Bills, as well as the purchase and sale of SNB Bills in the secondary market. The SNB can carry out open market operations in the form of auctions or bilateral transactions. The auctions are conducted either by volume tender or by variable rate tender.

Standing facilities include the liquidity-shortage financing facility and the intraday facility. As far as the standing facilities are concerned, the SNB merely sets the conditions at which counterparties can obtain liquidity.

In principle, all banks domiciled in Switzerland and the Principality of Liechtenstein are admissible as **counterparties in monetary policy operations**. Other domestic financial market participants such as insurance companies, as well as banks headquartered abroad, may be admitted, provided there is a monetary policy interest in doing so and they contribute to liquidity on the secured Swiss franc money market.

In order to fulfil its monetary policy mandate, the SNB can also purchase and sell foreign currency against Swiss francs on the financial markets. Most **foreign exchange transactions** conducted by the SNB are either spot or swap transactions. The SNB concludes foreign exchange transactions with a wide range of domestic and foreign counterparties.

A further monetary policy instrument is the **interest rate on sight deposit accounts**. The National Bank Act authorises the SNB to keep interest-bearing and non-interest-bearing accounts for banks and other financial market participants. Until January 2015, the sight deposit accounts were non-interest-bearing. Since 22 January 2015, the SNB has charged a negative interest rate on sight deposits held by banks and other financial market participants at the SNB. However, exemption thresholds apply. By setting the interest rate on sight deposits and defining other conditions, the SNB influences the interest rate level on the money market.

The duty to hold **minimum reserves** ensures that banks have a minimum demand for base money. Eligible assets in Swiss francs comprise coins in circulation, banknotes and sight deposits held at the SNB. The minimum reserve requirement currently amounts to 2.5% of the relevant liabilities, which are calculated as the sum of short-term liabilities in Swiss francs (up to 90 days) plus 20% of liabilities towards customers in the form of savings and investments. Since monetary policy in recent years has provided the banking system with ample liquidity, banks' reserves are currently at a level that exceeds the statutory minimum reserve requirement several times over. The SNB requires that the banks and other financial market participants with which it conducts lending transactions provide sufficient **collateral**. In so doing, the SNB protects itself against losses and ensures equal treatment of its counterparties. Since the SNB also admits banks headquartered abroad to its monetary policy operations and since the stocks of Swiss franc securities are limited, it also accepts securities in foreign currencies. The SNB sets high minimum requirements with regard to the marketability and credit rating of securities.

More detailed information can be found in the **Guidelines of the Swiss National Bank on Monetary Policy Instruments** and in the five related **Instruction Sheets** (available on the SNB website).

Unconventional monetary policy measures

The most important unconventional measures taken by the SNB in recent years have been interventions in the foreign exchange market, the temporary setting of a minimum exchange rate against the euro (September 2011 until January 2015), and the introduction of a negative interest rate on sight deposits held by banks and other financial market participants at the SNB.

14. United Kingdom

Institutional framework

The 1998 Bank of England Act states that, in relation to monetary policy, the Bank of England's objectives shall be "to maintain price stability, and subject to that, to support the economic policy of Her Majesty's Government, including its objectives for growth and employment." The Government is required to specify its definition of price stability and its economic policy objectives at least once every 12 months. The current definition of price stability is an inflation target of 2% as measured by the 12-month increase in the Consumer Prices Index (CPI). The government's current economic policy objective is for 'strong, sustainable and balanced growth.'

Within the Bank of England, the Monetary Policy Committee (MPC) has responsibility for formulating monetary policy in order to meet the Bank of England's objectives. The MPC meets at least 8 times per year. Decisions are taken by a vote by the members present at the meeting. A statement and minutes are published as soon as reasonably practicable after each meeting. The Bank of England is then responsible for using its monetary policy implementation framework (described in detail on its website) to implement the decisions of the MPC.

Key features of the monetary policy implementation framework

The Bank of England's monetary policy implementation framework provides the MPC with a number of tools which it can use in order to meet its objectives, including: setting Bank Rate; undertaking asset purchases; supplying central bank reserves; and providing forward guidance on the future expected path of monetary policy.

Monetary policy is primarily implemented through the setting of **Bank Rate**, which is the interest rate paid on reserves accounts held at the Bank by eligible firms. The Bank currently implements the MPC's decisions on Bank Rate using a 'floor system', in which almost all reserves held with the Bank are remunerated at Bank Rate. This floor system was introduced in 2009, when the MPC decided to start making large-scale asset purchases. This system keeps wholesale market interest rates close to Bank Rate, because if wholesale rates fell significantly below this level, then eligible firms could borrow reserves in the market and earn Bank Rate by depositing them at the Bank of England. A key merit of this 'floor' system is its ability to keep overnight interest rates close to Bank Rate in the event of large changes in the supply of, or demand for, reserves.

Another feature of the framework is that the Bank need not set reserve requirements. This is in contrast to the Bank's pre-2009 regime, where reserve targets were set by SMF participants themselves. This framework and the various operations used to supply and drain participants' reserves were largely ceased in 2009.

Very short term liquidity needs are met through the Bank's **Operational Standing Facilities (OSFs)**, which allow participating firms to borrow reserves directly from the Bank throughout each business day. The lending facility consists of an overnight lending transaction collateralised against high-quality, highly-liquid assets, for which participants are required to pay a 25 basis point premium (0.25%) above Bank Rate.

Unconventional monetary policy measures

In response to the 2008 financial crisis the MPC began a large-scale purchase of financial assets which, at the time, consisted mostly of UK government bonds.[13] These asset purchases were carried out by a Government-indemnified subsidiary of the Bank - The Bank of England Asset Purchase

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13 More details can be found here.

Facility Fund Limited (BEAPFF). As of end August 2019, **asset purchases of UK government bonds** totalled GBP 435 bn.

In August 2016 – the most recent point at which the MPC changed its policy decision on the size of asset purchases – a GBP 10 bn **corporate bond purchase scheme (CBPS)** was launched. The scheme aimed to provide stimulus by lowering the yields on corporate bonds to reduce the cost of borrowing for companies; encourage asset sellers to rebalance portfolios; and encourage companies to issue more bonds.

The MPC also introduced a **Term Funding Scheme (TFS)** in August 2016. The TFS was designed to address a risk that cuts in Bank Rate to a level approaching the zero lower bound might have less impact than cuts made when rates were higher, if lenders chose not to pass on the rate cut to households and businesses in order to protect their margins. It was calibrated such that any reduction in Bank Rate had a broadly neutral impact on margins in aggregate. The TFS provided four-year funding for banks and building societies at interest rates close to Bank Rate against a wide range of collateral. Borrowing allowances were calculated based on a proportion of firms' stocks of eligible lending, as well as increases in firm's net lending over an 18 month reference period. The scheme closed to new lending in February 2018, as envisaged when it was introduced, having made GBP 127 billion of loans.

Asset purchases under QE have meant that, over recent years, the Bank's balance sheet has become much larger than at any other time in recent history. Looking to the future, the balance sheet is likely to reduce in size again over time. The MPC will decide when to scale back asset purchases and consideration of this and other related issues is routinely published in MPC minutes.[14] In 2018 the Bank began a process of engagement with the market to understand the implications of changes in its balance sheet moving forward.[15]

Liquidity insurance and other operations

The Bank also offers a number of liquidity insurance operations which can supply central bank reserves. The operations include: **Indexed Long Term Repos**, which are typically monthly (but currently weekly) market-wide liquidity operations which provide central bank reserves for a 6-month term via a competitive auction process; the **Contingent Term Repo Facility**, which allows the Bank to provide liquidity against the full range of eligible collateral at any time, term, and price it chooses; and the **Discount Window Facility**, which is a bi-lateral, on demand facility where SMF participants can borrow highly liquid assets (gilts or, in certain circumstances, cash) in return for a wide range of collateral.

In July 2012, the Bank and HM Treasury launched a **Funding for Lending Scheme (FLS)** in response to an increase in bank funding costs and interest rates during the crisis in the euro area. The FLS was designed to incentivise banks and building societies to boost their real economy lending by providing them with four-year funding at below market rates, with both the price and quantity of funding provided linked to their performance in lending to the UK real economy. The FLS was a joint scheme between the MPC and Financial Policy Committee.

[14] See, for example, the Minutes of the June 2018 MPC meeting.

[15] See here for the 2018 Discussion Paper. See here for a 2019 speech on how the Bank's Balance Sheet will be used for future monetary policy implementation.

15. United States

Institutional framework

The Federal Reserve Act establishes that the Board of Governors and the FOMC should conduct monetary policy "so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates." This statutory mandate ties monetary policy to the broader goal of fostering a productive and stable US economy.

The Federal Reserve's framework for monetary policy implementation features a short-term interest rate target as its key policy measure to communicate the FOMC's policy stance and an operating regime with ample reserves to implement this policy stance. The Federal Reserve uses a set of administered rates set by the Board of Governors and the FOMC, as well as market operations directed by the FOMC and conducted by the Open Market Trading Desk at the Federal Reserve Bank of New York to achieve its monetary policy objective. These tools help promote money market rate conditions consistent with the policy rate target. The FOMC can also alter the size and composition of its balance sheet and provide forward guidance about the path of the policy rate as additional policy measures to achieve its objectives.

Key features of the monetary policy implementation framework

The tools used by the Federal Reserve for policy implementation enable the central bank to maintain short-term interest rate control in an environment of ample reserve balances in the banking system.[16] The FOMC's key policy rate is a target range for the federal funds rate. The federal funds rate is the rate at which depository institutions and other eligible entities conduct overnight unsecured transactions in central bank balances. The width of the target range for the federal funds rate is 25 basis points.[17] The Federal Reserve sets administered rates – the interest rates paid on required and excess reserves that a bank holds at the Federal Reserve, supplemented by ON RRPs offered at a specified rate to a wide range of active nonbank lenders in addition to banks – as a means to move the federal funds rate into the target range and to maintain it in that range without actively adjusting the supply of reserve balances.[18] The interest on excess reserves (IOER) rate is the primary tool used to influence overnight interest rates. If a bank can earn interest on the reserve balances it holds at the central bank, then given the safety and convenience of this investment, little incentive exists for the bank to lend to private sector counterparties at a rate lower than that offered by the central bank. Further, if the bank can acquire funds in the wholesale market at rates below the rate paid on reserves, competition for these funds to earn an arbitrage profit would suggest that banks will bid up these rates to a level close to the interest rate on reserves.

Both IOER and the ON RRP offering rates have been helpful to guide the levels of the federal funds and other money market rates. In particular, several years back when market repo rates were soft, the ON RRP offering rate provided a soft floor to repo rates, which in turn helped maintain federal funds rates in the target range. More recently, when market repo rates moved above the FOMC's target range and put upward pressure on federal funds rates, the Federal Reserve made a few technical adjustments to lower the IOER rate, which lowered the federal funds rate within the target range.

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[16] At the conclusion of the January 2019 FOMC meeting, the Federal Reserve stated that it intends to continue to implement monetary policy in a regime with an ample supply of reserves and in which control over the level of the federal funds rate is exercised primarily through the setting of the Federal Reserve's administered rates.

[17] This approach to policy implementation was outlined in the FOMC's September 2014 statement of Policy Normalisation Principles and Plans, which sets forth the Committee's strategy for normalising the stance of monetary policy. The Committee provided additional details about its intended operational approach in its March 2015 meeting minutes.

[18] The Federal Reserve also sets the interest rate paid on required reserves (IORR), which has been the same as the IOER rate.

The Federal Reserve also maintains the discount window, which is a secured lending facility designed to provide liquidity to commercial banks and other depository institutions. This facility acts as a ceiling for short-term interest rates: if the cost of obtaining reserve balances in the market becomes relatively expensive, then banks borrow funds from the discount window to manage reserve balances. In this way, the rate on discount window loans helps put a ceiling on the private market rate for reserve balances.

Unconventional monetary policy measures

In response to the financial crisis, the FOMC took a series of unconventional monetary policy measures. In particular, the FOMC conducted large-scale asset purchase programs (LSAPs) in the Treasury, agency debt, and agency MBS markets, which were designed to ease financial conditions and support the US housing market, and led to a significantly larger central bank balance sheet.

In October 2017, the FOMC initiated a program to gradually reduce the size of the Federal Reserve's securities holdings from elevated levels. At its July 2019 meeting, the FOMC noted that it would conclude the reduction of its aggregate securities holdings in the System Open Market Account in August 2019. However, the FOMC has affirmed – most recently following the January 2019 FOMC meeting – that the Committee would be prepared to use its full range of tools, including altering the size and composition of its balance sheet, if future economic conditions were to warrant a more accommodative monetary policy than can be achieved solely by reducing the federal funds rate.

C. Detailed tables

1. Institutional setup of monetary policy decisions and operations

Table 1 summarises the main institutional features of monetary policy decisions in currency areas represented on the Markets Committee. It summarises which body is responsible for policy decisions, details about its composition, key parts of the mandate, and the nature of the decision making process (eg whether decisions are made by a consensus or determined by a majority of vote). Table 1 further indicates the frequency of policy meetings and public announcements of policy decisions. The last column of the table reports information about the main policy target (oftentimes a particular short-term interest rate, and in some cases, a specific macroeconomic target such as a certain level of inflation).

Table 1: Institutional setup of monetary policy decisions and operations (as of September 2019)

	Policy decision body, size and composition	Major mandates[1]	Decision-making process	Frequency / length of meetings	Frequency of announcements	Main policy target
Australia	Reserve Bank Board[2] by consensus.	Contribute to price stability, full employment, and the economic prosperity and welfare of the Australian people (Reserve Bank Act). Implemented through achievement of inflation target (re-affirmed in joint statements between the Treasurer and the Governor).	Consensus	Monthly (except January)	Same	Target range of 2–3% CPI inflation, on average, over time; cash rate
Brazil	Monetary Policy Committee	Achievement of inflation target.	Majority	8 times a year	Same	Inflation control target (annual IPCA): 4.25% (2019), 4.0% (2020), 3.75% (2021) and 3.5% (2022), with a tolerance interval of +/– 1,5%. Main policy tool: target for the overnight rate.

[1] Describe as well the legal status of the mandate and involvement of government. [2] Consisting of the Governor, Deputy Governor, the Secretary of the Treasury (the "Government participant") and six other members. Each member has a vote. Of the six "other" members, five must not be officers of the RBA or the Australian Public service.

Source: Participating central banks.

Table 1 (cont): Institutional setup of monetary policy decisions and operations (as of September 2019)

	Policy decision body, size and composition	Major mandates[1]	Decision-making process	Frequency / length of meetings	Frequency of announcements	Main policy target
Canada	Governing Council, which consists of the Governor, the Senior Deputy Governor and four Deputy Governors	Inflation control target is agreed with the government every 5 years	Consensus	8 times a year	Same	Policy target: Inflation control target of 2%, midpoint of a 1% to 3% target range, measured as year-over-year change in total CPI. Main policy tool: Target for the overnight rate.
China	PBC makes and implements monetary policy under the guidance of the State Council	Maintain the stability of the value of the currency and thereby promote economic growth				
Eurosystem	Governing Council, which consists of the six members of the Executive Board, plus the governors of the national central banks of the 19 euro area countries.	Maintain price stability	Majority	Every second week	Every six weeks	Policy target: Price stability, defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below but close to 2%. ECB sets three key interest rates: i) the interest rate on the main refinancing operations (MRO); ii) the rate on the deposit facility, and iii) the rate on the marginal lending facility; combined with forward guidance and non-standard measures related to the Eurosystem's balance sheet.
Hong Kong	Financial Secretary determines monetary policy objective and structure of monetary system[2]	Currency stability in accordance with Currency Board arrangements	N/A	N/A	N/A	Spot market exchange rate of around HKD 7.8 = USD 1
India	Monetary Policy Committee	Maintain price stability while keeping in mind the objective of growth	Majority voting	Bi-monthly	Bi-monthly	CPI inflation target of 4 per cent with a band of +/– 2 per cent; policy repo rate
Japan	Policy Board[3]	Achievement of price stability	Majority decision	8 times a year[4]	Same	Policy target: 2 percent in terms of the year-on-year rate of change in the CPI. Policy tools: yield curve control, asset purchases, and forward guidance.

[1] Describe as well the legal status of the mandate and involvement of government. [2] The HKMA is responsible for achieving the monetary policy objective including determining the strategy, instrument and operational means for doing so. [3] Includin g government participants with no voting powers. [4] The schedule of meetings for the next year is published in the middle of the year.

Source: Participating central banks.

Table 1 (cont): Institutional setup of monetary policy decisions and operations (as of September 2019)

	Policy decision body, size and composition	Major mandates[1]	Decision-making process	Frequency / length of meetings	Frequency of announcements	Main policy target
Korea	Monetary Policy Board			8 times a year	Same	Base rate[2]
Mexico	Board of Governors	Price stability through an inflation objective	Vote of members of the Board	8 times a year	Same	Target rate: overnight interbank funding rate
Singapore	Monetary and Investment Policy Meeting	Price stability for sustained economic growth	Decision by the MIPM	Fortnightly	2 times a year	Nominal effective exchange rate Monetary policy statement
Sweden	Executive Board	Maintain price stability		Five scheduled monetary policy meetings per year	Same	Repo rate
Switzerland	Governing Board	The Swiss National Bank conducts the country's monetary policy as an independent central bank. It is obliged by the Constitution and by statute to act in accordance with the interests of the country as a whole. Its primary goal is to ensure price stability, while taking due account of economic developments. In so doing, it creates an appropriate environment for economic growth.	The Governing Board sets the monetary policy at its meetings (MPA)	Quarterly, extraordinary meetings possible	Same	SNB policy rate (since 13 June 2019)[3]
United Kingdom	Monetary Policy Committee	Maintain price stability within the United Kingdom and subject to that, to support the economic policy of Her Majesty's Government including its objectives for growth and employment.	Majority vote of MPC members	8 times a year, roughly 6–8 weeks apart	Same	Bank Rate; currently also includes target for Asset Purchases financed by the creation of central bank reserves.

[1] Describe as well the legal status of the mandate and involvement of government. [2] The Base rate is the reference rate applied in transactions between the BOK and financial institutions such as repurchase agreements (RPs and Reverse RPs), the Bank's lending and deposit facilities, etc. [3] Since 13 June 2019, the SNB has been implementing its monetary policy by setting the SNB policy rate, which took over the function previously performed by the target range for the three-month Libor.

Source: Participating central banks.

Table 1 (cont): Institutional setup of monetary policy decisions and operations (as of September 2019)

	Policy decision body, size and composition	Major mandates[1]	Decision-making process	Frequency / length of meetings	Frequency of announcements	Main policy target and tools
United States	Federal Open Market Committee	Statutory mandate from the Congress (outlined in the Federal Reserve Act) to promote maximum employment, stable prices, and moderate long-term interest rates. Many commonly refer to the "dual mandate" of maximum employment and price stability.	Vote of FOMC members	8 regularly scheduled meetings per year (and other meetings as needed)	Same	Fed funds rate target range; administered rates

[1] Describe as well the legal status of the mandate and involvement of government.

Source: Participating central banks.

2. Overview of key features

Monetary policy operating frameworks comprise several elements and key features, including an operational target and the tools and procedures used to achieve it. Table 2 provides an overview of key features in each operating framework, followed by more detailed presentations on various elements in the following tables.

Table 2: Overview of key features (as of September 2019)

	Australia	Brazil	Canada
Key policy rate	Target cash rate	Target cash rate	Target overnight rate
• maturity (days)	1	1	1
Operating target	Unsecured interbank cash rate	Collateralised overnight transactions	Collateralised overnight transactions
• maturity (days)	1	1	1
Standing facilities	Lending, deposit	Lending, deposit	Lending, deposit
Corridor width (bp)	50	160	50
Reserve requirements	Yes	Yes	Zero
• maintenance period	Daily	Two weeks	N/A
Main operation[1]	Repo / reverse repo	Repo / reverse repo	Repo / reverse repo
• functions	Liquidity injection / withdrawal	Liquidity injection / withdrawal	Liquidity injection / withdrawal
• maturity (days)	1 to 365	1 to 180	1
• regular interval	Yes	Yes	No
• frequency	1 x d	As required	As required
Overall frequency	≥1 x d	As required	As required
Discretion left to operational desk	Use of instruments within authorisation, size and timing of operations	Some discretion with respect to choice of instruments (mainly overnight repos), size and timing of operations in order to reach the interest rate target	Use of overnight repos or reverse repos to reinforce target rate allocated at or near mid-point of the operating band[4]
Key policy signals via			
• announcement	√	√	√
• keynote tender[2]			
• standing facility			
• other[3]			

[1] RP = reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals. [4] The Bank of Canada may conduct overnight repo (reverse) operations in which the Bank offers to purchase (sell) Government securities with an agreement to sell (buy) them back on the next business day, with the difference in price equal to the value of interest for one business day and is determined using a uniform price auction.

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	China	Eurosystem	Hong Kong
Key policy rate	Benchmark interest rates	Interest rate on MROs	HKD 7.8 = USD 1
• maturity (days)		7	Spot
Operating target	Excess Reserve and short term interest rate	Short term interest rates (not explicit)	Market exchange rate of HKD/USD
• maturity (days)			Spot
Standing facilities	Lending	Lending, deposit	Lending
Corridor width (bp)	N/A	65	
Reserve requirements	Yes	Yes	No
• maintenance period	10 days	Around 6/7 weeks	
Main operation[1]	RT	RP	Convertibility undertaking at HKD 7.75 to USD 1 and HKD 7.85 to USD 1
• functions			To maintain spot exchange rate within HKD 7.75–7.85 to USD 1
• maturity (days)	Generally 7 days, other maturity up to 1 year, conducted discretionarily	7	Spot
• regular interval	Yes	Yes	No
• frequency	Daily	1 x w	Irregular, upon banks' requests
Overall frequency	Daily	≈1 x w	N/A
Discretion left to operational desk		No discretion left to operational desks for standard monetary policy operations. Some discretion left to operational desks for the implementation of certain asset purchase operations within the set of non-standard monetary policy measures.	Market operations within the Convertibility Zone between 7.75 and 7.85, in accordance with Currency Board principles, to promote the smooth functioning of the Linked Exchange Rate System
Key policy signals via			
• announcement	√	√	
• keynote tender[2]		√	
• standing facility		√	
• other[3]		√ (APP purchase pace, full allotment horizon)	

[1] RP = reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals.

Source: Participating central banks.

Table 2 (cont): Overview of key features (September 2019)

	India
Key policy rate	Repo rate
• maturity (days)	1 (overnight)
Operating target	Weighted average overnight call money rate
• maturity (days)	1 (overnight)
Standing facilities	Lending[4]
Corridor width (bp)	+/– 25[5]
Reserve requirements	Yes
• maintenance period	2 weeks
Main operation[1]	(i) Fixed rate repo / reverse repo under LAF (ii) Variable rate term-repo (iii) Variable rate fine-tuning operations (FTO)
• functions	
• maturity (days)	(i) Repo / reverse repo 1-day (overnight) (ii) term-repo 14-days (iii) Varies based on evolving liquidity conditions
• regular interval	Yes
• frequency	(i) Repo / reverse repo 1 x d (ii) 14-day term repo every Tuesday and Friday (iii) FTO conducted as and when required depending upon evolving liquidity conditions
Overall frequency	≥ 1 x d
Discretion left to operational desk	Some discretion with respect to choice of instrument, size, tenor and timing of operations with relation to FTOs
Key policy signals via…	
• announcement	√
• keynote tender[2]	
• standing facility	
• other[3]	√ (CRR)

[1] RP=reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals. [4] Export credit refinance to banks phased out in February 2015; collateralised liquidity support to primary dealers. [5] Policy corridor around the repo rate narrowed from +/– 100 bps to +/– 50 bps in April 2016 and further to +/– 25 bps in April 2017.

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	Japan
Key policy rate	(i) Interest rate applied to the Policy-Rate Balances in current accounts, (ii) JGB yield
• maturity (days)	(i) 1 day (ii) 10 years
Operating target	(i) Interest rate applied to the Policy-Rate Balances in current accounts, (ii) JGB yield[4]
• maturity (days)	(i) 1 day (ii) 10 years
Standing facilities	Lending, deposit
Corridor width (bp)	40 Lending (the basic loan rate): 30bps Deposit (the short-term policy interest rate): – 10bps
Reserve requirements	Yes
• maintenance period	1 month
Main operation[1]	(i) JGS purchases (ii) CP/CB purchases (iii) ETFs / J-REITs purchases (iv)Fixed rate lending
• functions	Quantitative and Qualitative Monetary Easing with Yield Curve Control
• maturity (days)	1 to 365
• regular interval	Yes
• frequency	1–3 x d
Overall frequency	>1 x d
Discretion left to operational desk	Choice of instruments, size and timing of individual operations, adjustment factor for calculating current account balance which is the interest rate of 0% is applied to, though the annual pace of amounts outstanding increase of ETFs, J-REITs, CP and corporate bonds are directed by the policy board.
Key policy signals via…	
• announcement	√
• keynote tender[2]	
• standing facility	√
• other[3]	

[1] RP=reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals. [4] At the Monetary Policy Meeting in March 2001, the main operating target for money market operations was changed from overnight call rate to the outstanding balance of the current accounts held by financial institutions at the Bank of Japan. In March 2006, it was changed back to the overnight call rate. In April 2013, the balance of monetary base became the main operating target that increases at an annual pace of about 60–70 trillion yen. In October 2014, the pace of increase in the monetary base was accelerated to about 80 trillion yen. In September 2016, the short-term policy interest rate and the long-term interest rate became the target.

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	Korea
Key policy rate	Base rate (RP and Reverse RP rate)
• maturity (days)	7
Operating target	O/N call rate
• maturity (days)	1
Standing facilities	Lending, deposit
Corridor width (bp)	200
Reserve requirements	Yes
• maintenance period	1 month
Main operation[1]	MSBs[4] / RRP / MSA[5]
• functions	
• maturity (days)	MSBs: 14 d to 2 yrs
	RRP: 1-91 days
	MSAs:1-91 days
• regular interval	Yes
• frequency	2 x w / 1 x w / 1 x w
Overall frequency	≈2 x w
Discretion left to operational desk	Choice of instruments, size and timing of operations
Key policy signals via…	
• announcement	√
• keynote tender[2]	√
• standing facility	√
• other[3]	

[1] RP=reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals. [4] Monetary Stabilisation Bonds, issued by BoK, used as a structural adjustment tool whose policy effects are long lasting. [5] Monetary Stabilisation Account, introduced in October 2010, is a market-friendly term deposit facility.

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	Mexico
Key policy rate	Overnight interbank funding rate (Monetary Policy Rate)
• maturity (days)	1 (overnight)
Operating target	Collateralised overnight interbank rate
• maturity (days)	1 (overnight)
Standing facilities	Lending, deposit
Corridor width (bp)	Variable (Deposit: MPR 0%; Lending: MPR * 2)
Reserve requirements	No[1]
• maintenance period	N/A
Main operation[2]	RP and Deposits
• functions	Liquidity management,
• maturity (days)	Up to 25 days
• regular interval	Yes
• frequency	Daily (>1 x d)
Overall frequency	Daily
Discretion left to operational desk	Desk has some discretion over certain operational aspects of RPs and Deposits such as tenor and amounts
Key policy signals via	
• announcement	√
• keynote tender	
• standing facility	√
• other	

[1] There are no Reserve Requirements in Mexico, although there are remunerated mandatory deposits defined as Monetary Regulation Deposits (MRD). The difference between the two rely in that MRDs are set indefinitely for a fixed amount based on a percentage of banks´ liabilities at a determined point in time; hence, the amount of money set at these deposits has not changed since 2014. Also, since 2014 a percentage of these MRDs can also be held in the form of debt instruments called Monetary Regulation Bonds (BREMS R) issued by the Bank of Mexico. These instruments can only be used as repo collateral with the central bank and/or with commercial and development banks. [2] RP=reversed purchase (repo, inject liquidity); RS=RRP=reversed sale (reverse repo, absorb liquidity); RT=reversed transaction (repo or reverse repo).

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	Singapore	Sweden
Key policy rate	SGD Nominal effective exchange rate	Repo rate
• maturity (days)	spot	7
Operating target	SGD Nominal effective exchange rate	No formal target
• maturity (days)	spot	
Standing facilities	Lending, deposit	Lending, deposit
Corridor width (bp)	100	150
Reserve requirements	Yes	No
• maintenance period	2 weeks	N/A
Main operation[1]	FX intervention	Issuance of Riksbank certificates
• functions	Monetary policy implementation	Liquidity withdrawal
• maturity (days)	spot	7 days
• regular interval	No	Yes
• frequency	When necessary	Weekly (Tuesdays)
Overall frequency	When necessary	Weekly
Discretion left to operational desk	Choice of size, tactics and timing of intervention.	The amount offered to monetary policy counterparties in the weekly auctions of repos or Riksbank certifcates.
Key policy signals via		
• announcement	√[4]	√
• keynote tender[2]		
• standing facility		
• other[3]		

[1] RP=reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals. [4] Monetary Policy Statement released twice a year.

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	Switzerland
Key policy rate	SNB policy rate
• maturity (days)	Out to next MPA
Operating target	Short-term Swiss franc money market rates
• maturity (days)	1
Standing facilities	Liquidity –shortage financing facility
Corridor width (bp)	N/A
Reserve requirements	Yes
• maintenance period	1 month, from the 20th day to the 19th day of the subsequent month
Main operation[1]	In the current system of operating a negative interest rate on sight deposits at the SNB and interventions in the foreign exchange market, as necessary, there are no regular open market operations. The quantity of reserves is primarily the result of foreign exchange transactions.
• functions	
• maturity (days)	N/A
• regular interval	N/A
• frequency	N/A
Overall frequency	As required
Discretion left to operational desk	
Key policy signals via	
• announcement	√
• keynote tender[2]	√
• standing facility	
• other[3]	√[4]

[1] RP=reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals. [4] Minimum exchange rate of CHF 1.20 per euro from 6 September 2011 until 15 January 2015. Since 22 January 2015, the SNB imposes negative rates on sight deposit account balances that exceed a given exemption threshold.

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	United Kingdom
Key policy rate	Bank Rate
• maturity (days)	1
Operating target	Short-term money market interest rates
• maturity (days)	
Standing facilities	Collateralised lending, unsecured deposit
Corridor width (bp)	Currently 50 (Deposit: Policy rate less 25bps, Lend: Policy rate plus 25bps)
Reserve requirements	No. In the June 2018 MPC minutes, the Bank announced that it was minded to use a variant of the current floor system as and when the stock of purchased assets was reduced
• maintenance period	Six to eight weeks
Main operation[1]	In the current floor system there are no regular monetary policy related reserves supplying operations. The quantity of reserves is a result of those injected via asset purchases, the Term Funding Scheme, indexed long term repos, and other factors.
• functions	N/A
• maturity (days)	N/A
• regular interval	N/A
• frequency	N/A
Overall frequency	N/A
Discretion left to operational desk	N/A
Key policy signals via	
• announcement	√
• keynote tender[2]	
• standing facility	
• other[3]	

[1] RP=reversed purchase (repo, inject liquidity), RS=RRP=reversed sale (reverse repo, absorb liquidity), RT=reversed transaction (repo or reverse repo). [2] Refers to the main operation shown above. [3] For example, quantity signals.

Source: Participating central banks.

Table 2 (cont): Overview of key features (as of September 2019)

	United States
Key policy rate	Federal Funds Rate
• maturity (days)	1
Operating target	(i) Target range for federal funds rate
• maturity (days)	1
	(ii) Policy objectives for securities holdings
Standing facilities	Lending (discount window), deposit (interest on reserves and ON RRP facility)
Corridor width (bp)	Primary credit to interest on reserves 55[1], Primary credit to ON RRP rate 75[2]
Reserve requirements	Yes
• maintenance period	2 weeks
Main operation	(i) RS (ON RRP facility)
• functions	Reduces reserves, supports interest rate control as administered rate
• maturity (days)	1
• regular interval	Yes
• frequency	≈1 x d
	(ii) Outright transactions[3]
	Treasury rollovers: ≈1 x q
	Agency MBS reinvestments: ≈1–2 x w
Overall frequency	Daily
Discretion left to operational desk	The Desk is directed to undertake OMOs "as necessary" to maintain the FOMC's federal funds target range, but most OMOs are executed under more specific direction. In particular, the FOMC sets policy-sensitive parameters of RRP operations (such as the offering rate and size limits); the Desk has some discretion over certain operational aspects of RRPs. The aggregate size and asset class composition of securities reinvestment operations are fixed by the amount of maturities or principal paydowns and redemption caps that are set by the FOMC, but the Desk has some discretion over the size, timing, and execution of certain types of individual operations.
Key policy signals via	
• announcement	√
• keynote tender	
• standing facility	√
• other	√ (reinvestments)

[1] There are 55 bps between the current setting of interest on required and excess reserves and the primary credit rate of the discount window. Currently, interest on required and excess reserves is set 5 bps below the top of the target range; primary credit is set at top of policy rate target range plus 50 bps, secondary credit at top of policy rate target range plus 100 bps. [2] ON RRP offering rate set at the bottom of the target range. [3] Current directive is to roll over maturing Treasury securities at auction and to reinvest principal payments on agency debt and agency MBS in agency MBS only in amounts that exceed a schedule of monthly caps. Operations may also be conducted in relatively small amounts for the purpose of maintaining operational readiness.

Source: Participating central banks.

3. Monetary policy communication

Communication is an important tool used by central bankers to shape expectations, which can help central banks achieve macroeconomic objectives. Additionally, communication can be viewed as a mechanism to hold independent central banks accountable for their activities. Table 3 summarises the extent of monetary policy communications, including details about: i) the explicit use of forward guidance, ii) the timing and distribution of a policy announcement, iii) the policy announcement and documents, iv) communication explaining policy decisions, v) the dissemination of minutes, vi) content of minutes, vii) publication of forecasts, and viii) publication of projected path of policy rate.

Table 3: Monetary policy communication (as of September 2019)

	Explicit use of forward guidance	Timing/media of policy announcement	Policy announcement and documents	Explaining policy decisions	Dissemination of minutes (timing/media)	Content of minutes	Publication of forecasts[1]	Publication of projected path of policy rate[2]
Australia	No	Yes. 2.30 pm on day of board meeting; central bank website and Reuters and Bloomberg.	Target cash rate	Detailed press release/media statement	Yes. Published two weeks after board meeting.	Description of economic and financial conditions and the policy consideration.	As part of the quarterly Statement on Monetary Policy.	No
Brazil		Yes. 18.00 pm on second day of board meeting; central bank website, Reuters and Bloomberg	Target cash rate	Detailed press release/media statement	Yes. 8.00 am on Tuesday, six days after the meeting.	Description of economic and financial conditions and the policy consideration.	As part of the quarterly Inflation Report.	No
Canada	No	Yes, 10:00am EST on pre-determined announcement dates via central bank website and media in the lock up press room.	Target policy rate and press release.	All eight policy decisions per year include a press release. Four of these releases are accompanied by a detailed Monetary Policy Report and a Governor / Senior Deputy Governor press conference. The other four press releases are followed next day by a speech by a member of the Governing Council.	No	N/A	Every second policy decision in the quarterly Monetary Policy Report.	No

[1] For instance, economic and inflation forecasts related to policy decision. [2] If applicable, describe the publication of any fan-charts or uncertainty bands around the forecasts/projections.

Source: Participating central banks.

Table 3 (cont): Monetary policy communication (as of September 2019)

	Explicit use of forward guidance	Timing/media of policy announcement	Policy announcement and documents	Explaining policy decisions	Dissemination of minutes (timing/media)	Content of minutes	Publication of forecasts[1]	Publication of projected path of policy rate[2]
China		Statement on PBC website, newspaper and official account of online social media like Wechat and Weibo.	Statement on PBC website, newspaper and official account of online social media like Wechat and Weibo.	Press conference, monetary policy report, statement on PBC website, newspaper and official account of online social media like Wechat and Weibo.				
Eurosystem	Yes.	Release of monetary policy decisions at 13:45 ECB time on the day of Governing Council meeting on the ECB website.	Decisions on key ECB interest rates and non-standard measures.	Press conference starting at 14:30 ECB time on the day of Governing Council meeting.	No dissemination of minutes, but accounts of the monetary policy meetings released four weeks after the meeting.	No dissemination of minutes, but the accounts summarise a review of financial, economic and monetary developments and policy options as well as the Governing Council's discussion and monetary policy decisions.	Yes, quarterly publication of staff macroeconomic projections.	No
Hong Kong[3]	No	N/A	N/A	N/A	N/A	N/A	No	No

[1] For instance, economic and inflation forecasts related to policy decision. [2] If applicable, describe the publication of any fan-charts or uncertainty bands around the forecasts/projections. [3] Hong Kong's Linked Exchange Rate System is characterised by currency board arrangements. The Currency Board Sub-Committee of the Exchange Fund Advisory Committee monitors and reviews issues relevant to the monetary and financial stability of Hong Kong.

Source: Participating central banks.

Table 3 (cont): Monetary policy communication (as of September 2019)

	Explicit use of forward guidance	Timing/media of policy announcement	Policy announcement and documents	Explaining policy decisions	Dissemination of minutes (timing/media)	Content of minutes	Publication of forecasts[1]	Publication of projected path of policy rate[2]
India		Yes. 11.45 am IST on last day of Monetary Policy Committee (MPC) Meeting when the Governor's resolution is put to vote; central bank website.	Policy repo rate	Detailed press release / media conferences and teleconference with researchers/analysts	Yes. On the fourteenth day after every meeting of the MPC.	Description of economic and financial conditions, growth and inflation projections, underlying rationale for the policy decision. It also contains the vote of each member of the MPC and the statement explaining the rationale for his/her vote.	In forecasts of inflation and growth for the period between six to eighteen months from the date of publication of the Monetary Policy Report, ie, in every MPC resolution released twice in a year (April and October).	No
Japan	Yes. Forward guidance for policy rates, continuation of "Quantitative and Qualitative Monetary Easing with Yield Curve Control," and continuation of expanding monetary base.	Yes. Immediately after each Monetary Policy Meeting; central bank website.	Yield curve control (guideline for market operations); guideline for asset purchases.	Press conference by the Governor	Yes. Three business days after the next monetary policy meeting. Summary of opinions is released six business days after each monetary policy meeting.	Economic and financial developments, and monetary policy decisions.	Yes. Outlook for economic activity and prices.	No
Korea	No	On day of board meeting; central bank website	Base Rate	Detailed press release / press conference	Yes. Approximately two weeks after board meeting	Description of economic and financial conditions and the policy consideration.	Yes (quarterly)	No

[1] For instance, economic and inflation forecasts related to policy decision. [2] If applicable, describe the publication of any fan-charts or uncertainty bands around the forecasts/projections.

Source: Participating central banks.

Table 3 (cont): Monetary policy communication (as of September 2019)

	Explicit use of forward guidance	Timing/media of policy announcement	Policy announcement and documents	Explaining policy decisions	Dissemination of minutes (timing/media)	Content of minutes	Publication of forecasts[1]	Publication of projected path of policy rate[2]
Mexico	No	Yes. 13:00 pm on the day of the board meeting via central bank website	Target policy rate and press release	All policy decisions per year include a monetary policy statement	Yes. 9:00 am, two weeks after the monetary policy meeting	Description of the policy considerations, voting results, and voter's identity. In case there are dissenting opinions in the voting, the reasons for such dissents are included. General description of economic and financial conditions.	No	No
Singapore	No	Twice a year; MAS website	SGD Nominal effective exchange rate policy stance	Monetary Policy Statement (MPS)	No	N/A	Growth and inflation forecasts accompany the MPS	No
Sweden	Yes (repo rate path)	Five times a year, Monetary policy report and press release are published 9.30 the day after the monetary policy meeting	Monetary policy report and press release	Minutes from the monetary policy meeting (published 2 weeks after the monetary policy meeting)	Minutes from the monetary policy meeting is published 2 weeks after the monetary policy meeting	Summary of Board members' discussions during the monetary policy meeting	Repo rate path and inflation	Yes

[1] For instance, economic and inflation forecasts related to policy decision. [2] If applicable, describe the publication of any fan-charts or uncertainty bands around the forecasts/projections.

Source: Participating central banks.

Table 3 (cont): Monetary policy communication (as of September 2019)

	Explicit use of forward guidance	Timing/media of policy announcement	Policy announcement and documents	Explaining policy decisions	Dissemination of minutes (timing/media)	Content of minutes	Publication of forecasts[1]	Publication of projected path of policy rate[2]
Switzerland	No	9:30 am on the day of monetary policy assessment on central bank website; wire services, 10:00 am media conference (twice a year)	Announcement of SNB policy rate,[3] interest on sight deposits and if needed further policy measures	Press release, media conference	N/A	N/A	Conditional inflation forecast	N/A
United Kingdom	Yes (introduced in August 2013)	12 pm on day of MPC decision; central bank website	MPC meeting summary and minutes	MPC meeting summary and minutes Quarterly inflation report and press conference	Yes / together with policy decision since August 2015; central bank website	Description of economic and financial conditions and the policy consideration	Yes. Forecasts for GDP, unemployment and inflation contained in quarterly Inflation Report. Including fan charts of the probability of various outcomes for each indicator.	The path for Bank Rate implied by forward market interest rates is published in the quarterly Inflation Report. The curves are based on overnight index swap rates.

[1] For instance, economic and inflation forecasts related to policy decision. [2] If applicable, describe the publication of any fan-charts or uncertainty bands around the forecasts/projections. [3] Since June 2019.

Source: Participating central banks.

Table 3 (cont): Monetary policy communication (as of September 2019)

	Explicit use of forward guidance	Timing/media of policy announcement	Policy announcement and documents	Explaining policy decisions	Dissemination of minutes (timing/media)	Content of minutes	Publication of forecasts[1]	Publication of projected path of policy rate[2]
United States	Explicit forward guidance has been used at times as a monetary policy measure	Via Federal Reserve website following conclusion of each FOMC policy meeting	FOMC statement includes target rate decision and any other policy measures; implementation note outlines decisions about operational settings of tools to achieve the policy stance (eg the interest rate paid on required and excess reserves, the ON RRP rate, the operating objective for securities holdings, and the primary credit rate).	Press conferences held following every FOMC policy meeting; ad hoc speeches	FOMC meeting minutes released via website 3 weeks after date of policy decision	Minutes record decisions taken and reasoning behind decisions; and summarise policy discussions related to possible future policy actions.	Summary of Economic Projections (SEP) incorporating projections from FOMC meeting participants produced on quarterly basis; advance table released along with post-FOMC meeting press conference; full summary included as addendum to FOMC minutes.	FOMC participants' projections of appropriate policy paths (anonymised) released as part of SEP

[1] For instance, economic and inflation forecasts related to policy decision. [2] If applicable, describe the publication of any fan-charts or uncertainty bands around the forecasts/projections.

Source: Participating central banks.

4. Reserve requirements: ratios and size

Many central banks impose reserves requirements, which oblige financial institutions to hold a minimum percentage or amount in reserve against specified deposit liabilities as deposits with their central bank. Central banks may use reserve requirements for liquidity management purposes, monetary control and/or to support the functioning of the payments system. The required reserve ratio can vary by the maturity and by the currency of the reservable liabilities. Table 4 summarises the ratios and size of the reserve requirements.

Table 4: Reserve requirements: ratios and size (as of September 2019)

	Main functions served	Domestic currency	Foreign currency	Average	Required reserves	Required reserve as % of GDP	Actual reserves	Actual reserve as % of GDP
Australia	Support functioning of payments system after business hours	Yes[1]	No	N/A[1]	AUD 26 bn	1.4%	AUD 28 bn	1.5%
Brazil	Liquidity management	Yes	No	22.9%[2]	BRL 448 bn	6.42%	BRL 449 bn	6.42%
Canada	N/A				Zero		Zero but target a pre-established level of settlement balances (currently CAD 250 m) in the payment system to support monetary policy framework related to overnight market[3]	
China	Liquidity management	6–13%	5%		CNY 18 trn	19.3%	CNY 20 trn[4]	21.4%
Eurosystem	Liquidity management	1%	–	1%	EUR 132 bn	1.1%	EUR 1,310 bn	11.3%
Hong Kong	N/A							

[1] The Reserve Bank's reserve requirements are not a Required Reserve Ratio (they are not set as a per cent of the financial institution's liabilities). The Reserve Bank's reserve requirements are set annually as an AUD amount per financial institution with the aim of ensuring that each institution has sufficient funds to settle AUD transactions after business hours. The amount is set taking into account the historical pattern of each institution's AUD transactions. [2] Corresponds to the ratio between total required reserves and the reserves base (liabilities). 3 See https://www.bankofcanada.ca/wp-content/uploads/2010/07/lvts_primer_2010.pdf for more details. [4] Estimation of reserves on average.

Source: Participating central banks.

Table 4 (cont): Reserve requirements: ratios and size (as of September 2019)

	Main functions served	Domestic currency	Foreign currency	Average	Required reserves	Required reserve as % of GDP	Actual reserves	Actual reserve as % of GDP
India	Monetary control, Liquidity management	4%[1]	4%	4%	INR 5245.10 bn	2.8%[2]	INR 5390.55 bn	2.8%[2]
Japan	Liquidity management	0.05–1.3%	0.15–0.25%	0.85%	JPY 10.1 trn[3]	1.83%[3]	JPY 341.8 trn[3,4]	61.8%[3]
Korea	Liquidity management	0–7%	1–7%	4.2%[5]	KRW 52.6 trn[5]	2.80%[5]	KRW 52.9 trn[5,6]	2.81%[5]
Mexico	Liquidity Management[7]	Yes[7]	No	N/A	MXN 320 bn	1.6%[8]	MXN 320 bn	1.3%[9]
Singapore	Liquidity management	3%	–	3%	SGD13.6 bn[10]	2.78%	SGD 23.6 bn[10]	4.81%
Sweden	N/A				0%			
Switzerland	Stabilise demand for base money	2.5%	–	2.5%	CHF 17.1 bn[11]	2.49%	CHF 489.3 bn[12]	70.97%
United Kingdom	N/A	N/A			N/A	N/A	GBP 487 bn[13]	23.0%[14]
United States	Predictability of reserve demand	0–10%	–	0–10%	USD 189.6 bn	0.91%	USD 1,896 bn	9.07%[16]

[1] With effect from 9 February 2013. [2] GDP figures as of 31 March 2019 and reserve figures as of 23 September 2019. [3] As of June 2018. As a percent of 2018-2Q GDP. [4] The amount of current account deposits at the BOJ held by financial institutions, including those that are not subject to reserve requirements. [5] As of October 2018. GDP as of September 2018. [6] Cash in vaults and deposits at the BOK. [7] Monetary Regulation Deposits (MRDs) determined as a set MXN amount per banking institution based as a percentage of their liabilities at a specific point in time. The amount has not changed since 2014. [8] Includes immediate withdrawal deposits, time deposits, and banks' credit instruments. [9] As a percent of seasonally adjusted Q2 2019 nominal GDP. [10] Required and actual reserves with MAS as of 19 August 2019. [11] As of 19 January 2019. [12] Eligible reserves consisting of sum of banknotes, coins and sight deposits of domestic banks as of July 19, 2018. [13] As of 21 August 2019. [14] Reserves as a percentage of 2018 GDP. [15] Depending on type of liability. [16] Reserves as a percent of 2018 Q4 GDP. Calculated only for domestic currency reserves.

Source: Participating central banks.

5. Main features of reserve requirements

Central banks differ in the ways in which reserve requirements are implemented. Table 5 summarises the main features of reserve requirements: i) the length of the maintenance period (ie period for which reserve requirements are set), ii) the length of the calculation period (ie period for which reservable liabilities are used to calculate required reserves), iii) the lag between the calculation period and its associated maintenance period, iv) whether financial institutions need to fulfil requirements on a daily basis or whether averaging over a maintenance period is allowed, v) whether institutions are allowed to carry over some excess or deficiency of reserves to the following maintenance period, vi) whether institutions are allowed to use vault cash to fulfil reserve requirements, and vii) the remuneration on required reserves (average and marginal rate).

Table 5: Main features of reserve requirements (as of September 2019)

	AU	BR	CA	CN	Eurosystem	HK
Averaging	N	Yes	N/A	Y	Y	N/A
Carry-over	N	Yes		N	N	
Type	N/A[1]	Lagged		Lagged	Lagged	
Maintenance period	Daily	Demand Deposits: 2 weeks; Others: 1 week		10 days	Around 6/7 weeks	
• end (day)	Daily	Fridays		5th, 15th, 25th	Tue	
Calculation period	N/A[1]	Demand Deposits: 2 weeks; Others: 1 week		10 days	Around 6/7 weeks	
• end (day)	N/A[1]	Fridays		10th, 20th, end-month	Tue	
Lag before maintenance	N/A[1]	1 week		5 days	32–62 days	
Vault cash	N	N		N	N	
• restrictions	N/A					
Remuneration	Y	Yes		Y	Y	
• average rate	Target cash rate	Demand Deposits: no remuneration; Savings: TR + 0,5%, if Selic target rate >8.5%, or 70% of Selic target rate otherwise; Others: Federal Funds Rate (Selic)			Interest rate on the main refinancing operation	
• marginal rate	Target cash rate					
Framework last changed	11/13	06/19	06/92[2]	05/19	01/15	

[1] The Reserve Bank's reserve requirements are not a Required Reserve Ratio (they are not set as a per cent of the financial institution's liabilities). The Reserve Bank's reserve requirements are set annually as an AUD amount per financial institution with the aim of ensuring that each institution has sufficient funds to settle AUD transactions after business hours. The amount is set taking into account the historical pattern of each institution's AUD transactions. [2] https://www.bankofcanada.ca/wp-content/uploads/2010/05/wp97-8.pdf.

Source: Participating central banks.

Table 5 (cont): Main features of reserve requirements (as of September 2019)

	IN	JP	KR	MX[3]	SG	SE	CH	UK	US
Averaging	Y	Y	Y	N	Y	N/A	Y	N[5]	Y
Carry-over	N	N	N	N	N		N	N[6]	N
Type	Lagged	Half-lagged	Lagged	N/A*	Lagged		Lagged	N/A	Lagged
Maintenance period	2 weeks	1 month	1 month	Daily	2 weeks		1 month	Around six to eight weeks	2 weeks
• end (day)	Fri	15th	2nd Wed	Daily	Wed		19th	MPC-1	Wed
Calculation period	2 weeks	1 month	1 month	N/A*	2 weeks		3 months	Around six to eight weeks	2 weeks[7]
• end (day)	Fri	end-month	end-month	N/A*	Wed		end-month	MPC-1	Mon
Lag before maintenance	2 weeks	15 days	5–11 days	N/A*	2 weeks		20 days	N/A	17 days[7]
Vault cash	N	N	Y	N	N		Y	N	Y
• restrictions			Y[2]	N/A*					
Remuneration	N	Y	N	Y	N		N	Y	Y
• average rate		0.1%[1]		Target rate: overnight interbank funding rate				Bank Rate	220 bps
• marginal rate								Bank Rate	220 bps
Framework last changed	04/16	11/08	12/11	05/14	03/14[4]		03/04	03/09	10/08

[1] Interest rate of 0.1 percent is applied to the Basic Balance ie average of current account balance of January 2015 to December 2015 minus required reserve per day. [2] Up to 35% of required reserves. [3] Monetary Regulation Deposits (MRDs) determined as a set of MXN amount per banking institution based as a percentage of their liabilities at a specific point in time. The amount has not changed since 2014. [4] Change in definition of cash balance. [5] With the exception of CCP participants. [6] No carry-over, but reserves are remunerated if on average over a maintenance period they are within a range around the reserves target. [7] For large institutions.

Source: Participating central banks.

6. Liquidity position and forecasting

A central bank can manage the liquidity position of the financial system by altering its balance sheet size and composition. Forecasting liquidity involves projecting the evolution of the balance sheet of the central bank. This may combine forecasts of the various autonomous factors (ie liquidity factors that do not normally stem from the use of monetary policy instruments) driving the changes in liquidity (eg changes in autonomous factors such as balances held by the Government with the central bank or fluctuations demand for reserves).

Table 6 presents the current liquidity position in each jurisdiction, and details on the central bank's forecast – including whether the liquidity forecast is made public (for details on published forecasts see Table 12). The table also lists which autonomous factors are more volatile or unpredictable in each individual economy.

Table 6: Liquidity position and forecasting (as of September 2019)

	Structural position	Most volatile factor(s)	Most unpredictable factor(s)	Forecast horizon(s)	Frequency	Frequency of revision	Forecast published?
Australia	Deficit	Tax	Tax, Government outlays	1 year[1]	Daily	Daily	Yes[2]
Brazil	Surplus	Government sector flows, Reserve requirements on sight deposit, Daily adjustment of FX swaps (swap cambial)	Reserve requirements on sight deposit, Daily adjustment of FX swaps (swap cambial)	6 months	Daily	Daily	No
Canada	Surplus	Large payment flows	Government sector flows	1 year	Daily	Daily	Yes (only net payment system balances for the next day)[3]
China	Closing to balanced	Government sector flows	Government sector flows	3 month	Daily	Daily	No
Eurosystem	Deficit[4]	Government deposits	Government deposits	10–49 working days	Daily	Daily[5]	Yes[6]
Hong Kong	Surplus	Capital flows	Capital flows	3 days[7]	Daily	Daily	Yes

[1] The Reserve Bank has system liquidity forecasts out to 1 year, based on Government budget forecasts, past outlays patterns and monthly profiles from the Australian Taxation Office. [2] The Reserve Bank publishes its system cash position for the current day (ie the expected net flows between the Reserve Bank and the private sector) each morning. [3] The Bank of Canada provides general guidance on the level of payment system settlement balances through the implementation of its monetary policy framework (typically leaving a small level of positive balances), but the Bank reserves the right to adjust this target upwards or downwards. The daily target for the next day is posted on the Bank's website, along with the current day's actual settlement balances. [4] If the effects of the asset purchases for monetary policy purposes are not taken into account. Surplus if such effects are taken into account. [5] Published forecast is normally revised on announcement day of the weekly Main Refinancing Operation. [6] Published on announcement day of the weekly Main Refinancing Operation and updated on allotment date. [7] Aggregate Balance positions and changes within the next 3 days are disclosed on Reuters, Bloomberg and the HKMA website.

Source: Participating central banks.

Table 6 (cont): Liquidity position and forecasting (as of September 2019)

	Structural position	Most volatile factor(s)	Most unpredictable factor(s)	Forecast horizon(s)	Frequency	Frequency of revision	Forecast published?
India	Neutral position	Capital flows, Government sector flows	Capital flows, Government sector flows	4 weeks	Weekly	Weekly	No
Japan	Deficit	Government sector flows, Banknotes	Foreign central banks' deposits, Government sector flows,	Daily and monthly	Daily	Daily	Yes, daily
Korea	Surplus	Government sector flows	Government sector flows	1 month	Daily	Daily	No
Mexico	Surplus[1]	Government outlays	FX interventions	1 year	Daily	Daily[2]	Yes[3]
Singapore	Surplus	Public sector flows	Public sector flows and FX intervention operations	3 months	Daily	Daily	No
Sweden	Surplus	Public demand for Notes and coins		6 months	Monthly	Monthly	No
Switzerland	Surplus	Treasury account, sight deposits non-banks, banknotes	Sight deposits non-banks, Treasury account, banknotes	10 days	Daily	Daily	No
United Kingdom	Surplus[4]	Note issue[5]	Accounts of UK government's Debt Management Office and of other central banks	2 weeks	Daily	Daily	No
United States	Excess	Treasury General Account (Government Deposits), ON RRP, Currency, Foreign RP Pool, Other Deposits (GSEs, designated financial market utilities)	Treasury General Account (Government Deposits), ON RRP, Currency, Foreign RP Pool, Other Deposits (GSEs, designated financial market utilities)	Approximately 1 year	Daily	Daily	No[6]

[1] Due to international reserves accumulation originated from USD purchases to PEMEX, the system has had a liquidity surplus position, therefore the Central Bank has a net debtor position against the system. Recently, due to FX interventions and lack of sales of USD by the oil company, the system´s structural liquidity surplus has decreased. [2] Information for the implementation of daily OMOs is incorporated on a daily basis. However, the longer term liquidity forecasts are revised on a quarterly basis. [3] The forecast is only published on a daily basis for the day in question approximately half an hour before OMOs start [4] Likely that current reserves levels are a surplus over banks' unconstrained reserve demand – but reserves averaging currently suspended. [5] Volatile but not unpredictable. A very cyclical series that can, on the whole, be modelled with a good degree of accuracy. [6] The Treasury Department publishes its assumed end-of-quarter cash balance in its quarterly marketable borrowing estimates.

Source: Participating central banks.

7.a Standing facilities: lending / market ceiling

The lending side in the standing facility – ie the market rate ceiling in an interest rate corridor – is collateralised marginal lending with a short maturity, often overnight; in a few cases, the maturity is up to 1 week and 1 month. Lending facilities enable counterparties to obtain short-term liquidity from the central bank for liquidity management. The pre-specified interest rate on the facility also helps to contain market rates among counterparties with access to the central bank. The interest rate ceiling is created since little incentive exists for the counterparty to borrow from the market at a rate higher than that demanded by the central bank.

Table 7a presents key characteristics of central bank standing lending facilities including: i) the name of the facility, ii) the form of the facility (ie repo, collateralised lending), iii) the pricing method, iv) the maturity of the facility terms, v) counterparty access, and vi) the facility's function(s)/objective(s).

Table 7a: Standing facilities: lending / market ceiling (as of September 2019)

	Name	Form	Pricing method	Maturity	Access limited by/to	Function(s)
Australia	Overnight repo	Reverse repo (=RP)	Fixed margin above target cash rate	O/N	Collateral holders of Exchange Settlement Accounts	Marginal liquidity accommodation; limit interest rate volatility; provides liquidity insurance (where usage via Committed Liquidity Facility)
Brazil	Standing facility	Repo	Base rate + 80bps	1 day	Financial institutions; eligible collateral	Marginal liquidity accommodation; limit interest rate volatility; short-term liquidity provision
Canada	Standing Liquidity Facility	Secured loan	Fixed at the upper end of the operating band. Target overnight rate + 25 bps (Bank rate)	1 day	Participants in the LVTS payment system, eligible collateral	To reinforce the upper limit of the operating band, provide overnight liquidity at the end of the day
China	Standing Lending Facility	Collateralised loan	Fixed rate	O/N, 1w, 1m	Collateral	Liquidity management, smooth interest rate volatility
Eurosystem	Marginal lending facility	Reversed purchase (RP) or collateralised credit	Fixed rate	1 day O/N	Collateral	Signalling; limit interest rate volatility
Hong Kong	Discount Window	Repo	For the first 50% of collateral holding: Base rate[1] For the next 50%: either Base Rate plus 5% or the overnight HKD HIBOR, whichever is the higher	O/N	Collateral[2]	Facilitate smooth operation of the interbank payment system and thus preserve systemic stability

[1] Base Rate is set as either 50 basis points above the lower end of the target range for US Fed funds rate or the average of the five-day moving averages of the overnight and 1-month HIBORs, whichever is higher.
[2] Exchange Fund paper.

Source: Participating central banks.

Table 7a (cont): Standing facilities: lending / market ceiling (as of September 2019)

	Name	Form	Pricing method	Maturity	Access limited by/to...	Function(s)
India	Marginal Standing Facility (MSF)[1]	Collateralised loan	MSF Rate (25 bps over the policy Repo Rate)	Overnight	Collateral; scheduled commercial banks;	Liquidity management
Japan	Complementary lending facility	Fixed-term loan	Basic loan rate	O/N	Eligible collateral; BOJ counterparties only	Marginal accommodation; limit interest rate volatility
Korea	Liquidity adjustment loans	Loan	Base rate + 100bps	1 day	Eligible collateral; reserve depository institutions	Limit interest rate volatility
Mexico	Standing Facility	Secured Loan and Intraday Repo (inject liquidity - RP)[2]	Lending: 2 times the Key Policy Rate (Overnight Interbank Funding Rate).	O/N	Commercial and development banks only	Marginal liquidity management. Lender of last resort, to help alleviate short-term liquidity bottlenecks
Singapore	Standing Facility	Repo	Reference rate[3] + 50bps	O/N	Collateral; MEPS+ participating banks that have signed a GMRA with MAS.	Limit interest rate volatility and prevent payment gridlock
Sweden	Standing facility	Collateralised lending	Repo rate plus 75 bp	O/N	Monetary policy counterparties and some participants in the Riksbank's payment system RIX	Provides liquidity insurance
Switzerland	Liquidity-shortage financing facility	Repo (inject liquidity)	max(SNB policy rate,0) + 50bps	O/N	(1) limit by the SNB, (2) a custody cover account, (3) collateral eligible for SNB repos covering at least 110% of the limit must be held	Liquidity management; to bridge unexpected, short-term liquidity bottlenecks
United Kingdom	Operational Standing Lending Facility	Collateralised loan	Bank Rate + 25bps	O/N	Banks, building societies, CCPs and broker-dealers,[4] unlimited size but only against eligible collateral	Limits interest rate volatility; provides liquidity insurance against frictional payment shocks
United States	(i) Primary credit facility (PCF) (ii) Secondary credit facility (SCF)	Secured loan	(i) Top of policy rate target range + 50 bps (ii) Top of policy rate target range + 100 bps	(i) O/N (ii) O/N	PCF for depository institutions in sound financial condition, SCF for other depository institutions[5]; loans must be fully collateralised.	Marginal liquidity accommodation; lender of last resort; ceiling on policy rate

[1] Export credit refinance (ECR) facility phased out in February 2015. [2] Reverse repos started being implemented in 2019. [3] The reference rate is the weighted average of successful bids for MAS' SGD 500 m overnight clean borrowing conducted during Money Market Operations on the same day, rounded to two decimal places. [4] The term 'broker-dealers' refers to PRA-designated investment firms, see www.bankofengland.co.uk/pra/pages/authorisations/designatedfirmslist.aspx. [5] Depository institutions include: commercial banks, thrifts, credit unions, and US branches and agencies of foreign banks.

Source: Participating central banks.

7.b Standing facilities: deposit / market floor

Many central banks maintain standing deposit facilities with short maturities – often overnight – which provide payment of interest on deposits. A standing deposit facility generally serves as a floor on interest rates: If a counterparty can earn interest on the deposits it holds at the central bank, then given the safety and convenience of this investment, little incentive exists for the counterparty to lend at a rate lower than that offered by the central bank. Further, if the counterparty can acquire funds in the wholesale market at rates below the rate paid on reserves, competition for these funds to earn an arbitrage profit would suggest that the counterparty will bid up these rates close to the interest rate on deposits/reserves. As a result, the deposit rate generally acts as a floor for short-term interest rates.

Table 7b presents key characteristics of central bank standing deposit / market floor facilities including: i) the name of the facility, ii) the form of the facility (ie deposit, reverse repurchase agreement), iii) the pricing method, iv) the maturity of the facility terms, v) counterparty access, and vi) the facility's function(s)/objective(s).

Table 7b: Standing facilities: deposit / market floor (as of September 2019)

	Name	Form	Pricing method	Maturity	Access limited by/to	Function(s)
Australia	Exchange Settlement Account rate	Deposit	Fixed margin below target cash rate	O/N	Exchange settlement account eligibility	Depository for surplus cash reserves;[1] Limit interest rate volatility; facilitate settlements
Brazil	Standing facility	Reverse repo (=RP)	Base rate – 80bps	1 day	Financial institutions that are primary dealers; eligible collateral	Marginal liquidity accommodation; limit interest rate volatility; short-term liquidity withdrawal
Canada	Deposit facility	Deposit	Fixed at lower limit of the operating band; Target overnight rate – 25 bps (Deposit Rate)	1 day	Participants in the LVTS payment system	To encourage transactions in the market for overnight funds at rates above the lower limit of the operating band
China	N/A					
Eurosystem	Deposit facility	Deposit	Fixed rate	1 day O/N	No limit	Signalling; Limit interest rate volatility
Hong Kong	N/A					
India	Standing deposit facility announced; yet to be operationalised[2]					

[1] Refers to cash reserves that are surplus to the Reserve Bank's reserve requirements designed to support the functioning of the payments system after hours; the required reserves are remunerated at the target cash rate.
[2] The standing deposit facility was notified in April 2018. The facility, however, is yet to be operationalised.

Source: Participating central banks.

Table 7b (cont): Standing facilities: deposit / market floor (as of September 2019)

	Name	Form	Pricing method	Maturity	Access limited by/to	Function(s)
Japan	Complementary deposit facility[1]	Deposit[2]	Different fixed rates applied depending upon the level of outstanding balance of financial institution's current account at the bank	1 day	Reserve depository institutions and some other financial institutions which have a current account at the Bank[3]	Lower the short end of the yield curve
Korea	Liquidity adjustment deposits	Deposit	Base rate – 100bps	1 day	Reserve depository institutions	Limit interest rate volatility
Mexico	Standing facility	Deposit	0%	O/N	Commercial and development banks only	Marginal liquidity management. To help alleviate short-term liquidity bottlenecks. Depository for surplus cash reserves.
Singapore	Standing facility	Deposit	Reference rate[4] less 50bp	O/N	MEPS+ participating banks	Limit interest rate volatility
Sweden	Standing facility	Deposit	Repo rate minus 75 bp	O/N	Monetary policy counterparties and some participants in the Riksbank's payment system RIX	Provides liquidity insurance
Switzerland	N/A					
United Kingdom	Operational Standing Deposit Facility	Deposit	Bank Rate minus 25bp	O/N	Banks, building societies, CCPs and broker-dealers,[5] unlimited size	Limits interest rate volatility; provides liquidity insurance against frictional payment shocks
United States	Standing facility[6]	Deposit	Top of policy rate target range less 5 bps for required reserves and excess reserves	O/N	Depository institutions	Help manage interest rates

[1] A temporary measure. [2] The interest each institution receives for a reserve maintenance period is calculated by multiplying aggregated excess reserve balances and the rate divided by 365. Aggregated excess reserve balances are the sum of balances held by an institution at the end of each day during a reserve maintenance period less the product of the amount of required reserve per day of the institution at the month from which the reserve maintenance period starts and the number of days of month. [3] Financial instruments firms that conduct the first financial instruments business, securities finance companies, and tanshi companies. [4] The reference rate is the weighted average of successful bids for MAS' SGD 500 m overnight clean borrowing conducted during Money Market Operations on the same day, rounded to two decimal places. [5] The term 'broker-dealers' refers to PRA-designated investment firms, see www.bankofengland.co.uk/pra/pages/authorisations/designatedfirmslist.aspx. [6] This table refers to interest on reserves that depository institutions receive on their reserve balances held at the Federal Reserve. The Federal Reserve also has an ON RRP facility as a supplementary tool, which is available to a different set of counterparties to also support the floor (see Table 8a).

Source: Participating central banks.

8.a Open market operations: repo or reverse repo

Open market operations could take different forms depending on the economic environment and counterparties' structural liquidity position towards the central bank. Table 8a presents details regarding two standard open market operations: repurchase agreements (RP) or reverse repurchase agreements (RRP). An RP is a liquidity-providing transaction initiated by the central bank with the aim to provide liquidity against collateral which is then returned for a slightly higher price (which reflects the borrowing rate). An RRP is typically a liquidity-absorbing instrument initiated by the central bank with the aim to drain liquidity by agreeing to sell an asset to a counterparty who simultaneously agrees to re-sell the asset back to the central bank for an agreed price (reflecting the interest rate) after a stated time.

Table 8a: Open market operations: repo or reverse repo (as of September 2019)

	Name/Type[1]	Maturity	Frequency	Pricing method	Access limited by/to....	Function(s)
Australia	RP and RRP	Up to 1 year; typically around 1 month	At least daily	Auction	Most members of Reserve Bank's RTGS system	Liquidity injection and withdrawal
Brazil	RP and RRP	Up to 6 months	As needed	Auction	Primary Dealers and Financial institutions	Reinforce target rate, Liquidity management
Canada	Repo / reverse repo	1 day	As needed	Single price auction	Primary Dealers, Government of Canada collateral	Reinforce target rate
China	Repo / reverse repo	Generally 7 days, other maturity up to 1 year, conducted discretionarily	Daily	Auction	Primary Dealers	Liquidity injection and withdrawal
Eurosystem	(i) RP or collateralised credit[2]	(i) 1 week and 3 months	Weekly for 1-week operations; monthly for 3-month operations	(i) Fixed rate (ii) Varies, no quick tenders are conducted currently	Monetary financial institutions fulfilling eligibility criteria	Basic refinancing (increased emphasis on intermediation) Fine tuning
	(ii) RP–Quick tenders	(ii) Varies	As needed[3]			
Hong Kong	N/A					
India	(i) Repo / reverse repo under LAF (ii) 14-day Term repo (iii) Fine-tuning Repo or Reverse repo	(i) 1 day, but could be more than 1 day due to intermittent holiday (ii) 14-day (iii) Varies	(i) 1 x day (ii) Twice a week (every Tuesday and Friday) (iii) As needed	(i) Fixed rate (ii) Auction (iii) Auction	(i) Scheduled commercial banks (SCBs), select Urban Cooperative Banks (UCBs) and primary dealers, select Scheduled State Cooperative banks (SSCBs). (ii) SCBs, select UCBs and select (SSCBs). (iii) SCBs, select UCBs and select (SSCBs).	Liquidity management

[1] RP=Reversed purchase ("repo"), RS=RRP=Revered Sales ("reverse repo"), RT=Reversed transaction (RP or RRP). [2] Standard variable rate tenders. [3] Normally at the end of the maintenance period

Source: Participating central banks.

Table 8a (cont): Open market operations: repo or reverse repo (as of September 2019)

	Name/Type[1]	Maturity	Frequency	Pricing method	Access limited by/to	Function(s)
Japan	(i) RRP (ii) RP	(i) up to 1 year (ii) up to 6 months	As needed	Auction	Financial institutions, financial instruments firms that conduct the first financial instruments business, securities finance companies, and tanshi companies	(i) Liquidity injection (ii) Liquidity withdrawal
Mexico	RP and deposits[2]	1 to 25 days in average[3]	Daily, as needed	Auction: RP (Target rate floor), Deposits (Target rate ceiling)	Commercial and development banks only	Liquidity management, reinforce target rate
Korea	(i) RRP (ii) Fine-tuning RP or RRP	i) Mainly 7 days (ii) Varies	(i) Weekly (ii) As needed	Auction	Banks and investment & securities companies selected as eligible counterparties	(i) Liquidity management (ii) Liquidity management
Singapore	Repo and reverse repo	Up to 6 months	Daily, as needed	Auction	Primary dealers	Liquidity injection and withdrawal
Sweden	N/A (See table 7b – liquidity surplus is drained by issuance of Riksbank certificates)					
Switzerland	Repo and Reverse repo	1 week to 1 year	As needed	Auction (fixed rate tender)	All domestic banks with sight deposits at the SNB; Other domestic participants in the financial market, as well as banks that are domiciled abroad fulfilling eligibility criteria	Liquidity management
United Kingdom	(i) RP – tenders (ii) Indexed Long-Term Repos (iii) Contingent Term Repo Facility (iv) Fine-tuning RP or RRP	(i) 1W (suspended from Aug 09) (ii) 6 month (iii) Any term, as determined by BoE (iv) O/N or longer (suspended from Aug 09)	(i) Weekly (ii) Monthly (iii) As needed (iv) Once a month at end of maintenance period and/or ad hoc	(i) & (iv) Previously variable rate auctions (but currently suspended) (ii) & (iii) Uniform price auctions	(i) & (iv) Banks and active intermediaries (but currently suspended) (ii) and (iii) Banks, building societies and broker-dealers[4]	(i) Reserves management (ii) Liquidity insurance (iii) Liquidity insurance (iv) Reserves management
United States	(i) RP, RRP (ii) ON RRP facility	(i) Up to 65 business days (ii) O/N	(i) Discretionary (ii) Daily	RP: Fixed-quantity multi-price auction; RRP: Fixed-price or fixed-quantity[5]	RP: primary dealers; RRP: primary dealers plus expanded RRP counterparties (including some US government-sponsored enterprises, money market mutual funds, and depository institutions)	(i) Liquidity injection and withdrawal (ii) Reduces reserves, supports interest rate control as administered rate

[1] RP=Reversed purchase ("repo"), RS=RRP=Reversed Sales ("reverse repo"), RT=Reversed transaction (RP or RRP). [2] For absorbing liquidity, we carry out deposit auctions. The Bank of Mexico does not provide any type of collateral to banks, hence, we execute these OMOs operations through deposits and not RRPs. [3] The maturity of these operations has been of up to 55 days. [4] The term 'broker-dealers' refers to PRA-designated investment firms, see www.bankofengland.co.uk/pra/pages/authorisations/designatedfirmslist.aspx. [5] ON RRP operations are conducted at a fixed offering rate if total propositions are less than the aggregate limit and are conducted as a single-price auction if propositions exceed the aggregate limit.

Source: Participating central banks.

8.b Open market operations: central bank bills

Central bank bills are unsecured debt securities issued by the central bank for monetary policy implementation. Issuing central bank bills drains excess liquidity in the banking system, and thus influences market interest rates. Central banks may also issue bills to support liquidity by supplying high-quality debt that can be used for trading, investment and hedging purposes. Authorised institutions may also use holdings of central bank bills to borrow currency via the central bank's discount window.

Table 8b shows features of the tool, including the range of maturities, allocation mechanisms, and eligible counterparties. Note that the table only includes information on central bank bills, and central banks could use treasury bills to manage liquidity.

Table 8b: Open market operations: central bank bills (as of September 2019)

	Name	Total issuance	Maturity	Restrictions on possible maturities	Pricing method	Access limited by/to	Discretion left to operational desk
Australia	N/A						
Brazil	N/A						
Canada	N/A						
China	Stopped issuance since 2014[1]						
Eurosystem	N/A currently						
Hong Kong[2]	N/A						
India	N/A						
	SBI	IDR 28.1 trn (as of end Sep 2018)	12 months	Up to 12 months	Auction	Banks	Maturity, size, timing
Japan	Bills drawn by BOJ	None as of the end of 2019/8	1day – 1week	Up to 3 months	Conventional auction	Financial institutions, financial instruments firms that conduct the first financial instruments business, securities finance companies, and tanshi companies	Maturity, size and timing of operations

[1] The PBC launched central-bank bills issuance in Hong Kong since November 2018. [2] The HKMA does not conduct open market operations. The authority launched the Exchange Fund Bills and Notes programme in 1990. The programme ensures the supply of a significant amount of high-quality Hong Kong dollar debt papers, which can be employed as trading, investment and liquidity management instruments. At present, bills of 91 days, 182 days and 364 days, and notes of two years to maturity are issued regularly under the programme.

Source: Participating central banks.

Table 8b (cont): Open market operations: central bank bills (as of September 2019)

	Name	Total issuance	Maturity	Restrictions on possible maturities	Pricing method	Access limited by/to	Discretion left to operational desk
Korea	Monetary Stabilisation Bond	KRW 171.1trn	91-day, 182-day, 1-year, 2-year	Up to 2-year	Auction	Banks and investment & securities companies selected as eligible counterparties	Choice of size and timing of operations
Mexico	Government bonds[1]	MXN 1,013bn	Zero-coupon bonds: up to a year FRN: Up to 5 years	Longest maturity for Zero-coupon bonds capped at 1 year and for FRN currently capped at 5 years	Multiple or single price competitive auctions	Banks and Bank of Mexico eligible counterparties (ie pension funds, investment funds, brokerage houses)	Some discretion related to the choice of tenors, issue size, and instruments used. Always with upper management approval
Singapore	MAS bills	SGD 123.7bn outstanding[2]	4 weeks, 12 weeks	Up to 6 months	Uniform price auction	All institutional investors	Yes
Sweden	Riksbank certificates	An amount up to the banking systems net position towards the Riksbank is offered	1 week	No	Fixed rate auction, pro rata allocation	Monetary policy counterparties	Choice of amount offered
Switzerland	SNB bills		Less than 1 year		Auction, variable rate tender with American allocation	All parties who have a sight deposit account with the SNB and who are authorised to participate in the SIX Repo Ltd 'CH Repo Market' and 'OTC Spot Market' are eligible to participate in auctions (also on behalf of their customers ie non-banks)	Maturity, marginal rate and amount issued
United Kingdom	Bank of England bills	Not currently being issued	1 week	≤1 week	Variable rate	Banks and active intermediaries	
United States	N/A						

[1] The Bank of Mexico uses government bonds for its outright securities sell/purchase open market operations. However, it should be stressed that these securities do not finance the government and that the financial costs are completely covered by the Central Bank. [2] As of 19 August 2019.

Source: Participating central banks

8.c Open market operations: FX swaps

Foreign exchange swaps are a contract between two parties to exchange one currency for another, and then reverse that transaction later at a specific future date. Central banks generally use FX swaps to manage domestic liquidity, implement monetary policy, manage foreign exchange reserves, and to stimulate domestic financial markets.

Table 8c details the maturity of FX swap contracts used, if any, and the pricing methods. FX swaps can often be used on a case-by-case basis, eg as part of temporary measures to ease foreign currency shortages during times of financial market stress.

Table 8c: Open market operations: FX swaps (as of September 2019)

	Maturity	Frequency	Pricing method	Access limited by/to….	Function(s)
Australia	Up to 3 months	Several times per month[1]	Bilateral with counter parties	FX counterparty panel	Liquidity injection & withdrawal
Brazil	N/A				
Canada	N/A				
China					
Eurosystem	N/A currently				
Hong Kong	N/A				
India[1]	Discretionary	Discretionary	Auction	Authorised dealer category-1 banks	Liquidity management
Japan					
Korea					
Mexico	N/A				

[1] The RBA offers to undertake outright transactions daily, but only transacts when attractive relative to repo. FX swaps are used to manage large, lumpy flows and to help manage the size of the domestic repo book. The RBI has introduced FX swap auctions as liquidity management tool in March 2019.

Source: Participating central banks.

Table 8c (cont): Open market operations: FX swaps (as of September 2019)

	Maturity	Frequency	Pricing method	Access limited by/to….	Function(s)
Singapore	Up to 6 months	Daily, as needed	Auction	Primary dealers	Liquidity injection & withdrawal
Sweden	N/A				
Switzerland	1 day – 3 months	As needed			Liquidity management
United Kingdom	N/A				
United States	N/A				

Source: Participating central banks.

9. Other significant liquidity management means

Besides the open market operations listed in table 8, central banks can also manage liquidity using tools such as outright transactions, direct borrowing, and direct lending. Central banks may use these operations to affect market liquidity, to provide monetary policy accommodation, and/or to improve market functioning. Table 9 summarises the form, frequency, maturity, pricing method, counterparty access, and functions of these type of operations.

Table 9: Other significant liquidity management means[1] (as of September 2019)

	Name/Type[2]	Form	Frequency	Maturity	Pricing method	Access limited by/to….	Function(s)
Australia	OT purchases of government bonds		As needed	Maturity of the bond purchased	Based on market conditions	RBA eligible counterparties	Purchases are conducted ahead of large government bond maturities to manage liquidity on the maturity date
Brazil	Repo lines of credit	Electronic auctions	As needed	Legally, up to 360 days, but in practice up to 180 days	Based on market conditions	BCB's primary FX dealers	Managing liquidity in the FX market
Canada	Government morning cash balances auction	Deposit with FIs	Daily	Typically, 1 day but can term it out for longer based on needs	Auction	Federal crown or agency, Provincial govt or agency, Federal or provincial DTI, Primary Dealers / Collateralised	Allows BoC to achieve end of the day target for settlement balances in the LVTS payment system
	Government end of day cash balances auction	Overnight deposit with FIs	Daily	1 day	Auction	Payment system (LVTS) members	Allows BoC to achieve end of the day target for settlement balances in the LVTS payment system
	Overnight Standing Repo Facility	Repo	As needed	1 day	Upper limit of the operating band (Target overnight rate + 25 bps)	Primary Dealers, Government of Canada collateral	Standing liquidity facility for Primary Dealers
China	Medium-term Lending Facility(MLF))	Collateralised lending	As needed	3 months, 6 months, 1 year	Auction	Eligible banks	Liquidity management
	Pledged Supplementary Lending(PSL)	Collateralised lending	As needed	1 year	Based on policy rates	3 policy banks	Liquidity management
	Targeted Medium-term Lending Facility (TMLF)	Collateralised lending	As needed	1 year	Based on policy rates	Eligible banks	Liquidity management

[1] For example, other liquidity management operations or other accounts held at the central bank that affect market liquidity. [2] OT = Outright Transaction, DB = Direct Borrowing, DL = Direct Lending.

Source: Participating central banks.

Table 9 (cont): Other significant liquidity management means[1] (as of September 2019)

	Name/Type[2]	Form	Frequency	Maturity	Pricing method	Access limited by/to	Function(s)
Eurosystem	Targeted Longer-term Refinancing Operations (TLTROs)		8 operations, last one conducted in June 2016	48 months maximum	MRO + 10 bps for first 2 TLTROs / MRO flat for subsequent 6 TLTROs.	ECB eligible monetary policy counterparties that have submitted required statistical data to calculate allowances	Improving bank lending to the euro area non-financial private sector, excluding household loans for house purchase
	Targeted-Longer-term Refinancing Operations (TLTROs-II)		4 operations, last one to be conducted in March 2017	48 months	Between MRO and DF rates depending on lending behaviour	ECB eligible monetary policy counterparties that have submitted required statistical data to calculate allowances	Improving bank lending to the euro area non-financial private sector, excluding household loans for house purchase
	Targeted-Longer-term Refinancing Operations (TLTROs-III)		7 operations, to be conducted between September 2019 and March 2021	36 months	Between MRO and DF rates depending on lending behaviour	ECB eligible monetary policy counterparties that have submitted required statistical data to calculate allowances	Preserving favourable bank lending conditions and stimulate bank lending to the real economy
	Asset Purchase Programme (APP), including: (i) OT purchases of bonds issued by euro area central and regional governments, agencies and European institutions (PSPP) (ii) OT purchases of ABS (ABSPP) (iii) OT purchases of covered bonds (CBPP3) (iv) OT purchases of corporate bonds (CSPP)		Daily	(i) 1–30 years (ii) not specified (iii) not specified (iv) 0.5–30 years	(i) buying alongside market (ii) buying alongside market (iii) buying alongside market (iv) buying alongside market	ECB eligible monetary policy counterparties and Eurosystem investment counterparties	(i) monetary policy accommodation (ii and iii) monetary policy accommodation and enhancement of monetary transmission mechanism by supporting market segments that play key role in credit provision to broad economy (iv) monetary policy accommodation and further strengthening of the pass-through of the Eurosystem's asset purchases to the financing conditions of the real economy

[1] For example, other liquidity management operations or other accounts held at the central bank that affect market liquidity. [2] OT = Outright Transaction, DB = Direct Borrowing, DL = Direct Lending.

Source: Participating central banks.

Table 9 (cont): Other significant liquidity management means[1] (as of September 2019)

	Name/Type[2]	Form	Frequency	Maturity	Pricing method	Access limited by/to	Function(s)
Hong Kong	Liquidity Facilities Framework[3]	Term repo, FX swap, credit facilities	As and when need, upon banks' requests	Determined case by case	Determined case by case	Authorised institutions	Maintenance of financial stability
India	Open market outright purchase/sales	Outright purchase and sales	As and when needed, at the discretion of the Reserve Bank	Varies from auction to auction	(i) Auction (ii) Market clearing price	No restriction. Entities having securities account and funds account with the RBI can participate. No restriction	Durable liquidity management
	OT (purchase and sales)	OT (purchase and sales)	As needed	–	Auction/Bilateral	Banks	Liquidity management
Japan	(i) OT purchases of JGS, CP/CB, ETF/J-REIT (ii) Funds – supplying operations against pooled collateral (iii) Loan support program (iv) SLF (Securities lending facility)	(i) OT purchases (ii) Auction lending and fixed rate lending (iii)RP	(i) 1 x day (ii) 1–3 x day (iii) 1–2 x day	(i) up to 40Y (ii) Auction lending: up to 1 year, fixed rate lending: up to 10 years (iii) 1 day	i) Auction / Bilateral / Fixed rate (ii) Auction / Fixed rate (iii) Auction rate	Financial institutions, financial instruments firms that conduct the first financial instruments business, securities finance companies, and tanshi companies.	(i) To encourage a decline in longer-term interest rates and various risk premiums (ii) Gross tuning (iii) To provide a temporary and secondary source of JGBs to the markets
Korea	(i) Monetary Stabilisation Account (ii) OT (iii) Securities lending /borrowing	(i) Term deposit	(i) weekly (ii) As needed (iii) As needed	(i) Mainly 28-day (ii) varies (iii) varies	(i) Auction (ii) Auction (iii) Auction	(i) Banks selected as eligible RP counterparties (ii) Banks and investment & securities companies selected as eligible counterparties (iii) Banks and investment & securities and life insurance companies selected as eligible counterparties	(i) Liquidity management (ii) Liquidity management (iii) Liquidity management

[1] For example, other liquidity management operations or other accounts held at the central bank that affect market liquidity. [2] OT = Outright Transaction, DB = Direct Borrowing, DL = Direct Lending. [3] Details of the Liquidity Facilities Framework can be found on the HKMA website.

Source: Participating central banks.

Table 9 (cont): Other significant liquidity management means[1] (as of September 2019)

	Name/Type[2]	Form	Frequency	Maturity	Pricing method	Access limited by/to	Function(s)
Mexico	Voluntary deposits	Liquidity deposit	Every 3 months	91 days	Fixed rate (same as 91-day Cete (zero-coupon bond) alloted in government securities primary auction)	Commercial banks and development banks	Alternative for small banks without MRD to maintain as a source of collateral for operations of liquidity provision carried out by the Central Bank.
Singapore	DB	Overnight to term deposits	Daily, as needed	Up to 6 months	Auction	Primary dealers	Liquidity injection and withdrawal
	6 month treasury bills	6 months	Fortnightly, as needed	6 months	Auction	Individuals and institutions	Liquidity injection and withdrawal
Sweden	OT Purchase of Swedish government bonds	Reverse auctions on electronic trading platform	Weekly	May include all maturities	Multi price auction	Monetary policy counterparties	Monetary policy
Switzerland	Outright FX purchases and sales		As needed				MP implementation
United Kingdom	(i) OT purchases of UK govt bonds (QE) (ii) OT purchases of sterling corporate bonds (CBPS) (iii) DL Term Funding Scheme (closed for new lending in Feb 2018)		(i) and (ii) As needed when mandated by Monetary Policy Committee (iii) Ongoing during the drawdown window, now closed	(i) Conventional Gilts with minimum residual maturity of greater than 3Y (ii) Minimum residual maturity of 12 months (iii) Four years	(i) and (ii) Auction (iii) Indexed to Bank Rate	(i) Gilt-edged Market Makers (GEMMs) (ii) Sterling corporate bond market makers (iii) Members of the SMF with DWF access	MP implementation
United States	OT (purchase and sales)		As appropriate, as directed by the FOMC (OTs) or Board of Governors (TDF)	Securities with up to 30Y maturity	Multi-price auction	Primary dealers	Portfolio management; influence longer-term interest rates

[1] For example, other liquidity management operations or other accounts held at the central bank that affect market liquidity. [2] OT = Outright Transaction, DB = Direct Borrowing, DL = Direct Lending.

Source: Participating central banks.

10. Settlement systems and intra-day liquidity facilities

Central banks play a critical role in maintaining an economy's payment infrastructure by operating systems used to settle generally large-value interbank funds and securities transfers. Central bank intra-day liquidity facilities are designed to help ensure the smooth functioning of payment, clearing, and settlement activities that occur in the financial system by temporarily extending credit to institutions that have insufficient funds to meet payment obligations during the day.

Table 10 presents information about: i) the settlement system over which payments occur, ii) the type of intra-day liquidity facility, iii) the charge for central bank extension of intra-day credit, iv) whether the central bank has a foreign currency settlement system, v) whether the country's banks participate in the CLS (Continuous Linked Settlement) bank, and vi) any other settlement systems operated by the central bank.

Table 10: Settlement systems and intra-day liquidity facilities (as of September 2019)

	Settlement system	Intra-day liquidity facility	Charge	Foreign currency settlement system	CLS participation by banks	Other settlement system(s)
Australia	RTGS, since 1998	Intra-day repo	No charge for repo operations	No	Yes	Yes[1]
Brazil	RTGS, since 2002	Federal Bonds Repo	No charge	N/A	N/A	N/A
Canada	LVTS, since 1999	Intra-day pledged collateral	No charge	No	Yes	CDSX (securities settlement system)
China	RTGS, since 2005	Intra-day collateral loan and overdraft	Charge at interest rate of SLF(Standing Lending Facility)	No	Yes	
Eurosystem	RTGS, since 1999	Intra-day repo and overdraft, depending on country	No charge if against collateral	No	Yes	Ancillary systems[2]
Hong Kong	RTGS, since 1996	Automatic intraday repo[3]	No charge, with haircut applied	RMB, USD and EUR RTGS	Yes	Yes[4]

[1] Cheques, Government direct entry and card based payments systems settle on a deferred net basis. Some changes were implemented to non-Government same-day DE on 25 November 2013, requiring the provision of Open RBA Repos. The settlement system for debt securities trades settles on an RTGS basis. The settlement system for equities settles on a deferred multilateral net basis (though an unused RTGS option exists). [2] Ancillary systems are those systems in which payments or securities are exchanged and/or cleared while the ensuing monetary obligations are settled in TARGET. [3] Intraday repo transaction will be automatically entered between the HKMA and a bank when a bank's clearing account has insufficient fund to effect its payment obligations. [4] CMU system – a clearing and settlement system for debt securities.

Source: Participating central banks.

Table 10 (cont): Settlement systems and intra-day liquidity facilities (as of September 2019)

	Settlement system	Intra-day liquidity facility	Charge	Foreign currency settlement system	CLS participation by banks	Other settlement system(s)
India	RTGS	Intra-day liquidity facility	No charge	Yes; netting through a central counterparty with Settlement on delivery versus payment (DvP basis)	No. CLS services to Indian banks provided by Clearing Corporation of India Ltd (CCIL) as third party[1]	Government Securities settlement through central counterparty (CCIL)
Japan	RTGS, since 2001	Collateralised intra-day overdraft	No charge	No	Yes	Yes[2]
Korea	RTGS, since 1994 Hybrid, since 2009	Collateralised intra-day overdraft	No charge unless the intra-day credit amount is more than 25% of financial institution's equity capital	No	Yes	
		Intra-day repo	No charge			
Mexico	RTGS	Intra-day repo and intra-day overdraft through secured loans	No charge	Yes	Yes, some commercial banks	N/A
Singapore	RTGS, since 1998	Intra-day repo facility for all eligible MEPS+ participants that have signed a GMRA with MAS	No charge unless otherwise announced	No	Yes	Securities settlement system
Sweden	RTGS, current platform launched 2009	Intra-day collateralised loan	Lending against collateral without interest rate	No	Yes	Securities settlement system
Switzerland	RTGS, since 1987	Intra-day repo	No charge (110% collateral)	EUR RTGS	Yes	Securities settlement system
United Kingdom	RTGS, since 1996	Intra-day collateralised loan	No charge	No	Yes	Yes[3]
United States	RTGS, since 1970	Daylight overdraft caps. Fee if uncollateralised.	No charge if against collateral; Fee if uncollateralised No charge	No	Yes	Yes[4]

[1] CCIL started the settlement of cross currency deals of banks in India through the CLS Bank in April 2005. Through this arrangement, CCIL aggregates trades reported by all Member banks and enables banks to collectively enjoy the benefits of cross currency settlement through CLS Bank. This is a unique experiment whereby cross border settlement of an entire country is being achieved through a third party arrangement. Settlement through the CLS mechanism is on a payment versus payment basis. [2] The Bank of Japan operates the JGB Book-Entry Transfer System as a book-entry transfer institution for the Japanese government bond. [3] Retail clearings not relevant to the money market or monetary policy implementation – those for standing orders etc, for cheques and giro credits, for credit and debit cards, and for automated teller machines. Also payment systems embedded within CREST, the UK securities settlement system – used for market repos and Bank of England repos of securities held in CREST. [4] Other settlement systems include those not relevant to monetary policy implementation, including securities settlement systems, large value payment systems and retail payment systems.

Source: Participating central banks.

11. Collateral

Central bank's credit operations often include collateralised lending to central bank counterparties. This approach is designed to protect central banks from financial risk. Table 11 summarises which assets are deemed eligible as collateral in various central bank credit operations, as well as the difference in the types of collateral used to secure loans from standing facilities (see Table 7) and in open market operations (see Table 8).

Table 11: Collateral (as of September 2019)

	Standing facilities		Open market operations	
	List of eligible collateral	**Discretion of central bank on collateral[1]**	**List of eligible collateral**	**Discretion of central bank on collateral[1]**
Australia	AAA-rated AUD long-term debt securities (including asset-backed) issued in Australia (can apply to use self-securitised asset-backed securities in standing facilities only). Additionally, all short-term debt and long-term debt (subject to a minimum credit rating) issued by authorised deposit-taking institutions is eligible. Full list available at: http://www.rba.gov.au/mkt-operations/resources/tech-notes/eligible-securities.html	Complete discretion, subject to notice periods under Committed Liquidity Facility	AAA-rated AUD long-term debt securities (including asset-backed) issued in Australia. Additionally, all short-term debt and long-term debt (subject to a minimum credit rating) issued by authorised deposit-taking institutions is eligible. Full list available at: http://www.rba.gov.au/mkt-operations/resources/tech-notes/eligible-securities.html	Complete discretion
Brazil	Domestic Federal Bonds	No	Domestic Federal Bonds	No
Canada	Only Canadian-dollar assets are eligible to be pledged as collateral with the exception of securities issued by the US Treasury in US dollars. A wide range of securities from public and private sector issuers are eligible. Full list available at: https://www.bankofcanada.ca/markets/market-operations-liquidity-provision/browse-collateral-policies/.	Notwithstanding the eligibility criteria, the Bank of Canada retains the right to reject or accept any asset at its discretion, and/or to impose additional risk mitigants such as higher margins or further concentration limits.	Directly issued Government of Canada marketable securities denominated in Canadian dollars	The operations are discretionary, but once offered, the Bank will accept the specified collateral up to the amount available to the counterparty.

[1] Discretion of the central bank to expand collateral types, and list of additional collateral types that the central bank can take on a discretionary basis. Also, additional information such as delays required if discretionary collateral changes.

Source: Participating central banks.

Table 11 (cont): Collateral (as of September 2019)

	Standing facilities		Open market operations	
	List of eligible collateral	Discretion of central bank on collateral[1]	List of eligible collateral	Discretion of central bank on collateral[1]
China	High quality bonds and loans	The PBC has expanded LPP (Loan Pledged Program) and ICR(Internal Credit Rating) programs nationwide on the basis of the pilot experience on December 2017. The loans of the corporate borrowers who meet the ICR standards could be brought into the eligible pool of collateral of PBC.	Government bonds, Central Bank bills and Policy Bank bonds, Government Sponsored Bonds and other High quality bonds	None
Eurosystem	No distinction is made between collateral eligible for Marginal Lending Facility / Open Market Operations /Intraday credit. Two categories: 1. Marketable assets, representing around 14 trillion euros (not all available on the banks' balance sheets). Full list available on ECB Website (-> Collateral). 2. Non marketable assets. By contrast with marketable assets, the amount of non-marketable assets which are eligible as collateral only becomes known to the Eurosystem upon submission, ie once effectively used as collateral. Eligibility tables for both categories available on the ECB's Website (Home -> Monetary Policy -> Collateral -> Eligibility criteria and assessment). Amounts eligible and used as collateral are also published on the ECB's Website.	The Governing Council has the possibility to expand the list of eligible assets; only limited by Article 18.1 of the Statute of the ESCB, which defines that all Eurosystem credit operations need to be based on adequate collateral; concept of "adequate" has two dimensions, ie Eurosystem protection from incurring losses and availability of sufficient collateral to a broad set of counterparties; eligibility criteria are laid down in the "General framework; additional temporary measures on collateral eligibility are laid down in "Temporary framework"; Euro area credit institutions can receive central bank credit not only through monetary policy operations, but exceptionally also through emergency liquidity assistance (ELA), which can be collateralised by assets other than the assets which are eligible for monetary policy credit operations. ELA means the provision by a Eurosystem NCB of 1) central bank money and/or 2) any other assistance that may lead to an increase in central bank money to a solvent financial institution, or group of solvent financial institutions, that is facing temporary liquidity problems, without such operation being part of the single monetary policy.	(See entry for standing facilities)	(See entry for standing facilities)
Hong Kong	Exchange Fund paper	No	N/A	
India	Government securities including State Government securities	Yes[2]	Liquidity Adjustment Facility : Central and State Government securities	Yes[3]

[1] Discretion of the central bank to expand collateral types, and list of additional collateral types that the central bank can take on a discretionary basis. Also, additional information such as delays required if discretionary collateral changes. [2] The discretion over collateral to be accepted as a part of monetary policy operations is only limited by what is provided in the RBI Act, 1934. [3] RBI has the discretion but it has so far not diluted the collateral.

Source: Participating central banks.

Table 11 (cont): Collateral (as of September 2019)

	Standing facilities		Open market operations	
	List of eligible collateral	**Discretion of central bank on collateral**[1]	**List of eligible collateral**	**Discretion of central bank on collateral**[1]
Japan	Government Bonds, Treasury Discount Bills, Government-guaranteed Bonds, Municipal Bonds, Fiscal Investment and Loan Program Agency Bonds, Corporate Bonds, CP, Bills drawn by companies, ABSs, ABCP, Foreign Government Bonds, Bonds issued by Real Estate Investment Corporations, Bill drawn by Real Estate Investment Corporations, International Financial Institution Bonds, Electronically Recorded Monetary Claims on Companies, Loans on Deeds to Companies, Electronically Recorded Monetary Claims on the Government (including Government's Special Accounts), Loans on Deeds to the Government (including Government's Special Account, Electronically Recorded Monetary Claims with Government Guarantees, Loans on Deeds with Government Guarantees, Electronically Recorded Monetary Claims on Real Estate investment Corporations, Loans on Deeds to Real Estate investment Corporations, Electronically Recorded Monetary Claims on Municipal Governments, Loans on Deeds to Municipal Governments, Foreign Government Bonds of US, UK, Germany or France, denominated in local currency, Loans on Deeds to Companies Denominated in the US Dollar, Beneficial Interest of a Trust in Housing Loans.[2]	Categories of collateral are directed by the policy board	Same as those of standing facilities	Same as those of standing facilities
Korea	Credit securities including bills acquired by financial institutions through lending. The remaining maturities of the credit securities must be reached within one year of their acquisition by the BOK. Bonds issued by government or bonds whose principal and interest are guaranteed by government. Monetary stabilisation bonds (MSBs)	Monetary Policy Board decides collateral types for standing facilities, if necessary	Treasury securities, Government-guaranteed securities, MSBs only applicable to repo (liquidity supply)	Monetary Policy Board decides collateral types for OMOs if necessary

[1] Discretion of the central bank to expand collateral types, and list of additional collateral types that the central bank can take on a discretionary basis. Also, additional information such as delays required if discretionary collateral changes. [2] The BOJ has requirements for some types of collateral such as external credit ratings and residual maturity. The BOJ established "Temporary Rules regarding the Eligibility Standards for Debt of Companies and Municipal Governments" in June 2019, and temporarily expanded the range of eligible collateral. For more information, please see https://www.boj.or.jp/en/announcements/release_2019/rel190620a.pdf.

Source: Participating central banks.

Table 11 (cont): Collateral (as of September 2019)

	Standing facilities		Open market operations	
	List of eligible collateral	**Discretion of central bank on collateral[1]**	**List of eligible collateral**	**Discretion of central bank on collateral[1]**
Mexico	Monetary regulation deposits (MRDs), deposits executed through OMOs, voluntary deposits (3-month deposits), deposits carried out in the determination of the TIIE rate, and USD deposits are eligible. Government bonds, central bank bonds, IPAB bonds.[2]	Complete discretion. For regular standing facilities the list of eligible collateral is already set; still, it could change under the Central Bank´s discretion. Also, the Bank of Mexico has the possibility to expand the list of eligible assets through emergency standing facilities. Eligibility criteria is laid down in current regulation.	Government bonds, central bank bonds, and IPAB[2] bonds. Also, monetary regulation deposits (MRDs), deposits carried out in the determination of the TIIE rate, voluntary deposits (3-month deposits), and USD deposits are eligible.	Complete discretion. For regular OMOs the list of eligible collateral is already set; still, it could change under the Central Bank´s discretion.
Singapore	1. Singapore Government Securities 2. MAS Bills 3. SGD debt securities, including sukuk, issued by any Singapore statutory board and AAA-rated or AA-rated public sector entity, supranational, sovereign, sovereign-guaranteed company or non-financial company. 4. Foreign currency denominated securities and cash specified in a bilateral arrangement involving the provision of liquidity entered into between MAS and the foreign central bank or monetary authority.	Yes	Singapore Government Securities, US dollars (FX swap)	Yes
Sweden	Government bonds, Treasury bills, Municipal bonds, Supranational bonds, Covered bonds and Corporate bonds (minimum rating A-/A3). Own-name securities as well as securities issued by closely related entities are not accepted. However, this does not apply for covered bonds or bonds guaranteed by central government, but then the rating requirement is AA-/Aa3. Securities issued by credit institutions are only accepted if they are covered or guaranteed by central or local government. For own-named covered bonds as well as securities will rating lower than AA-/Aa3, there are concentration limits with regard to the share of total collateral.	The Riksbank can decide on a security's creditworthiness regardless of any external rating. The Riksbank can always change the rules on eligible collateral. This would normally require a consultation process with counterparties.	Same as for standing facilities.	Same as for standing facilities.

[1] Discretion of the central bank to expand collateral types, and list of additional collateral types that the central bank can take on a discretionary basis. Also, additional information such as delays required if discretionary collateral changes. [2] IPAB: Refers to Instituto para la Protección al Ahorro Bancario and is an institution dedicated to protect depositors´ money at a commercial bank in Mexico. Among its main functions, IPAB guarantees bank deposits of up to 400,000 investments units (Udis) or approximately 2.4 million pesos, it implements measures to resolve any solvency problems from banks, manages assets from banks with solvency problems, and manages its own debt through the issuance of Savings Protections Bonds (BPAs).

Source: Participating central banks.

Table 11 (cont): Collateral (as of September 2019)

	Standing facilities		Open market operations	
	List of eligible collateral	**Discretion of central bank on collateral[1]**	**List of eligible collateral**	**Discretion of central bank on collateral[1]**
Switzerland	Only those securities included in the list of collateral eligible for SNB repos may be used as collateral for repo transactions. This list is continuously updated and published on the SNB's website (www.snb.ch > Financial markets > Monetary policy operations > Repos). The criteria that must be met in order for securities (debt certificates) to be eligible for SNB repos include the following: (i) The securities are issued by central banks, public sector entities, international or supranational institutions, multilateral development banks and private sector entities. Securities issued by financial institutions are, as a rule, not eligible as collateral for SNB repos. However, covered bonds issued by financial institutions are admissible, provided the issuer is not a domestic financial institution or its foreign subsidiary. Also admissible are securities issued by the mortgage bond bank of the Swiss mortgage institutions and the mortgage bond institute of the Swiss cantonal banks. (ii) The securities have a fixed-principal amount with unconditional redemption. (iii) The securities have a fixed rate, floating rate or zero coupon. (iv) The securities are traded on a recognised stock exchange or a representative market in Switzerland or a member state of the European Union (EU) or the European Economic Area (EEA) with price data published on a regular basis. (v) The securities can be delivered through SIX SIS Ltd (SIS); intermediate and ultimate depository in Switzerland or an EU or EEA member state. (vi) The country and securities ratings are based on credit ratings of at least one of the rating agencies – Standard & Poor's, Moody's or Fitch. In addition to the general criteria, further criteria apply. Those criteria vary between securities denominated in Swiss Francs and securities denominated in foreign currency. Details can be found in the "Instruction sheet on collateral eligible for SNB repos" published on the SNB website.	The SNB can expand the collateral universe at its discretion beyond the current baskets, assuming the additional collateral meets its standards set, eg, for credit quality and liquidity.	See entry for standing facilities	See entry for standing facilities

[1] Discretion of the central bank to expand collateral types, and list of additional collateral types that the central bank can take on a discretionary basis. Also, additional information such as delays required if discretionary collateral changes.

Source: Participating central banks.

Table 11 (cont): Collateral (as of September 2019)

	Standing facilities		Open market operations	
	List of eligible collateral	**Discretion of central bank on collateral**[1]	**List of eligible collateral**	**Discretion of central bank on collateral**[1]
United Kingdom	Gilts (including gilt strips) Sterling Treasury bills Bank of England securities HM Government non-sterling marketable debt Sterling, euro, US dollar and Canadian dollar denominated securities (including associated strips) issued by the governments and central banks of Canada, France, Germany, the Netherlands and the United States	The Bank sets out public eligibility criteria, though has the discretion to change those criteria as required	Collateral split according to liquidity characteristics Level A (eg highly liquid high-quality sovereign debt) eligible for intra-day liquidity, short-term OMOs, Indexed Long-Term Repo (ILTR), Discount Window Facility (DWF), Contingent Term Repo Facility (CTRF), Funding for Lending Scheme (FLS) and Term Funding Scheme (TFS): 1. Gilts (including gilt strips) 2. Sterling Treasury bills 3. Bank of England securities 4. HM Government non-sterling marketable debt 5. Sterling, euro, US dollar and Canadian dollar denominated securities (including associated strips) issued by the governments and central banks of Canada, France, Germany, the Netherlands and the United States Level B (eg liquid high quality sovereign, supranational, mortgage and corporate bonds) eligible for ILTR, DWF, CTRF, FLS and TFS. Level C (eg less liquid securitisations, own-name securities and portfolios of loans) eligible for DWF, and from 2014, ILTR as well as CTRF, FLS and TFS.	The Bank sets out public eligibility criteria, though has the discretion to change those criteria as required. The Bank does not normally accept equities as collateral under the SMF but has put in place (as of August 2018) the technical measures to allow it to do so at its discretion, should the need arise.
United States	Discount Window: Most sound financial assets that depository institutions can hold. Includes most investment grade US dollar denominated fixed income securities, selected AAA rated foreign denominated fixed income securities, and performing bank loans; see: frbdiscountwindow.org	Discount Window: Individual Reserve Banks (RBs) have discretion as long as they are 'secured to their satisfaction'; RBs have common standards for collateral eligibility	US Treasury securities, Agency securities and Agency MBS	ON RRP collateral is limited to Treasury securities (per FOMC direction). For other RPs or RRPs, FRB-NY has discretion within the confines of OMO-eligible collateral (Treasury, agency or agency MBS securities, only).

[1] Discretion of the central bank to expand collateral types, and list of additional collateral types that the central bank can take on a discretionary basis. Also, additional information such as delays required if discretionary collateral changes.

Source: Participating central banks.

12. Dissemination of operational information: liquidity forecast

As explained in Table 6 above, forecasting liquidity involves projecting the evolution of the balance sheet of the central bank. Publishing liquidity forecasts may allow individual institutions to better judge their own liquidity position relative to the overall supply and demand in the market, and estimate the likely amount of open market operations.

Table 12 lists some of the channels central banks use to publish forecasts. The ex-ante publication of forecasts can be combined with ex-post publication of operations (see Table 13).

Table 12: Dissemination of operational information: liquidity forecast (as of September 2019)

	Forecast published?	Channel(s)	Timing	Remarks
Australia	Yes	Reuters, Bloomberg,	Shortly before operations	Forecast for current day only RBA website in Statistical Table A3 after operations
Brazil	No			
Canada	Yes	BOC Website	4:20 pm	Same-day final level of excess settlement balances in the payment system and the target level for the following business day
China	No			
Eurosystem	Yes	ECB website, Market Information Dissemination (MID)	Together with announcement and allotment of weekly main refinancing operations and (possibly) fine-tuning operations	Forecasts for daily averages during the length of the main refinancing operation and not daily values are published
Hong Kong	Yes	Reuters, Bloomberg, and HKMA website	Real time on Reuters and Bloomberg and daily release on website	Forecast on changes in the Aggregate Balance
India	No			
Japan	Yes	Current account balance (with autonomous factors and OMOs): BOJ website, 6 info vendors (Reuters, Bloomberg, Nikkei-Quick, Dow Jones, Jiji-Tsushin, Kyodo-tsushin)	Current account balance: around 18:00 on the previous working day	
Korea	No			

Source: Participating central banks.

Table 12 (cont): Dissemination of operational information: liquidity forecast (as of September 2019)

	Forecast published?	Channel(s)	Timing	Remarks
Mexico	Yes	Bank of Mexico website and through a dedicated broadcast system for banks	Shortly before morning OMOs (around 7:15 am)	Same day actual level of liquidity surplus/deficit
Singapore	No			
Sweden	No			
Switzerland	No			
United Kingdom	No			
United States	No			

Source: Participating central banks.

13. Dissemination of operational information: open market operations

Central banks often provide ex-post transparency into open market operations, including information about the volume and price of the transactions, as well as disclosures about the central bank's security holdings. The optimal degree of central bank transparency is influenced by the market context in which the central bank operates; in some cases, "too much" transparency can contribute to market dysfunction by facilitating market segmentation or manipulation.[19] Some central banks provide ex-ante transparency into open market operations, including details about operational calendars, security types, maturities, and purchase amounts in advance, especially when auctions are the primary method of purchase. This approach presents key trade-offs between certainty and flexibility. Ex-ante transparency could potentially lead to less volatility and more efficient monetary policy transmission; however, it could also reduce central bank flexibility and discretion in conducting open market operations.

Table 13 shows: i) whether the volume and price of central bank open market transactions are published, ii) through which channel(s) operational information is disseminated, and iii) the timing of the release of operational information.

Table 13: Dissemination of operational information: open market operations (as of September 2019)

	Volume and price published?	Channel(s)	Timing
Australia	Yes	Reuters, Bloomberg, Website	On Reuters and Bloomberg at the conclusion of auction. On website within two hours of operations (published at 11:30).
Brazil	Yes	BCB website	Immediately after operations
Canada	Yes	BOC website	Cash value of open market operations announced shortly after each operation.
China	Yes	PBC website, www.chinabond.com.cn, www.chinamoney.com.cn	Immediately after operations
Eurosystem	Yes – Main Refinancing Operations, Longer-Term Refinancing Operations, Targeted Longer-Term Refinancing Operations	ECB website, Market Information Dissemination (MID)	When allotment results are published (eg 11:30 ECB time for main refinancing operations) Aggregated amount of all outstanding operations: Daily between 09:10 and 09:15 ECB Statistical Bulletin
Hong Kong	N/A		

Source: Participating central banks.

[19] For more discussion, see the forthcoming Markets Committee Study Group report, "Large Central Bank Balance Sheets and Market Functioning".

Table 13 (cont): Dissemination of operational information: open market operations (as of September 2019)

	Volume and price published?	Channel(s)	Timing
India	Yes	Press release on RBI website	(i) Repo injection by 4 pm on the same day and information on complete LAF operation (including reserve repo and MSF) on next working day at 9 am. (ii) Press release on the same day after the operation for variable rate fine-tuning operations (FTOs) and outright purchase/sale auctions.
Japan	Yes – all types	BOJ-NET, BOJ website, 6 info vendors	Volume: simultaneously with the offer of each operation Price results: Simultaneously with the notification of the result of each operation to counterparties
Korea	Yes	Electronic tender system in BOK-wire, BOK Website, Reuters, K-Bond	Immediately upon finishing operations
Mexico	Yes	Bank of Mexico website and auctions system	Volume and Price (minimum and/or maximum bid): Shortly before operations with auction announcement Volume and Pricing Allotment: Immediately upon finishing operations
Singapore	Yes to Primary Dealers only – Direct borrowing; repo / reverse repo; FX swaps	Reuters FXT system	Each morning[1]
Sweden	Yes	Reuters, Bloomberg	Results of Riksbank certificates auctions are published on Tuesdays 15 minutes after closed auction
Switzerland	Yes	Auction announcement: wire services, SIX Repo Ltd electronic trading platform Results: SNB website	Repo: (i) Price is published at the time auction starts (auction announcement) (ii) Results (volume, allotment) are available on the SNB's website SNB Bills: (iii) Price (marginal rate) is published on the day of payment (iv) Results (volume, allotment, outstanding volume) are published on the SNB's website
United Kingdom	Yes	Wire services, BoE website	Between 5 minutes and 10 minutes after the close of the auction depending on the complexity of the operation

[1] Issuances of 6-month T-bills and MAS bills are announced on a fixed schedule in advance on the SGS and MAS website respectively, as are the results of 6-month T-bills and MAS bills auctions.

Source: Participating central banks.

Table 13 (cont): Dissemination of operational information: open market operations (as of September 2019)

	Volume and price published?	Channel(s)	Timing
United States	Yes	Trade system, central bank website, wire services	The following information is available on the FRBNY website: Repo/RRPs: - Prior to operation: schedule of repo / reverse repos, start and close time, settlement date, term of trade, auction method, collateral type - Post-operation: amount submitted/accepted, stop-out rate per collateral type, weighted average rate per collateral type, high/low rate per collateral type - Quarterly: Aggregate take-up by counterparty type - Dodd Frank Act: transaction details on OMO trades made public quarterly with a two-year lag. MBS purchases: - Prior to operation: date and time of operations, specific securities and maximum amount to be purchased/sold, settlement date - Post-operation: Amount bought/sold per security and total amount of bids/offers received and accepted - Monthly: Individual transaction information, including trade date, securities purchased/sold, trade price, settlement date, and operation type - Dodd Frank Act: transaction details on OMO trades made public quarterly with a two-year lag. Treasury reinvestment purchases: - Prior to operation: (1) a monthly tentative schedule of operations, including date and time of operations, settlement dates, security type and maturity range of specific securities to be purchased, and maximum total amount to be purchased, and (2) a pre-operation announcement that includes all of the above as well as the specific securities to be purchased in the operation. - Post-operation: Amount purchased per specific security and the total amount of offers received and accepted in the operation. - Monthly: Trade price information are made public for specific securities purchased in each operation in the prior month (ie weighted-average accepted price, least favorable accepted price, and % partial allocation at least favorable accepted price) - Dodd Frank Act: transaction details on OMO trades made public quarterly with a two-year lag. Treasury Rollovers: - Treasury Department reports amount of SOMA holdings maturing ahead of auction and amount of SOMA tenders and awards in auction results (no info published on FRBNY website).

Source: Participating central banks.

14. Dissemination of operational information: standing facilities

Disseminating information on central bank operations, including the use of standing facilities, is an important feature in informing external stakeholders about central bank transactions. However, reporting central bank lending (and deposit) activity should avoid creating market dysfunction, for example through stigma effects. Table 14 presents the channel(s) the central bank uses to inform the public on lending and deposit activity and its timing.

Table 14: Dissemination of operational information: standing facilities (as of September 2019)

	Lending facility usage		Deposit facility usage	
	Channel(s)	**Timing**	**Channel(s)**	**Timing**
Australia	RBA Website and Annual Report	Daily, published with three-calendar-month delay	Reuters, Bloomberg, RBA website	Next day
Brazil	BCB website	Weekly - every Wednesday at 12:30 Brasília time	BCB website	Weekly - every Wednesday at 12:30 Brasília time
Canada	BOC website	Monthly average and actual Wednesday amounts published at a weekly frequency with a 1-week lag	BOC website	Monthly average and actual Wednesday amounts published at a weekly frequency with a 1-week lag
China	PBC website	Monthly	N/A	
Eurosystem	ECB website, Market Information Dissemination (MID)	Daily between 09:10 and 09:15 ECB time	ECB website, Market Information Dissemination (MID)	Daily between 09:10 and 09:15 ECB time
Hong Kong	No[1]		N/A	
India	Press release on RBI website	Next working day, at 9 am	N/A	
Japan[2]	BOJ website, 6 info vendors	Daily at around 6 pm	BOJ website	Monthly
Korea	Not published		Not published	
Mexico	Bank of Mexico website	Monthly	Not published	

[1] The HKMA does not disclose information about usage of the facilities, unless exceptional circumstances pertain where there is a strong case for doing so to maintain monetary and financial stability. However, should usage of the facilities result in an increase in the Aggregate Balance, the amount of the increase will be reflected in the regular updates of interbank liquidity on the HKMA website and on the HKMA pages of the major financial information outlets according to the established practice. [2] Rounded to JPY 10 billion. Shown as an item behind the changes to the amount of current account balance.

Source: Participating central banks.

Table 14 (cont): Dissemination of operational information: standing facilities (as of September 2019)

	Lending facility usage		Deposit facility usage	
	Channel(s)	**Timing**	**Channel(s)**	**Timing**
Singapore	Rate published daily on MAS website	Daily at 10.30 am	Rate published daily on MAS website	Daily at 10.30 am
Sweden	Reuters, Bloomberg	Daily at 16.40	Reuters, Bloomberg	Daily at 16.40
Switzerland	Not published		N/A	
United Kingdom	Wire services, BoE website	Average use over the maintenance period is published on the third Wednesday after the relevant maintenance period	Wire services, BoE website	Average use over the maintenance period is published on the third Wednesday after the relevant maintenance period
United States	FRB website	Weekly (every Thursday afternoon as of COB Wednesday) – aggregate volume, FR System and by FR district Quarterly (with a two-year lag) – individual loan details (borrower name, facility, rate, loan amount, amounts of collateral by type)	FRB website	Weekly – every Thursday afternoon as of COB Wednesday

Source: Participating central banks.

15. Other information dissemination

Besides information on the liquidity forecast (Table 12), open market operations (Table 13), and standing facilities (Table 14), some central banks disseminate additional information related to their monetary policy operating procedures, such as information on the amount of FX interventions. Table 15 summarises the main types of other information disseminated, the channels and the timing.

Table 15: Other information dissemination (as of September 2019)

	Type	Channel(s)	Timing
Australia	Annual report	Website	Annual
	speeches	Website	ad hoc
	research articles	Website	ad hoc
Brazil	(i) FX intervention (ii) FX swap operations (iii) Monetary policy rate – Selic (effective) (iv) Long term interest rate –TJLP (v) Interbank market rate – CDI (effective) (vi) Inflation Report (vii) Financial Stability Report (viiii) Speeches and presentations by Board members (ix) Research articles (working papers) (x) BCB economists survey (Focus report) (xi) Reserves data (xii) Treasury account balances	BCB website	(i) Weekly (ii) Real time just after the auctions (iii) Daily (iv) Daily (v) Daily (vi) Quarterly (vii) Semesterly (viiii) Same day (ix) Occasionally (x) Weekly (xi) Weekly (xii) Weekly for reserve requirements, daily for international reserves
Canada	FX intervention	BOC website	When intervention takes place
	Results of term repo operations	BOC website	When operations take place
	Canadian Overnight Repo Rate Average	BOC website	Daily
	Overnight Money Market Financing Rate	BOC website	Daily
China	China Monetary Policy Report	PBC website	Quarterly

Source: Participating central banks.

Table 15 (cont): Other information dissemination (as of September 2019)

	Type	Channel(s)	Timing
Eurosystem	FX intervention	Press release, possibly; weekly financial statements	After intervention has taken place
	Asset Purchase Programme outstanding book values	ECB website, Market Information Dissemination (MID)	Weekly at the time of the MRO announcement
	Outstanding book value of the Public Sector Purchase Programme (PSPP) per country of issuance of the assets purchased and weighted average of the remaining maturity of the holdings.	ECB website	Monthly
	Weekly list of ISINs of PSPP securities available for lending under the securities lending programme.	ECB website	Weekly
	Split of Covered Bond Purchase Programme holdings between primary and secondary market purchases.	ECB website	Monthly
	List of eligible marketable assets	ECB website	Daily
	Amounts of assets that are eligible and used as collateral by asset category	ECB website	Quarterly publication of monthly data
Hong Kong	FX operations[1]	Reuters, Bloomberg, HKMA website	Daily
India	(i) Cash balances of scheduled commercial banks with RBI (three-day lag); volume and average rate in call / CBLO / market repo / notice / term segments of the money market (one-day lag) (ii) Government of India surplus cash balance reckoned for auction (iii) Level and Variation in FX Reserves (one-week lag) (iv) FX Intervention during a month (about one-month lag)	(i) Press release (ii) Press release (iii) Weekly Statistical Supplement (WSS) to the RBI Bulletin (iv) RBI Bulletin (i) to (iv) placed on the RBI website	(i) 9.00 AM, Daily (ii) 9.00 AM, Daily (iii) Weekly (iv) Monthly

[1] FX operation refers to market operations due to the triggering of the Convertibility Undertaking and operations within the Convertibility Zone.

Source: Participating central banks.

Table 15 (cont): Other information dissemination (as of September 2019)

	Type	Channel(s)	Timing
Japan[1]	FX intervention	MOF website	Monthly
Korea	FX intervention	Bank of Korea website	Semi-annual
Mexico	(i) FX intervention (ii) Effective Interbank funding rate (iii) Bank of Mexico economists survey (iv) Quarterly Inflation Reports (v) Financial Stability Reports (vi) some speeches or presentations done by members of the Board of Governors (vii) Market data	Bank of Mexico website	(i) Real time and/or weekly (ii) Daily (iii) Monthly (iv) Quarterly (v) Biannual (vi) Same day (vii) Daily, weekly, monthly
Singapore	(i) FX operations (net purchase of foreign exchange on a six-month aggregated basis, and with a six-month lag from end of the period) (ii) Review of MAS Money Market Operations (iii) Issuance size and auction results of central bank bills (iv) Outstanding FX swaps	(i) MAS website (ii) MAS Macroeconomic Review (iii) MAS website (iv) MAS website	(i) Every 6 months, starting from the second half of 2019 (ii) April and October (iii) Upon issuance or announcement (iv) Monthly
Sweden	N/A		
Switzerland	Amount of FX intervention / income from negative rates charged on sight deposit account balances Average of sight deposits in CHF at the SNB Swiss Average Rate Overnight (SARON)	Accountability report SNB website SNB and SIX Ltd. Website	Yearly Weekly Daily

[1] Detailed information released every 3 months on MOF website. Information released on the BOJ website is as an item behind the changes to the amount of current account balance.

Source: Participating central banks.

Table 15 (cont): Other information dissemination (as of September 2019)

	Type	Channel(s)	Timing
United Kingdom	The Sterling Overnight Index Average (SONIA), a widely used interest rate benchmark and the reference rate for sterling Overnight Indexed Swaps (OIS). The BoE became its administrator in April 2016 taking on the end to end process in April 2018.	Bloomberg, Reuters BoE website	9am daily By 10am daily
	Aggregate total stock of APF corporate bonds purchased	BoE website, Reuters, Bloomberg	Weekly – every Thursday at 3.00pm
	The Bank's holdings of APF corporate bonds by sector	BoE website, Reuters, Bloomberg	Monthly – first Thursday of the month at 3.00pm
	Results of gilt APF auctions, including offers received and accepted, weighted average price, highest accepted price and lowest accepted price for each stock offered	BoE website	Post-operation
	Aggregate total stock of APF gilts purchased that week and to date	BoE website, Reuters, Bloomberg	Weekly – every Friday at 10.00am
	The total amount of TFS lending outstanding	BoE website, Reuters, Bloomberg	Weekly – every Friday at 10.00am
	The amount of TFS lending outstanding, broken down by counterparty	BoE website	Quarterly – with a 5 week lag
United States	(i) Effective federal funds rate (EFFR) (ii) Overnight bank funding rate (OBFR) (iii) Treasury Repo Reference Rates (SOFR, BGCR, TGCR) (iv) Balance sheet data (v) Reserves data (vi) Treasury account balances (vii) FX intervention[1]	(i) FRBNY website (ii) FRBNY website (iii) FRBNY website (iv) Board of Governors website (v) Board of Governors website (vi) Daily Treasury Statement (vii) Treasury website, press release, FRBNY's FX Quarterly Report	(i) Daily (ii) Daily (iii) Daily (iv) Weekly (v) Weekly (vi) Daily (vii) Press release possibly the day of or day after. Quarterly Report released approximately 1.5 months following quarter-end

[1] Treasury and Federal Reserve contributions accounted for separately. Intervention sizes could potentially be estimated from the Treasury's weekly release of the US International Reserve Position, and the Federal Reserve's weekly balance sheet statement.

Source: Participating central banks.