Managing the Risks of Holding Self-securitisations as Collateral

Duke Cole and Calebe de Roure[*]

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Abstract

Self-securitisations are structured pools of assets, such as residential mortgages, created by banks specifically to use as collateral to access liquidity from the Reserve Bank. The ability of banks to transform illiquid mortgages into liquid assets improves overall liquidity in the financial system. Some financial risks the Reserve Bank faces by holding self-securitisations as collateral differ from other collateral assets (such as government and corporate securities). Unlike these assets, self-securitisations are not currently traded on any public market, and the risks of the self-securitisation are related to the risks of the bank using it as collateral. The Reserve Bank applies a series of additional controls to self-securitisations accepted as collateral to protect against potential financial losses.

Introduction

The Reserve Bank implements monetary policy and supports the smooth functioning of the payments system by managing the availability of liquidity (in the form of exchange-settlement account balances) in the financial system. The Reserve Bank can also provide liquidity to authorised deposit-taking institutions (ADIs) during periods of financial system stress to promote financial stability. Since March 2020, as part of the measures to support the economy from the effects of COVID-19, the Bank also provides long-term funding under the Term Funding Facility (TFF) (RBA 2020).

Liquidity is provided to eligible counterparties under repurchase agreements (repos). The Reserve Bank lends cash to the counterparty and receives securities as collateral. Upon maturity of the repo, the collateral is returned to the counterparty in exchange for the cash lent plus interest. The collateral is the primary protection against

counterparty risk for the Reserve Bank. In the event the counterparty defaults, the collateral can be sold to recover the cash it has lent.

Self-securitised residential mortgage-backed securities (RMBS) (i.e. self-securitisations) are one type of eligible collateral for some of the Bank's liquidity facilities.[1] Self-securitisations are structured pools of mortgages created by ADIs specifically to be offered as collateral to the Reserve Bank. When used as collateral in the Reserve Bank's liquidity facilities, they enable ADIs to transform illiquid assets into cash, enhancing overall liquidity in the banking sector during periods of market stress. However, the risks to the Reserve Bank associated with accepting self-securitisations as collateral differ from other eligible collateral, such as government and corporate bonds. Most notably, self-securitisations are large relative to outstanding public RMBS, illiquid and not currently traded on any public market. However, they are designed to be tradeable like other RMBS to enable the Reserve Bank to liquidate the collateral if necessary in the event the counterparty defaults. This article describes the role of self-securitisations in the Reserve Bank's liquidity facilities, the risks of accepting these securities as collateral, and the Reserve Bank's approach to managing these risks.

Self-securitisations and the Reserve Bank's Liquidity Facilities

The Reserve Bank accepts self-securitisations as collateral in three liquidity facilities – the Committed Liquidity Facility (CLF), Standing Facility Open Repos (Open Repos) and the TFF. Self-securitisations are not generally accepted as collateral in the Reserve Bank's daily open market operations (OMO), which allocate liquidity in a competitive auction.[2]

ADIs that are required to comply with the Australian Prudential Regulation Authority's (APRA's) Liquidity Coverage Ratio (LCR) are offered access to the CLF.[3] Under the CLF, the Reserve Bank commits to lend up to a pre-specified amount against eligible collateral and charges a fee for this commitment (Bergmann, Connolly and Muscatello 2019). The CLF counts towards ADIs' LCR requirement. Without the CLF, ADIs would be required to meet the LCR entirely by holding high-quality liquid assets such as Australian Government Securities and semi-government securities, which have to date been in limited supply given low government debt levels. Although a range of securities are eligible as collateral under the CLF, self-securitisations could collateralise around 90 per cent of total CLF limits.

Open Repos are used to assist with the smooth functioning of the payments system. They address mismatches in the timing of payments within a day and support liquidity for 24/7 payments in the New Payments Platform by creating a liquidity buffer for payments made after hours (Rush and Louw 2018). ADIs that hold self-securitisations will typically present them as collateral for Open Repos.

The TFF was established in March 2020 in response to the economic impact of the COVID-19 pandemic. Under the TFF, ADIs can borrow up to a pre-specified allowance for a term of three years at 0.25 per cent. The facility is designed to reinforce the benefits of a lower cash rate by reducing the funding cost of ADIs, and to encourage ADIs to support lending to businesses. Around 75 per cent of aggregate TFF allowances as at 30 June 2020 could be collateralised by self-securitisations. As with the CLF and Open Repos, ADIs with self-securitisations typically use them as collateral when accessing funding under the TFF.

ADIs prefer to use self-securitisations as collateral where permitted because they are the most cost-effective collateral to use. The underlying mortgages in a self-securitisation would otherwise sit on an ADI's balance sheet with no alternative use as there is no active repo market for individual loans.

Self-securitisations represent the second-largest share of collateral held by the Reserve Bank under repo after Australian Government Securities (AGS), which have been used as the main form of collateral in OMO in recent years (Graph 1). The Reserve Bank first accepted self-securitisations as collateral in October 2008 in OMO in order to provide ADIs with greater flexibility to manage their liquidity amid stressed market conditions associated with the global financial crisis. Once market stresses receded, the Reserve Bank ceased accepting them as collateral. In November 2013, holdings expanded

as the Reserve Bank began accepting self-securitisations as collateral in Open Repos (RBA 2013).[4] Holdings increased further in 2020 with the introduction of the TFF. Out of the total pool of securities that are eligible to be accepted as collateral under repo, self-securitisations comprised 21 per cent as at 30 June 2020 (Graph 2).

Key Features of Self-securitisations

RMBS are debt securities backed by a pool of residential mortgages. Investors that purchase the securities receive income funded by the principal-and-interest payments from the pool of mortgages. Self-securitisations are a type of RMBS. A distinguishing feature of self-securitisations is that notes issued from the trust are typically not sold to the public (Table 1).[5] Rather, they are held by the ADI that issued them to use as collateral to access central bank liquidity. Typically, the ADI regularly adds mortgages to the self-securitisation to maintain its value as existing mortgages are repaid.

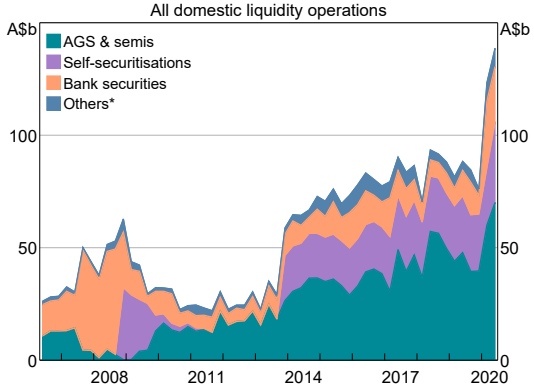
RMBS notes are organised in hierarchical order of repayment. This is referred to as tranching. Income is paid to the senior notes before the junior subordinated notes, and any losses arising from mortgage foreclosures are borne by the junior notes first. Rating agencies assess each note based on the subordination provided and the quality of the mortgage pool. The Reserve Bank accepts only AAA-rated notes, which are the most senior notes. The amount of subordination required to achieve a AAA rating can vary and is affected by a range of factors, including the creditworthiness of the borrowers and the size of the mortgages relative to the value of the properties (i.e. the loan-to-value ratio) (Arsov, Kim and Stacey 2015). Mortgage losses must be larger than the amount of subordination before the senior notes bear any loss.

RMBS are generally high-quality assets (Debelle 2009). In Australia, all tranches of RMBS (senior and junior) have been repaid in full since their first issuance in the late 1980s. This includes during the 2008-09 global financial crisis, which was associated with unusually lax mortgage lending standards and widespread mortgage defaults in the United States (Standard & Poors 2019). In the United States, the epicentre of the crisis, AAA-rated RMBS that were outstanding as at January 2007 encountered only modest losses, substantially smaller than the loss scenarios used by the Reserve Bank when calibrating its risk controls (Standard & Poors 2011; Ospina and Uhlig 2018).

Graph 1

Collateral Held Under Repo

All domestic liquidity operations



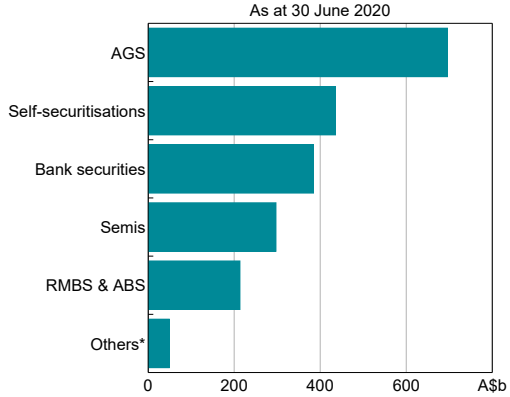
* Others include RMBS, ABS, supranational and corporate debt, and securities with government guarantees and other AAA securities

Source: RBA

Graph 2

Outstanding Eligible Securities

As at 30 June 2020



* Others include supranational and corporate debt, securities with government guarantee and other AAA securities

Sources: Bloomberg; RBA; Securitisation System

Risks of Self-securitisations as Collateral

When the Reserve Bank provides liquidity to its counterparties under a repo, it would face a loss only if the counterparty failed to repurchase securities sold to the Reserve Bank under repo and at the same time the market value of the securities fell below the agreed repurchase amount. Entities must meet certain eligibility criteria before they can be counterparties to the Reserve Bank, and the Reserve Bank also actively manages the risks associated with the collateral held under repo.[6] As

Table 1: Key Features of RMBS and Self-securitisations

	Definition	RMBS	Self-securitisation
Sponsor	Initiates the RMBS transaction and typically writes the mortgages provided to the pool	ADIs and non-ADIs	ADIs
Issuer	Issuer is the legal entity that owns assets and issues securities	Bankruptcy remote special purpose vehicle	Bankruptcy remote special purpose vehicle
Mortgage pool	Assets that are used to repay notes issued	Fixed pool, shrinks as investors are repaid	Pool is topped up regularly to maintain value
Note tranches	Number of different debt securities/notes issued	3–10 tranches, to meet investor preferences	2–3 tranches
Lead manager	Set up and sell the RMBS notes	Typically a group of banks	Typically no lead manager because notes are not sold to investors
Trustee	Legally responsible for the trust; assigns the trust its manager and servicer	Specialised firm	Specialised firm
Trust manager	Manages cash flows from the trust and other administration	Sponsor or specialised firm	Sponsor or specialised firm
Servicer	Manages the mortgages, collects payments from households	Sponsor	Sponsor
Service providers	ADIs that provide collection accounts, liquidity facilities and swaps to the trust[(a)]	Typically the sponsor for larger ADIs, otherwise a different ADI	Typically the sponsor for larger ADIs, otherwise a different ADI

(a) RMBS may enter into fixed-for-floating interest rate swaps, basis swaps or cross-currency basis swaps to hedge mismatches between the repayments from the mortgages and the payments on the notes it issues

Sources: RBA

such, the likelihood of the Reserve Bank incurring a loss on a repo is extremely low and to date it has never incurred a loss. This section describes the risks the Reserve Bank faces when holding self-securitisations under repo, some of which are unique to these securities.

Credit risk

Credit risk is the risk of losses because a self-securitisation cannot pay its obligations to noteholders in a timely manner. This would arise if some households cannot afford the principal-and-interest payments that are owed to the self-securitisation. Households might be unable to pay if their income falls or expenses increase (or both), which can be driven by a range of factors (Kearns 2019). These losses first affect the subordinated junior notes (which the Reserve Bank does not accept as collateral). Holders of senior notes only face losses if the losses on mortgages are greater than the value of the junior notes.

Although self-securitisations typically pay both interest and principal back to noteholders regularly, only interest payments must be made on a regular schedule. Principal is only due to noteholders by the final maturity date of the self-securitisation. Delays in principal payments are acceptable, in part because the amount of principal repaid on the underlying loans can vary; some households may prepay their mortgage while others may fall behind on their regular principal payments. To reduce the risk of missed interest payments, self-securitisations typically have liquidity reserves and can use principal payments to pay interest if necessary.

Liquidity risk

Liquidity risk is the risk that the Reserve Bank could not sell collateral in a timely manner without a significant discount to fair value. Some eligible collateral assets, such as AGS, are highly liquid; they are traded frequently and can generally be easily sold if necessary. Other assets, such as RMBS, are infrequently traded and selling these assets may take days or weeks.

Self-securitisations are the least liquid of all eligible collateral because there is no active market and self-

securitisations tend to be large. If the Reserve Bank took ownership of notes in a self-securitisation because a counterparty defaulted on a repo, it is unlikely to be able to sell these securities quickly, especially if the default is associated with broader market stress. The Reserve Bank has the discretion to hold these securities for an extended period, if necessary, because central banks face no funding risk in the local currency. This is fundamental to a central bank's function in providing liquidity to the financial system (Kearns and Lowe 2008; Robertson 2017).

Wrong-way risk

Wrong-way risk occurs when the risk of the collateral is correlated with the risk of the counterparty. For example, assume Bank A presents a bond it has issued to the Reserve Bank as collateral under repo. If Bank A defaults on the repo with the Reserve Bank as well as on the Bank A bond, only a fraction of the bond's value may be recouped by the Reserve Bank. This would leave the Reserve Bank with much less collateral at the point at which it is relying on that collateral to recover the cash lent. To mitigate wrong-way risk, the Reserve Bank generally requires its counterparties to use collateral that is unrelated to them.

Self-securitisations are exempt from this related-party requirement. Unlike bonds issued by banks as in the example above, self-securitisations are separate legal entities that would continue to function after a counterparty defaults (i.e. they are bankruptcy remote). However, the credit quality of self-securitisations can still be correlated with that of the counterparty. The counterparty services the mortgages held by their self-securitisation and often provides other services to the self-securitisation, such as the collection account, liquidity reserves and swaps. New providers of these services would be required if the counterparty entered bankruptcy.

Market risk

Market risk reflects the possibility that the price of a security held under repo decreases. Self-securitisations have no market price because no organised market exists. The Reserve Bank values these securities with an internal pricing model that has been reviewed and validated by an independent external consultant. The model accounts for the structure of each self-securitisation (including the weighted-average life of the mortgages) and the yields of similarly rated public RMBS. The Reserve Bank is subject to additional 'model risk' to the extent that modelled prices do not adequately capture the value of the securities.

When it established the TFF in April 2020, the Reserve Bank froze prices of eligible self-securitisations for three years for the purpose of valuing collateral accepted under repo. This is to ensure that the modelled prices are not unduly impacted by potential volatility in public RMBS due to the COVID-19 pandemic.

Operational and legal risks

Operational risk relates to errors in administering self-securitisations. This might include misreporting of mortgage pool characteristics to rating agencies and the Reserve Bank. For example, a principal-and-interest mortgage may be reported as interest-only and vice-versa. These types of errors can affect the assessment of the self-securitisation's credit risk and credit rating.

Self-securitisations also carry legal risks. The structure of these securities can be quite complex, and the legal documents can vary significantly between self-securitisations.[7] Legal risks might include provisions that allow the counterparty to change the loan composition and adversely alter the risk of the self-securitisation without the consent of noteholders (i.e. the Reserve Bank). Hence, the Reserve Bank engages with its counterparties on the legal documentation underpinning the trusts before the self-securitisation is eligible for use as collateral.

How the Reserve Bank Manages These Risks

The Reserve Bank applies a number of controls to mitigate the risks outlined above. There are three primary controls: eligibility criteria; applying margins or haircuts to the collateral value received; and making margin calls each day if the collateral value

falls (for example, as households repay their mortgages).

Eligibility criteria

The Reserve Bank assesses each self-securitisation before it is eligible to be posted as collateral against published eligibility requirements.[8] Of note, self-securitisations must:

- **Be rated AAA.** This implies there is a low risk of loss to noteholders even under scenarios of significant stress. This rating requirement is more onerous than the Reserve Bank applies to some other eligible securities, such as bank bonds and corporate bonds, which only require a minimum rating of BBB– (i.e. investment grade).
- **Not be highly structured.** RMBS can be set up with complicated structural features or triggers, often to suit the preferences of potential investors. The Reserve Bank expects self-securitisations to be uncomplicated so the risks are simple to evaluate. Further, the Reserve Bank does not accept 'synthetic assets', where the assets in the self-securitisation are derivatives or notes in other RMBS.
- **Have no restrictions on trading.** Although self-securitisations are not publicly traded, the self-securitisation must have no restrictions on trading. This would allow the Reserve Bank to sell the notes (for example, through an auction) if the counterparty defaults.

The Reserve Bank also requires that ADIs report detailed data on the self-securitisation and underlying loans. These data enable the Reserve Bank to investigate and model the risks of the self-securitisation and to value the securities. The data must be updated monthly to enable the Reserve Bank to assess the creditworthiness of self-securitisations in a timely manner. To mitigate the operational risk of errors in these data, the Reserve Bank exercises a high level of due diligence and engages with counterparties to promote a high standard of data quality and transparency in the industry.

Margin

To protect itself against changes in the value of collateral held under repo, the Reserve Bank lends an amount of cash that is lower than the value of the collateral presented by the counterparty. For example, for every $100 of securities issued from a self-securitisation that is presented as collateral, counterparties may borrow, on average, $78 from the RBA.[9] This difference is the margin or haircut. Among all eligible securities rated AAA, the RBA applies the highest base margin to RMBS and self-securitisations because they are the least liquid (Graph 3).

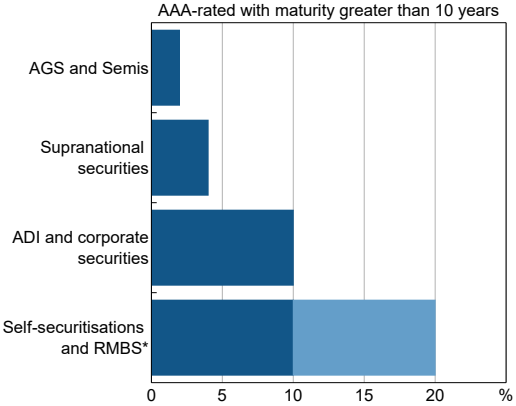
The Reserve Bank applies additional margins to self-securitisations (and other RMBS) based on certain features that pose higher risk to the Reserve Bank in the event of counterparty default (Graph 4). Some of these additional margins change dynamically as the risk changes (usually monthly when new data are submitted). For a typical self-securitisation, the sum of the additional margins can be at least as large as the base margin:

- **Collection account provider.** The collection account holds principal-and-interest payments from borrowers before they are paid to noteholders. If the counterparty is also the collection account provider, then those funds may not be available to the self-securitisation if the counterparty defaults. Therefore, the Reserve Bank applies an additional margin equal to the balance of the collection account. This mitigates a key source of wrong-way risk.

Graph 3

Base Margins on Eligible Securities

AAA-rated with maturity greater than 10 years



* Base margin varies depending on the mortgage pool and note seniority

Source: RBA

- **No market price.** The Reserve Bank applies an additional margin because it must rely on modelled prices to value the notes in a self-securitisation.
- **Swaps and liquidity facilities.** Certain risks in a self-securitisation can be reduced through the use of swaps and liquidity facilities. Often these facilities are provided to the self-securitisation by the issuer itself (which is the Reserve Bank's counterparty in a repo). In the event the counterparty defaults, alternative providers of these facilities would be required to ensure risks continue to be managed in a timely manner. It may be costly for the self-securitisation to access alternative providers of these facilities, which would adversely impact the Reserve Bank as noteholder. As with the collection account, these facilities increase the Reserve Bank's wrong-way risk.

For a typical self-securitisation with subordinated junior notes of 8 per cent and an average margin of 25.25 per cent, the RBA would provide around $73 of cash for every $100 of mortgages in the self-securitisation (Graph 5).[10] This buffer provides the Reserve Bank with significant protection from the financial risks described above.

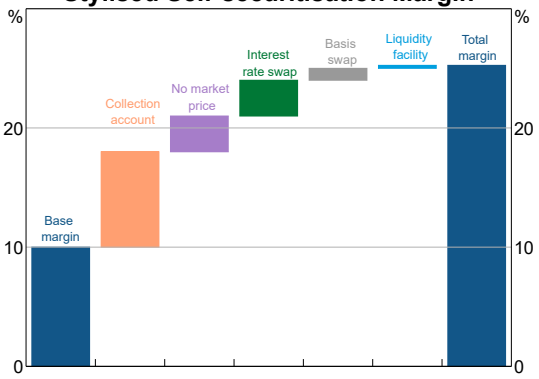
Margin calls

The Reserve Bank revalues the collateral it holds under repo on a daily basis. If the collateral value falls below a certain threshold, the Reserve Bank calls for additional collateral from the counterparty.[11] Counterparties can meet a margin call by providing more notes issued from the self-securitisation. The additional collateral must be provided on the same day.

For self-securitisations, changes in collateral value are generally driven by changes in the margin and the mortgage pool. Changes in the margin may arise, for example, due to changes in the collection account balance (see above). Changes in the mortgage pool may arise due to principal payments from borrowers. Fluctuations in modelled prices can also have an impact on the value of collateral, although in the short term, this is not the case as modelled prices have been frozen for eligible self-securitisations until early 2023.

Graph 4

Stylised Self-securitisation Margin



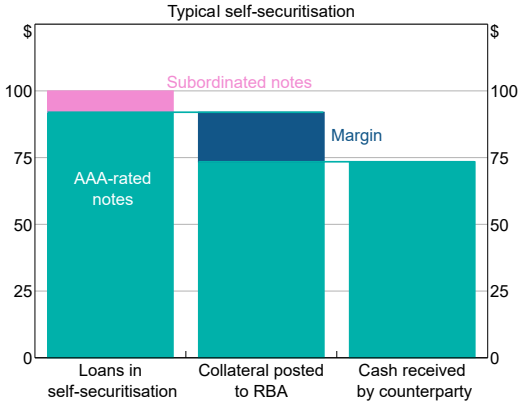
* The average margin of self-securitisations is 25.25, i.e. on average a counterparty receives $79.8 for each $100 collateral pledged

Sources: RBA; Securitisation System

Graph 5

Cash Available from $100 of Loans*

Typical self-securitisation



* Assumes 8 per cent subordination, and total margin of 25.25

Source: RBA

Conclusion

Self-securitisations are an integral part of the Reserve Bank's collateral framework. The Reserve Bank's commitment to accept these assets as collateral under its liquidity facilities is an effective way of enhancing overall financial system liquidity. The Reserve Bank implements a suite of controls to mitigate risks to its balance sheet arising from accepting self-securitisations as collateral. A key component of the risk management process is the requirement by the Reserve Bank for issuers to submit detailed loan-level and deal-level data on a monthly basis. These data are used to model the risks of the securities, value the securities in the absence of traded prices, and assign margins to the securities.

Footnotes

[*] The authors are from the Risk and Compliance Department

[1] Asset-backed securities can be set up using other types of assets such as car loans or personal loans. Self-securitisations can also be backed by these assets, but they are rare. The risks and controls described in this article also apply to these self-securitisations.

[2] During the global financial crisis, the Reserve Bank accepted self-securitisations as collateral in OMO.

[3] There are 15 ADIs required to comply with the Liquidity Coverage Ratio. All other ADIs are subject to Minimum Liquidity Holdings (MLH) requirements. APRA expects ADIs captured under the MLH regime with more than $1 billion in liabilities to establish a self-securitisation that is repo eligible with the Reserve Bank for use in a contingency. See APRA's Prudential Standard APS 210.

[4] The CLF was implemented in 2015 but was not immediately associated with a change in holdings of self-securitisations.

[5] Self-securitisations could be sold to investors. However, to date, no issuing ADI has chosen to do so.

[6] See Eligible Counterparties in the Domestic Market Operations Technical Notes (https://www.rba.gov.au/mkt-operations/resources/tech-notes/eligible-counterparties.html)

[7] Some counterparties established their self-securitisations to align with existing public RMBS trusts. This has contributed to variability in legal documentation across ADIs.

[8] See Eligible Securities in the Domestic Market Operations Technical Notes (https://www.rba.gov.au/mkt-operations/resources/tech-notes/eligible-securities.html).

[9] The average margin ratio is 25.25 per cent. This includes a base margin plus a series of additional margins based on specific features of the self-securitisation. The calculation formula is: purchase price = market price/(1+ margin ratio).

[10] In this example, the self-securitisation contains $100 of mortgages and issues two notes: $92 of senior notes and $8 of junior notes. The junior notes bear the losses first, so the subordination is calculated as 8/100=8 per cent. Assuming a margin on the senior note of 25.25 per cent, the Reserve Bank would only provide 92/(1+0.2525)≈$73 in cash under repo. Therefore, the $73 in cash provided by the RBA is collateralised by $100 in mortgages.

[11] Similarly, if the collateral value increases above a threshold, the counterparty may call the RBA to return some collateral.

[12] The Reserve Bank first accepted RMBS as eligible collateral in October 2007. This was expanded to include self-securitisations in October 2008.

Box A: Loans as Collateral in Other Jurisdictions

A number of other central banks also accept residential mortgages and other types of loans as collateral under repo for certain types of liquidity facilities. In many cases, central banks accept loans without any securitisation structure (i.e. loan pools).

- The Bank of England accepts residential mortgages and other types of loans for certain standing and term-lending facilities, but not in its OMO (Alphandary 2014).
- Eurosystem central banks accept loans to entities including non-financial corporations (referred to as credit claims) across all central bank facilities (Tamura and Tabakis 2013). Some central banks can also accept residential mortgages under the additional credit claims framework (ECB 2020).
- In the US, the Federal Reserve accepts a variety of loans including residential mortgages, commercial loans and agricultural loans as collateral for lending to depository institutions through its discount window (Federal Reserve 2019).

Although the legal nature of collateral in the form of loan pools and securitised loans is different, economically they are broadly similar. For both self-securitisations and loan pools, the collateral represents future payments on a bundle of loans. For an equivalent bundle of loans, the credit risk is the same in each case. The liquidity risk is also similar; there is no active market for these loans. However, it could be somewhat easier for a central bank to liquidate notes from a self-securitisation than a loan pool because the notes are fungible and easily divisible, and transactions can be settled in Austraclear (or an equivalent securities settlement facility) in the same way as other debt securities.

Central banks apply a margin or haircut in all cases, requiring more collateral than the cash provided under repo. This haircut is generally significantly larger than the haircut applied to other collateral with a comparable credit rating. For loan pools, the haircut is the primary protection against financial losses on the assets. By contrast, self-securitisations are protected from losses by the subordinated junior notes and the haircut. For this reason, on average, the haircut on a self-securitisation can be expected to be lower than a pool of loans.

Accepting loans as collateral, whether they are securitised or not, poses additional legal risks and operational challenges. Central banks conduct significant due diligence before they accept loans as collateral, although it differs depending on the structure. For example, at the Bank of England, part of its review focuses on ensuring it has a strong legal claim on the loans in the event of default. For self-securitisations, the Reserve Bank conducts due diligence on the trust documents and structure, which provide the legal certainty that noteholders have a claim on the underlying mortgages.

The choice of legal structure by individual central banks depends on factors specific to each jurisdiction. The Reserve Bank first accepted mortgages as collateral in 2007 in the lead-up to the global financial crisis.[12] The legal framework for securitisation was adopted because:

- the legal risks, specifically around the Reserve Bank's claim on the underlying mortgages, were relatively well understood;
- transactions could be settled in Austraclear; and
- it aligns with the Reserve Bank's 'earmarked' collateral system (see Naghiloo and Olivan (2017) for more detail on collateral systems).

These attributes remain relevant today.

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