

# The Effect of Regulatory Changes on Monetary Policy Implementation Frameworks

*Meyer Aaron, Annick Demers and Sean Durr, Financial Markets Department*

- The emerging regulatory environment's increased focus on liquidity and maturity transformation risks is expected to affect monetary policy implementation frameworks.
- Although the effects of individual regulations on monetary policy implementation frameworks can be anticipated in most cases, the combined regulatory effects are ambiguous.
- Central banks should be able to accommodate the effects of the emerging regulatory environment within their existing policy implementation frameworks.

The financial regulations introduced by supervisory authorities following the 2007–09 financial crisis are designed to improve the resilience of the global financial system. They will, among other things, result in stronger capital and liquidity requirements for regulated financial intermediaries, which have the potential to affect their behaviour.<sup>1</sup> Because financial intermediaries play important roles in the intermediation of credit and in financial markets, this could have implications for the implementation of monetary policy.<sup>2</sup> Central banks have therefore been examining whether they will need to adjust their monetary policy implementation frameworks.<sup>3</sup>

Individual central banks approach the implementation of monetary policy decisions differently. The common ground is that financial intermediaries are inevitably involved in transmitting policy decisions to the broader economy. It follows, then, that regulations influencing the structure or behaviour of financial intermediaries will also influence how monetary policy is implemented and, possibly, transmitted.

This article offers analysis of three updated banking regulatory initiatives: the Leverage Ratio (LR), the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).<sup>4</sup> Although this list is not exhaustive, these regulatory changes are likely to have the most

1 Macroeconomic Assessment Group (2010). See also Brei and Gambacorta (2014).

2 The term financial intermediaries is used throughout this article to refer to prudentially supervised institutions that are subject to the regulations discussed here.

3 Monetary policy implementation frameworks reflect a central bank's approach to implementing its monetary policy decisions. They are the link between a central bank's monetary policy decisions and their transmission to the real economy. See Murray (2013) for further details on the monetary policy transmission mechanism in Canada.

4 Basel Committee on Banking Supervision (2013, 2014a, 2014b, 2014c).

influence on the activities of financial intermediaries and, in turn, the effectiveness of central bank monetary policy implementation frameworks.<sup>5</sup>

The article begins by summarizing monetary policy implementation frameworks, which include central bank facilities and the tiered structure of financial intermediaries through which central bank policy is transmitted.<sup>6</sup> It then describes how the regulatory changes may affect monetary policy implementation frameworks. Lastly, it assesses how these regulations could affect both the ability of central banks to control the target policy variable and the money markets, a key channel for the transmission of monetary policy.

## Monetary Policy Implementation Frameworks

Central banks generally operate within one of three main monetary policy frameworks based on their policy objectives: (i) interest rate targeting regimes—a rate is targeted to express the bank’s stance on monetary policy, (ii) quantitative target regimes—a monetary aggregate is targeted, and (iii) exchange rate regimes—a measure of the exchange rate is targeted. Of these three, most central banks today operate within interest rate targeting regimes.<sup>7</sup>

Central banks operating within an interest rate regime usually target the overnight rate, which determines the rates at which financial intermediaries are able to borrow and lend funds for one day. Changes in that rate and expectations about its future path influence the interest rates further out the yield curve, as well as rates on and prices for various securities and loans with different risk and liquidity characteristics, such as long-term government bonds, corporate bonds and mortgages. These changes also influence the exchange rate. The resulting movements in asset prices, in turn, affect total demand in the economy by influencing spending and investment decisions.

Monetary policy implementation for overnight interest rate targeting frameworks usually relies on an operating band, which is characterized by two key standing facilities—a lending facility and a deposit facility—that create an interest rate corridor around the target for the overnight rate. The corridor provides incentives to market participants to lend or borrow money in the overnight market near the target rate. Central banks commit to lending money at some spread above the target rate and to taking deposits at the target rate minus a spread.

Central banks using this system can also manage the amount of overnight settlement balances, or bank reserves, determining how much excess or deficit deposits must be supplied to payment system participants daily to reinforce the target rate.<sup>8</sup> Lastly central banks can use open market operations to inject or withdraw overnight liquidity during the day and reinforce the target for the overnight rate.

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5 Other relevant regulations include central clearing and margining of over-the-counter derivatives and changes to the treatment of bank capital.

6 This article draws on the work of the Committee on the Global Financial System (2014) and the Committee on the Global Financial System and the Markets Committee (2015a, 2015b). The authors represented the Bank of Canada on these committees.

7 The Bank of Canada uses an overnight interest rate targeting regime without a reserves requirement. Its implementation framework relies primarily on the Large Value Transfer System (LVTS) along with an interest rate corridor system to achieve that target rate (Engert, Gravelle and Howard 2008).

8 Increasing settlement balances provides more liquidity, resulting in a strong incentive for market participants to lend their cash during the day. This puts downward pressure on the overnight rate, as financial intermediaries seek to lend out their excess liquidity that results, and vice versa.

## Central Bank Facilities for Monetary Policy Implementation

Regardless of the established implementation framework, most central bank facilities or operations have a similar structure and design because of their objectives of either providing liquidity to, or withdrawing liquidity from, the system. Central banks seeking to provide liquidity typically use a combination of repo operations, collateralized lending facilities and outright purchases of securities. Central banks withdrawing liquidity use reverse repo operations, central bank deposit facilities and outright sales of securities.<sup>9</sup>

A tiered market structure provides a link between changes in a central bank's target rate and changes in liquidity offered or withdrawn through its facilities and the general economy. The central bank aims to provide overnight liquidity to the system as a whole, generally relying on a limited set of financial intermediaries as counterparties to its facilities or operations. These financial intermediaries then redistribute liquidity through other regulated and non-regulated financial intermediaries to consumer and corporate borrowers. This tiered structure is common for most monetary policy implementation frameworks, regardless of the regime being followed.

Different central bank facilities can be distinguished according to the following characteristics: (i) counterparty eligibility—major counterparties for central bank facilities or operations are often financial intermediaries subject to the regulations discussed in this article; (ii) secured versus unsecured transactions—using repos to inject liquidity into and reverse repos to withdraw liquidity from the financial system; (iii) type of collateral—usually a large proportion of the eligible collateral is of high quality; and (iv) the tenor of the facility's transactions (e.g., 1 or 30 days, 6 months, longer than a year). How a central bank's operations are aligned with the above characteristics determines how the banking regulations discussed in this article interact with the implementation of monetary policy.

A central bank's ability to implement its desired monetary policy stance is influenced by the use and effectiveness of its facilities and how the facilities affect the various intermediaries in the tiered market structure, which essentially constitutes the overnight money market. The banking regulations can influence the use of and the price paid by counterparties for the central banks' liquidity operations as well as the impact of the target rate and changes in its level on the broader fixed-income markets that involve transactions among various combinations of financial intermediaries.

◀ *A central bank's ability to implement its desired monetary policy is influenced by how its facilities affect the various intermediaries in money markets*

## The Regulations

The LR and LCR came into effect in January 2015, while the NSFR will come into force in 2018. These regulations strive to improve the resilience of financial intermediaries to financial shocks by ensuring an adequate level of capital (LR) and by maintaining prudent liquidity over the short and medium terms (LCR and NSFR).

Because the implementation of these regulations is recent and ongoing, this analysis is directional rather than quantitative and is premised, to some degree, on whether the regulatory constraints are binding. And, while concepts are introduced as required for the exposition, technical analysis is left for a more in-depth study.

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9 Bindseil (2014) offers a broader discussion.

## Leverage Ratio (LR)

According to the LR, the ratio of a financial intermediary's capital to its exposures must be equal to at least 3 per cent (Basel Committee on Banking Supervision 2014a).<sup>10</sup> It is intended to be a non-risk-based capital measure to complement the Basel III risk-based capital measures. Whereas most of the Basel III regulatory capital framework is aimed at assessing capital adequacy against risk-weighted assets using standardized and model-based methodologies, the LR aims to be a backstop by using absolute levels of asset values rather than risk-weighted values.

The LR influences monetary policy implementation frameworks largely through its treatment of securities financing transactions, which are often used in many central bank facilities (**Box 1**). For example, a central bank engaged in a repo transaction to provide liquidity enters into an agreement to purchase securities from the financial intermediary for an agreed price and to resell these securities back to the financial intermediary at a later date (which can be overnight or for longer terms). The difference between the purchase price and the resale price includes an interest rate component. This is essentially a secured lending transaction where the central bank is lending money to financial intermediaries and is generally conducted at or near the policy rate.

◀ *The leverage ratio influences monetary policy implementation frameworks largely through its treatment of securities financing transactions, which are often used in many central bank facilities*

### Box 1

#### The Leverage Ratio (LR)

$$\frac{\text{Tier 1 capital}}{\text{Exposure measure}} \geq 3\%$$

- The accounting rules for securities financing transactions have an asymmetric impact on the LR, depending on whether it is a repo transaction used in a liquidity-providing facility or a reverse repo used in a liquidity-withdrawing facility.
- Liquidity-providing transactions between a central bank and a financial intermediary (e.g., unsecured or secured through repos) will increase a financial intermediary's balance-sheet-exposure measure, which will decrease the LR.
- Liquidity-withdrawing transactions between a central bank and a financial intermediary (e.g., reverse repos) do not change the balance-sheet-exposure measure and therefore do not affect the LR.

The financial intermediary adds the cash received to its assets and also retains the repo security on its balance sheet, resulting in a net increase in its assets and a decrease in the LR because the level of capital remains the same; the net effect is an expansion of the bank's balance sheet.<sup>11</sup> Conversely, a reverse repo transacted between a central bank and a bank to withdraw liquidity would not

<sup>10</sup> Tier 1 capital is defined as set out in the Basel rules. Exposure is defined to include on-balance-sheet exposures, derivatives exposures, securities financing transactions and off-balance-sheet items. The Basel Committee on Banking Supervision continues to monitor the leverage ratio implementations and may recalibrate its definition. The final calibration is expected by 2017 with a view to implementing it as part of the Pillar 1 minimum capital treatment by 2018.

<sup>11</sup> The balance sheet expands because the cash received by the regulated financial intermediary from the central bank increases its assets and is balanced on the liability side by the obligation to repurchase. The security sold to the central bank, however, remains on its balance sheet.

expand the bank's balance sheet and would not affect the LR.<sup>12</sup> The result for central bank operations involving outright sales or purchases would be similar in treatment as reverse repos.

With respect to central banks' liquidity-provisioning facilities, if the LR is a binding or near-binding constraint, it could potentially discourage repos—or any other liquidity-provision facilities—that would expand a financial intermediary's balance sheet and, thus, decrease the LR. In money markets, transactions between financial intermediaries or between financial intermediaries and non-regulated financial intermediaries will have a similar impact for the same reason. With respect to liquidity-withdrawing facilities, the effect on the LR from reverse repos should be minimal because they do not expand the bank's balance sheet.

For the reasons discussed above, the LR could have similar impacts in the money markets, potentially providing an incentive for financial intermediaries to decrease their repo activities.

### Liquidity coverage ratio (LCR)

The LCR requires financial intermediaries to maintain unencumbered, high-quality liquid assets (HQLAs) equal to 100 per cent of total net cash outflows over a period of 30 calendar days.<sup>13</sup> These HQLAs are intended to be assets that a bank can readily convert into cash in the event that it faces liquidity stress. The LCR also defines the characteristics of HQLAs and sets guidelines for how different levels of HQLA are classified.<sup>14</sup> Deposits at central banks that can be withdrawn are treated as HQLAs.

◀ *The liquidity coverage ratio requires financial intermediaries to maintain liquid assets that can be readily converted into cash in the event of liquidity stress*

The LCR will exert an influence in a number of ways (**Box 2**). Net cash outflow (the denominator in the LCR) is calculated according to the tenor of the transactions, the type of counterparty and whether the transaction is secured or unsecured, along with the quality of the collateral used. Overall, a higher LCR is achieved when financial intermediaries lower their net cash outflow over 30 days. Also, the requirement to hold HQLAs will affect the collateral market for HQLAs and markets for other collateral that are eligible for central bank transactions.

For transactions up to 30 days, borrowing or lending cash collateralized with HQLAs would generally not affect the LCR because it is simply an exchange of one type of HQLA for another.<sup>15</sup> As well, HQLA-secured transactions between central banks and financial intermediaries would not affect the LCR. It is possible that lending secured by a central bank with a non-HQLA (e.g., repos) could be encouraged, depending on the relative haircuts for the central bank operations compared with the regulatory haircuts. When a central bank haircut for the non-HQLA collateral is lower than that imposed by the LCR, the transaction could improve a financial intermediary's LCR.

As intended by the LCR regulations, for unsecured transactions, the LCR would encourage both borrowing at terms longer than 30 days (because it is excluded

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12 In the case of the reverse repo, there would be an accounting offset on the asset side between the cash loaned to and the securities received from the central bank. A similar treatment would hold for outright purchases and sales.

13 Basel Committee on Banking Supervision (2013). The 100 per cent is a floor, not a target, during normal business conditions; the LCR rules accommodate a lower ratio in times of stress. The structure of the formula for this ratio requires an HQLA level of not less than 25 per cent of the cash outflows over the 30-day period, regardless of the level of inflows.

14 Basel Committee on Banking Supervision (2014c).

15 This is for level 1 HQLA as defined in the LCR regulations.

from the cash outflow calculation) and lending at terms less than 30 days (because it is treated as 100 per cent inflows for LCR calculations).

Box 2					
The Liquidity Coverage Ratio (LCR)					
		← Decreasing cash outflows (improves LCR)			
		Borrow longer than 30 days	Borrow (secured) with level 1 HQLA or secured funding from central bank	Borrow (unsecured) from central bank or non-financial corporates	Borrow unsecured wholesale from another bank or non-regulated financial institution
↑ Increasing inflows (improves LCR)	Lend less than 30 days	<p>The LCR: <math>\frac{\text{High-quality liquid assets (HQLAs)}}{\text{Net cash outflows over the next 30 calendar days}} \geq 100\%</math></p> <p><b>Liquidity-providing transactions by a central bank to a financial intermediary</b></p> <ul style="list-style-type: none"> <li>The effect of unsecured borrowing on the LCR depends on the tenor: borrowing less than 30 days will decrease the LCR and vice versa.</li> <li>Secured borrowing (repos) has a minimal impact regardless of tenor because posted collateral must be Level 1 HQLA.</li> <li>No significant LCR improvement can take place through a collateral upgrade since Level 1 HQLA (collateral) is exchanged for Level 1 HQLA (cash); however, if the central bank collateral haircut is lower than the LCR haircut, this would marginally benefit the financial intermediary's LCR.</li> <li>Central banks have a lower cash outflow factor for outstanding maturing secured funding than other counterparties.</li> </ul>			
	Non-HQLA reverse repos				
	HQLA reverse repos	<p><b>Liquidity-withdrawing transactions by a central bank from a financial intermediary</b></p> <ul style="list-style-type: none"> <li>Mirrors the relationships above.</li> </ul>			

HQLA-secured transactions with central banks should not affect a financial intermediary's LCR; with respect to money markets, the LCR is expected to move financial intermediaries toward more secured lending and a potentially steeper yield curve at the short end because, typically, it would increase supply and reduce demand for tenors shorter than 30 days and vice versa for tenors longer than 30 days. The effect of the LCR on volumes is unclear.

### Net stable funding ratio (NSFR)

The NSFR, which is a companion measure to the LCR, requires financial intermediaries to maintain a stable funding profile in relation to the composition of their assets and off-balance-sheet activities. It requires a financial intermediary's available amount of stable funding (ASF) to be at least 100 per cent of its required amount of stable funding (RSF).<sup>16</sup> The intent is to limit overreliance on short-term wholesale funding, encourage better assessment of funding risk across all on- and off-balance-sheet items, and promote funding from stable sources on a structural basis. Note that the ASF is a statement about a financial intermediary's liabilities structure, and the RSF is a statement about its asset structure. Most important for this ratio are the various classifications that determine how much of the asset class is designated for the RSF and the funding sources classifications that determine how much can be included in the ASF.

◀ *The net stable funding ratio is intended to limit overreliance on short-term wholesale funding, encourage better assessment of funding risk and promote funding from stable sources*

16 Basel Committee on Banking Supervision (2014b).

The ASF and RSF calculations, which determine the NSFR, depend on tenor, the counterparty, whether it is a secured or unsecured transaction and the quality of the collateral (**Box 3**). As with the LCR, these characteristics include aspects of central bank facilities.

Generally, secured or unsecured funding of more than one year receives 100 per cent ASF treatment, which improves the numerator of the NSFR. Secured or unsecured funding from another financial intermediary or a central bank for between six months and one year receives 50 per cent ASF treatment.

Box 3				
The Net Stable Funding Ratio (NSFR)				
← Increasing available stable funding (improves NSFR)				
		Borrow longer than one year from a central bank or financial institution	Borrow between six months and one year from a central bank or financial institution	Borrow less than six months from a central bank or financial institution
↑ Decreasing required stable funding (improves NSFR)	Central bank deposits/claims less than six months	<p><b>The NSFR:</b> <math>\frac{\text{Available stable funding}}{\text{Required stable funding}} \geq 100\%</math></p> <p><b>Liquidity-providing transactions by a central bank to a financial intermediary</b></p> <ul style="list-style-type: none"> <li>The effect of secured and unsecured borrowing from a central bank by a financial intermediary depends on collateral and tenor.</li> </ul> <p><b>Liquidity-withdrawing transactions between a central bank and financial intermediaries</b></p> <ul style="list-style-type: none"> <li>Unsecured or secured lending by a financial intermediary reduces its NSFR.</li> <li>Generally, longer-term liabilities (&gt; six months) receive higher ASF treatment than shorter-term liabilities (&lt; six months), thereby increasing the NSFR.</li> <li>Longer-term assets generally receive higher RSF treatment than shorter-term assets, thereby lowering the NSFR.</li> <li>Generally, unencumbered HQLAs receive more favourable treatment by lowering the RSF.</li> <li>Central bank and financial intermediary transactions that are assets or liabilities for the financial intermediary (that affect the RSF and ASF, respectively) will be excluded for tenors shorter than six months.</li> </ul>		
	Loans to financial institutions for less than six months secured by HQLA			
	Unsecured loans to central bank and financial institutions between six months and one year			
	Loans for one year or longer			

Regarding the RSF weighting, central bank reserves and deposits for less than six months receive 0 per cent; HQLA-secured loans to financial institutions with maturities of less than six months receive 10 per cent if the financial institution can freely rehypothecate the received collateral over the life of the loan; loans to financial institutions and deposits at central banks with maturities of six months to a year receive 50 per cent.

The NSFR will therefore not have a material effect on central bank operations that are shorter than six months but could potentially make central bank transactions of longer tenors more attractive for financial intermediaries because longer-term borrowing from a central bank gets a higher ASF than short-term borrowing from a central bank.

With respect to the money markets, the effects of the NSFR on unsecured transactions will depend on tenor and counterparty. The effect on the supply of

unsecured financing is expected to be lower (particularly at longer tenors), whereas the effect on the demand for unsecured financing is expected to be higher, exerting upward pressure on rates. The NSFR may also encourage financial intermediaries to borrow from non-financial corporations because these transactions are treated more favourably.<sup>17</sup>

## Potential Impacts on Monetary Policy Implementation Frameworks

It is difficult at this time to fully foresee the combined effect of these regulations on central bank operations and money markets for a number of reasons.<sup>18</sup> First, the implementation deadline for the various regulations is a few years away. Second, financial intermediaries will also take some time to adapt to the new regulatory environment. In particular, it appears that financial intermediaries are still developing their internal transfer-pricing models to be able to efficiently allocate capital (for example, the LR). Uniform practices have not yet been adopted in the marketplace. Moreover, financial intermediaries are also expected to adjust their business models according to the new regulations, and this may shift their portfolio compositions and the structure of their liabilities, especially since the impact of the various regulations will depend on the constraints facing the financial intermediaries, which may vary.<sup>19</sup>

### Possible implications for central bank facilities

For liquidity-provisioning facilities, there may be a potential decrease in the demand for repos secured by HQLA, driven largely by the LR. The LR would make it more capital intensive for financial intermediaries to borrow from central banks through repos. This may be more prevalent for repos using HQLAs because the LR results in an increased capital cost with no improvement in the LCR. Central banks that provide non-HQLA liquidity-providing facilities may see an increase in demand that offsets the effects of the LR, as a result of the beneficial impact on the LCR for financial intermediaries. Overall, this would imply that central banks could offset this decrease in the relative desire of financial intermediaries to source liquidity from central bank repo operations, by adjusting the tenor, collateral requirements, quantity or price on offer to financial intermediaries.

For liquidity-withdrawing facilities, reverse repos are generally expected to be unaffected because the LR is largely unaffected by this structure. As well, central bank deposit facilities for less than six months should be neutral to these regulations, although the NSFR may create a slight decline in their use for tenors of greater than six months.

### Possible implications for money market activity

Financial intermediaries play a central role in money markets through the issuance of money market instruments, through their demand for these instruments for their treasury or liquidity risk management and, more generally, through their lending activities. Overall, the effects on the level of activity and interest rates of money market instruments are likely to differ, depending on the tenor of transactions and whether they are secured or unsecured.

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17 The ASF for funding from non-financial corporations gets favourable treatment compared with financial intermediaries.

18 For some initial model-based assessments, see Bech and Keister (2013); Bonner and Eijffinger (2012).

19 See, for example, Banerjee and Mio (2014); Duijm and Wierds (2014).



The LCR provides incentives for financial intermediaries to shift toward greater amounts of unsecured lending for terms less than 30 days, while decreasing the incentives for financial intermediaries to do unsecured lending that is greater than 30 days. The incentives for unsecured bank borrowing are in the opposite direction: reduced incentive to borrow for less than 30 days, while increasing demand for unsecured funding for terms more than 30 days. As such, at the shorter tenors (less than 30 days), there should be, all other things being equal, downward influence on rates from the LCR (resulting from increased supply but lower demand), and vice versa, for terms of more than 30 days. The impact on volumes will depend on whether the supply or demand effects dominate.<sup>20</sup>

The LR may lead to a decrease in repo activity among regulated financial intermediaries primarily because borrowing using repos increases leverage and thus tends to be more expensive for financial intermediaries from an LR perspective.

Given these offsetting effects, it is difficult to assess the overall effects of the various regulations on money market volumes and rates, in particular, because of the complex interactions across the regulations and their effects on the activities of financial intermediaries in these markets.

### Possible implications for the market-making activity of financial intermediaries

A related implication of these regulations is that they may reduce incentives for market-making activities of financial intermediaries. For example, the LCR could encourage market-makers (i.e., financial intermediaries) to reallocate securities inventory in favour of greater amounts of eligible HQLAs relative to before the regulations came into effect, while the LR could result in an offsetting shift from highly rated sovereign bonds and repos (using these bonds as collateral) toward loans that bear a higher risk-weighted capital charge and lower repo volumes. Together, the requirements provide incentives for market-making activities to be reduced for these fixed-income instruments, especially when the LR and LCR are viewed as binding, and, as such, the balance sheet costs of holding these are higher as a result of these regulatory changes. However, other non-regulatory drivers have also been identified as affecting the provision of market-making services by financial intermediaries and thus any potential reduction in market-making cannot be attributed solely to new regulations (see CGFS 2014).<sup>21</sup>

◀ *Any potential reduction in market-making cannot be attributed solely to new regulations*

The potential reduction in the provision of market-making by financial intermediaries (that assumes no other financial intermediaries fill in the gap left by financial intermediaries), could reduce market liquidity in fixed-income securities, especially if repo market activity declines. However, should a lower level of market liquidity arise, it would imply a greater cost to trading in markets, one that market participants would want to take into account. This would result in a level of market liquidity that reflects the fundamental costs and market-making capacity of financial intermediaries across fixed-income markets and require investors to adjust their risk-management frameworks to adequately reflect the lower levels (or higher costs) of market liquidity.

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20 The LCR may encourage the shorter funding markets to move from unsecured to secured funding activity with non-HQLAs. A shift of secured market activity toward longer-term tenors is also likely because of the LCR and NSFR benefits at maturities greater than 30 days and 6 months, respectively.

21 Some of these drivers are structural and relate to innovations and trading technology, while others are conjectural and are closely tied with post-crisis deleveraging and reduced market-makers' risk appetite.

While there are other regulations affecting the provision of market-making (e.g., prohibiting proprietary trading), those discussed here were intended to drive adjustments in the business models and risk-management practices of financial intermediaries. In hindsight, market liquidity and the funding liquidity that underpinned it were underpriced in many markets before the financial crisis. Capital requirements were insufficient to absorb losses and funding models were vulnerable to changing funding and market liquidity conditions. That is, regulations are intended to make it more costly for financial intermediaries to take liquidity and solvency risks. These market-making effects must be set against the regulations' targeted benefits, including strengthening financial intermediaries' balance sheets and funding models, as well as enhanced stability of the financial system more generally, which reduce the risk of significant bank-lending contractions and their spillovers to the real economy.

## Conclusion

The LR, the LCR and the NSFR are expected to have a meaningful impact on monetary policy operations.

These regulations have the potential to affect the relationships between financial asset prices and central bank policy rates, likely decreasing arbitrage activity across markets and opening up the possibility for a larger role for central bank operations.

In general, central banks should be able to accommodate the effects of the emerging regulatory environment within their existing policy frameworks. The main levers available to central banks to make any adjustment are their parameters for counterparty eligibility, collateral eligibility and the tenor of the transactions.

However, factors such as changing market practices will also affect markets and the transmission mechanism. Any changes to existing implementation frameworks should be carefully made because operational choices by central banks can affect the propagation of liquidity in markets in a variety of ways, both intentionally and unintentionally (CGFS 2015a). The nature and degree of these adjustments need to appropriately take into account local market structures and the adjustments made by the central bank's main counterparties in reaction to these regulatory changes.

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