Financial Stability and Monetary Policy: Lessons from the UK's LDI Crisis

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Introduction

The study of links between monetary policy and financial sector policies is not new, with financial stability having long been part of many central bank mandates.[1] For instance, leading up to the Global Financial Crisis (GFC) there was a particular focus on whether low interest rates were fueling risk taking, and the merits of using monetary policy to "lean against" asset-price booms.[2] The GFC showed that monetary and microprudential policies were not sufficient for ensuring financial stability, paving the way for the development of macroprudential policies.[3]

By the late 2010s, compressed term and risk premia led to a very different concern: how rapid and sizable increases in interest rates could create financial stress. It was the subject of numerous risk assessments by many international bodies, including the Financial Stability Board (FSB), the International Monetary Fund (IMF), and the Bank for International Settlements (BIS) in the late 2010s.[4] This concern was also shared by the Bank of England (the Bank), and led the Bank's Financial Policy Committee (FPC) at that time to include an increase in interest rates as part of its stress-testing exercises on banks from 2017 onward.[5] In November 2018, the FPC also published an assessment of the risks from leverage in the nonbank financial system, which

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included the liability-driven investment (LDI) sector.[6] Through 2021 and 2022, the FPC also warned that vulnerabilities in market-based financing could amplify shocks to market liquidity conditions.[7]

A version of this interest rate risk has indeed materialized in many jurisdictions over the last couple of years, although it was largely the result of a sharp and rapid rise in policy interest rates among many central banks to quell inflation, rather than a rise in risk premia. For its part, the Bank's Monetary Policy Committee raised the policy rate by a cumulative 515 basis points between November 2021 and August 2023. While in the United Kingdom monetary policy actions have supported financial stability by returning inflation to target sustainably, the sharp transition to higher interest rates and greater market volatility could create stress in the financial system.[8] The FPC holds the view that UK households, businesses, and banks are resilient, but uncertainties remain given the risks and the fact that it takes time for the full impact of higher interest rates to come through.

These remarks will first address the dog that did not bark in the UK (but has in the United States)—interest rate risk on the banking book. I will then delve into the one that did—when fiscal policy announcements were followed by a significant rise in long-term gilt yields and then amplified by liquidity issues in highly leveraged LDI funds used by UK pension schemes. My remarks aim to draw out the following five lessons:

1. Market forces can be unpredictable and merciless, especially in the face of poorly managed risk.
2. Stress tests must be developed using better data and models to capture interconnections—including in nonbank financial intermediation (NBFI)—and to test operational resilience and scenarios that may have no historical precedent.

3. Financial stability interventions, if temporary and targeted, support monetary policy objectives without necessarily affecting the stance of monetary policy.
4. Central bank liquidity facilities need further development, particularly with regard to NBFI.
5. The Bank of England financial stability framework showed its worth, supported by a clear financial stability mandate, governance, and separation of responsibilities between the Monetary Policy Committee (MPC) and the FPC.

The Dog That Did Not Bark in the UK

The move toward tightening monetary policy to control inflation, which started in December 2021 in the UK and in March 2022 in the US, meant that banks operating in those jurisdictions were faced with sizable and rapid increases in interest rates. The speed of the monetary policy tightening made adjustments to higher rates particularly challenging.

This situation, combined with inadequate capital and liquidity, deficiencies in risk management, and highly mobile deposits, prompted the failure of Silicon Valley Bank (SVB), among others in the US, in March 2023 for reasons that are well-known.[9] Aside from the spillover of SVB's trouble to its UK subsidiary, UK banks have been resilient in the face of monetary policy tightening.[10] There are a number of reasons for this positive outcome relative to SVB, the most important relating to these factors:

1. *Capital adequacy*: All UK banks hold capital against interest rate risk on the banking book, under Pillar 2A.[11]

2. *Liquidity management*: All UK banks are subject to liquidity requirements under Basel III (i.e., the liquidity coverage ratio [LCR] and the net stable funding ratio [NSFR]). In contrast, SVB was not subject to these requirements.[12]

3. *UK bank balance sheets*: These are less vulnerable than SVB's in that UK banks typically have much smaller "hold to maturity" portfolios, and do not have the extremely high reliance on uninsured deposits (e.g., 94% for SVB) coupled with heavy concentration in a particular sector.[13] This higher reliance on uninsured deposits means a greater deposit flight potential when a risk crystallizes, including in a situation where rapidly rising interest rates expose risks to banks that have not been properly managed.

Together these factors have contributed to relative stability of deposits in UK banks, both in the face of the spike in gilt yields in 2022 and then in the wake of the US bank failures in 2023.

The Dog That Did Bark

Rising interest rates may not have triggered financial stress in the UK banking system, but stress in LDI funds used by pension schemes was triggered on September 23, 2022, when long-dated gilts spiked in response to the government's mini-budget announcement. This prompted the Bank of England to intervene with temporary and targeted gilt purchases to restore market functioning and, ultimately, protect financial stability in the UK.[14]

LDI Approach Aims to Lower Risk (But Can Do the Opposite)

LDI is an investment approach used by pension schemes to achieve a smoother, more certain path to fully funded status.[15] In particular, this approach seeks to match the sensitivities of scheme assets to liabilities, which are generally driven by (1) interest rates, and (2) inflation. For instance, an LDI strategy can be used to mitigate the risk of falling interest rates increasing

pension-scheme liabilities, while still allowing some margin to invest in higher-yielding assets than gilts.

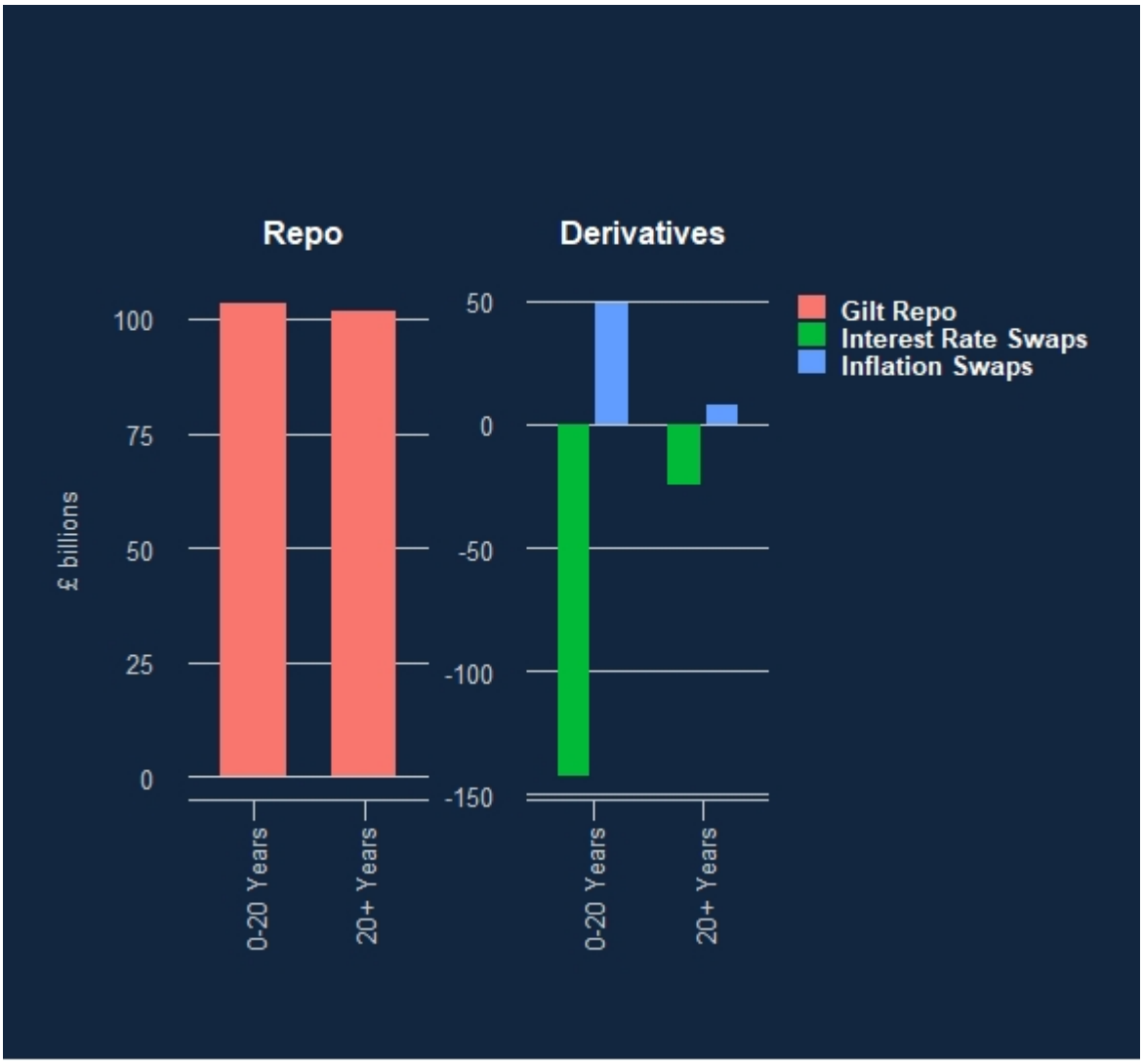
With the secular decline in government bond yields over several decades in the UK and other developed economies, LDI strategies became popular. At the end of 2021, there was an estimated £1.4 trillion of assets held in LDI strategies in the UK; around 85% of these assets were managed within segregated funds and the remainder were in multi-investor pooled funds.[16] Typically, LDI funds in the UK used leverage through repo borrowing or interest rate derivatives (figure 13.1).[17] This allowed their pension-scheme clients to increase their hedges against falling interest rates with a lower up-front investment than if they had pursued an unleveraged LDI hedging strategy.

Any leveraged strategy comes with downside risks, for the individual firm and for the broader market, in the face of sharp declines in asset prices, as my colleague Jon Hall outlined very clearly.[18] If leveraged investors cannot raise capital or accept higher leverage, they are forced to sell assets in a declining market, amplifying the initial shock.

The risk to the LDI strategy materialized in September 2022 when interest rates rose sharply in response to the fiscal announcement. Although higher rates in general were positive for pension schemes overall, the LDI funds faced rapidly accelerating losses and large collateral calls such that they had an urgent need for capital. If the pension schemes were unable to provide capital in time, the LDI fund managers were forced to rebalance by selling gilts into an illiquid market. As discussed below, the prospect of forced selling at scale set in motion an amplificatory "doom loop" that put the long-term gilt market under extreme stress.

To some extent there was a similar set of challenges facing LDI funds in the Netherlands, but the key differences were that Dutch investors had more diversified bond and less-leveraged portfolios, which meant that the sell-off did not spark broader market stress, and they did not face the same magnitude of repricing.[19] LDI strategies are deployed in other countries but are much more significant in the UK, where they account for 80% of the overall defined-benefit market, compared to around 40% in the US and 35% in the European Union (EU).[20]

Figure 13.1: Net Notional of Outstanding Swap Positions (by Contract Maturity) and Net Repo Borrowing (by Collateral Maturity) as of September 22, 2022



Source: Lydia Henning, Simon Jurkatis, Manesh Powar, and Gian Valentini. 2023. "Lifting the Lid on a Liquidity Crisis," Bank of England.

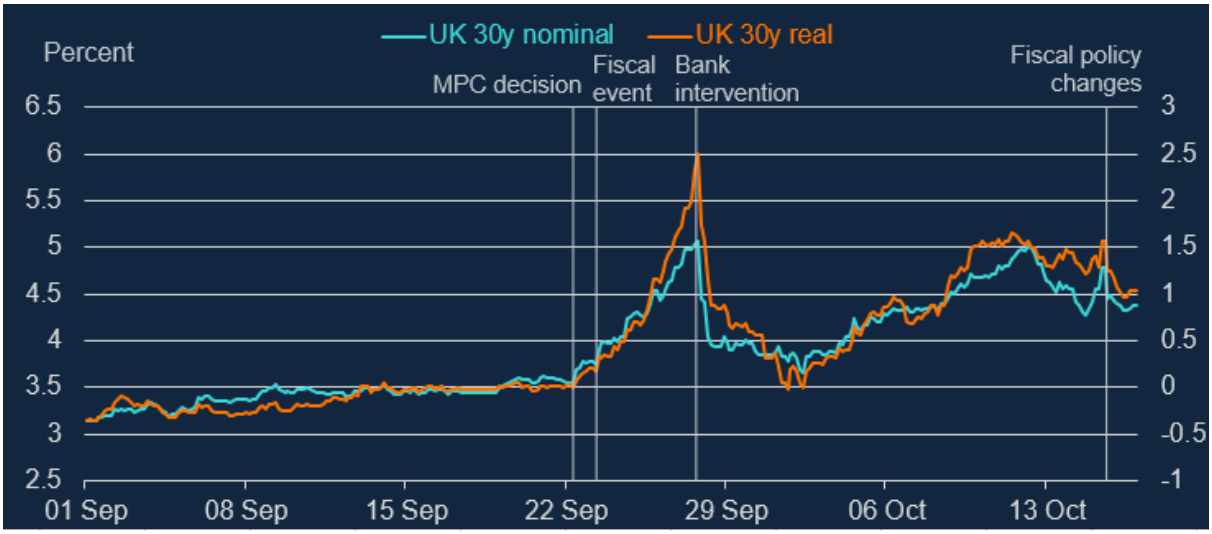
The Mini-Budget Announcement Awakened Market Forces

Yields on long-term government securities had been on an upward trend in peer jurisdictions in the months leading up to the September 2022 episode, commensurate with a monetary policy tightening cycle. For the Bank of England's part, the MPC began raising interest rates in December 2021, and quantitative tightening (QT) commenced two months later, initially through maturities. Following the MPC announcement on September, 22, 2022, the Bank rate was raised 50 basis points to 2.25%, and a plan was announced to start the selling of gilts in QT in October. Markets adjusted to the news smoothly (i.e., a rise of 20 basis points on the day of the announcement commensurate with rises on other sovereign bond markets such as the US), as these moves were widely expected by markets and market liquidity remained good. There is therefore no indication that the rise in yields on subsequent days was induced by monetary policy.

There was, however, a clear break in gilt yields on the announcement of the new "Growth Plan" from the government on September 23 (figure 13.2).[21] Market reports indicated growing concerns among investors as to the government's commitment to fiscal responsibility, and doubts about whether the plan would indeed spur growth.[22] These concerns appear to have been the driving forces behind the spike in thirty-year nominal gilt yields, which started on the day the mini-budget was announced and totaled 130 basis points by September 28 (and thirty-year inflation-linked bonds were up by around 170 basis points). This represented a 24% and a 38% drop in the price of thirty-year nominal and real gilts, respectively. Long-maturity nominal gilt yields rose by 130 basis points in a matter of days—three times the size of any comparable

historical move, and therefore exceeding the buffer held by LDI funds that would typically cover around 100 basis points.

Figure 13.2: Blowout in Yields on 30-Year UK Gilts (Basis Point Change since August 1, 2022)



Source: Bank of England calculations

Lesson 1: Market forces can be unpredictable and merciless, especially in the face of poorly managed risk. Government bonds may be "free" from credit risk, but are not free from interest rate risk. Clearly the LDI funds and strategies did not have adequate resilience to self-insure against this type of scenario.

The Ensuing Stress in LDI Funds Rapidly Generated a Risk to Financial Stability

In the absence of leverage, a rise in yields is generally positive for pension schemes because it reduces the present value of their liabilities more than the value of their assets. Given the leverage, however, a rise in yields created liquidity demands, particularly given that the

adjustment happened quickly and over a short period. This created severe stress in gilt markets through several channels.

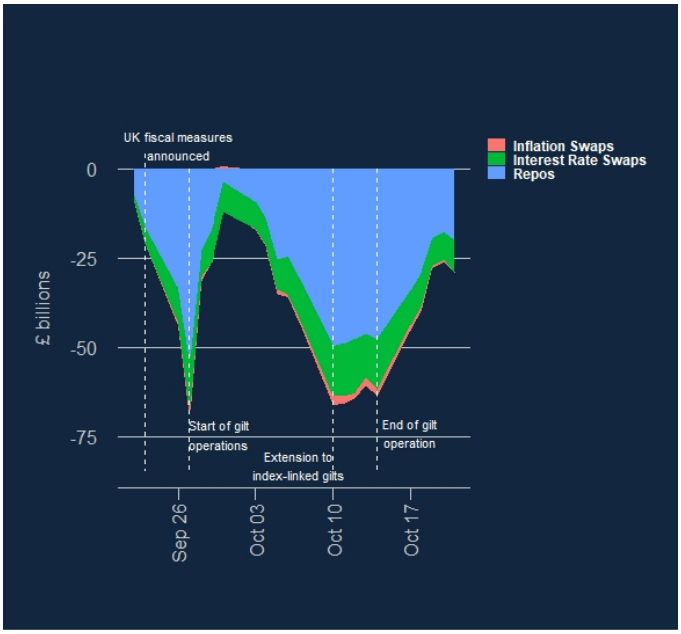
Forced Deleveraging and Liquidity Channel Propagated the Shock

The sharp rise in yields caused a sudden and significant rise in collateral calls on repo (biggest issue) and variation margin calls on derivative positions, amounting to an estimated £66 billion between the announcement on September 23 of the new Growth Plan and on September 28 when the Bank's financial stability operations commenced (figure 13.3). It is telling how little selling actually went through in the first few days of the stress, in which the rapid increase in gilt yields up to September 28 was driven by less than £5 billion of sales being successfully completed (a sign that liquidity was indeed very low).

The sharp rise in yields (drop in gilt prices) also caused a steep decline in the net asset value and an increase in leverage of these funds. It is not surprising that the firms in the LDI sector that had larger repo and swap exposure before the crisis sold more gilts during the crisis.[23]

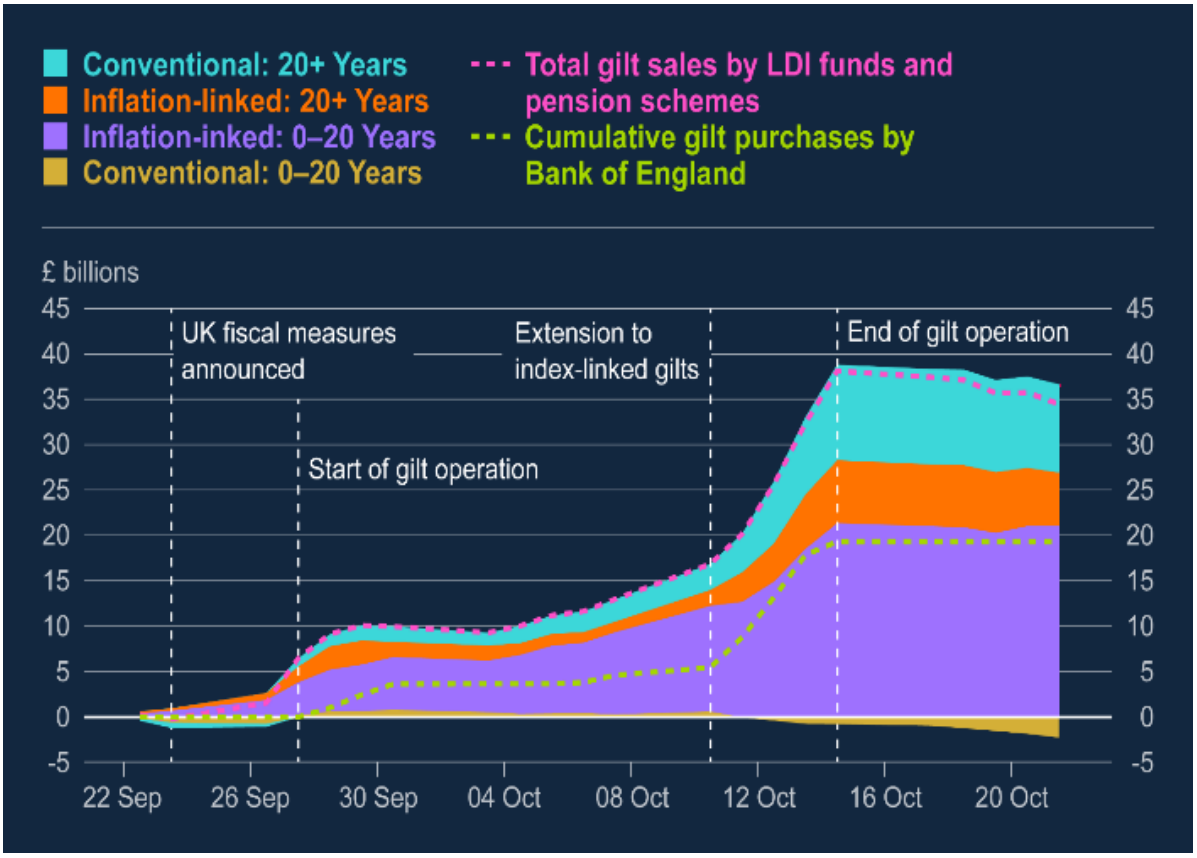
While some pension funds were able to raise funds quickly (e.g., by selling nongilt assets such as corporate bonds, equities, and even collateralized loan obligations), many pooled funds experienced significant operational difficulties.[24]

Figure 13.3: Cumulative Variation Margin on Net Repo Borrowing and Derivatives Positions Held by Liability-Driven Investors



Source: Henning et al. 2023. “Lifting the Lid on a Liquidity Crisis,” Bank of England.

Figure 13.4: Cumulative Net Gilt Sales by LDI Funds and Pension Schemes with an Open Gilt Repo or Interest Rate Derivative Position, between September 22 and October 21, 2022, and Cumulative Gilt Purchases by the Bank of England



Source: Paul Alexander, Rand Fakhoury, Tom Horn, Waris Panjwani, and Matt Roberts-Sklar. 2023. "Financial Stability Buy/Sell Tools: A Gilt Market Case Study," Bank of England.

Concentration Channel Amplified the Shock

Exposures in the pension and pooled LDI funds were highly concentrated and correlated, particularly in repo that was backed by index-linked and longer-term nominal bonds. Pension and LDI funds are the largest holders of the long-term index-linked gilt market. This concentration meant LDI funds were the natural buyers of linkers, so there were no other buyers to step in when selling pressures emerged.

Given the emergence of large and one-way selling pressures, market functioning broke down rapidly.[25] Market intelligence early in the week of September 26 suggested that additional long-term gilt sales of at least £50 billion were needed in short order. This was over four times greater than the recent average trading volumes of just £12 billion per day in these markets.[26]

Interconnections Channel Meant the Shock Spread to Other Markets

The gilt market is a core market, which means that it not only is critical to the transmission of monetary policy, but also is deeply interconnected with other parts of the financial system and the real economy. Because of this centrality, gilt market turmoil also spilled over to the real economy via other markets. For instance, interest rate swaps spiked dramatically, the two-year interest rate swap typically used to price mortgage products reaching 6% in the aftermath of the mini-budget. This prompted several mortgage providers to discontinue their mortgage offerings temporarily as it became too difficult to price markets; it is estimated that around 40% of mortgage deals were pulled following the announcement.[27] While rates have stabilized since then, they remain at higher levels than prior to the crisis.

Lesson 2: Stress tests must be developed using better data and models to capture interconnections—including in nonbank financial intermediation—and to test operational resilience and scenarios that may have no historical precedent.

Work had been undertaken in 2018 to better understand liquidity risk from margin calls on interest rate swaps, using a rapid 100 basis point shift up in the yield curve.[28] Although consistent with a "severe but plausible" framework based on historic data, this turned out to be

smaller than the actual shock in September 2022. The exercise also assumed that those affected would have the operational capacity to make the necessary adjustments in a timely manner, given that pooled funds were not included. As discussed in the next section, expectations of resilience on both financial and operational fronts have been strengthened. Moreover, the Bank is undertaking a system-wide exploratory scenario (SWES) to better understand interconnections in the financial system.[29]

A Financial Stability Response Compatible with Monetary Policy

What was striking in this episode was the speed at which a "doom loop" emerged, leading to a breakdown in functioning of the gilt market within a matter of days.[30] The Bank took swift action to reduce the risk of a self-reinforcing cycle of collateral calls and forced gilt sales by giving pension funds time to meet their liquidity obligations. This forestalled an unwarranted tightening of financing conditions and an associated reduction in the flow of credit to households and businesses. Our concern was that, without swift intervention, a large number of pooled LDI funds would have been left with negative net asset value and would have faced shortfalls in the collateral posted to banking counterparties. If the LDI funds had defaulted, the large quantity of gilts held as collateral by the banks that had lent to these funds could have been sold on the market, further impairing the gilt market. This would have accelerated self-reinforcing falls in asset prices, risking a sudden and excessive tightening of financing conditions for the real economy.[31]

On September 28, 2022, the FPC recommended that action be taken to address the risk to UK financial stability from dysfunction in the gilt market. It also welcomed the Bank's plans for

temporary and targeted purchases in the long-dated gilt market on financial stability grounds at an urgent pace.[32] The MPC was informed of these temporary and targeted financial stability operations.[33]

The intervention followed five principles that were designed to maximize effectiveness while minimizing moral hazard and risks to monetary policy and to taxpayers:[34]

1. *Temporary:* The plan announced on September 28 stated that the program would run for thirteen trading days to allow pension and LDI funds the time to adjust their portfolios and build resilience. On October 3, the bank reconfirmed that it would carry out temporary purchases of long-dated UK government bonds until October 14, despite some pressure from market participants to extend the program.[35]
2. *Targeted:* The purchases were concentrated initially on longer-dated nominal bonds and, on October 11, the Bank added inflation-indexed bonds (greater than three years) to purchases given their importance in pension and LDI repo positions.[36]
3. *Backstop pricing:* The Bank set a reserve spread that was, broadly speaking, wider than "normal" market conditions and narrower than in stress. This meant that it only purchased at relatively distressed prices, which limited the take-up in the facility to those that needed it. In the end the Bank only bought £19.3 billion in gilts, of which around two-thirds were conventional bonds. This demand-led approach was in contrast to purchases for monetary purposes (QE), in which the Bank sets out to purchase a given quantity of gilts per auction. Moreover, when combined with the temporary and targeted approach to the intervention, backstop pricing limited moral hazard.

4. *Timely and orderly unwind:* The Bank began unwinding the portfolio on November 29, using a demand-led approach. This had the advantage of limiting impact on market pricing, allowing the portfolio to be fully dispensed of by January 12, 2023, without reigniting market dysfunction.
5. *Regulatory response to reduce underlying vulnerability:* During and after the intervention there was close interaction between the Bank and The Pensions Regulator (TPR), the Financial Conduct Authority (FCA), and overseas regulators of the LDI funds.[37] In March 2023, the FPC recommended that TPR act as soon as possible to mitigate the financial stability risks by specifying the minimum levels of resilience for the LDI funds and LDI mandates in which pension-scheme trustees may invest. The FPC also recommended that TPR should have the remit to consider financial stability issues on a continuing basis.

Ultimately, pension and LDI funds had time to rebuild their resilience to future market volatility (which is typically not an objective of monetary policy operations), and came out in a stronger position. This involved, among other actions, lowering leverage by selling £37 billion in gilts and raising an estimated £33 billion in funds from pension schemes (by selling other types of assets and using cash buffers).[38] Moreover, from the initial position where there were very few buyers before the Bank's financial stability intervention, the market ended up absorbing almost 50% of the total sales while yields stayed broadly in check (see table 13.1). With stable functioning of the gilt market restored, the first asset sales as part of QT commenced on November 1, starting with shorter-dated bonds.[39]

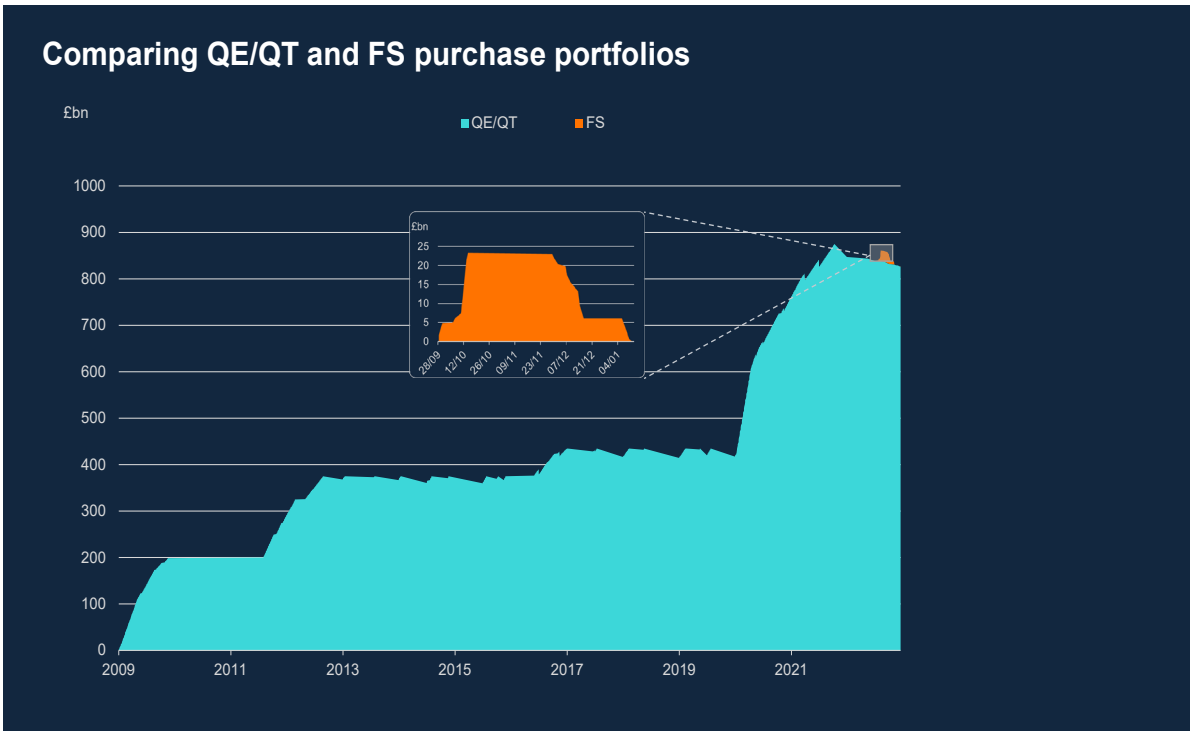
Table 13.1: Comparing gilt purchases for financial and monetary stability purposes.

	Financial stability purchases (October 22 – January 23)	**Monetary stability purchases (QE)**
Purpose and governance	Aimed at reducing the risk of a self-reinforcing price spiral triggered by LDI vulnerabilities. FPC recommended action to tackle financial stability risk; MPC informed, in line with the Concordat regarding balance sheet operations; Bank executive implemented.	QE aimed at easing monetary conditions in pursuit of the inflation target. MPC voted on quantity targets; Bank executive implemented.
Duration of purchases and exit plan	Temporary: purchases undertaken for only as long as required by financial stability issue; and unwound through sales back to market in timely and orderly way once dysfunction resolved.	High level targets for purchase, unwind and sales programmes voted on by MPC as part of its monetary policy process.
Asset selection	Targeted: at assets most affected by financial stability issue.	Appropriately broad based to achieve monetary policy goals.
Pricing	Backstop pricing: to ensure the facility did not unduly interfere with price discovery or substitute for the need for market participants to manage their own risks over the medium term.	Priced to deliver MPC-determined quantity targets.

Source: Andrew Hauser, "Looking through a Glass Onion: Lessons from the 2022 LDI Intervention," speech given at the Initiative on Global Markets' Workshop on Market Dysfunction, the University of Chicago Booth School of Business, Bank of England, March 3, 2023.

Strict adherence to the design principles was critical to distinguishing asset purchases to support financial stability from purchases to support monetary policy objectives (table 13.1). Given the small size of the intervention relative to overall QE, it was not expected to have meaningful spillovers to monetary policy (figure 13.5). Early research indicates that, indeed, the intervention stabilized markets while having limited impact on monetary policy.[40]

Figure 13.5: Gilt Purchases for Financial Stability Were Small Relative to QE.



Source: Adapted from Paul Alexander, Rand Fakhoury, Tom Horn, Waris Panjwani, and Matt Roberts-Sklar, "Financial Stability Buy/Sell Tools: A Gilt Market Case Study," Bank of England, 2023.

This highlights the third lesson: Financial stability interventions support monetary policy objectives without necessarily affecting the stance of monetary policy, if temporary and targeted.

The intervention benefited from advance work by the Bank of England and others on how to develop central bank tools to deal with funding and market liquidity issues that threaten financial stability, some of which was motivated by the "dash-for-cash" episode at the onset of the COVID-19 pandemic.[41] This advance work, combined with staff with the right experience and access to market intelligence to execute, contributed to the success of the operation.

At the same time, activity in the nonbank financial sector continues to evolve, introducing new sources of systemic risk that need to be identified and mitigated.[42] As part of this effort, the Bank of England is continuing to develop its toolkit, with the gilt market as the initial areas of focus. The first phase will develop a tool that will act as a backstop in stress by providing liquidity to eligible pension funds, insurance companies, and LDI funds by lending cash against gilts in situations of system-wide stress that threaten financial stability.[43] Over time, the Bank intends to consider how this tool might be broadened to include a wider range of NBFIs as counterparties.

This highlights the fourth lesson: Central bank liquidity facilities need further development, particularly with regard to NBFI.

Given this, the Bank is working to develop its financial stability toolkit.[44] The FPC has stated a preference for backstopping market functioning by lending directly to NBFIs against high-quality collateral, when possible, rather than with asset purchases because it presents less risk to public funds and less moral hazard.[45] There may be circumstances in which lending may not be enough to alleviate the stress, as was the case with the LDI funds. In general, episodes of system-wide stress may differ in ways that require different remedies, so flexibility and nimbleness will be required.

Governance of Financial Stability Was a Strength

The clear and separate delegation of authorities for monetary and financial system policies in the UK is unique, and allowed the Bank's FPC to recommend that the Bank intervene to stabilize

gilt markets and that the MPC be informed that action would be taken. This recommendation was consistent with the FPC's mandate to identify and monitor risks to the financial system, and to take appropriate action when necessary (see table 13.2 for FPC structure and mandate).[46]

While much of the time financial stability and monetary policy goals and actions are self-reinforcing, as experienced over the last couple of years, there can be real or perceived trade-offs. In the LDI episode, the monetary policy transmission mechanism was clearly at risk of impairment, which suggests compatible goals if executed following the principles outlined above. However, the concern over a potential trade-off arose because the MPC had announced just the day before (September 22) that it would reduce the stock of purchased UK government bonds held in the Asset Purchase Facility.

These trade-offs were very well managed through the governance arrangements in the UK:

1. The MPC has clear, measurable goals, authorities, and accountability to parliament. The inflation-targeting regime mitigates the concern that financial stability or prudential concerns will creep into decision making unless they directly influence inflation.
2. The FPC also has a clear mandate, authorities, and accountability to parliament.[47] This means that any actions taken must be targeted to the specific financial stability problem at hand, with design focused on stabilizing the situation while limiting moral hazard and other costs to the UK economy.
3. External members of each committee bring different outside sources of expertise that contribute to the policy discussions and decisions. These external members will have a particular focus on the objectives of the committee to which they belong, compared

to the internal members, when faced with trade-offs between financial stability and monetary policy.[48]

4. Regularly scheduled communications between the committees means that each benefits from being better informed on areas of common interest, such as the economic outlook; how higher interest rates are affecting household and business finances; and what might be an appropriate bank stress-test scenario.

This highlights the fifth lesson: The Bank of England's financial stability framework showed its worth, supported by a clear financial stability mandate, governance, and separation of responsibilities between the MPC and the FPC.

A dedicated and empowered financial stability committee puts the focus on prevention through monitoring, stress testing, and follow-up actions to reduce vulnerabilities. It supports timely reaction to stress events that will minimize risks to public funds and market incentives, as well as the stance of monetary policy.

Conclusions

The Bank of England, along with many other central banks, tightened monetary policy as a necessary action to bring down inflation. While inflation control is foundational to economic and financial stability, market forces can be particularly merciless in the face of poorly managed risk. Both the SVB failure and LDI crisis are painful reminders that government bonds may be "free" from credit risk, but they are not free from interest rate risk. At a minimum, financial firms should build adequate resilience to self-insure against all but the most severe scenarios. Clearly,

the capital liquidity requirements placed on all UK banks have contributed to their resilience to higher interest rates over the last couple of years.

Nonetheless, the LDI crisis underscores the need for better data and models to capture interconnections within the financial system, including NBFIs, and to test operational resilience and scenarios that have no historical precedent. The Bank's SWES exercise is an excellent step in this direction because it will help us understand the interconnections between different parts of the financial system. Given that risk cannot be driven to zero, the Bank continues to work on its liquidity toolkit with regard to NBFIs.

The Bank's intervention to purchase gilts over a thirteen-day period in 2022 successfully stabilized gilt markets and afforded pension schemes the time to meet their liquidity obligations. It supported monetary policy objectives by forestalling an unwarranted tightening of financing conditions and an associated reduction in the flow of credit to households and businesses. Because the intervention was temporary and targeted, it did not affect the stance of monetary policy in any meaningful way.

Finally, this episode highlighted the worth of the Bank's financial stability framework, which is based on a clear financial stability mandate, governance, and separation of responsibilities between MPC and FPC (see table 13.2). It allowed for preplanning for this type of intervention, rapid identification of the problem and decision to act, and clarity of communication to markets to distinguish between financial stability and monetary policy operations.

Table 13.2. Summary of the Financial Policy Committee's roles and responsibilities

Objectives	To contribute to the Bank's financial stability objective to protect and enhance UK financial stability primarily by identifying, monitoring, and taking action to remove/reduce systemic risk with a view toward protecting and enhancing the resilience of the UK financial system. Subject to that, the FPC also has a secondary objective to support the economic policy of the government.
Main powers	May give directions to the Prudential Regulatory Authority (PRA) and FCA in relation to specified macroprudential measures. Powers to make recommendations to the Bank, FCA, PRA, and to His Majesty's Treasury and other persons.
Membership	Thirteen members: six Bank of England staff, five external, FCA CEO, and one HMT member
Decisions taken by	Consensus wherever possible (otherwise by vote of those present, and the person chairing has a casting vote in the event of a tie)
Meeting frequency	Quarterly cycle of meetings
Treasury Ministry involvement	HMT member (non-voting). HMT specifies what HMG economic policy is taken to be for purposes of secondary objective. HMG may make recommendations about FPC's responsibilities and functions in the annual remit letter.
Key publications	Summary and Record of all decisions published (four times a year). Twice-yearly Financial Stability Report Financial Stability in Focus (FSIF) – for more detail on certain topics.

[1] Viral Acharya, "Financial Stability in the Broader Mandate for Central Banks: A Political Economy Perspective," Hutchins Center Working Paper, April 14, 2015; and Renee Haltom and John A. Weinberg, "Does the Fed Have a Financial Stability Mandate?" Federal Reserve Bank of Richmond, June 2017.

[2] Michael D. Bordo and David C. Wheelock, "Monetary Policy and Asset Prices: A Look Back at Past US Stock Market Booms," National Bureau of Economic Research Working Paper No. 10704, August 2004; Charles Bean, "Asset Prices, Financial Imbalances and Monetary Policy: Are Inflation Targets Enough?" Band for International Settlemets Working Paper No. 140, September 2003; and David Gruen, Michael Plumb, and Andrew Stone, "How Should Monetary Policy Respond to Asset-Price Bubbles?" *International Journal of Central Banking* 1, no. 3 (2005).

[3] Isabel Schnabel, "Monetary Policy and Financial Stability," speech by Isabel Schnabel, Member of the Executive Board of the European Central Bank, at the Fifth Annual Conference of the European Systemic Risk Board, December 8, 2021.

[4] Hyun Song Shin, "Is There a Risk of Snapback in Long-Dated Yields?" Panel remarks by Hyun Song Shin, Economic Adviser and Head of Research of the BIS, at the Second ECB Annual Research Conference, September 25, 2017; Financial Stability Board, "FSB Assesses Financial Vulnerabilities and Takes Stock of Actions under Its 2018 Workplan," June 25, 2018; and International Monetary Fund, "Global Financial Stability Report, April 2018: A Bumpy Road Ahead," April 2018.

[5] An increase in Bank rate forms part of the Annual Cyclical Scenarios undertaken in 2017, 2018, 2019, and 2022–23.

[6] Bank of England, "Financial Stability Report, November 2018." Liquidity risks from margin calls was also discussed in Matt Roberts-Sklar and Sheila Torrance, "Liquidity Risk: A Wake-Up Call," *The Actuary*, February 3, 2021.

[7] For instance, see Bank of England, "Financial Policy Summary and Record of the Financial Policy Committee Meeting on 16 June 2022."

[8] Bank of England, "Financial Stability in Focus: Interest Rate Risk in the Economy and Financial System," July 12, 2023.

[9] Board of Governors of the Federal Reserve System, "Review of the Federal Reserve's Supervision and Regulation of Silicon Valley Bank," April 28, 2023.

[10] SVB had a subsidiary in the UK. The Bank of England took the decision to sell the UK bank on March 13. For an overview of events in 2023, see Sam Woods, "Bank Failures," speech given at Mansion House, Bank of England, October 16, 2023.

[11] Prudential Regulation Authority, Bank of England, "The PRA's Methodologies for Setting Pillar 2 Capital," July 29, 2015.

[12] Estimates show that SVB had an LCR of only 75% at the end of 2002, well below the 100% requirement. It would, however, have passed the NSFR test. See Greg Feldberg, "Lessons from Applying the Liquidity Coverage Ratio to Silicon Valley Bank," Yale School of Management, March 27, 2023; and Greg Feldberg, "Silicon Valley Bank's Liquidity, Part Two: What About the Net Stable Funding Ratio?" Yale School of Management, April 4, 2023.

[13] The depositors were concentrated in the tech sector. See Board of Governors of the Federal Reserve System, "Review of the Federal Reserve's Supervision and Regulation of Silicon Valley Bank," April 28, 2023; and Basel Committee on Banking Supervision, "Report on the 2023 Banking Turmoil," Bank for International Settlements, October 5, 2023.

[14] The full set of actions taken is set out in more detail in letters to Parliament. See Bank of England, "Letter from Jon Cunliffe to Mel Stride," October 5, 2022; and Bank of England, "Letter from Jon Cunliffe—LDI," October 18, 2022. The design of the operations is set out in Paul Alexander, Rand Fakhoury, Tom Horn, Waris Panjwani, and Matt Roberts-Sklar, "Financial Stability Buy/Sell Tools: A Gilt Market Case Study," Bank of England Quarterly Bulletin, November 20, 2023.

[15] More than 20% of UK DB pension funds were in deficit in August 2022, and more than 40% were in deficit a year earlier. See Bank of England, "Letter from Jon Cunliffe to Mel Stride."

[16] Investor-pooled funds are structured so that a pot of assets is managed for a large number of pension fund clients who have limited liability in the face of losses. These funds are estimated to make up around 10–15% of the LDI market. See Sarah Breeden, "Risks from Leverage: How Did a Small Corner of the Pensions Industry Threaten Financial Stability?" Speech given at ISDA & AIMA, Bank of England, November 7, 2022.

[17] Lydia Henning, Simon Jurkatis, Manesh Powar, and Gian Valentini, "Lifting the Lid on a Liquidity Crisis," Bank Underground, July 18, 2023.

[18] Jonathan Hall, "With Leverage Comes Responsibility," speech given at National Institute of Economic and Social Research, published online by Bank of England, June 20, 2023.

[19] Their holdings of the eurozone government bond market were also much smaller as a percentage of the market. For further detail, see Mona Dohle, "Dutch Derivatives: Insights from the LDI Crunch in the Netherlands, Portfolio Institutional, January 19, 2023; Sirio Aramonte and Phurichai Rungcharoenkitkul, "Leverage and Liquidity Backstops: Cues from Pension Funds and Gilt Market Disruptions," BIS Quarterly Review, December 2022; and House of Commons, "Oral Evidence to the Work and Pensions Committee (HC 826)," testimonies of Charles Counsell and Nikhil Rathi, December 14, 2022.

[20] Financial Stability Board, "The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation," September 6, 2023.

[21] The plan focused on spurring growth through a number of measures, including reductions in taxes. For more information, see HM Treasury, "The Growth Plan 2022," presented by the Chancellor of the Exchequer to Parliament, September 23, 2022.

[22] For example, see Paul Dales, "Kwarteng Causes Carnage," Capital Economics, September 23, 2022; and Jagjit S. Chadha, Max Mosley, Kemar Whyte, Hailey Low, Stephen Millard, and Adrian Pabst, "An Independent Assessment of the Mini-Budget," National Institute of Economic and Social Research, September 23, 2022.

[23] See Peter Dunne, Angelica Ghiselli, Frederik Ledoux, and Barra McCarthy, "Irish-Resident LDI Funds and the 2022 Gilt Market Crisis," Central Bank of Ireland, Financial Stability Notes, vol. 2023, no. 7 (September 2023); and Gabor Pinter, "An Anatomy of the 2022 Gilt Market Crisis," Bank of England, Staff Working Paper No. 1,019, March 31, 2023.

[24] Net sales of corporate bonds by pension and LDI funds totaled around £10 billion between the day of the mini-budget announcement (September 23) and the end of the Bank of England intervention (October 14). See Chart 5 from Henning et al., "Lifting the Lid."

[25] Bank research shows that, during this period, forced sales by liability-driven investment funds (LDIs) led to discounts of roughly 10%, accounting for nearly half the overall decline in gilt prices. For more on the specific drivers of the selling dynamics in the gilt market, see Gabor Pinter, Emil Siriwardane, and Danny Walker, "Fire Sales of Safe Assets," Bank of England, Staff Working Paper No. 1,089, July 26, 2024.

[26] See Bank of England, "Letter from Jon Cunliffe to Mel Stride."

[27] Michael Brown, "Which Lenders Have Removed Their Mortgages Thus Far?" Moneyfacts, September 29, 2022.

[28] While the report did flag broader issues with pension scheme and LDI fund liquidity management, it did not focus on interconnections between these and other participants (see Bank of England, "Financial Stability Report, November 2018").

[29] The SWES aims to improve our understanding of the behaviors of banks and nonbank financial institutions during stressed financial market conditions and how those behaviors might interact to amplify shocks in UK financial markets that are core to UK financial stability. See Bank of England, "System-wide Exploratory Scenario" webpage, last updated July 12, 2024.

[30] There have been other jumps to illiquidity in recent years, including during the "dash for cash" experienced by many countries when the actions of some NBFIs amplified the initial market reaction to the COVID-19 pandemic.

[31] Bank of England, "Risks from Leverage."

[32] Bank of England, "Bank of England Announces Gilt Market Operation," news release, September 28, 2022.

[33] This was in line with the Concordat governing the MPC's engagement with the Bank's Executive regarding balance sheet operations.

[34] This borrows heavily from Paul Alexander et al., "Financial Stability Buy/Sell Tools." See also Andrew Hauser, "Looking through a Glass Onion: Lessons from the 2022 LDI Intervention," speech given at the Initiative on Global Markets' Workshop on Market Dysfunction, the University of Chicago Booth School of Business, Bank of England, March 3, 2023.

[35] Bank of England, "Gilt Market Operations—Market Notice 3 October 2022."

[36] Bank of England, "Temporary Purchases of Index-Linked Gilts—Market Notice 11 October 2022."

[37] The LDI funds were domiciled and regulated outside the UK.

[38] These gilt sales are smaller than the total margin and collateral calls faced by LDI funds and pension schemes over this period, which Bank staff estimate to be in excess of £70 billion. This reflects the fact that LDI funds and pension schemes were also able to sell assets other than gilts and use existing cash buffers in order to meet these obligations. For more information, see Bank of England, "Financial Stability Report, December 2022."

[39] On October 18, 2022, the Bank announced that the first gilt sale operation would take place on November 1, 2022. Moreover, it announced that, for 2022 Q4, sales would be distributed evenly across short (three to seven years) and medium (seven to twenty years) maturity buckets, rather than also across long (twenty years–plus) maturity.

[40] Nicolò Bandera and Jacob Stevens, "Monetary Policy Consequences of Financial Stability Interventions: Assessing the UK LDI Crisis and the Central Bank Policy Response," Bank of England, Staff Working Paper No. 1,070, April 2024.

[41] See, for example, Darrell Duffie and Frank M. Keane, "Market-Function Asset Purchases," Federal Reserve Bank of New York, February 2023; Bank of International Settlements, "Market Dysfunction and Central Bank Tools," Markets Committee Papers, May 11, 2022; and Andrew Hauser, "Why Central Banks Need New Tools for Dealing with Market Dysfunction," speech given at Thomson Reuters Newsmaker, Bank of England, January 7, 2021.

[42] Bank of England, "Financial Policy Summary and Record of the Financial Policy Committee Meeting on 13 March," March 27, 2024.

[43] Nick Butt, "Market Resilience, Non-bank Financial Institutions and the Central Bank Toolkit—Practical Next Steps," speech given at ISDA virtual conference on Procyclicality and Margin Practices, March 12, 2024.

[44] UK Parliament, "Quantitative Tightening: Government, Bank of England and Debt Management Office Reponses to the Committee's Fifth Report," April 18, 2024.

[45] Bank of England, "Financial Policy Summary and Record of the Financial Policy Committee Meeting on 13 March," March 27, 2024.

[46] An interim Financial Policy Committee was created by the Court of the Bank in February 2011. It was then statutorily established by the Financial Services Act of 2012, which came into effect in 2013 pursuant to the Financial Services Act of 2012 (Commencement No. 1) Order 2013.

[47] The same can be said of the Prudential Regulatory Authority.

[48] For instance, governance issues can arise when a central bank is responsible for bank regulation because they may consider the profitability and stability of the banking sector in the setting of monetary policy, and not just inflation. See Mark Copelovitch, Jeffry Frieden, and Stefanie Walter, "The Political Economy of the Euro Crisis," *Comparative Political Studies* 49, no. 7 (March 14, 2016).