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Topic

Recent global episodes tested conventional and unconventional monetary policy approaches. Which unconventional monetary policy decisions were more (or less) successful? Which monetary policy rules were more or less effective? Why?

Quantitative Easing Across Monetary Regimes: Design Effectiveness under Institutional Constraints in the United States, Eurozone, and Switzerland

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Abstract

After 2008, central banks used quantitative easing (QE) under different legal and financial structures, which makes simple comparisons by balance-sheet size or macro outcomes misleading. This paper asks: Which post-2008 QE design features most plausibly improved transmission under the institutional constraints of the United States, Eurozone, and Switzerland? To answer this question, the paper compares QE as a policy design package of asset purchases, maturity choices, counterparties, and communication, and evaluates each case by the fit between the targeted transmission bottleneck and the policy design, the plausibility of easing in nearby transmission variables, and the institutional constraints that shaped implementation and exit. The paper's conditional answer is that QE appears most successful when the package was closely matched to the nearest blocked market price within a workable mandate and operational framework; on that basis, U.S. direct purchases form the strongest design cluster for market-priced blockages, euro-area anti-fragmentation measures were effective but more dependent on wider governance repair, and Swiss reserve-heavy intervention was effective for a narrower exchange-rate problem while offering the least portable template. These findings remain bounded. The evidence is stronger for nearby market effects than for broader macroeconomic outcomes, and anticipation, overlapping policies, and cross-country institutional differences limit clean causal attribution and any universal ranking of QE packages.

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1. Introduction

After 2008, several major central banks had to ease monetary conditions when conventional policy-rate cuts had little room left. Asset purchases therefore shifted from an emergency crisis tool to a recurring instrument at the lower bound (European Central Bank, 2015, para. 1). Yet central banks used them within monetary systems that differed in financial structure, mandates, and market pressures.

This created a comparative problem. Policies grouped under quantitative easing did not follow a single purchase template, and their effects cannot be read from sovereign yields alone. To keep the comparison focused, this paper narrows the broader field of unconventional monetary policy to purchase-based easing at the lower bound in the United States, the euro area, and Switzerland. In the U.S. case, this corresponds to large-scale asset purchases adopted once short-term rates had effectively reached zero (Bauer et al., 2013, p. 1). Here, a QE package means lower-bound asset purchases together with the maturity, communication, and implementation choices that shape transmission. Cross-jurisdiction evaluation remains difficult because similar labels can hide different asset mixes, counterparties, and institutional limits.

Against this background, this paper asks: which QE design features most plausibly improved transmission under U.S., euro-area, and Swiss institutional constraints? It answers this question by linking each QE package to the transmission bottleneck it was meant to ease and to the yields, spreads, rates, or exchange-rate indicators nearest to that bottleneck. This approach keeps the assessment on design fit and practical workability rather than on balance-sheet size or broad ex post macroeconomic outcomes.

The next section sets out the comparison framework by defining the paper's key concepts and explaining why institutional setting matters for QE transmission. It then compares the United States, the euro area, and Switzerland in terms of bottlenecks, asset mix, communication, and nearby market evidence. The final section brings these strands together in a conditional assessment of relative success and of which QE lessons travel across jurisdictions.

2. QE Transmission in Different Monetary Systems

2.1 Defining QE as a Lower-Bound Purchase Package

To compare the United States, the euro area, and Switzerland, this paper needs a narrower object than unconventional monetary policy in general. Here, a quantitative easing (QE) package means lower-bound asset purchases together with the maturity, communication, and implementation choices that make those purchases transmit. The effective lower bound is the point at which further cuts in the policy rate stop being the main workable easing tool. The Bank of England defines QE as reserve-financed asset purchases undertaken when Bank Rate had reached its effective lower bound, and the ECB likewise presents asset purchases as tools used when policy rates close to their lower bound are no longer sufficient on their own (Bank of England, 2022, para. 1; European Central Bank, 2015, para. 1). In the U.S. case, the usual label is large-scale asset purchases (LSAPs). Bauer et al. describe LSAPs as purchases of medium- and long-maturity securities that expanded the Federal Reserve's balance sheet once short-term rates had effectively reached zero (Bauer et al., 2013, p. 1). This definition excludes balance-sheet policies that are not purchase-based easing. In line with that distinction, the Bank of England explicitly separates its discussion of QE from quantitative tightening (QT) (Bank of England, 2022, para. 7). Defined this way, the object of analysis is purchase-based lower-bound easing rather than every balance-sheet change adopted in crisis.

A bond-purchase-only template is still too narrow for the cases compared here. In the United States, the Federal Reserve combined Treasury purchases with agency bonds and agency mortgage-backed securities (MBS) (Vissing-Jorgensen, 2011, p. 1). The key design issue is therefore the composition of the purchased portfolio, not the quantity of a single sovereign instrument. In the euro area, the European Central Bank's Asset Purchase Programme (APP) was limited to secondary-market purchases, with explicit safeguards on timing and scale (European Central Bank, 2015, para. 4). The programme also sat within a Eurosystem structure with centrally coordinated purchases and only partial risk sharing, and the ECB presented it as a tool for inflation in the euro area as a whole rather than for any one member state's debt position (European Central Bank, 2015, para. 6; European Central Bank, 2015, para. 8). Switzerland differed more sharply. In 2011, reserve expansions were implemented through purchases of short-term debt rather than long bonds, yet Swiss long-bond term premia still fell after the announcements (Krogstrup, 2018, p. 17; Krogstrup, 2018, p. 21). Comparability therefore rests on

purchase-package design, asset mix, maturity focus, counterparties, and signaling, rather than on whether all three central banks bought the same long bonds.

2.2 Transmission Bottlenecks and Design Choices

Once QE is treated as a package, the next step is to identify the transmission bottleneck it was meant to ease. Here, a transmission bottleneck is the blockage nearest to the market the central bank is trying to move, such as safe-asset term premia, mortgage and prepayment-sensitive pricing, bank-intermediation frictions, or exchange-rate pressure. It is therefore misleading to judge QE through Treasury rates alone, because different purchased assets affect different nearby markets and their effects depend on what is bought (Vissing-Jorgensen, 2011, p. 1). More broadly, the Bank of England describes several QE transmission routes and stresses that their relative importance changes with market conditions (Bank of England, 2022, para. 12). The relevant channel map also extends beyond domestic bond markets, because quantity-driven changes in long-term rate differentials can move exchange rates as well as local term premia (Greenwood et al., 2020, p. 6). For the comparison that follows, the vocabulary stays deliberately short: the main design levers are asset mix, maturity concentration, counterparty structure, and signaling choices, and the analytical question is whether those levers matched the blockage nearest to the intended market effect.

One mechanism needs separate treatment because it changes how the Swiss case should be read. In this paper, the reserve-induced portfolio-balance channel refers to transmission through reserve creation, deposit inflows, and bank balance-sheet adjustment rather than through the removal of long-duration assets from private portfolios. Krogstrup argues that QE can alter portfolios in both ways: it reduces the supply of purchased assets and, at the same time, expands central-bank reserves, with effects that may matter even when long-term bond supply is unchanged (Krogstrup, 2018, p. 1). In that framework, this second route depends on a segmented reserve market in which only banks hold reserves, so the identity of the transacting sector matters alongside the maturity of the purchased asset (Krogstrup, 2018, p. 2). The Swiss episodes illustrate the point: reserve expansion through short-term purchases was followed by falling term premia on benchmark Swiss Confederation bonds (Krogstrup, 2018, p. 2). Krogstrup also shows that purchases of short-term bonds can still raise long-bond prices through banks' portfolio responses (Krogstrup, 2018, p. 17). These effects further depend on transactions with nonbanks and on the associated expansion of bank balance sheets, so counterparty mix and bank constraints

belong to the transmission mechanism itself (Krogstrup, 2018, p. 22). This distinction keeps Switzerland within the common comparison while preventing reserve growth alone from counting as evidence of successful transmission.

2.3 Institutional Constraints on QE

With this vocabulary in place, success can be defined more narrowly than a full claim about growth or inflation. In this paper, nearby transmission variables are the yields, spreads, rates, or exchange-rate indicators closest to the bottleneck a QE package was meant to ease. An overnight index swap (OIS) is a contract whose fixed rate reflects risk-adjusted expectations of the average policy rate over the life of the swap (Bauer et al., 2013, p. 14). Around key large-scale asset purchase (LSAP) announcements, OIS rates and Treasury yields moved closely together (Bauer et al., 2013, p. 14). In the U.S. mortgage segment, Federal Reserve market shares in both mortgage-backed securities (MBS) and Treasuries were significant determinants of MBS yields, and lower MBS yields fed through to lower mortgage rates (Passmore, 2014, p. 32; Passmore, 2014, p. 20). In more open-economy settings, QE announcement dates associated with larger movements in relative long-term forward rates were typically accompanied by exchange-rate movements as well (Greenwood et al., 2020, p. 45). At the same time, markets can anticipate LSAP announcements, and some portfolio-rebalancing effects become visible only as purchases proceed (Passmore, 2014, p. 9). The evidence base is also limited, because QE episodes are few and usually launched amid market disturbance, which makes later macroeconomic attribution difficult (Bank of England, 2022, para. 10). On this view, success begins with easing the prices nearest to the claimed bottleneck.

That market-side standard still has to be read through institutional constraints. Here, institutional constraints cover the mandate, legal perimeter, market structure, counterparty set, and operational capacity that bound what a central bank could plausibly buy and how it could implement those purchases. For the European Central Bank (ECB), asset purchases were framed as monetary-policy tools for maintaining price stability when lower-bound rates were no longer sufficient, and the asset purchase programme (APP) was limited to secondary-market purchases rather than direct financing of member states (European Central Bank, 2015, para. 1; European Central Bank, 2015, para. 3). The ECB also stressed that the APP was coordinated across the Eurosystem and calibrated to the euro area's specific institutional structure (European Central Bank, 2015, para. 7). Its workability therefore has to be judged within that architecture. Switzerland faced a

different feasible design space. In 2011, the relevant episodes worked through reserve expansion under exchange-rate pressure rather than through large removals of long-duration bonds (Krogstrup, 2018, p. 21). More generally, the Bank of England notes that QE effects depend on context and can vary with market conditions (Bank of England, 2022, para. 12). For this paper, that means later sections judge each QE package by bottleneck-design fit and nearby easing within its feasible mandate, not by balance-sheet size or ex post macro headlines.

3. QE Design in the United States, the euro area, and Switzerland

3.1 Bottlenecks, Asset Mix, and Design Fit

Under this paper's bounded definition, a quantitative easing (QE) package should first be read against the transmission bottleneck it was meant to ease. In the United States, the Federal Reserve used purchases to increase the availability and affordability of credit, especially in housing, rather than simply to push down government yields in the abstract (Neely, 2010, p. 6). In the euro area, by contrast, the European Central Bank (ECB) faced sovereign yields shaped by country-specific default, redenomination, and segmentation premia rather than by one common benchmark curve (Krishnamurthy et al., 2017, p. 12). The problem there was impaired monetary transmission across member states within a single currency union. Once policy rates neared their effective lower bound, the ECB therefore moved beyond conventional rate setting because further cuts would have had little traction on their own (European Central Bank, 2025, para. 1). Switzerland was different again: the Swiss National Bank (SNB) responded to franc-appreciation pressure by raising banks' sight deposits from CHF 30 billion to CHF 80 billion through money-market operations, not by announcing a conventional long-bond programme (Krogstrup, 2016, p. 11). Public debate focused on exchange-rate floors and negative rates rather than on reserve expansion, which made the chosen instrument unusual in its own setting (Krogstrup, 2016, p. 14). The relevant comparison is therefore not which balance sheet became largest, but which QE package sat closest to the actual blockage in transmission.

This difference in bottlenecks also appears in asset mix and maturity choice. In the United States, the first Federal Reserve purchase round (QE1) combined mortgage-backed securities (MBS), agency debt, and Treasuries (Neely, 2010, p. 1). Treasury purchases ran across the yield curve but were concentrated in the four- to ten-year sector, so maturity choice supported rather than displaced the mortgage focus (Neely, 2010, p. 7). This was a strong design fit. The mortgage market carried a distinct prepayment-risk premium and was segmented from other fixed-income markets, so MBS purchases targeted the part of transmission where refinancing was most impaired (Vissing-Jorgensen, 2011, p. 8). In the euro area, the Securities Markets Programme (SMP) and the later Outright Monetary Transactions (OMT) were better matched to crisis conditions than a generic duration programme. OMT focused on government bonds with maturities between one and three years and tied any activation to fiscal conditionality (Krishnamurthy et al., 2017, p. 9). Later ECB purchases kept this broader logic by spanning

government bonds, supranational securities, corporate bonds, asset-backed securities, and covered bonds, while private-sector purchases were intended to improve bank lending conditions directly rather than merely flatten a common sovereign curve (European Central Bank, 2025, para. 2; European Central Bank, 2025, para. 3). Switzerland, by contrast, relied on SNB bill buybacks, expiring reverse repos, and foreign-exchange swaps to expand reserves (Krogstrup, 2016, p. 11). In a market with limited public debt supply, that route was more plausible than a standard large-scale long-bond programme (Krogstrup, 2016, p. 8). Across the three cases, the stronger designs were those that targeted the asset closest to the blockage, not simply the asset with the longest maturity.

Even so, asset choice was never unconstrained. In the euro area, the ECB initially faced legal and practical hurdles to broad bond buying, including the question of how purchases could be distributed across member states, which narrowed the feasible perimeter of intervention relative to the United States (Neely & Bhattarai, 2016, p. 24). Swiss constraints were different: the SNB could expand reserves on a very large scale, but a conventional long-bond strategy was harder to execute because domestic government debt was scarce relative to the desired balance-sheet change (Krogstrup, 2016, p. 8). The United States had a wider operational perimeter, yet housing transmission still remained uneven. The agency-conforming segment and the jumbo segment did not face the same credit conditions or refinancing opportunities, and some borrowers had to deleverage simply to regain access to cheaper conforming refinancing (Palmer, 2019, p. 7; Palmer, 2019, p. 29). Design fit was therefore necessary but not sufficient, because institutional constraints shaped what each central bank could realistically buy, how far purchases could scale, and which counterparties could transmit the easing.

3.2 Transmission Channels Across Markets and Systems

These constraints mattered because similar purchase labels hid different transmission mechanisms. In the United States, purchases of mortgage-backed securities (MBS) worked in the segment most relevant for conforming refinancing, where prepayment risk and asset-specific demand were central to pricing (Vissing-Jorgensen, 2011, p. 8). During QE1, conforming-segment refinancing rose much more than jumbo refinancing, which fits an asset-specific refinancing channel better than a purely Treasury-based effect (Palmer, 2019, p. 31). In the euro area, sovereign interventions worked less through a generic term-premium story than through compression of default, redenomination, and segmentation components (Krishnamurthy et al.,

2017, p. 1). Long-Term Refinancing Operations (LTROs) were multi-year ECB loans to banks against collateral, so they worked through bank balance sheets rather than through direct sovereign purchases (Krishnamurthy et al., 2017, p. 10). Resident banks then increased holdings of their own countries' sovereign bonds over the LTRO period, which indicates one route through which the policy could ease stressed markets (Krishnamurthy et al., 2017, p. 11). Yet event-window evidence suggests that this indirect route was weaker, since LTRO effects on sovereign yields were much smaller and less consistent than those of SMP or OMT (Krishnamurthy et al., 2017, p. 53). Switzerland was different again. Because nonbanks cannot hold reserves directly, their transactions with the central bank appeared on bank balance sheets as higher reserves and matching deposits, leaving banks with a different portfolio mix (Krogstrup, 2018, p. 6). In that setting, long yields could fall through a reserve-induced portfolio-balance channel even without removing long-duration government paper from the market (Krogstrup, 2018, p. 17). This keeps Switzerland comparable, but not reducible, to a standard long-bond case.

Communication formed part of all three QE packages, but its role differed across cases. In the United States, QE1 announcements shifted federal funds futures in a way consistent with markets pushing expected rate increases further into the future (Vissing-Jorgensen, 2011, p. 17). The ECB also describes asset purchases as a signal that key interest rates will stay low for an extended period, thereby reducing uncertainty about future rate paths (European Central Bank, 2025, para. 6). Swiss evidence points to a narrower signaling role. The August 2011 reserve-expansion announcements moved long yields much more than short maturities, which is hard to read as a strong short-rate signal alone, and intraday reactions to the later announcements were gradual rather than immediate, fitting better with adjustments in required premia than with a single sharp revision in expected policy rates (Krogstrup, 2016, p. 18; Krogstrup, 2016, p. 32). This distinction matters because expectations effects are comparatively broad, whereas fragmentation and reserve channels have a narrower immediate market reach. Signaling therefore helped across cases, but it mattered most where the bottleneck was sensitive to expectations rather than where fragmentation or reserve transmission carried the main burden.

3.3 Nearby Market Evidence and Attribution Limits

Nearby market evidence is strongest where design fit was tightest. In the United States, conforming-segment refinancing in the first three months of QE1 was 43 percent higher than it would have been if conforming loans had reacted like jumbo loans, implying roughly 220,000

additional households refinancing in that early phase alone (Palmer, 2019, p. 31). That pattern is hard to square with a purely generic Treasury channel. In the euro area, two-day windows around the Securities Markets Programme (SMP) and the Outright Monetary Transactions (OMT) show large declines in Italian, Spanish, and Portuguese sovereign yields, especially at short and medium maturities (Krishnamurthy et al., 2017, p. 53). For Italy and Spain, the reported OMT-related declines at the two-year horizon exceeded 200 basis points across the key announcement dates (Krishnamurthy et al., 2017, p. 53). The average decline associated with SMP and OMT is attributed mainly to default and domestic-segmentation premia, with a smaller but still relevant redenomination component (Krishnamurthy et al., 2017, p. 1). In Switzerland, ten-year yields fell by 28 basis points across the August 2011 announcements, while one- and two-year yields moved much less (Krogstrup, 2016, p. 18). The largest single long-rate decline followed the final and most forceful reserve-expansion step, and separate regressions still show significant negative announcement effects on the Swiss ten-year term premium after controls for U.S. and euro-area term premia, liquidity, and the VIX (Krogstrup, 2016, p. 18; Krogstrup, 2016, p. 30). On a common nearby-variable standard, the most convincing cases are those in which the asset package moved the specific rate or spread it was designed to reach.

At the same time, attribution remains conditional rather than cleanly causal. In the United States, lower mortgage rates did not translate uniformly into effective pass-through, because many households could benefit only if they qualified for a new mortgage (Palmer, 2019, p. 4). Credit supply also depended in part on the health of the banking sector (Palmer, 2019, p. 7). Bank-level evidence further shows that more distressed lenders expanded jumbo refinancing much less during QE1, which underlines how unevenly the easing reached intended borrowers (Palmer, 2019, p. 22). In the euro area, identification is especially weak around LTRO dates, because fiscal plans and other crisis news overlapped with ECB communication, and the measured price changes capture shifts in programme probabilities rather than a pure treatment effect (Krishnamurthy et al., 2017, p. 25). Switzerland poses a similar challenge: the reserve-expansion announcements arrived during intense market upheaval and flights to safety (Krogstrup, 2016, p. 27). Even so, the estimated Swiss ten-year term-premium effects remain negative after controls for foreign term premia, liquidity, and market volatility (Krogstrup, 2016, p. 30). The safest comparative conclusion is therefore modest: QE packages look most convincing when their design matched the nearest transmission bottleneck, but that lesson does not yield a single preferred purchase template.

4. Relative Success and the Limits of QE Portability

4.1 Institutional Compatibility and Durable Success

The previous comparison showed that nearby easing was strongest when the quantitative easing (QE) package matched the transmission bottleneck. Durable success, however, also depends on whether that easing can be sustained within the central bank's institutional setting. Monetary transmission operates with long, variable, and uncertain lags, which makes it hard to infer ultimate effectiveness from short-run market moves alone (European Central Bank, 2026, para. 1). Comparative work on central-bank asset purchases likewise finds that asset-price responses are easier to identify than broader macroeconomic effects, because the counterfactual path of output and inflation is hard to establish (Fawley & Neely, 2013, p. 81). In this paper, nearby transmission variables remain necessary evidence because they sit closest to the intended channel. But a QE package ranks highly only when the initial easing rests on a workable legal, operational, and exit framework rather than on temporary relief alone. The assessment therefore shifts from immediate transmission to durable, mandate-compatible transmission.

The euro area shows most clearly why durable success depends on institutional compatibility. Standard and nonstandard ECB measures improved interbank spreads and financing conditions more broadly. A concrete sign of that relief came after the second three-year longer-term refinancing operation (LTRO), when the spread between three-month euro Libor and the overnight indexed swap (OIS) rate fell to about 53 basis points from more than 90 basis points in December. But this relief did not remove the deeper constraints on transmission. Bank fragility, slow recapitalization, and cross-country fragmentation continued to hamper transmission, while lower market rates did not produce a comparable revival of bank lending to the euro area's private sector. Once banking union and the European Stability Mechanism gained greater credibility, pressure on the ECB eased. Euro-area success was therefore real, but it remained heavily dependent on wider governance repair, which lowers its rank on durable workability.

The U.S. case looks operationally cleaner where the blockage lay in market-priced long-term yields. On the Federal Reserve's balance sheet, agency debt and mortgage-backed securities began accumulating in November 2008, and longer-term Treasury holdings followed in March 2009 (Fawley & Neely, 2013, p. 66). Fawley and Neely also argue that this design matched the more market-based U.S. financial structure: debt securities were relatively more important in the United States, whereas bank loans played a larger role in Europe (Fawley & Neely, 2013, p. 71).

This helps explain why the Fed relied more heavily on bond purchases. During the unconventional-policy period, U.S. monetary policy shocks reflected revisions to both the expected path of short rates and term premia (Lundblad, 2020, p. 1). That strength came with a cost, because emerging-market equity returns became much more sensitive to expected short-rate and term-premium changes during the taper period than during the QE period, and the cross-border portfolio effects of U.S. policy were more pronounced during unwinding than during easing (Lundblad, 2020, p. 16) (Lundblad, 2020, p. 1). The U.S. package therefore ranks highly on workability, but its signaling strength also made normalization unusually prone to spillovers.

Switzerland shows that institutional workability could rest on a different instrument mix. The immediate pressure was safe-haven appreciation of the Swiss franc, so the response centered on foreign-exchange intervention rather than on a sovereign-spread programme of the euro-area type (Bank for International Settlements, 2012, p. 5). The balance-sheet counterpart was large reserve accumulation: Swiss foreign reserves rose by $54 billion in 2011, reaching $271 billion (Bank for International Settlements, 2012, p. 5). Exchange-rate movements can affect inflation directly and can also work through broader financing conditions (European Central Bank, 2026, para. 7). On that basis, the Swiss case remains comparable under the paper's rubric, but its effectiveness is tied to a highly specific institutional setting and does not provide a standard long-bond template.

4.2 Conditional Success Across Cases

Once nearby effects and institutional workability are weighed together, the evidence supports a conditional ranking rather than a universal winner. Cross-central-bank purchase totals differed sharply across institutions, which is one reason balance-sheet scale alone is a poor guide to relative success (Fawley & Neely, 2013, p. 77). The same comparative survey also concludes that asset-price effects are clearer than broader macroeconomic effects, so headline growth or inflation outcomes cannot carry the ranking on their own (Fawley & Neely, 2013, p. 81). Relative success is better expressed as stronger and weaker design clusters, ordered by how directly the package moved the nearest blocked rate or spread under feasible implementation. The ranking therefore turns on design fit under constraint, not on the drama of individual announcements. On that basis, the comparison can rank features more convincingly than it can rank central banks in the abstract.

The strongest cluster is direct purchase design in markets where the bottleneck itself is market-priced. In the United States, the concrete mix mattered: mortgage-backed securities and agency

debt were bought first, and longer-term Treasuries were added later, so the package targeted both mortgage pricing and broader duration conditions (Fawley & Neely, 2013, p. 66). This was not generic balance-sheet growth, because the mix itself distinguished mortgage-related paper from Treasury purchases rather than treating all duration as identical (Fawley & Neely, 2013, p. 66). Lundblad (2020) shows that unconventional U.S. policy shocks altered both expected short rates and term premia rather than only one component of long yields (p. 11). At the same time, Federal Reserve communication increasingly tied market expectations to a lower expected policy path, first through extended-period language and later through thresholds linked to unemployment and inflation conditions (Fawley & Neely, 2013, p. 54). This combination makes the U.S. package the most convincing template when the blockage sits in securities markets rather than within bank intermediation.

A second cluster consists of euro-area measures that matched fragmentation and bank-funding stress well but were less able to stand on their own institutionally. Fawley & Neely (2013) describe the ECB as relying more on elastic lending to banks than on large bond purchases, a choice consistent with the euro area's more bank-centred financial structure (p. 71). Within that setting, the ECB's nonstandard measures improved financing conditions, and the Outright Monetary Transactions (OMT) backstop later helped sovereign spreads fall rapidly to more sustainable levels once credibility improved (Hartmann & Smets, 2018, p. 53). But pass-through remained uneven: even after sizable rate cuts, earlier easing had still not been fully transmitted to households and firms in stressed countries by late 2013 (Hartmann & Smets, 2018, p. 57). Implementation also remained constrained by weak banks, cross-country fragmentation, and collateral asymmetries that made access to central bank liquidity easier in some jurisdictions than in others (Bordes & Clerc, 2012, p. 88). These measures rank as successful problem-solving under constraint, not as a broadly superior QE package.

Switzerland belongs in a narrower third category. Its crisis-era balance-sheet expansion was driven by foreign-exchange intervention under safe-haven appreciation pressure rather than by a large domestic sovereign-bond purchase programme (Bank for International Settlements, 2012, p. 5). The same comparative rubric still applies, however. Exchange-rate movements can affect financing conditions and inflation, which is why the Swiss case remains comparable even though the central bank was not primarily buying long domestic bonds (European Central Bank, 2026, para. 7). The Swiss package was highly effective for its own bottleneck, but it offers the least exportable general lesson. It therefore supports bottleneck matching more than it provides a

reusable purchase template, keeping Switzerland in the ranking without forcing it into an unsuitable long-bond model.

Any stronger ranking would overstate what the evidence can bear. Anticipation is one reason. For the second round of U.S. quantitative easing (QE2), markets widely expected renewed Federal Reserve purchases, and yields had already adjusted before the formal announcement (Fawley & Neely, 2013, p. 73). Even when identification around policy events is relatively strong, linking high-frequency shocks to lower-frequency outcomes remains difficult because other news can enter the same window (Lundblad, 2020, p. 25). Valuation changes are often easier to detect in cross-border data than physical flows, and dynamic effects on monthly flows are frequently statistically weak even when asset-return responses are clearer (Lundblad, 2020, p. 18) (Lundblad, 2020, p. 33). In the euro area, recovery also reflected fiscal policy and financial-sector support alongside ECB action, which further limits any simple ranking by macro outcomes (Hartmann & Smets, 2018, p. 45). The conclusion must therefore remain bounded: bottleneck-matched design beats generic balance-sheet expansion, but relative success still depends on financial structure and the surrounding institutional regime.

4.3 Portable Lessons for Lower-Bound Policy

What travels across jurisdictions is not a finished QE package but a design logic. In the euro area, the effectiveness of sovereign interventions was tied to rescue facilities, conditionality, and banking-union repair outside the central bank itself (Bordes & Clerc, 2012, p. 89). The same authors portray the early ECB-EFSF combination as only a temporary stopgap, which shows how dependent that design was on surrounding institutions rather than on purchases alone (Bordes & Clerc, 2012, p. 89). In Switzerland, the operative pressure was safe-haven currency appreciation, and the response therefore centered on foreign-exchange intervention and reserve accumulation (Bank for International Settlements, 2012, p. 5). These cases show how quickly a seemingly successful design becomes local when it depends on unique legal compromises or a specific exchange-rate environment. Portability therefore has to be judged at the level of principles rather than by copying any one balance sheet.

Three lessons travel comparatively well. Together, they form a simple sequence: diagnose the transmission bottleneck, choose assets, maturities, and counterparties that can reach the nearest blocked price, and evaluate success through nearby transmission variables rather than through macro headlines alone. The underlying transmission logic is straightforward. Monetary policy

moves money-market rates directly and bank lending and deposit rates indirectly (European Central Bank, 2026, para. 4). Expected future official rates also shape medium- and long-term rates, while asset-price changes affect collateral values and the risk premia faced by borrowers (European Central Bank, 2026, para. 5) (European Central Bank, 2026, para. 10). For that reason, maturity choice and communication cannot be separated from the asset decision itself. These principles travel because they guide design without assuming a single financial structure.

A further lesson concerns communication. Here, a reaction function is the set of conditions under which a central bank keeps policy easy, adds further easing, or begins to unwind it. State-dependent forward guidance ties policy guidance to those conditions or to the policy objective itself, rather than to a fixed calendar promise. Transparent communication can clarify that reaction function, improve predictability, and strengthen monetary policy transmission (Hartmann & Smets, 2018, p. 27). In the ECB case, later Asset Purchase Programme guidance combined time- and state-dependent elements and linked purchases to rate guidance, which helped clarify sequencing in normalization (Hartmann & Smets, 2018, p. 60). Panetta likewise argues that central banks should make their reaction function clear and warns that guidance detached from incoming economic conditions departs from a data-based approach (Panetta, 2023, para. 7) (Panetta, 2023, para. 2). The portable communication lesson is therefore not a promise of permanently low rates, but a clear explanation of how purchases, data, and exit fit together.

Other features are much less portable. Euro-area sovereign backstops were bound up with the European Stability Mechanism and banking-union reforms, so their credibility depended on a specific monetary-union settlement rather than on purchases alone (Hartmann & Smets, 2018, p. 52). Swiss reserve-heavy intervention depended on safe-haven exchange-rate pressure that many central banks will never face in the same form (Bank for International Settlements, 2012, p. 5). And U.S. signaling created spillovers that other jurisdictions must absorb rather than control: during unconventional-policy periods, U.S. monetary shocks were associated with significant exchange-rate moves and cross-border portfolio effects in emerging markets (Lundblad, 2020, p. 24). These elements cannot be transplanted mechanically, because their effectiveness depended on positions in the international and institutional system that others do not share.

The broader policy implication is therefore restrained. If asset purchases are reused at the lower bound, they are likely to face pressure to sit within conditional policy rules rather than remain open-ended exceptions (Fawley & Neely, 2013, p. 82). In this paper, a reaction function means the conditions under which the central bank keeps policy easy, intensifies it, or unwinds it. State-dependent forward guidance means communication that ties those choices to observed conditions

rather than to a fixed path. This emphasis is consistent with the ECB experience, where forward guidance evolved into a time- and state-dependent form that clarified the reaction function and the sequencing of normalization, and with Panetta's point that markets revise rate expectations as new data arrive, so central banks must explain how they interpret those data (Hartmann & Smets, 2018, p. 60; Panetta, 2023, para. 9). Lower-bound policy should therefore follow a rule-like sequence of bottleneck diagnosis, state-contingent communication, and monitoring of nearby transmission variables, not a universal purchase recipe. The paper's conditional answer remains the same: the most successful QE features were those that matched the nearest bottleneck under local institutional constraints. On that basis, U.S.-style direct purchases rank highest for market-priced blockages, euro-area anti-fragmentation measures were necessary but more governance-dependent, and Swiss reserve expansion was effective under a narrower exchange-rate problem. What travels across cases is disciplined design with an explicit reaction function, not imitation of any single central-bank balance sheet.

5. Conclusion

This paper asked which post-2008 QE design features most plausibly improved monetary transmission under the institutional constraints of the United States, the euro area, and Switzerland. The main answer is conditional but clear: QE appears most effective when the purchase package matches the nearest transmission bottleneck and remains workable within the central bank's legal, market, and operational setting. On that basis, the strongest design was the U.S. combination of direct purchases in market-priced long-term securities with communication that also shaped expected policy rates. Euro-area measures were effective where the central problem was fragmentation and bank-funding stress, but their success depended more heavily on wider institutional repair. Swiss reserve expansion also appears effective for the exchange-rate pressure it faced, though it was tied to a narrower setting and offers the least general template.

The comparison suggests that outcomes differed less because one central bank purchased more than another than because the relevant blockage differed across cases. In the United States, purchases were strongest where they reached impaired mortgage pricing and broader duration conditions directly. In the euro area, the more persuasive interventions were those that addressed fragmented sovereign and bank transmission rather than relying on a generic term-premium story, which is also why indirect lending-based measures looked less decisive than targeted backstops. In Switzerland, long-rate effects could emerge even without a conventional long-bond programme because reserve creation, counterparty structure, and bank balance-sheet adjustment formed part of the transmission mechanism itself. Across all three cases, the common lesson is therefore about design: asset mix, maturity, counterparties, and signaling matter insofar as they fit the market friction nearest to the intended effect.

At the same time, the paper supports only a bounded comparative judgment. The evidence is strongest for nearby market easing and much weaker for any broad claim about macroeconomic superiority, since anticipation effects, overlapping policy measures, and concurrent fiscal or financial support make clean attribution difficult. For that reason, the analysis does not justify a universal ranking of central banks or a single preferred QE recipe. What it does support is a narrower implication for lower-bound policy: purchase-based easing appears most useful when it is tied to a clear diagnosis of the bottleneck, implemented within feasible institutional limits, and accompanied by state-contingent communication about how easing will be maintained or unwound. It appears more limited when it is treated as generic balance-sheet expansion or transplanted from one monetary architecture to another without regard to local constraints.

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Auxiliary Aids

Aid	Usage	Affected Parts
OpenAI API (GPT-5.4 Pro)	Scaffold and analytical framing drafting	Paper structure
OpenAI API (GPT-5.4)	Global consistency refinement	Main body
OpenAI API (GPT-5.4)	Section argument planning	Main body
OpenAI API (GPT-5.4)	Section drafting with citations	Main body
OpenAI API (GPT-5.4)	Paragraph-level language drafting	Main body
OpenAI API (GPT-5.4)	Claims and takeaway extraction	Main body
OpenAI API (GPT-5.4)	Introduction drafting	Introduction
OpenAI API (GPT-5.4)	Conclusion drafting	Conclusion
OpenAI API (GPT-5.4)	Abstract drafting	Abstract
OpenAI API (GPT-5.4)	Title drafting	Title
OpenAI API (GPT-5.4)	Citations page checker	Main body, introduciton
OpenAI AP (GPT-5.4)	Reference entries checker	References
Grammarly	Plagiarism checker	Whole paper
OpenAlex API	Academic source discovery	Main body, introduction
Brave Search API	Web source discovery	Main body, introduction
Python (Requests)	API calls and downloads	Main body, introduction
Python (Trafilatura)	HTML text extraction	Main body, introduction, references

Python (BeautifulSoup)	Metadata and page parsing	Main body, introduction, references
Python (Playwright)	Dynamic page rendering	Main body, introduction
Python (pdfplumber)	PDF text extraction	Main body, introduction
Python (scikit-learn)	Source diversity pruning	Main body
Python (python-docx)	Document assembly and formatting	Whole paper
ATP-redactor	Pipeline orchestration of first draft	Whole paper

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