Bank i Kredyt 57(1), 2026, 39-64
DOI: 10.5604/01.3001.0055.5934

BANK I KREDYT
BANK & CREDIT

The perspective of Fed's unconventional policies through the analysis of quantitative tightening

Paweł Kowalewski*

Submitted: 18 February 2025. Accepted: 24 November 2025.

Suggested citation: Kowalewski P. (2026), The perspective of Fed's unconventional policies through the analysis of quantitative tightening, *Bank i Kredyt*, 57(1), 39–64, DOI: 10.5604/01.3001.0055.5934.

Abstract

Federal Reserve unconventional monetary policy has been quite often discussed through the lens of quantitative easing (QE). The latter has been extensively described in the literature. This article makes a tentative attempt to move beyond QE. In order to achieve it, the attention focuses on two issues here. One of them is a phenomenon known as the divorce of money from monetary policy. The second one is quantitative tightening (QT), which cannot be merely perceived as a reversal of a formerly introduced quantitative easing. This text is an attempt to offer a detailed description of such tightening based upon the Fed's experience. Furthermore, the text contains a preliminary assessment of the consequences of the policies pursued in the last eighteen years along with a brief description of the challenges the Fed is facing in the years ahead. One of them is the need to adjust its policy in the wake of the advent of cryptocurrencies, which can be perceived as the side effect of unconventional monetary policies.

Keywords: interest rates, liquidity, central bank, balance sheet, monetary policies

JEL: E420, E43, E52, E58, N20

* Narodowy Bank Polski, Market Operations Department.

1. Introduction

Almost 18 years following the launch of its unconventional policies in the shape of LSAP (Large-Scale Asset Purchases), the Federal Reserve is on its way to accomplish the process of a partial reversal of the previous increases in its balance sheet. By doing so, the Fed seems to be an institution able to operate fully in a self-conceived system, which became a trademark of its unconventional monetary policies. The latter saw a shift in the Fed's operational policies from the corridor system towards the floor system. As a result of the aforementioned changes, cycles in the Fed's monetary policy can no longer be perceived through the change in interest rates only. The size and the pecking order of the balance sheet became new important factors in the way monetary policy is conducted. The experience of the last ten years offers reasons to believe that changes related to the balance sheet exert more significant effects on the economy than changes in interest rates. For instance, the effect of interest rate hikes in late 2015 (albeit from record low levels) on the domestic economy was benign until the initiation of the process of balance sheet contraction in October 2017 reversing the previous increases in its size. After barely two years of shrinking the balance sheet, the whole tightening process was stopped, and subsequently an instant restart of the once suspended asset buying process had to be initiated in autumn 2019, primarily focusing on Treasury bills.

The aforementioned experience raised question marks (as well as fears) about the ability to accomplish QT once the Fed made another attempt to reduce its balance sheet in mid-2022, following the conclusion of efforts aimed to mitigate the effects of the pandemic. It is worth emphasizing that in 2022 the Fed's situation was quite different from the one it faced in late 2017. Even if the level of both banks' reserves and the Fed's balance sheet in 2022 were far higher than in 2017 (thus offering more cushion to the banks), the outburst of inflation to the highest level in four decades reduced the room for any emergency reversal of the tightening to the minimum.

More than three years later, there are reasons to believe that the entire process went relatively smoothly. Nevertheless, given the rather general nature of this verdict, two important issues have to be raised. Firstly, upon what criteria does this assessment rest in the relatively new environment of abundant banks' reserves? Secondly, was it only a question of more experience that helped the Fed avoid repeating the ignominious exit from its first attempt to reverse previous increases in the balance sheet? Or were there perhaps other factors at stake?

The second question may seem largely rhetorical, especially in the wake of remarks describing the success of the whole undertaking. Still, it seems justifiable to raise it, while mentioning the unexpected events which could have derailed the entire endeavour. These events ranged from the interim threat to financial stability (due to tensions in the domestic banking sector), and an uncertain external as well as legal environment (including explicit questioning of the Fed's independence), to pressures observed in the secured market in October 2025. The latter, however, were not as intensive as those which took place in September 2019. It must be also borne in mind that QT2 was devised in an environment of high inflation, thus forcing the Fed to act decisively and with no room for any potential mistake.

Even if the literature on QT is not yet as extensive as in the case of QE, it is already relatively rich in content and number of authors. It suffices to point to papers prepared by Casalena (2024), which focus exclusively on the case of the Fed. Another important source of reference is to be found in comparative analyses, where the Fed's experience is presented among other central banks which had been involved in a similar undertaking (Du, Forbes, Luzzetti 2024). Because of the Fed's uniqueness, this paper

could not have been completed without referring to the extensive research of the Fed staff. In order to show the operation of US money markets – the first and perhaps most vital element of the monetary transmission mechanism – this article draws upon extensive research from key market participants, among which the work prepared by an economist Joseph Abate (who used to cover US money markets for Barclays) proved to be of crucial importance.

This text should be perceived as a tentative attempt to evaluate the Fed's ability to pursue its operational policies smoothly. Even if a significant part of it refers to QT, this article also addresses the efficiency of the entire floor system which had been pursued since 2008. There is a lot of reference to what (Keister, Martin, McAndrews 2008) described as a process of divorcing money from monetary policies.

As QT has just come to an end, it is probably too early to draw financial conclusions, but there is growing conviction that it lived up to expectations. Although I do not dispute this claim, there is a need to point to some of its weaknesses. After all, there were various episodes of increased volatility in the last almost three and a half years in the US money markets. They ranged from fears related to financial stability and volatility in the repo markets to already mentioned fears stemming from attacks on Fed independence. Despite all these anxious moments, there are reasons to believe that the Fed deserves some credit for avoiding a scenario where the aforementioned tensions could have led to a disruption of QT.

The paper is composed of three parts. Following this introduction, the second part addresses the shift from the corridor system to the floor system and the subsequent evolution of the latter. The third part focuses on the reversals of previous increases in the Fed balance sheet. Both QT1 and QT2 are presented along with an explanation why the former ended in failure while the latter proved to be more successful. Finally, the fourth part tries to deliver a preliminary evaluation of unconventional policies in the wake of the Fed accomplishing its QT2 with fair success and thus bringing a policy cycle to an end. There will also be some deliberation about the heritage of unconventional policies and its future impact. This will be followed by summary and conclusions.

2. A switch from conventional policies to unconventional policies

The outbreak of the Great Financial Crisis (GFC) at the turn of 2007 and 2008 forced major central banks to review their policies conducted thus far. Ben Bernanke (2022) believed that previous efforts aimed to control short-term interest rates in times of crisis would call for lowering them to minus 6.5%. Obviously such a step was out of the question as it could itself pose a threat to the stability of the financial system, amongst others. For this reason, the Federal Reserve opted to launch an asset repurchase programme with some similarities to the Bank of Japan's March 2001 initiative, but conducted on an incomparably larger scale and involving securities with maturities far exceeding twelve months.

As part of its unconventional monetary policy, the Fed focused on buying financial assets, including debt mortgages and Treasury bonds. The scale of these purchases was enormous. As a result, the balance sheet total reached a vast size of about 26% of GDP in five years of asset purchases. Among the purchased securities, government bonds and a special type of covered bonds called Mortgage-Backed Securities (MBS) prevailed. After 2014, there was a gradual decline in this ratio (to approximately 18% of GDP), but the outbreak of the pandemic crisis in March 2020 generated another increase in the balance sheet total, spread over two years, as a result of which the ratio described here temporarily

exceeded the threshold of 35% of GDP. In other words, since the outbreak of the Great Financial Crisis, the Fed has begun to pay more attention to the monetary base (i.e. the quantity of money) than to the price of money.

The above-mentioned increase in reserves at the central bank caused the demand for new free funds to lose almost all of its elasticity. The crux of the matter is that banks began to have so many of them that they really did not have to apply for new ones. Thus, the cause-and-effect relationship between rates and the amount of free funds held by banks in the central bank was significantly loosened (or even suspended). Moving away from this relationship seems to be the most important element of unconventional monetary policy. Therefore, Fed experts (Keister, Martin, McAndrews 2008) described it as the divorce of money from monetary policy in an article published shortly before the outbreak of the GFC.

However, it would be too far-reaching a simplification if the described turn in Fed policy pursued after 2008 were perceived only through the prism of quantitative easing itself. When the Fed and the concept of unconventional monetary policy are brought up jointly, the first association is the bank's massive asset purchases, more precisely government bonds and MBS security purchases. It is not difficult to see the rationale behind this view. Without the purchase of these assets, the Fed balance sheet would have never achieved the aforementioned levels. On the other hand, relatively little attention is paid to interest rates, to which the previously mentioned assets purchased by the Fed are *de facto* subordinated. These rates, as will be explained later, have not completely lost their importance. On the contrary, the price of money still plays an important role, but its nature has changed.

One of the key features of unconventional policies was a shift from the corridor system to the floor system. In the former, the width of the corridor is set by the discount rate from the point of view of its ceiling and by the interest on reserves from the point of view of its floor. The target rate is expected in such a system to be in the middle of the corridor, even if sometimes there are some exemptions from this rule (Keister 2012). A central bank is expected to deliver liquidity needed to keep the market rates as close as possible to the target rate. In the case of the Fed, it did not pay interest on reserve deposits, thus making banks keep the minimum necessary amount of reserves. This is why this system is also known as the scarce reserves regime (Wessel 2024).

In the case of the floor system, the interest on reserves is either very close or equal to the target rate. For the sake of precision, the rate in question was initially called the Interest on Excess Reserves (IOER). The central bank – in this new constellation – supplies as many reserve balances as needed in order to generate a shift of the market interest rate to the target. As a result, the appropriate supply of balances falls in the elastic region of the demand curve and the market rate is close to the floor created by the interest-on-reserves rate (Keister 2012). Logan (2023) points out that the floor system is a system which relies upon the Friedman principle, where the opportunity cost to banks of holding reserves is approximately equal to the central bank's cost of supplying them. In other words, according to the Friedman principle, liquidity should be supplied as long as the benefits equal the costs.

The floor system can either be an asset or a liability driven system. In the case of the former, it is the central bank that purchases additional assets at the time of economic or financial stress. In the case of an asset driven system, the aforementioned Friedman principle does not hold (Logan 2023). The latter holds in the case of the liability driven system, where reserve supply depends on the demand for the central bank's liabilities (that means the amount of banks' assets which these institutions are willing to keep in the central bank along with banknotes and coins). One of the key advantages

of the floor system is that it reduces the liquidity risk in the system. As a result, the amount of daily overdrafts has fallen significantly. Nowadays, it represents merely one tenth of what it is used to be in the corridor system (Logan 2024). Logan (2023) also points to a lower concentration of interbank payments at the end of the day, thus making the system less vulnerable to unexpected shocks.

To emphasize the importance of interest rates as a monetary tool, a further brief chronology of the floor system evolution must be presented. In September 2013, the Fed began to conduct experimental operations with the ON RRP (Overnight Reverse Repurchase Agreement Facility), which *de facto* began to serve as the proverbial floor of the entire interest rate corridor. In June 2017, the Alternative Reference Rates Committee (ARRC) has recommended that the Libor rate denominated in US dollars should be replaced by the SOFR (Secured Overnight Financing Rate). The new rate came into force in April 2018.

The outbreak of the Covid-19 pandemic and the subsequent further expansion of the Fed balance sheet was the reason why the Fed lowered the reserve requirement rate to 0%. Therefore, on 29 July 2021, both of these rates (rates on reserves as well as IOER) were replaced by a single interest rate – the Interest Rate on Reserve Balances (IORB).

Once the importance of the rates has been presented, attention must be turned to the venue where these rates are determined. Perhaps the most dominant feature of the US money markets is the differentiation between participants, which shapes the way each participant behaves. This differentiation can be defined by two criteria: firstly, access (or lack of it) to the interest on reserves. Access to the interest on reserves determines whether a given institution is a lender or a borrower at the Fed funds rate. Secondly, the place of origin of a given institution, thus imposing a distinction between domestic and foreign institutions.

The key reason behind the aforementioned discrimination is to generate incentives for arbitrage. Lack of access to the IORB puts some institutions under pressure as their surplus liquidity may be deposited at the lowest permissible rate within the interest rates range. This is mainly the case with the so-called Government-Sponsored Enterprises (GSEs), among which the Federal Home Loan Banks (FHLBs) are the main actors. Their share of lending is up to 97% of the entire market (Anderson, Na 2024). In search of higher returns for their excess liquidity they resort to those institutions which enjoy access to the IORB.

On the borrowing side, there is a dominance of non-US banks, which in contrast to their US competitors are exempted from paying deposit insurance premiums to the FDIC, which can reach a magnitude of 5 to 8 basis points (Abate 2025a). This state of affairs makes it difficult for foreign banks to rely on domestic savings held on deposits (Afonso et al. 2023). Their share can be as high as 90% of the entire borrowing sector. There is one more reason why foreign banks are willing to borrow. It is of regulatory nature, as differences in regulatory requirements across jurisdictions (with foreign institutions relying more on the period-end snapshot compared to average snapshots) make engaging in arbitrage less costly (Afonso et al. 2023).

Despite all the aforementioned changes, the Fed still targets the Fed funds rate, which is anything but outdated. As Logan (2025) pointed out, the Fed funds rate was well suited in mid-1990s as a guide to money market conditions. In the days prior to the 'monetary divorce', when interest rates were high (typically hundreds of basis points above zero), banks with surplus of liquidity were motivated to lend to those who were facing a deficit. According to Logan (2025), this kind of constellation created a vibrant unsecured interbank market, where interest rate closely reflected banks' marginal cost of funding.

The above-described system let the New York Fed's trading desk control money market rates by making small adjustments in the reserve supply. But as Logan (2025) noted, the artificial scarcity had a serious cost. Scarce reserves meant banks were effectively taxed on their use of liquidity. They seemed unable to address the needs of both customers and the broader economy efficiently. In order to address this deficiency, Fed opted to move away from the corridor system toward the floor system.

In spite of all the changes that have occurred since the GFC, the Fed funds market still preserves its role as a place where the operational rate is being set. However, its ability to gauge funding costs has come under scrutiny, largely due to the drastic fall in its daily volume. If prior to the GFC this volume exceeded USD 300 billion, it subsequently hoovers at approximately USD 100 billion. The fall in volumes is most probably responsible for the fact that the Fed funds rate, instead of reflecting the cost of funding, reflects primarily the cost of the prevailing arbitrage (which is taking place in that market) and the bargaining power between banks and the GSEs (Logan 2025).

The very low volumes in the Fed funds market are contrasting with the ever rising volumes registered in the secured market. These tendencies are described by the SOFR, introduced in 2018 as a successor to the Libor (London Inter-bank Offered Rate).

According to the Fed, the SOFR (Federal Reserve 2025b) is a broad measure of the cost of borrowing cash overnight collateralized by Treasury securities. A switch from Libor to SOFR was carried out for the following reasons. Firstly, it was a natural consequence of worldwide exit from the Libor following fraudulent events in this particular segment. Secondly, it reflected a worldwide shift from the unsecured segment of money markets towards a secured one. Thirdly, it highlighted a process of switching from a bank-based reference rate to a financing-based rate (Huther 2024).

The importance of the SOFR is related to yet another factor, namely a link between the reserve and non-reserve assets (Logan 2024). While reserve assets are held by eligible banks, non-reserve assets are held by other institutions. Among the non-reserve assets, Treasury securities play a key role. The overnight return on Treasury securities is reflected by the Treasury repo rate, whose value is included in the SOFR's reading. The spread between the repo rates and the IORB is a derivative of both the Fed balance sheet performance as well as Treasury issuances.

All these factors mentioned above demonstrate that the centre of gravity of US money markets shifted to repo markets. This is why the days of the Fed funds market seem to be numbered, thus most probably eliminating the last relict of pre-floor policies. Surprisingly enough, the president and CEO of the Federal Reserve Bank of Dallas (Lorie Logan) believes that it will not be the SOFR which will replace the Fed funds rate. Logan (2025) believes that the SOFR still did not reflect the funding cost in late 2025. According to her:

"SOFR combines two main market segments: tri-party repos that take place primarily between cash investors and large dealers, and centrally cleared repos that take place primarily between large dealers and smaller ones or leveraged investors. Large dealers have some market power in intermediating between the segments, so rates in the centrally cleared segment can partly reflect market power rather than the cost of funds.

The tri-party general collateral rate (TGCR) is cleaner, and I think it would currently offer the best target. It incorporates more than $1 trillion a day in risk-free transactions that represent a marginal cost of funds and marginal return on investment for a large number of participants. It is calculated with a robust methodology. It transmits well across money markets."

Now it is time to describe the upper and the lower limits of the so-called Fed's comfort zone for its rates to fluctuate. The already mentioned ON RRP helps the Fed to lift its rates in the environment of the floor system reflected by an abundant amount of reserves (Federal Reserve 2025a). The ON RRP rate sets the hard floor in the Fed monetary control (Wessel 2024). This is because of the following fact. If IORB sets a floor for reserve eligible institutions, the ON RRP offers the floor for these institutions for whom it is impossible to deposit money at the Fed. And by doing so, the Fed leaves little incentives for all these investors to make transactions below the rate in question. The main beneficiaries of this facility seem to be money markets funds (MMFs).

Still, MMFs, apart from letting their funds into the ON RRP, can invest their liquidity surplus either by subsequently lending via repo markets or investing in Treasury bills. The latter shows clear links between money markets and the US fiscal policy. The MMF's preferences depend on the level of prevailing interest rates. Investment in Treasury papers seems to be attractive at the time of high supply of these papers, which consequently puts their yields even above the IORB. This dependence can be detected by watching the performance of the Treasury General Account (TGA), where the US government holds its reserves at the Fed. If the volume of the TGA declines, it implies a return of reserves into the banking system and the other way round (Kirk, Wong 2021). And it was the fall in the TGA (which dated to early 2021 and was generated by lower issuances at the time), which triggered a sharp rise in ON RRP volumes from the spring of 2021 to the spring of 2023 (and which saw their volume rise from approximately USD 200 billion to as much as USD 2.6 trillion at the close of 2022). It must be noted that the reliance on the ON RRP was essential from the point of view of making reserves less abundant.[1]

Understanding the link between the issuance of Treasuries and the Fed balance size is important from the point of view of a novelty introduced by the Fed in July 2021, namely the Standing Repo Facility (SRF). This facility provides liquidity in exchange for Treasuries. Its implementation was one of the reasons which helped the Fed conduct its QT2 more smoothly than during the previous attempt between 2017 and 2019. Bearing in mind that the SRF used to play a fundamental role during QT, this link will be reassessed again in the next chapter, whose content will be dedicated to the issue of QT exclusively.

3. Analysis of QT

There are reasons to perceive QT as a sort of reversal of the previously conducted QE. These reasons, however, seem to be misleading. In order to figure out the differences between QE and QT better, a brief chronology of unconventional policies is required. The story begins in Japan, which as early as February 1999 fell into the liquidity trap. As a result, interest rates were brought down by the Bank of Japan (BoJ) to the level of 0%, thus initiating a period of zero interest rate policy. Shortly after, it became clear that more measures were required to ward off the ever augmenting risk of deflation. This is why in March 2001 the BoJ launched its QE, which lasted for five years. Following the completion of the programme in March 2006, it took approximately seven months for the volume of the current

[1] Less abundant means ample. The difference between these two terms will be explained in the next part of this text.

account to be reduced by 75%. Even if the levels of the current account recorded at the turn of 2006 and 2007 were still more than twice the levels seen prior to March 2001, the extent of the tightening was significant.

Almost two decades later, the BoJ's experience from the first half of the 2000s is of little relevance for other central banks in a bid to reduce their expanded balance sheets, for a number of reasons. This may be even somewhat surprising, bearing in mind that the Japanese QE from 2001 was to a certain extent inspired by the intellectual work done by Ben Bernanke aimed to encourage the BoJ to overcome the so-called self-imposed paralysis. This is why it is worthwhile to single out the differences between the first ever QE and the QE processes initiated by Bernanke and followed by other central banks.

These differences were related to both the size of the balance sheet increase (with the post-2008 increases being far larger than the one from 2001), as well as the kind of assets purchased. In 2001, these were mainly short-term assets, while long-term government bonds were not part of the package. As a result, the impact of the QE launched in 2001 on the fiscal stance was negligible compared to the QE conducted later on. Furthermore, it must be borne in mind that Japan had followed its own path of monetary easing. If the QE from March 2001 was of modest nature, the one launched in April 2013 was unprecedented. And contrary to other central banks, the BOJ was (at the time of finalizing this text) in its early stages of a reversal of its balance sheet.

As a result of the aforementioned differences, the QT initiated by the BoJ in early 2006 cannot serve as a reference point. The QE launched by the Fed (under the auspices of Bernanke) in late 2008 lasted until October 2014. The Fed needed exactly three years to initiate the unwinding of its balance sheet, which was preceded by rather long preparatory efforts. These go back to May 2013, when Bernanke announced the so-called tapering. Even if the latter was only supposed to mean a scaling down of the amount of asset purchases conducted at the time, it was widely perceived as a sort of a wake-up call, which made investors realize that QE will end one day. Four months later (September 2013), the NY Fed launched its experiment with the so-called ON RRP operations, which proved to be fundamental from the point of view of QT.

Before moving forward with further chronological review of QT, it is instructive to review it from the theoretical point of view. As mentioned above, QT can no longer be perceived as a reversal of QE (Casalena 2024). Unconventional monetary policies are usually associated with the outbreak of the GFC crisis, a thesis which is not entirely correct from the point of view of operational aspects of the Fed policies. One of the aspects of the advent of unconventional policies was the shift from the so-called corridor system of setting rates towards the floor system. While this system was already presented in the previous part of this text, two issues must be emphasized again. Firstly, this shift was proposed as early as 2006 and it was supposed to enter into force in 2011. The outbreak of the crisis in 2008 merely precipitated its implementation. Secondly, the shift towards the new system implied an increase in the volume of banks' reserves which started to materialize in late 2008 – when the GFC was already part of the then prevailing reality. This fact alone should explain why a return – in spite of the current QT – to pre-QE levels of liquidity in the US banking system must be discarded by definition.

QT differs from QE in terms of unconventional policy channels when it comes to the transmission mechanism. If QE acts via four channels (namely portfolio, signaling, information and liquidity channels), defining such channels for QT seems to be more problematic. Casalena points out the definitive exclusion of the signalling channel. Even if QT implies increases in government bond yields and the steepening of the yield curve, its impact on the future policy stance is more problematic

(Du, Forbes, Luzzetti 2024). If the signal channel is supposed to define in advance the forward bias of the conducted policies, it must be admitted – on the basis of the accumulated experience – that QT has been conducted in the environment of interest rates moving in two directions (in contrast to QE which coincided with a reduction in the price of money only).

Following the performance of those central banks which had been involved in QT, more can be said about the timing of QT and its launch. The latter must, above all, be preceded by the suspension of QE. Furthermore, the beginning of QT implementation should be done following a certain tightening of monetary policies in the form of interest rates' hikes. The latter aims to ensure some cushion (Du, Forbes, Luzzetti 2024) should the need arise to ease policy in the wake of unexpected circumstances.

QT takes two forms: passive and active. The former is confined to letting bonds held by central banks reach their maturities, while the latter consists in an outright sale of assets in possession. As this article aims to examine the Fed's experience, our analysis will be restricted to the passive approach only. The choice of the strategy depends mainly on the speed of economic recovery and inflationary outlook. When it comes to other central banks, a rapid increase in inflation following pandemic shocks (and in some cases the outbreak of the Russo-Ukrainian war, which translated into higher energy prices) almost forced them to pursue an active mode (e.g. the Bank of England and the Swedish Riksbank).

First preparatory efforts for QT started even before the end of QE (which took place in October 2014). In September 2014, the Fed (Federal Reserve 2014) announced its Policy Normalization Principles and Plan – with some of these principles dating back to June 2011. After QE had been accomplished, the Fed needed 14 months to raise interest rates as it did not have convincing data about the strength and durability of the ongoing recovery. After four hikes in interest rates (from the level of 0–0.25% to 1–1.25%, which provided the aforementioned cushion), in early March 2017 the Fed started to consider the process of unwinding its balance sheet.

The minutes from the FOMC meeting which took place on 14–15 March, published on 5 April 2017, reveal a discussion was held concerning balance sheet reduction (at that time described as policy normalization). The whole process of reversing increases in the balance sheet was announced on 20 September 2017 and launched in October of that year. The programme rested on two key pillars of gradualism and predictability in order to mitigate the risk of negative surprises, disruptions and excessive volatility (Potter 2017). The entire operation was conducted in line with the passive approach and it was subsequently confined to the concept of not reinvesting the maturing principal. As a result of these guidelines, principal maturities were reinvested only to the extent that they exceeded gradually increasing caps. For Treasuries, the cap initially was set at USD 6 billion per month and was expected to increase in steps of USD 6 billion at three-month intervals over 12 months until the cap reached the threshold of USD 30 billion per month. In the case of Mortgage-Backed Securities (MBS) a similar pattern was pursued, with a cap starting at USD 4 billion and rising in three-month steps to reach USD 20 billion. Small deviations for the so-called operational reasons were deemed acceptable (Federal Reserve 2017). After the first year, outright securities holdings on the Fed balance sheet shrank from nearly USD 4.25 trillion to about USD 4.0 trillion, while the balance sheet itself saw a reduction from USD 4.46 trillion to less than USD 4.2 trillion.

The relatively smooth implementation boosted market participants' optimism with respect to further developments. In 2018, the median expectations of surveys regarding the future size and the pecking order of the Fed balance sheet pointed to it reaching an average of USD 3.6 trillion in 2025 and reserve balances falling by USD 750 billion to USD 1 trillion below the late-2018 levels (Potter

2018). Even if the aforementioned surveys were done under the assumption of no return to the zero lower bound (which actually came to be as a result of the pandemic), they pointed to one important feature, namely the size of banks' reserves – a factor that became an important criterion for the Fed in its decision-making process.

At the time of the 2017 QT launch, neither the Fed nor other prominent figures gave any clear indications regarding the eventual size of the balance sheet upon the programme's conclusion. For instance, Bernanke (2016) was always in favour of preserving a large balance sheet. One of the key arguments presented by Bernanke was the advantages stemming from a large balance sheet in the wake of new regulatory frameworks (a demand for safe assets which could be offered to market participants as part of the ON RRP). Bernanke also emphasized the importance of preserving a large balance sheet from the point of view of improving the way monetary transmission operates. Yet another factor was a growing demand for currency from the public (Bernanke 2017).

Similar voices could have been heard among other acting Fed officials at the time. For instance, Quarles (2018) emphasized the introduction of the Liquidity Coverage Ratio (LCR) and the importance of the High Quality Liquidity Assets (HQLA). The predominant rhetoric regarding the aforementioned future level of both the balance sheet and, above all, of banks' reserves boiled down to the following mantra: the level in question should oscillate somewhere in the middle, i.e. both the balance sheet and banks' reserves should be substantially lower than the levels observed prior to October 2017, but at the same time they should be significantly above the level prevailing before the financial crisis (Quarles 2018).

The second year of the first QT (QT1) saw a change in the aforementioned attitude with the Fed launching a new concept of the Lowest Comfortable Level of Reserves (LCLoR) (Logan 2019). Relying on the results of the Senior Financial Officer Survey (SFOS) in September 2018 and again in February 2019, the Fed made an assumption according to which the LCLoR was supposed to sit between USD 617 billion (results from the September Survey) and levels ranging anywhere from USD 800 to USD 900 billion (the result from the February Survey).

These estimations proved to be inaccurate in the wake of serious market tensions which occurred in September 2019, discussed later in this text. Prior to these tensions, in March 2019 the Fed decided to reduce monthly Treasury redemption by half (down from the USD 30 billion monthly that had been in place since October 2018). And with the Fed's intentions to conclude QT1 in September 2019 having been reaffirmed as late as March 2019, the Fed had to review its original plans and terminate QT1 effective 1 August 2019 (Yardeni Research 2025).

The key reason behind the aforementioned tensions in the US money markets in September 2019 was a calamitous combination of factors, out of which the corporation tax date and rise in the issuance of Treasury securities seemed to be the most important. Both of them tend to exert great impact on the way repo markets work, since the tax payments as well as new issuances impose some interim constraint on liquidity holdings of very important US money market participants, namely the Money Market Funds (MMFs). While tax payments make MMFs' customers withdraw their cash holdings, new issuances prompt MMFs to acquire them prior to their subsequent sale to other market participants. This time interval between their acquisition and their sale reduces MMFs' liquidity even more. And the aforementioned process translates into higher interest rates. As a result, between 16 September and 17 September 2019, the Secured Overnight Financing Rate reached levels close to 6%, with the 99th percentile trading as high as 9%. The Fed funds rate also reached high levels, although the size of its overshoot of the FOMC target range was somewhat smaller (Afonso et al. 2021). All these tensions

emerged at the time when liquidity surplus in the system (substantially above USD 1.3 billion) was well above the levels described by the Fed as comfortable and thus proving its aforementioned assessments wrong.

The market tensions in September 2019 occurred less than two month following the Fed's decision to roll over all principal payments from its holdings of Treasury securities and to reinvest all principal payments from its holdings of agency debt and agency mortgage-backed securities received during each calendar month (Federal Reserve 2019). This decision, which meant the *de facto* end of QT, had to be quickly reversed by the Fed. In the wake of the above-described market pressures, on 18 September the Fed resorted to a repo operation, which amounted to USD 75 billion. In October 2019, repo volumes peaked at USD 215 billion before declining due to the resumption of asset purchases that same month involving T-bills. These T-bill purchases were originally intended to continue through the second quarter of 2020.

The outbreak of Covid-19 in early 2020 prompted the Fed to launch yet more unprecedented measures resulting in its balance sheet nearly reaching USD 9 trillion after only two years (on 23 March 2022, total assets reached an all-time high of USD 8.9625 trillion representing approximately 36% of US GDP). In the wake of rising inflation in early 2022, on 15 March, the Fed decided to raise rates and announced another attempt at quantitative tightening (known as QT2), aiming to reverse the balance sheet starting from June of the same year.

The launch of the QT2 in 2022 differed substantially from the QT1 from 2017. The key difference between the two QTs was macroeconomic environment. If in the case of QT1 both growth and, above all, inflation were rather moderate (if not sluggish), in the case of QT2 both macroeconomic indicators showed strong upward pressure, with inflation rate reaching highest levels in forty years. This is why preparatory efforts preceding QT2 were confined to three months only and stood in sharp contrast to QT1, which took three years of preparations (Gulati, Smith 2022).

In line with the Principles for Reducing the Size of the Federal Reserve's Balance Sheet issued in January 2022, the process embraced both Treasury and MBS papers. For the first three months the redemption caps were set at USD 30 billion and USD 17.5 billion for US Treasuries and MBS, respectively. In September 2022, both caps were doubled.

Starting in June 2024, the Fed reduced its redemption cap for Treasuries. Initially, the cap was lowered to USD 25 billion and April 2025 saw a further decrease to USD 5 billion. Furthermore, any MBS principal payments in excess of the USD 35 billion cap from June 2024 onward were to be reinvested into Treasury securities. Finally, at the October 2025 FOMC meeting, it was decided to conclude QT2 in December of the same year by rolling over Treasury securities' principal payments and reinvesting MBS principal payments into Treasury bills.

At the time of finishing this text (November 2025), as a result of QT2, the balance sheet has been reduced by more than 2.4 trillion (almost one quarter) – from almost USD 9 trillion to below USD 6.572 trillion – compared to only USD 700 billion cut during QT1.

However, for most of the runoff period, banks' reserves remained rangebound between USD 3.4 trillion and USD 3.1 trillion, with occasional excursions outside that range, the last one occurring in October 2025, when reserves fell to as low as USD 2.828 billion. This state of affairs was achieved through a combination of factors. Perhaps the most important one was the already mentioned high demand for ON RRP. Furthermore, sharp falls in banking reserves in the weeks preceding QT2 – like the one in April 2022, when these reserves fell from USD 3.85 trillion to USD 3.33 trillion –

was related to the inverse correlation between these reserves and the funds held at the TGA. During this period (April 2022) the TGA gained an almost identical volume of funds (rising from approximately USD 543 billion to USD 957 billion) due to higher T-bill issuances. Consequently, it was the pecking order of the Fed's balance sheet that changed, its overall size remaining largely unaffected.

Beyond the already described ON RRP, other tools must be considered to fully illustrate the runoff period. These tools include the SRF, already mentioned in the second part of this text, and the Bank Term Funding Program (BTFP) created mid-process.

Starting with the SRF, this facility is a classic example of a backstop and it enables banks in times of unexpected pressures to receive funds against collateral of good quality (such as Treasury securities or agency debt). The repo operation existed in the Fed's toolkit well before the introduction of the SRF. After all, tensions which occurred in September 2019 were eased with the help of this facility. The same can be said about the unprecedented turmoil of March 2020, when the world economy was hit by Covid-19. However, on both occasions the Fed started to resort to repo transactions once the turmoil in the market started, thus exposing itself to criticism. During these two episodes, the announcement of the repo operations alone did little to quell market pressure. It was not until the materialization of the operations that the pressure started to subside. This kind of strategy (as in the case of other similar operations like swap lines) had its cost, since it contributed to further increase in the Fed balance sheet (Logan 2021).

The probability of the so-called dash for cash in the environment of abundant reserves is rather low. Still, the two aforementioned events had proven that it is possible. And when it occurs, its intensity happens to be considerable. The novelty of the SRF facility consists in granting repo operations an element of a pre-emptive strike. As Afonso and her team of researches (Afonso et al. 2022) explain, the SRF helps in forestalling pressure on rates before they translate into a larger turmoil. As Logan (2021) emphasized, the SRF is of intermittent nature and should be used only in emergency situations. The case of tensions in the banking system (to be described in the next part) tends to confirm points advocated by Logan. The rate of this facility was set at 25 basis points above the top of the FOMC's target range and it had both domestic and international dimensions. The latter refers to a repo facility for foreign and international monetary authorities (FIMA Repo Facility) and consists in tackling global dollar funding pressures that could – as the Fed put it explicitly on its website – otherwise affect financial market conditions in the United States.

There are reasons to believe that QT2 was conducted in a far more successful manner than its predecessor, QT1. Nevertheless, events from March 2023, when the ever higher interest rates had contributed to the failure of SVB and Signature Bank (amongst others) cannot be omitted from this analysis. It is worth mentioning that throughout the entire Q1 2023, banks' reserves were approximately 25% lower compared with the same period in 2022. This state of affairs could have made banks more sensitive to unexpected events. And with a cumulated outflow of deposits from banks of approximately USD 650 billion between Q4 2022 and Q1 2023, many of these institutions became vulnerable. Subsequently, it was time for the Fed to act.

In spite of stigmatization, it was the Discount Window Borrowings which proved to offer some initial support. On 9 March 2023, the amount of loans granted soared to almost USD 153 billion, and most probably would have reached even higher levels, had the Fed not introduced the BTFP – a lender of last resort facility. Its key aim consisted in offering loans to other banks that were threatened with large unrealized loss of governments assets (as a result of rising interest rates) and were sensitive to potential outflows of deposits (Lee, Wessel 2024). As a result of the introduction of this facility, banks

were given a chance to exchange their assets for cash without applying haircuts. This modification was of paramount importance in superseding the DWF. By early April 2023, it outperformed the DWF as far as the volume of loans were concerned. The high popularity of the BTFP and its subsequent outperformance of the DWF stemmed from the fact that the latter lends up to the market value (rather than the face value as was the case with the BTFP), often further reduced by a haircut. The maturity of loans offered under this facility was up to one year, while their interest rate was set at the one-year overnight index swap (OIS) rate plus 0.10 percentage points (Lee, Wessel 2024).

The volume of the BTFP reached its peak of around USD 167.77 billion in late January 2024 as it turned profitable for the banks to draw loans and deposit the money lent at the Fed. This kind of arbitrage was most probably one of the key reasons behind the Fed's decision to withdraw from the use of this facility. The announcement was done on the very same day when the volume of the BTFP peaked, and it entered into force on 11 March 2024 (Federal Reserve 2024). Since then, the volumes of loans offered within this facility started to fall and by 12 March 2025 its utilization fell to zero (it ceased to be used).

The application of the BTFP was one of the reasons why the process of the Fed's balance sheet reduction went temporarily in reverse, as the size of the loans offered within the BTFP outperformed the needs for reducing the value of previously acquired Fed securities and proved to be the key factor in helping Fed overcome tensions in March 2023. Still, as it was an interim tool, the banks in the US seem to be at the mercy of the DWF again. And, as Armantier, Cipriani, and Sarkar (2025) point out, the stigma of the DWF seems to persist, leaving the Fed with a need to solve the problem of emergency assistance in the near future.

Finally, the Fed could not afford the luxury of estimating a point (as far as the level of banks' reserves is concerned) beyond which resorting any longer to QT could have proved to be harmful to the banks. This was an important issue as it evoked bitter memories related to the failure of the LCLoR – which was pursued during QT1. The first to refer to the aforementioned issue was the Member of the Federal Reserve Board Christopher Waller (Wessel, Waller 2024), who opted for alternative measures and consequently pointed to a range from 10% to 11% of GDP as an adequate level for the size of banks' reserves held at the Fed. Another factor in Waller's analysis was the level of reserves to GDP observed in early 2019, which amounted to 8%. Bearing in mind the increase in the size of US banks ever since, Waller pointed to the aforementioned 10% to 11% of GDP as an approximate end point for draining reserves out of the system.

More clues were given by the Fed in October 2024, when the so-called Reserve Demand Elasticity (RDE) was conceived, although its origins go back to the post published in the Liberty Street Economics blog. The RDE is supposed to gauge the Fed funds rate sensitivity to the changes in reserve supply. It is achieved by plotting the reserve demand curve, which depicts the price at which banks are eager to trade their reserve balances with one another, as a function of aggregate reserves (Afonso et al. 2024). The aforementioned elasticity is reflected by the slope of the curve. When the RDE is equal to zero and the curve is flat, reserves are considered abundant. The opposite pole is the situation of reserves' scarcity, where the RDE is negative while the curve's slope is steep. A sort of transitory state between abundant reserves and scarce reserves is referred to as ample reserves, which occurs under a combination of a significantly negative yet only moderately steep slope (Afonso et al. 2024).

Authors of the RDE went even further and gave detailed numbers to define the transition from ampleness towards scarcity. A transition from abundant to ample reserves is supposed to take place

when reserves make up from 12% to 13% of bank assets. Reserve scarcity starts with reserves heading downward toward the range of 10% to 8% of bank assets. According to the authors, the robustness of their analysis is confirmed by the fact that similar results are achieved when aggregate reserves are normalized by GDP, instead of being normalized by bank assets. Using their own calculations, they pointed out that in late 2024 the reserves were still regarded as abundant. Throughout much of 2025 no evidence emerged to challenge this verdict (Abate 2025b).

There were other attempts to assess the right level of the Fed balance sheet from the perspective of determining a point beyond which QT2 could have turned counterproductive (Abate 2025c). Levin (2025) pointed to the balance-sheet-to-GDP ratio (slightly above 20%) as the appropriate level, noting that it was the same ratio that prevailed in late 2019, shortly before the outbreak of Covid-19. Another important issue raised by Levin (2025) was the compatibility of QT with the direction of interest rate changes. If throughout QT1 interest rates were either heading north or remained steady, in the case of QT2, a change of direction took place. From September 2024, interest rates started to head south (in spite of inflation exceeding Fed preferences) and thus their direction contrasted with the tightening bias of QT2. This constellation could be explained by the fact that QT was often perceived as a substitute to interest hikes. And with inflation being still above the Fed's goal in late 2025, a decision to end QT2 was interpreted by many as a simultaneous postponement of yet another cut in interest rates.

4. A preliminary assessment of the legacy of unconventional policies

Following two full cycles (2008–2017 and 2020–2025) of the Fed's new policies, it is high time to assess their impact. Prior to this kind of assessment, it is pertinent to review some of the tools with the help of which this impact can be gauged. It also makes sense to start by going back to Neil Wallace and his concept of neutrality. According to this concept, a central bank's open market operations may have no impact on the economy's equilibrium (measured in term of inflation and GDP). This concept after almost half a century from its inception in 1979 seems to be of a highly academic nature. And somewhat obsolete too. Still, it does get referenced sometimes when it comes to assessing the impact of quantitative easing. For instance Isabel Schnabel from the ECB referred to this concept and described it as a situation where changes in the size and composition of a central bank balance sheet should – under certain conditions – have no effect on asset prices, output or inflation.

But in the same aforementioned speech, Schnabel was right in saying that asset purchases – in contrast to what Wallace had assumed – have broader effects on the economy, as the real world departs from Wallace neutrality in several ways. And yet, similar conclusions only a decade ago did not seem obvious to everyone. For instance, Eggertsson and Woodford (2003) claimed that open-market operations, even of the 'unconventional' kind (as the authors already included the early experience of the Bank of Japan with this kind of policies in their research), are ineffective if they do not change expectations about the future conduct of policy. This conclusion made them believe that the famous Keynes' 'liquidity trap' is indeed possible. Hence the importance of the signalling channel at the time of conducting quantitative easing policies.

In the search for the most spectacular case of a true follower of Wallace's concept, one could point to the former Fed Chair, Janet Yellen. She famously compared the impact of the then forthcoming QT1

to the process of watching paint dry. With the benefit of hindsight, we can say that Yellen misjudged the situation entirely. It suffices to mention events from September 2019 in the US money markets. This case points to the opposite of what Wallace posited. To be fair with Yellen, one must admit that she could have been persuaded by the Japanese experience. The drastic reduction of the BoJ balance sheet hardly translated into market tensions, thus confirming to a certain extent Wallace's concept. Still, it must be borne in mind that in 2006 the Bank of Japan did not refrain from JGB purchases entirely.

Obviously, the world has changed in many ways since mid-2000s (not to mention the days when Wallace came up with his concept). It is enough to say that in 1979 it was inflation that constituted a big challenge, just as thirty years later the world aimed to ward off the threat of deflation. But it is not only about inflation. It is also about fiscal policies. After all, QE consist, above all, in large scale asset purchases by a central bank. Most probably, during Wallace's days, it would have been simply impossible to come to terms with the fact that a quadrupling of the public debt were to generate a fall of long-term interest rates from around 8% to levels close to zero. And this is exactly what happened in Japan in the period stretching from 1990 to 2016 with much of this process taking place prior to March 2001, i.e. prior to the date when the Bank of Japan launched its QEP.

Nevertheless, there is a point in referring to the Japanese experience when it comes to assessing the efficiency of Fed policies in the last 18 years. Between 2008 and 2022, the US experienced unpreceded fiscal expansion, which saw its public debt more than doubling, thus reaching the highest level in peace time. In spite of such a drastic increase, the public debt hardly translated into higher yields of US Treasuries, thus drawing some parallels with the Japanese phenomenon. Even if the fall in US yields was not as spectacular as in Japan, pandemic-era QE was strong enough to send 10Y yields to a record low (with the 10-year Treasuries yields trading below 1% for much of 2020). Admittedly, during the following QT2 period, yields reversed much of these earlier falls, which had been generated as a consequence of the combined effect of both the post-GFC QE and the pandemic QE. Yet, despite the Fed's completion of QT2 (in contrast to the Bank of Japan, which is yet to reverse much of its increases in the balance sheet), yields remained lower than they used to be in the years preceding the QE1 launch.

Obviously, relying on Treasury yields alone may lead to misguided conclusions about the impact of QT on both the economy at large and fiscal policy in particular. Other important criteria to consider can be the ratio of a given central bank's balance sheet to GDP and the pecking order of this balance sheet. The launch of unconventional monetary policy saw a massive increase in the Fed's total assets-to-GDP ratio from approximately 6% to more than 35% before it fell back to around 20% of GDP.

No matter how impressive these numbers are, when describing the increase in the aforementioned ratio, one important remark needs to be made. According to a study conducted by Ferguson et al. (2023), central bank balance sheets (the Fed included) underwent some sort of an upward adjustment as a result of post-2008 events. In other words, the ratio of total assets to GDP at the turn of the centuries was too low. Similar conclusions are echoed in an earlier study by Ferguson, Schaab, and Schularick (2015), where the authors concluded from their data that central bank total assets had become rather small by historical standards relative to the rapid growth of finance. The increase generated by the GFC took the level in question just back to the levels seen before the great wave of financial sector growth in the early 1980s. In 2014, these three authors made a forecast where they foresaw correctly that some of the aforementioned increase in the size of central bank balance sheets was to be permanent. In other words, they correctly excluded the possibility of a return to the thin liquidity holdings of the pre-crisis years.

More problematic is the changing pecking order of the balance sheet in the last two decades. In spite of large Treasury purchases after 2008, their share in the Fed's total assets has diminished. This fall is obviously attributed to the emergence of MBS in the asset structure. When it comes to the percentage of the outstanding assets in possession of the Fed, a combination of QT2 and further issuance of these securities saw a decline from levels close to 20% to approximately 11.4%. In September 2008, the same ratio stood at well below 5%. However, this low ratio owes to post-Clinton fiscal expansion, which saw an increase in outstanding securities from approximately USD 5.67 billion to more than USD 10 billion in less than eight years. That is why prior to the aforementioned expansion the ratio in question amounted to levels very close to 10%. This brings us to the conclusion that aligns with the assessment by Ferguson et al. (2023), according to which present fears over 'fiscal dominance' appear not to be borne out in the long sample context, and are not in line with earlier historical experience.

Finally, ending this assessment of QT, it is worth looking at it from the point of view of the cost of central bank profitability. Pierpaolo Benigno (2016) notes that a purchase of long-term assets must by definition alter the allocation of risk in the economy. According to him, such purchases generate a transfer of risk from the private sector to the balance sheet of a central bank. However, in the case of a credit event, the assets purchased by a central bank will generate losses that must be covered by the government. And the latter will do it by raising taxes and thus transferring the aforementioned losses to the private sector. Yet, this scenario raised by Benigno has never affected the Fed in a direct manner, as the Treasury is not allowed to recapitalize its central bank. In the case of losses, the Fed is at the mercy of the so-called deferred assets. The latter can be defined as the amount by which earnings failed to cover expenses, and consequently as the future earnings that must be withheld as a result of the aforementioned losses (Carpenter et al. 2013).

A period spanning almost two decades saw unprecedented changes in the world economy. Furthermore, it must be borne in mind that the final stage of QT2 coincided with unpreceded tariff disputes involving major trade players. The escalation of tensions of geo-political nature in 2025 was yet another factor which destabilized financial markets. This is why a lot of caution must be exercised when it comes to assessing the efficiency of the Fed's policies. Nevertheless, there are other criteria with the help of which the impact of the LSAP can be measured, out of which two seem to be of paramount importance. They are: the developments (or rather a spike) in the price of gold in the period under review, and the emergence of a contender whose goal is to defy the monopoly of fiat money.

Starting with the price of gold, it is worth revisiting a famous remark made by Ben Bernanke in July 2013. According to the intellectual author of QE, no one understands gold prices (Bernanke 2013). Their level had risen approximately fivefold since the inception of QE1. Obviously, the analysis of gold markets goes beyond the analysis of this text. Still, it makes sense to recall some of the most important factors determining the price of gold. The increase observed at the turn of the first and the second decade of the current century could be attributed to gold serving as a perceived hedge against inflation stemming from expansionary policy pursued by major central banks. According to Bernanke, this appears paradoxical, as movements in gold prices do not predict inflation. However, gold prices may – as will be pointed out later – bear some similarities to bond markets.

Apart from inflationary fears, there were other factors prompting the price of gold to rise. It suffices to mention the sovereign debt crisis in the euro area. However, the Fed's gradual exit from financial QE and the launch of QT1 saw the price of gold lose one third of its value, thus suggesting that the central banks did not lose their grip over monetary stability. Surprisingly enough, even the launch

of the pandemic QE in March 2020 did not push gold prices into uncharted territories permanently, thus confirming Bernanke's thesis on the price of gold.

If the announcement of tapering in May 2013 was one the key reasons behind a downward trend in gold prices, the start of monetary tightening in 2022 hardly translated into a significant and permanent downward adjustment. After the initial fall of approximately 15% in the first six months the losses were quickly reversed and prices remained rangebound for the next 12 months. And once Fed rates peaked, a true spike in gold prices took place. Since then, and in spite of the ongoing QT, gold prices managed to double. Most probably, the same factors were at stake behind rising gold prices as for US Treasuries: escalating conflicts in Ukraine and Gaza. This provides some support for yet another of Bernanke's thesis, according to which gold acts as a disaster insurance.

Ending the section dedicated to gold prices, it must be noted that the US monetary policy described in this chapter coincided with a change in trends as far as central banks' attitude toward gold was concerned. If in the early days of the 21st century central banks were still selling their gold stock, the advent of the second decade heralded a reversal in attitude. As a result, central banks became net buyers. Initially the process was confined to the emerging economies and China, but later other mid--income economies joined the trend, with Narodowy Bank Polski being the most spectacular example.

However, suggesting that higher prices of gold stemmed from excessively expansionary Fed policies seem not entirely justified. A far more decisive reason was the US administration decision from the early 2010s aimed to weaponize its currency with the intention to enhance the effectiveness of previously imposed economic sanctions. Furthermore, a drastic shift in geo-political landscape in the period under review saw some Central European central banks join the group of countries accumulating their gold stock.

In summary, even if gold prices were affected by multiple factors, there are reasons to believe that there must be a certain correlation involving their hefty increase in the last two decades and Fed policies. After all, a fivefold increase in the price of gold in the span of 17 years cannot be considered a sign of trust in fiduciary money. On the contrary, it must be the sign of a growing erosion of confidence in monies issued across the globe.

The aforementioned thesis can be justified with one factor which goes beyond gold prices. The launch of the LSAP coincided with an unprecedented event at the beginning of 2009, namely the establishment of the first cryptocurrency, bitcoin. This project is attributed to an individual or a group using the pseudonym Satoshi Nakamoto. Its further development clearly coincided with the LSAP gaining momentum. A turning point for bitcoin's development was April 2011, when its quotations broke the psychological limit of one USD. At the end of 2011, the bitcoin rose to USD 4.25, and in August 2012 it had already exceeded USD 10. Eight months later, in April 2013, another threshold of USD 100 per bitcoin was crossed, and in November of the same year, the level of USD 1000 was surpassed. Since at the end of 2013 bitcoin value began to decrease, and in May 2015 the quotations fell to the level of about USD 230, the correlation with Fed policies was becoming more and more evident. Furthermore, the above-described high volatility of bitcoin quotations was rather deterring and subsequently it did not seem to pose a major threat to fiat money. It was only its resurgence from the second half of 2015 that began to attract increasing attention from monetary authorities. While in September 2015 its price was below USD 240, at the end of 2016 it began to approach the threshold of USD 1,000 again. In September 2017, the quotations reached over USD 4,000 and continued to show an upward trend. The monetary authorities of the world could no longer remain indifferent to the

process of defiance to the monopoly of fiduciary money. Their response was the creation of central bank digital currency (CBDC) but it did not live up to expectations, partly out of fear of letting non--banking institutions access deposits in central banks. Furthermore, the CBDC was not a homogenous concept with some central banks even questioning its concept (for instance the Danish central bank, see: Kowalewski 2024). Last but not least, the advent of Donald Trump's second administration proved to be an important milestone, as it actually denied the Fed his blessing for further work on the CBDC (Van't Klooster, Martino, Monnet 2025).

The pandemic and subsequent new expansionary policies pursued by central banks helped to take the price of bitcoin above USD 60,000 in early 2021. The exit from QEP by major central banks in 2022, along with the sharp tightening of their policies, saw bitcoin give up much of the earlier gains and subsequently fall well below USD 20,000. However, fears that central banks may ease their policies again without attaining their own inflation targets helped bitcoin regain unprecedented momentum. It was strong enough for bitcoin to reach a new all-time high above USD 71,600 in early April 2024, before somewhat falling back at the turn of summer and autumn of that year. 2025 saw another spike bring its value above USD 120,000, before facing a sharp correction in late November of that year.

The significant increase in the value of bitcoin coincided with a steep increase in the value of gold and other commodities. This is why more and more observers ask the same question, whether the bitcoin may pose an alternative to fiat money. The link between bitcoin and Fed policies seems rather evident. The review of literature delivered by Bezemer, Sander, Kramer, and Simic (Bezemer et al. 2025) is helpful in highlighting the aforementioned link. Admittedly, Karau (2023) argued that while after 2020 the Federal Reserve's contractionary monetary policy (i.e. increase in interest rates) contributed to a fall in the price of bitcoin, in the pre-2020 period this contractionary stance had the opposite effect of increasing its price. Nevertheless, a study by Ma and collaborators goes against the latter finding. They show that the Fed's monetary tightening is associated with a decrease in the price of bitcoin on a pre-2020 dataset as well (Ma et al. 2022). The same tune is echoed in the IMF research, which points to the fact that an increase in Fed interest rates used to generate a contraction in the capitalization of the crypto markets (Che et al. 2023).

One of the elements that might have deterred investors from cryptocurrencies was excessive volatility. The crypto-world responded to this challenge by developing stablecoins. As the already mentioned by Bezemer (et al. 2025) wrote in the European Parliament report, stablecoins were conceived as an alternative to the price volatility of unbacked crypto assets. These tokens are supposed to hold their value at the 1:1 ratio against fiat currency. Presently this is mostly the US dollar, even if there are already efforts to imitate other currencies (e.g. the Swiss franc or even the Japanese yen). According to the aforementioned report, stablecoins are currently used as a bridge between the real economy and the crypto-markets. Aldasoro et al. (2025) point out certain similarities between the stablecoins and the MMFs even if the former tends to hold more cash. More importantly, according to Aldasoro et al. (2025), the combination of money demand liabilities with backing assets exposes the stablecoin to mismatches and subsequently to potential tensions. Consequently, in spite of being tied to a fiat currency, stablecoins are not free of risk. Aldasoro et al. (2025) claim explicitly that US monetary policy shocks are leading to significant outflows from stablecoins (into MMFs) and thus question the role of the stablecoin as a crypto safe-haven asset.

Further deliberations about the link between the Fed's policies conducted so far and the world of the stablecoin are becoming irrelevant as the focus of attention is shifting towards the future

correlations between the Fed and stablecoins. The previously mentioned refusal on the part of Donald Trump's second administration to support further work on the CBDC proved to be instrumental in paving the way for passing the Guiding and Establishing National Innovation for U.S. Stablecoins (GENIUS) Act. As Fed's Stephen Miran (2025) said, the GENIUS Act paved the way for a clear regulatory pathway in the US for stablecoin issuers to broaden their reach and solidify stablecoins as a core part of the payment system.[2] Furthermore, Miran added that stablecoins are already generating extra demand for US Treasury bills and other dollar-denominated liquid assets by investors outside the United States. And nothing is pointing toward this process being reversible in the foreseeable future. In other words, there are reasons to believe that a combination of fast technological progress and loose monetary policies (with QE being the best example) stand behind the reemergence of private money's creation with all its challenges. Perhaps a new chapter in the history of money evolution has just started. And understanding all the circumstances leading to its creation seems impossible without examining the heritage of policies going as far back as the GFC or even further, to the BoJ's liquidity trap combatting effort of 2001.

5. Summary and conclusions

Quantitative tightening, both in terms of its preparation and its execution, dominated the Fed agenda for more than a decade (with the exception of the heydays of Covid).

So far, there have been two attempts to reduce the Fed's balance sheet following its previous expansions stemming mainly from purchases of various securities. If the first attempt to pursue QT ended in failure, the second attempt has been more successful. This is surprising considering that, while QT1 was preceded by three years of preparations, the preparatory efforts for QT2 lasted merely three months. One of the reasons for such rush in the case of QT2 was the rate of inflation reaching figures not seen for more than 40 years.

Obviously, the second attempt benefitted from the lessons learnt during the first. In contrast to what Fed representatives used to believe, the process of reversing earlier increases in the balance sheet does not resemble a process of watching paint dry. Times when Wallace's concept of neutrality used to hold seem to be gone for good. This is why among the lessons drawn from the first attempts, it was learnt that the US banking system needed a standardized repo facility. The introduction of the SRF in July 2021 proved to be the sort of milestone that helped to prepare the Fed better for potential future market tensions related to interim shortage of liquidity.

In spite of relying on experience stemming from QT1, QT2 did not prove to be flawless as new challenges emerged in its course. One of them was the structural weakness of US supervision – which became apparent with the onset of serious tensions in the spring of 2023 in connection to the outbreak of the SVB crisis. Apart from it, there were other factors at stake which could have derailed the entire undertaking of reversing previous purchases, such as the outbreak of an unprecedented trade conflict coupled with a deteriorating geo-political environment. All these factors did not deter the US central bank from pursing a tightening programme.

[2] https://www.federalreserve.gov/newsevents/speech/barr20251016a.htm.

To be fair to the Fed, the US central bank was up to the aforementioned challenges. Obviously, its critics accused this institution of not having prepared better for the forthcoming headwinds. But when it was needed, the Fed showed enough flexibility to address the mounting difficulties, with the move to deliver help to ailing banks in the spring of 2023 being an example of paramount importance. The Fed's response was even more impressive in the wake of the long-lasting stigmatization of the DWF. The new BTFP facility seems to have filled the void in a rather successful manner. Still, further work in this area must be done as the BTFP was conceived as an interim measure.

No matter how important financial stability is, the Fed is yet to address challenges related to other areas within the scope of its policies. One of them is the ever-postponed reform of both its operational target (the Fed funds rate) and the level where it is set. With much of the volume of money market funds having moved to the secured market, further reliance on the obsolete unsecured Fed funds market may seem disturbing, as this state of affairs persists in spite of unconventional policies approaching their 20th anniversary. While the shift in operational rate is challenging, postponing it indefinitely may be costly.

The aforementioned issues pose some difficulties for the Fed. Yet, a relatively successful accomplishment of QT should boost its confidence in addressing new hurdles, with the eminence of the crypto-world (and the passing of the GENIUS Act) arguably being paramount.

References

Abate J. (2025a), *Fed funds: defying gravity (for now)*, Barclays FICC Research Interest Rates, 23 January, https://live.barcap.com/BU/research/content/publication-viewer?pubId=6792b84c59396d5e1d2b85d8.

Abate J. (2025b), *QT: effectiveness and efficiency,* Barclays FICC Research Interest Rates, 27 February, https://live.barcap.com/BU/research/content/publication-viewer?restriction=DEBT&bcllink=linkback_lb_1724943376655&pubId=67c086790dce3e19290c3a8c&sourceClick=FC.

Abate J. (2025c), *US money markets: monthly update*, Barclays, February, https://live.barcap.com/BU/research/content/publication-viewer?contentDocID=FC67bc9da4d1546e0c8745ee7b&restriction=DEBT&bcllink=linkback_lb_1724943376655.

Afonso G., Cipriani M., Copeland A., Kovner A., La Spada G., Martin A. (2021), The market events of mid-September 2019, *Economic Policy Review*, 2(27), https://www.newyorkfed.org/medialibrary/media/research/epr/2021/EPR_2021_market-events_afonso.pdf?sc_lang=en.

Afonso G., Logan L., Martin A., Riordan W., Zobel P. (2022), *The Fed's latest tool: a standing repo facility*, Federal Reserve Bank of New York, https://libertystreeteconomics.newyorkfed.org/2022/01/the-feds-latest-tool-a-standing-repo-facility/.

Afonso G., Cisternas G., Gowen B., Miu J., Younger J. (2023), *Who's borrowing and lending in the Fed funds market today?,* Federal Reserve Bank of New York, https://libertystreeteconomics.newyorkfed.org/2023/10/whos-borrowing-and-lending-in-the-fed-funds-market-today/.

Afonso G., Giannone D., La Spada G., Williams J. (2024), *Tracking reserve ampleness in real time using reserve demand elasticity*, Federal Reserve Bank of New York, https://libertystreeteconomics.newyorkfed.org/2024/10/tracking-reserve-ampleness-in-real-time-using-reserve-demand-elasticity/.

Aldasoro I., Cornelli G., Ferrari Minesso M., Gambacorta L., Habib M.M. (2025), Stablecoins, money market funds and monetary policy, *Economics Letters*, 247, 112203, https://www.sciencedirect.com/science/article/pii/S0165176525000400?via%3Dihub.

Anderson A., Na D. (2024), *The recent evolution of the Federal funds market and its dynamics during reductions of the Federal Reserve's Balance Sheet*, Board of Governors of the Federal Reserve System, https://www.federalreserve.gov/econres/notes/feds-notes/the-recent-evolution-of-the-federal-funds-market-and-its-dynamics-during-reductions-of-fr-balance-sheet-20240711.html.

Armantier O., Cipriani M., Sarkar A. (2025), *Discount window stigma after the global financial crisis*, Federal Reserve Bank of New York, https://libertystreeteconomics.newyorkfed.org/2025/01/discount-window-stigma-after-the-global-financial-crisis/.

Benigno P. (2016), The relevance or irrelevance of asset purchase programs, *Sveriges Riksbank Economic Review*, 2016:3, https://archive.riksbank.se/Documents/Rapporter/POV/2016/2016_3/er_2016_3%20The%20relevance%20or%20irrelevance%20of%20asset%20purchase%2programs%20by%20Pierpaolo%20Benigno.pdf.

Bernanke B. (2013), *Testimony Senate Banking Committee,* https://www.youtube.com/watch?v=_HybyqjV9jQ&t=55s.

Bernanke B. (2016), *Should the Fed keep its balance sheet large?*, Brookings Institute, https://www.brookings.edu/articles/should-the-fed-keep-its-balance-sheet-large/.

Bernanke B. (2017), *Shrinking the Fed's balance sheet*, Brookings Institute, https://www.brookings.edu/articles/shrinking-the-feds-balance-sheet/.

Bernanke B. (2022), *21st Century Monetary Policy. The Federal Reserve from the Great Inflation to COVID-19*, W.W. Norton & Company.

Carpenter S.B., Ihrig J.E., Klee E.C., Quinn D.W., Boote A.H. (2013), *The Federal Reserve's balance sheet and earnings: a primer and projections*, Finance and Economics Discussion Series, 2013-1, Federal Reserve Board, https://www.federalreserve.gov/pubs/feds/2013/201301/revision/201301pap.pdf.

Casalena F. (2024), *Back to normal? Assessing the effects of the Federal Reserve's quantitative tightening*, IHEID Working Papers, 14-2024, The Graduate Institute of International Studies, https://ideas.repec.org/p/gii/giihei/heidwp14-2024.html.

Che N., Copestake A., Furceri D., Terracciano T. (2023), *The crypto cycle and US monetary policy*, IMF Working Papers, WP/23/163, International Monetary Fund, https://www.imf.org/-/media/Files/Publications/WP/2023/English/wpiea2023163-print-pdf.ashx.

Du W., Forbes K., Luzzetti M. (2024), *Quantitative tightening around the globe: What have we learned?*, NBER Working Paper, 32321, https://www.nber.org/papers/w32321.

Eggertsson G.B., Woodford M. (2003), *Optimal monetary policy in a liquidity trap*, NBER Working Paper, 9968, https://www.nber.org/system/files/working_papers/w9968/w9968.pdf.

Van't Klooster J., Martino E., Monnet E. (2025), *Cryptomercantilism vs. Monetary Sovereignty. Dealing with the Challenge of US Stablecoins for the EU*, Monetary Dialogue Papers, June, European Parliament, https://www.europarl.europa.eu/RegData/etudes/STUD/2025/760274/ECTI_STU(2025)760274_EN.pdf.

Bezemer D., Sanders M., Kramer B. Imic A. (2025b), *Stablecoins and digital euro: friends or foes of European monetary policy?,* Monetary Dialogue Papers, June, European Parliament, https://www.europarl.europa.eu/cmsdata/296480/MD_SFL%20June%202025_FINAL.pdf.

Federal Reserve (2014), *Policy normalization principles and plans*, https://www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.pdf.

Federal Reserve (2017), *Press release*, https://www.federalreserve.gov/monetarypolicy/files/monetary20171101a1.pdf.

Federal Reserve (2019), *Implementation note regarding monetary policy implementation*, https://www.federalreserve.gov/newsevents/pressreleases/monetary20190731a1.htm.

Federal Reserve (2024), *Federal Reserve Board announces the Bank Term Funding Program (BTFP) will cease making new loans as scheduled on March 11*, Board of Governors of the Federal Reserve System, https://www.federalreserve.gov/newsevents/pressreleases/monetary20240124a.htm.

Federal Reserve (2025a), *Repo and reverse repo agreements*, Federal Reserve Bank of New York, https://www.newyorkfed.org/markets/domestic-market-operations/monetary-policy-implementation/repo-reverse-repo-agreements.

Federal Reserve (2025b), *Secured overnight financing rate data*, Federal Reserve Bank of New York, https://www.newyorkfed.org/markets/reference-rates/sofr.

Ferguson N., Schaab A., Schularick M. (2015), *Central bank balance sheets: expansion and reduction since 1900*, CESifo Working Paper, 5379, https://www.ifo.de/en/cesifo/publications/2015/working-paper/central-bank-balance-sheets-expansion-and-reduction-1900.

Ferguson N., Kornejew M., Schmelzing P., Schularick M. (2023), *The safety net: central bank balance sheets and financial crises*, *1587–2020,* Discussion Paper, DP17858, Centre for Economic Policy Research, https://www.ecb.europa.eu/press/conferences/shared/pdf/20230921_8th_ARC/2023_ARC_Schularick_paper.pdf.

Gulati Ch., Smith Lee A. (2022), The evolving role of the Fed's balance sheet: effects and challenges, *Economic Review,* Q4, Federal Reserve Bank of Kansas City, https://www.kansascityfed.org/Economic%20Review/documents/9251/EconomicReviewV107N4GulatiSmith.pdf.

Huther J. (2024), SOFR, so good? The outlook for the 'world's most important number, *ABA Banking Journal*, 10 July, https://bankingjournal.aba.com/2024/07/sofr-so-good-the-outlook-for-the-worlds-most-important-number/.

Karau S. (2023), Monetary policy and bitcoin, *Journal of International Money and Finance*, 137, 102880, DOI: 10.1016/j.jimonfin.2023.102880.

Keister T. (2012), *Corridors and floors in monetary policy*, Federal Reserve Bank of New York, https://libertystreeteconomics.newyorkfed.org/2012/04/corridors-and-floors-in-monetary-policy/.

Keister T., Martin A., McAndrews J. (2008), Divorcing money from monetary policy, *FRBNY Economic Policy Review*, September, https://www.newyorkfed.org/medialibrary/media/research/epr/08v14n2/0809keis.pdf.

Kirk K., Wong R. (2021), *The borrower of last resort: What explains the rise of ON RRP facility usage?*, Economic Brief, December, 21-43, Federal Reserve Bank of Richmont, https://www.richmondfed.org/publications/research/economic_brief/2021/eb_21-43.

Kowalewski P. (2024), Monetary processes in the world economy following the end of the Bretton Woods System, *Bank i Kredyt*, 55(6), 697–729, https://bankikredyt.nbp.pl/content/2024/06/BIK_06_2024_02.pdf.

Lee J., Wessel D. (2024), *What did the Fed do after Silicon Valley Bank and Signature Bank failed?*, Brookings, 25 January, https://www.brookings.edu/articles/what-did-the-fed-do-after-silicon-valley-bank-and-signature-bank-failed/.

Levin J. (2025), *The Fed must pair the end of QT with a pause in rate cuts*, 29 October, Bloomberg, https://www.bloomberg.com/opinion/articles/2025-10-29/the-fed-must-pair-the-end-of-qt-with-a-pause-in-rate-cuts.

Logan L. (2019), *Observations on implementing monetary policy in an ample-reserves regime*, Federal Reserve Bank of New York, https://www.newyorkfed.org/newsevents/speeches/2019/log190417.

Logan L. (2021), *Liquidity shocks: lessons learned from the global financial crisis and the pandemic*, Federal Reserve Bank of New York, https://www.newyorkfed.org/newsevents/speeches/2021/log210811.

Logan L. (2023), *Ample reserves and the Friedman rule*, Federal Reserve Bank of Dallas, https://www.dallasfed.org/news/speeches/logan/2023/lkl231110.

Logan L. (2024), *Normalizing the FOMC's monetary policy tools*, Federal Reserve Bank of Dallas, https://www.dallasfed.org/news/speeches/logan/2024/lkl241021.

Logan L. (2025), *The case for modernizing the FOMC's operating target rate*, Federal Reserve Bank of Dallas, https://www.dallasfed.org/news/speeches/logan/2025/lkl250925.

Ma C., Tian Y., Hsiao S., Deng L. (2022), Monetary policy shocks and bitcoin prices, *Research in International Business and Finance*, 62, 101711, DOI: 10.1016/j.ribaf.2022.101711.

Miran S.I. (2025), *A global stablecoin glut: implications for monetary policy*, Board of Governors of the Federal Reserve System, https://www.federalreserve.gov/newsevents/speech/miran20251107a.htm.

Potter S. (2017), *Reducing the size of the Federal Reserve's balance sheet: the benefits of moving gradually and predictably*, Federal Reserve Bank of New York, https://www.newyorkfed.org/newsevents/speeches/2017/pot171116.

Potter S. (2018), *U.S. monetary policy normalization is proceeding smoothly*, Federal Reserve Bank of New York, https://fraser.stlouisfed.org/files/docs/historical/frbny/speeches/frbny–speeches_20181026_pot.pdf?utm_source=direct_download.

Quarles R. (2018), *Liquidity regulation and the size of the Fed's balance sheet*, Currencies, Capital, and Central Bank Balances: A Policy Conference, a Hoover Institution Monetary Policy Conference, Stanford University, https://www.bis.org/review/r180522f.pdf.

Wessel D. (2024), *How will the Federal Reserve decide when to end "quantitative tightening"?*, Brookings Institute, https://www.brookings.edu/articles/how-will-the-federal-reserve-decide-when-to-end-quantitative-tightening/.

Wessel D., Waller Ch. (2024), *A conversation with Federal Reserve Governor Christopher Waller webinar,* Brookings Institute, https://www.brookings.edu/wp-content/uploads/2024/01/20240116_Waller_Transcript.pdf.

Yardeni Research (2025), *Chronology of Fed's quantitative easing & tightening*, https://archive.yardeni.com/chronology-of-feds-quantitative-easing/.

Acknowledgements

Special thanks go to William Roberds, who is an economist emeritus of the Research Department of the Federal Reserve Bank of Atlanta. His support and patience in addressing all my questions were essential to completing this text. The same is true for the words of support offered to me by William throughout the entire writing process. Separate thanks go to Joseph Abate, currently a managing director at SMBC Nikko Securities, whose research conducted during his time at Barclays and, above all, his intellectual assistance have been invaluable. Needless to add, any remaining errors and imperfections of this paper are the sole responsibility of the author.

Przebieg i ocena skuteczności zacieśniania ilościowego Fed

Streszczenie

Koncepcja zacieśniania ilościowego często jest postrzegana jako odwrotność wcześniejszego luzowania ilościowego. W artykule wykazuję, że tak nie jest, i kładę nacisk na różnicę między jednym a drugim pojęciem. Aby znaleźć pierwsze w historii zacieśnianie ilościowe, niezbędne wydaje się odwołanie do doświadczeń japońskich z lat 2001–2006. Zważywszy jednak na specyfikę gospodarki japońskiej i w żaden sposób nie kwestionując pionierskiej roli Banku Japonii w zakresie niekonwencjonalnej polityki pieniężnej, sądzę, że jego doświadczenia ze wspomnianego okresu jedynie w niewielkim stopniu przystają do tego, co czyniły banki centralne w obliczu wybuchu Wielkiego Kryzysu Finansowego z 2008 r. Podstawową różnicą między tymi okresami była wielkość skupowanych aktywów. Nie bez znaczenia była także ich zapadalność.

Głównym zagadnieniem w tym tekście jest odchodzenie od wcześniejszego skupu aktywów w postaci zacieśniania ilościowego, na które zdecydowała się amerykańska Federal Reserve. Został on zainicjowany w październiku 2017 r. i ukończony niespełna dwa lata później. Druga odsłona zacieśniania ilościowego nastąpiła w połowie 2022 r. i zakończyła się w grudniu 2025 r.

Między jednym a drugim podejściem do zacieśniania ilościowego istnieje dużo różnic. Ocena pierwszego podejścia nie wypada korzystnie w dużej mierze za sprawą opisanych w artykule wydarzeń z września 2019 r. Napięcia na rynku pieniężnym w USA z września 2019 r. zmusiły Fed do powrotu do luzowania ilościowego w niespełna kilka tygodni po jego zakończeniu. Taki tok wydarzeń pokazuje złożoność zacieśniania ilościowego, które sprowadza się w dużej mierze do obniżenia poziomu rezerw trzymanych przez banki w banku centralnym.

Kolejną różnicą między pierwszym a drugim zacieśnieniem ilościowym są okoliczności, w jakich do nich doszło. O ile w przypadku pierwszego podejścia zagrożenie inflacyjne było stosunkowo niewielkie, o tyle drugiemu towarzyszyła już najwyższa od ponad 40 lat presja inflacyjna. Drugim ważnym elementem był poziom wyjściowy sumy bilansowej (w przypadku drugiego podejścia była mniej więcej dwukrotnie wyższa niż w przypadku pierwszego), przy jakim Fed decydował się na zacieśnianie ilościowe. Zwłaszcza ten ostatni czynnik mógł być istotny dla powodzenia całego przedsięwzięcia. Działania z lat 2022–2025 są znacznie lepiej oceniane niż działania z lat 2017–2019.

Pomimo że w przypadku QT2 polegano na doświadczeniu zdobytym w QT1, także wystąpiły komplikacje, gdyż pojawiały się nowe wyzwania. Jednym z nich były strukturalne słabości amerykańskich nadzorów, które ujawniły się wraz z poważnymi napięciami wiosną 2023 r. w związku z wybuchem kryzysu SVB. Były też inne czynniki, które mogły zniweczyć całe przedsięwzięcie cofnięcia wcześniejszych zakupów, takie jak wybuch bezprecedensowego konfliktu handlowego wraz z pogarszaniem się otoczenia geopolitycznego. Wszystkie te czynniki nie powstrzymały amerykańskiego banku centralnego przed realizacją programu zacieśniania ilościowego.

Fed udało się pokonać powyższe wyzwania w dużej mierze za sprawą wyciągania wniosków z popełnionych błędów, jak też szybkiego podejmowania odpowiednich decyzji. W niniejszym artykule skoncentrowano się na przebiegu wspomnianego wyżej procesu decyzyjnego amerykańskiego banku centralnego.

W ostatniej części tekstu dokonano nie tylko oceny zacieśniania ilościowego, ale także próby oceny całej niekonwencjonalnej polityki pieniężnej, którą Fed prowadzi od wybuchu Wielkiego Kryzysu Finansowego z 2008 r. Dodatkowo opisano wyzwania, przed którymi stoi Fed w chwili zakończenia zacieśniania ilościowego. Jednym z nich wydaje się umiejętność odnalezienia się w świecie, w którym do głosu coraz częściej dochodzą kryptowaluty.

Słowa kluczowe: oprocentowanie, bank centralny, suma bilansowa, płynność, polityka pieniężna