

Chapter 9.

THE INFLUENCE OF MONETARY POLICY ON THE FINANCIAL SECTOR

Central banks represent the backbone of the economy of a country. They are responsible for maintaining liquidity in the market and ensuring the smooth functioning of the financial system. They regulate and monitor the amount of money in circulation, in order to ensure sufficient liquidity for the normal development of economic activities, without inflation or deflation. With its tools, such as open market operations, key interest rates, regulation of required reserves, central banks ensure an adequate amount of money in circulation, affect the availability of capital, price stability, and the functioning of the financial sector, they prevent financial crises and enable the smooth operating of the economy.

The money market, as the main channel for the implementation of monetary policy, enables quick and efficient distribution of liquidity among the participants in the financial system. Central banks affect important parameters of this market, such as overnight and other interest rates, closely related to the key monetary policy rates. In addition, central banks regulate and supervise financial institutions that participate in this market, which contributes to its stability and smooth functioning. Central Banks also manage national payment systems, which efficient functioning is a prerequisite for the normal and smooth conducting of financial transactions and circulation of liquidity in the economy. Management of foreign exchange reserves and implementation of foreign exchange policy enables maintaining the stability of the national currency and the balance of payments.

1. CHALLENGES THAT SHAPED MONETARY POLICY OVER NEARLY TWO DECADES

In the last two decades, monetary policy has faced major challenges. A long period of stable growth was disrupted by the US sub-prime mortgage crisis, which quickly spread to other economies due to interconnectedness of financial institutions and markets. The crisis stemmed from excess liquidity and low interest rates, that fuelled credit expansion and financial innovations. Instead of raising consumer prices, this liquidity inflated asset values, particularly in real estate. Mortgage securitization allowed lenders to offload risk by bundling loans into mortgage-backed securities (MBS), which investors receive income from borrowers' payments. This process extended to other credits, such as car and

student loans, creating asset-backed securities (ABS). As financial markets evolved, different securities were pooled into collateralized debt obligations (CDOs), that were divided into risk tranches. Since these were very complex products, it was very hard to value them, which led to widespread mispricing. The abundance of liquidity reduced risk premiums, encouraging excessive leverage and speculation. Rising financial product values artificially boosted reported profits under fair-value accounting rules²⁰⁹.

Financial innovations, primarily the process of securitization, have introduced major changes in interbank, covered bonds and sovereign debt markets, in the process of financial intermediation, bank financing and monetary policy transmission. The focus in financing has shifted to the short-term segment of the financial market. This has increased banks' exposure to financial conditions on the interbank market and reduced the impact of changes in the key interest rates. Financial innovations have contributed to the emergence and development of a large number of non-deposit financial institutions, called shadow banking. These are financial institutions that perform credit, maturity and liquidity transformation, without access to central bank liquidity or government credit guarantees. They perform the process of credit intermediation by transforming risky long-term assets into short-term liabilities, issuing securities such as commercial papers and other asset-backed securities, collateralized bonds and repo arrangements²¹⁰. At the global level, the non-banking financial sector participated with around 47% in the total assets of the financial sector²¹¹, and in the euro zone, banks have a little over 1/3 of the assets of the financial sector (58% in 1999)²¹². Under the pressure of competition from these financial institutions, banks have increasingly become involved in the derivative securities market. Their credit activity has increasingly been financed through the securitization process. An increasing proportion of interbank loans used these derivatives as collateral. So, the banks' funding costs and thus their interest rates depend on the conditions in the structured securities market, the covered bond market and collateralized interbank loans. Banks have also become dependent on the conditions in the sovereign debt market - the value and availability of these securities, as these bonds have been treated by regulators as a safe investment.

²⁰⁹ Popović, S., & Lukić, V. (2009). Central Bank Policy and Financial Crisis. *Scientific conference*, Niš: University of Niš, Faculty of Economics, pp. 533-540

²¹⁰ Popović, S., Janković, I., & Lukić, V. (2017). Interconnectedness between shadow and traditional banking system in Europe, *Bankarstvo*, 46(3), doi: 10.5937/bankarstvo 1703014P

²¹¹ <https://www.fsb.org/wp-content/uploads/P181223.pdf>

²¹² <https://www.ecb.europa.eu/press/fin/html/ecb.fin202406~c4ca413e65.en.html#footnote.29>

The financial fragility materialized in 2008, with a surge of interruption in debt repayment and foreclosures and the burst of the housing market bubble, leading to a sharp decline in real estate prices and triggering massive losses for institutions holding sub-prime assets. Major firms collapsed, including Bear Stearns, Lehman Brothers, and AIG, leading to a credit crunch that paralyzed lending and spread economic pessimism globally²¹³.

The outbreak of the crisis caused a great aversion of investors to risk, that become overvalued. The bankruptcy of Lehman Brothers caused a panic in the repo market, not a classic banking panic when deponents massively withdraw their deposits from banks. The perception of counterparty risk increased dramatically and banks were no longer willing to lend in the interbank market. The ability of banks and other financial intermediaries to lend in this market depends on the size, structure and quality of the collateral portfolio. MBS and other structured securities became undesirable as collateral, thus the market focus was on government bonds. While in the US repo market, risk aversion meant that investors fled to US government bonds, which yields had fallen significantly, in Europe investors began to differentiate between the bonds of individual countries, which led to a large increase in spreads. A sharp segmentation of the market according to the structure of collateral emerged. Financial institutions that had a large share of MBS in their collateral portfolios lost access to this market²¹⁴.

Households, seeing their financial wealth decline, cut spending and increased savings. Previously, rising asset prices had encouraged them to consume more rather than save, but the crisis forced a reversal of this behavior. Businesses, facing economic uncertainty, reduced investments and inventory, deepening the downturn.

The financial collapse of 2007-2009 prompted unprecedented central bank interventions. Emergency monetary policies included massive liquidity injections, quantitative easing (QE), and bailouts to stabilize financial

²¹³ Lukić, V., & Popović, S. (2010). The Assessment of Banking Sector Performance in Current Economic Crisis: Success or Failure. In: *The International Conference - The Challenges to Economic Theory and Policy in the Aftermath of the Global Economic Crisis, Proceedings*, Skopje: University Ss. Cyril and Methodius, Faculty of Economics, pp. 203-219.

²¹⁴ Popović, S., & Živković, A. (2016). Funkcija zajmodavca u krajnjoj instanci Evropske centralne banke kao odgovor na finansijsku krizu. *21st International Scientific Conference SM2016 - Strategijski menadžment i sistemi podrške odlučivanju u stratejskom menadžmentu, Proceedings*, Subotica: University of Novi Sad, Faculty of Economics in Subotica, pp. 681-693.

institutions. Governments coordinated responses to restore confidence and prevent systemic collapse.

The new function of central banks: Market maker of last resort

The classic Lender of the last resort function rests on the assumption that the functioning of credit markets depends on confidence in the solvency of financial institutions. When that trust disappears, central banks intervene as a lenders of last resort, providing credit support to banks that, after exhausting all other options, no longer have sources of funding for their daily operations. However, their bankruptcy would significantly affect the financial system and economy of the country. In this way central banks prevent the spread of banking panics. During the period of the Great financial crisis (GFC), central banks had to expand their function of the lender of last resort and become Market makers of the last resort. This type of operation goes beyond the standard provision of liquidity, but still rests on central banks' monopoly in the supply of liquidity.

During serious crises, assets that are normally accepted as collateral can become undesirable. In conditions of intensive collateralized financing, the conditions of liquidity and the functioning of the market, are determined by the availability of collateral, not the spread on the money market or trust in banks. The functioning of collateralized credit markets depends on trust in the collateral, not in the institutions, which makes the system unstable because the value of the collateral is an endogenous variable. It depends on the market demand for the given collateral, and less on the fundamental characteristics (risk and return) of the given security. The value of the collateral is very procyclical and subject to major changes during the financial crisis, its reduction intensifies the consequences of the crisis. After the outbreak of the GFC, the value of collateral in US dropped significantly, because everyone wanted to sell the same securities. This created large losses and funding problems for both financial institutions and the real sector and deepened the crisis.

A credit crunch or liquidity crisis manifests itself through the poor functioning of financial markets. The spread of uncertainty among participants means that there will be little or no trading of certain securities (like ABS, MBS or CDO), while they become undesirable. There is no credible market maker that would regularly publish purchase and sale prices. The solution to the problem is for the central bank to become the market maker of the last resort. The central bank performs this function through direct purchases and sales of a wide range of private sector securities, or by accepting these securities as collateral in its operations. In this way, it ensures that these securities remain liquid and acceptable in the market. It actually transforms the collateral, replaces the private sector's securities, which value the market doubts, with its liabilities on a large scale. As market makers,

central banks influence price transparency, the size of transaction costs (the spread), and the volume of money market trading. They accept illiquid private sector securities and determine their value. They strive to minimize short-term interest rate fluctuations and increase the predictability of their movements in the future. This in turn encourages the transmission of monetary policy through financial institutions and markets to the real economy.

The rise in the quantity of money in circulation and the decrease in interest rates

Quantitative easing (QE) led to substantial rise of central banks' balance sheets and reductions in key interest rates. Before the crisis, FED held approximately \$700–800 billion in Treasury notes, and in 2014 \$2.5 trillion. Holdings of MBS reached \$1.8 trillion, and the total assets grew to \$4.5 tn by October 2014 (from \$1 tn in September 2008). Bank reserves grew from less than \$50 billion to \$2.2 billion in 2017²¹⁵. In euro area, central bank assets grew from around €1.2 tn to around €3.1 tn in 2012²¹⁶. Bank of England monetary base grew very fast, from close to £69 billion in January 2009 to £208 billion in July the same year²¹⁷, while its balance sheet increased from around £100 billion to around £270 billion in this period²¹⁸ (Figure 1).

At the same time, key policy rates were significantly reduced. ECB rate on main refinancing operations was reduced from 5.25% during the third quarter of 2008 to 0.25% in 2016, while the rate on deposit facility was in negative zone (-0.4%) in 2016²¹⁹. The fed funds rate was lowered from 5.25% in the mid of 2007 to 0.07% in July 2011²²⁰. The main rate of Bank of England was reduced from 5.75% in July 2007 to 0.25% in August 2016²²¹.

²¹⁵ https://www.everycrsreport.com/files/20170627_IN10727_9a3f8ee35d5ede0fa4e50dce7d269e0521fbad3c.html

²¹⁶ <https://fred.stlouisfed.org/series/ECBASSETSW>

²¹⁷ <https://ideas.repec.org/a/fip/fedlr/y2010inovp481-506nv.92no.6.html>

²¹⁸ <http://piketty.pse.ens.fr/files/capitalisback/CountryData/UK/VariousOfficialSeries/BalanceSheetBoE/Fisher09.pdf>

²¹⁹ https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html

²²⁰ <https://fred.stlouisfed.org/series/FEDFUNDS>

²²¹ <https://www.bankofengland.co.uk/boeapps/database/Bank-Rate.asp>

The influence of the pandemic on monetary policy

Since the outburst of financial crisis, financial sector has been flooded with the abundance of liquidity in the environment of very low, even negative interest rates. That has caused concerns among central banks related to possible inflation growth, and thus plans for the exit strategy²²². However when they were about to start with balance shrinking and increasing of their key rates, new severe shock occurred: Covid-19 pandemic. In March 2020, the pandemic emerged, prompting governments worldwide to implement restrictive measures to slow the spread of the disease.

These measures disrupted global supply and demand, leading to sharp declines in private and investment consumption and significant deteriorations in macroeconomic performances. Many countries experienced their deepest economic contractions since the World War II, during the second quarter of 2020²²³. To support citizens and struggling businesses and to combat the ensuing economic crisis and potential recession, governments and central banks introduced new quantitative easing measures²²⁴, which led to substantial increase in the money supply in the circulation²²⁵.

Central banks balance sheets grew even stronger (Figure 1). The peak was at the end of 2021 and the first half of 2022. ECB assets increased to more than €8.8 trillion²²⁶, assets of FED reached approximately \$9 trillion, and total assets of BoE grew to more than £1.1 trillion²²⁷.

²²²http://www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.pdf

²²³ Popović, S., Lukić, V., & Živković, A. (2021). Central Banks Support to Financial Markets, Banking and Insurance in Response to Covid-19 Crisis. In: *Contemporary challenges and sustainability of the insurance industry*, Kočović, J. et al. (eds.), Belgrade: University of Belgrade, Faculty of Economics and Business, pp.79-96.

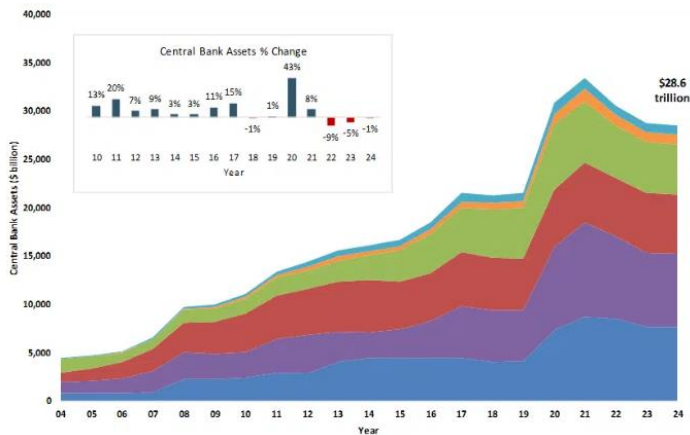
²²⁴ Janković, I., Popović, S., & Lukić, V. (2021). EU Monetary and Fiscal Policy Responses to the Covid-19 Crisis. *Ekonomika preduzeća*, 69(5-6), pp. 333-344, https://www.ses.org.rs/uploads/ep_5-6_2021_211202_171222_127.pdf

²²⁵ Popović, S., Lukić, V., & Živković, A. (2023). High Inflation and Rising Interest Rates as the Key Characteristics of the Economic Environment. In: *Challenges and Insurance Market's Responses to the Economic Crisis*, Kočović, J. et al. (eds.), Belgrade: University of Belgrade, Faculty of Economics and Business, pp. 59-74.

²²⁶ https://ycharts.com/indicators/european_central_bank_total_assets

²²⁷ <https://en.macromicro.me/charts/54371/boe-total-assets>

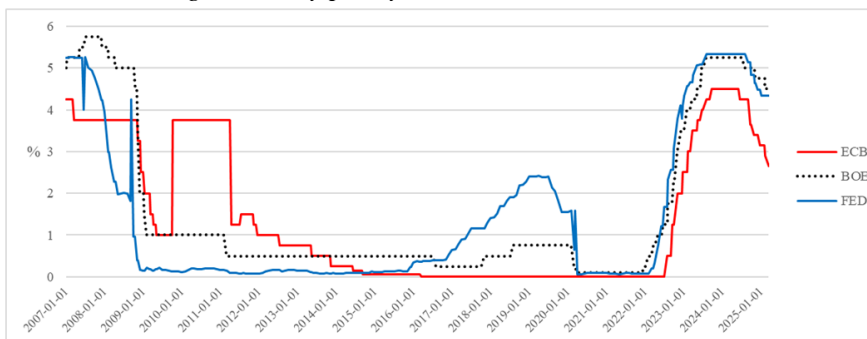
Figure 1. Global central bank balance sheets



Source: <https://www.riskbridgeadvisors.com/2024/01/05/january-5-2024-a-run-on-at-central-banks/>

At the same time, key policy rates reached record lows (Figure 2). FED immediately reduced fed funds rate from 1.58% at the beginning of pandemic to 0.65% and kept reducing it to the lowest level of 0.05%. This rate remained below 1% until June 2022. ECB kept its rate on main refinancing operations at the level of 0%, as well as rates on deposit facility of -0.5% and lending facility of 0.25%. Main refinancing rate was 0% from March 2016 until August 2022 (and from December 2011 it was 1% and lower). BoE also cut its key policy rate from 0.75% at the beginning of pandemic to 0.1%. In a very long period, key rate was 1% or lower, from February 2009 until June 2022.

Figure 2. Key policy rates, ECB, FED and BoE

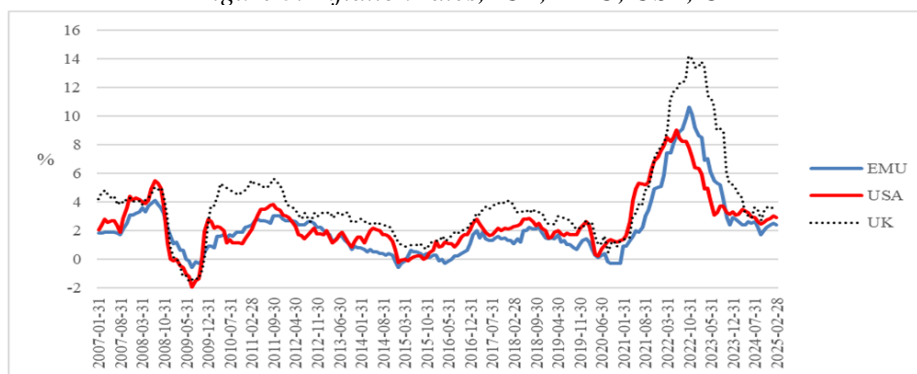


Source: Author, based on data from: Key ECB interest rates, https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html; Official Bank Rate history, <https://www.bankofengland.co.uk/boeapps/database/Bank-Rate.asp>; Federal Funds Effective Rate, <https://fred.stlouisfed.org/series/FEDFUNDS>

Inflation volatility and central bank measures

Due to a massive increase in the money supply combined with production constraints and disruptions in distribution chains, inflation began rising at the end of 2021. The situation worsened in February 2022 with the outbreak of war in Ukraine, a major grain producer, and the sanctions imposed by the US and Europe to Russia, which is both a key market for Western goods and a crucial supplier of essential resources like oil and gas. These sanctions triggered an unprecedented surge in food and energy prices, leading to double-digit inflation levels in 2022. Additionally, Europe's shift toward a green economy introduced uncertainties, production challenges, and rising costs, further exacerbating economic instability.

Figure 3. Inflation rates, ICP, EMU, USA, UK



Source: Author, based on data from: Euro area, <https://data.ecb.europa.eu/data/datasets/ICP/ICP.M.U2.N.000000.4.ANR>; Consumer price inflation, Office for National Statistics, UK, <https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/czbh/mm23>; Consumer Price Index for All Urban Consumers, HICP - Overall index, FRED, <https://fred.stlouisfed.org/graph/?g=8dGq>

Inflation rates were quite volatile in the observed period. Until GFC, EMU had relatively stable inflation rates, in line with the ECB target. When the crisis emerged inflation rose, but the economic downturn that followed, caused significant decline in inflation, which reached the bottom of -0.6% in July 2009. ECB implemented measures like the Covered bond purchase programme (CBPP) in 2009²²⁸ and the Securities markets programme (SMP) in 2010²²⁹ to stabilize the financial system. Despite these efforts, the EMU faced a sovereign debt crisis, particularly in countries like Greece, Portugal, and Italy, leading to deflationary pressures. In the long period (2013- mid 2021), Eurozone struggled with

²²⁸ https://www.ecb.europa.eu/press/pr/date/2009/html/pr090604_1.en.html

²²⁹ <https://www.ecb.europa.eu/press/pr/date/2010/html/pr100630.en.html>

persistent low inflation, that prompted the ECB to adopt more aggressive monetary policies²³⁰. In 2015, the ECB launched an Expanded asset purchase programme (quantitative easing, QE) to combat deflation and stimulate the economy. Pandemic in 2020 caused economic contraction and influenced ECB to introduce the Pandemic emergency purchase programme (PEPP) to support the economy. These measures, along with supply chain disruptions and increased energy prices, contributed to a significant rise in inflation, that started in the second half of 2021. In October 2022, HICP surged to a peak of 10.6%, making one of the highest inflation rates in the EMU's history. In response to soaring inflation, the ECB shifted towards monetary tightening, raising benchmark interest rates multiple times, to curb inflationary pressures. In the 2023 and the first half of 2024 inflation was above ECB's target, but the second half of this year brought stabilization. In March 2025, the ECB reduced its benchmark interest rate by a quarter percentage point to 2.5%, followed by additional reductions. ECB announced cautious approach to future rate cuts, reflecting a balance between stimulating growth and maintaining price stability.

In US, inflation also was around 2%, before GFC. The soaring of energy prices and the reduction of fed funds rate caused inflation spike to 5.5% in July 2008, however it quickly plummeted to negative territory by 2009, indicating deflation. The Fed implemented the first round of Quantitative Easing in November 2008, purchasing MBS to inject liquidity into the financial system²³¹. Inflation remained subdued until 2011, fluctuating between 1–2%. The Fed launched QE2 in November 2010, purchasing Treasury securities, and QE3 in September 2012, with open-ended purchases of MBS. The fed funds rate stayed at very low level, close to 0% until December 2015. In 2011 and the first quarter of 2012, inflation was between 2–3%, then again dropped below 2%, reaching negative levels in 2015. At the end of 2014, and throughout 2015 and 2016, inflation was lower than 2%, often close to 0%. From 2017 until pandemic, it stabilized around 2%. The Fed incrementally increased the fed funds rate, reaching 2.25–2.50% by December 2018. It also commenced balance sheet normalization by reducing its holdings of Treasury and MBS. In March 2020, Fed slashed the fed funds rate back to 0.00–0.25% and initiated QE4, purchasing approximately \$700 billion in assets to support the economy during the pandemic. Inflation surged, reaching levels not seen in decades. Since March 2020 inflation was in a constant rise, peaking 9% in June 2022. Fed responded by aggressively raising the fed funds rate, implementing multiple hikes to curb inflationary pressures. In 2023 inflation rates were also high, but 2024 and the beginning of 2025 brought moderation. In

²³⁰ Popović, S., Janković, I., & Lukić, V. (2023). Heterogeneity of inflation processes in European monetary union. *Ekonomika preduzeća*, 70(7-8), pp. 373-382.

²³¹ <https://www.federalreserve.gov/newsevents/pressreleases/monetary20081125b.htm>

September 2024, Fed lowered its benchmark rate for the first time since 2020, by 50 basis points, reflecting confidence in economic stabilization. Fed emphasized a cautious "wait and see" approach to further rate adjustments, focusing on interpreting long-term economic signals amid ongoing policy fluctuations.

Inflation in UK was higher during 2007 and 2008. In mid-2007 UK faced depreciation of sterling (of 25%), which boosted inflation. It reached 5.0% in September 2008, due to rising commodity prices, but fell sharply afterward as the recession took hold. As the global financial crisis loomed, the BoE maintained the Bank Rate at 5.75% until December 2007, when it began a series of cuts to support the economy, to a historic low of 0.5% by March 2009. In March 2009, it launched the Asset Purchase Facility, initiating quantitative easing to stimulate the economy. In June 2009 inflation reached bottom of -1.6%, with 12 months of inflation significantly below 2% (which is BoE's target). During the period of 2010-end to 2014, inflation again was higher, reaching maximum of 5.6% in September 2011²³², but in 2015 and the first half of 2016 inflation fell significantly below 2%. Following period, until the outburst of pandemic was characterized by higher inflation, followed by 12 months of significantly low level of inflation, due to reduced demand. Period from 2016-2019 was marked by Brexit referendum and economic uncertainty, but also depreciation of pounds and rise in import prices. Then already at the beginning of the second quarter of 2021 inflation started to rise above BoE target, reaching maximum of 14.2% in October 2022. It still did not come back to the level of target. In response, the BoE commenced tightening monetary policy by raising the bank rate from 0.1% in late 2021 to 4% by 2023, it also began reducing its QE holdings.

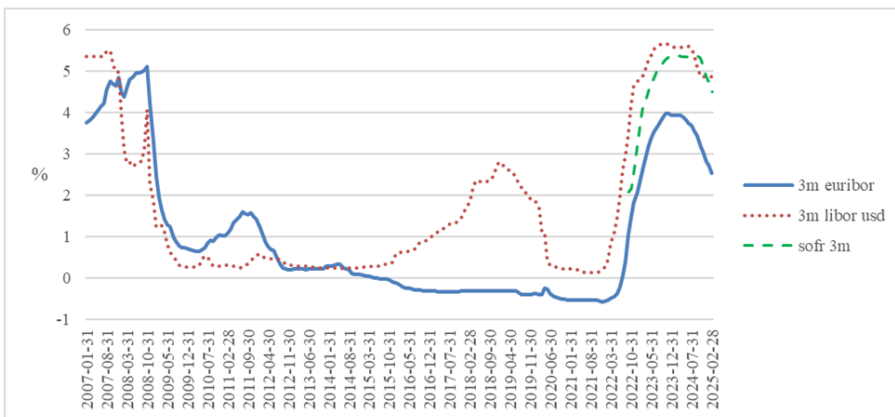
Reference interest rates

Volatile inflation, changes in market liquidity, and changes in key policy rates, caused volatility in reference interest rates. In 2007, both 3m Euribor and 3m Libor were relatively high, Euribor even rose towards the end of 2008, reaching 5.11% in October (Figure 4). ECB maintained higher key interest rates to combat rising inflation during this period. Increased banks' demand for liquidity also contributed to higher interbank lending rates. Since financial crisis led to reduced economic activity and inflationary pressures, ECB had to cut its interest rates and introduce measures to enhance liquidity, which caused drop of interbank lending rates. 3m Euribor reached the bottom of 0.65% in March 2010. After that, it started to rise, peaking to 1.6% in July 2011, before declining to 1.19% in December 2012. Concerns over sovereign debt in several Eurozone countries led to increased interbank lending rates. The ECB's interventions, including long-term refinancing operations (LTROs), provided liquidity and helped stabilize

²³² <https://obr.uk/box/why-has-inflation-been-higher-in-the-uk-than-the-euro-area/>

rates. Period from the beginning of 2013 until the surge of inflation in 2022, was characterized by Euribor close to zero and even falling into negative zone²³³ (in 86 consecutive months, 3m Euribor was negative, with the lowest value of -0.58% in December 2021). ECB maintained low key interest rates and implemented QE programs to stimulate economic growth and counter deflationary pressures in this period, resulting in sustained low interbank lending rates. Pandemic prompted the ECB to introduce additional monetary easing measures, including the PEPP, to support the economy, keeping interbank lending rates at even lower levels. Surge in inflation and increase in ECB interest rates to combat inflation, lead to corresponding increases in interbank lending rates. The growth trend started in July 2022 and lasted until November 2023, when 3m Euribor reached maximum of 3.97%. After that it slowly calmed down and to the value of slightly above 2.5% in February 2025. The ECB has reduced interest rates amid concerns over weak economic growth and potential trade tensions. In March 2025, ECB cut rates by a quarter percentage point to stimulate growth, lowering borrowing costs for consumers and businesses (Figure 2)²³⁴.

Figure 4. Reference rates- 3m Libor (USD), 3m Euribor, 3m Sofr



Source: <https://data.ecb.europa.eu/data/datasets/FM/FM.M.GB.USD.RT.MM.USD3MFSR.HSTA>; <https://data.ecb.europa.eu/data/datasets/FM/FM.M.U2.EUR.RT.MM.EURIBOR3MD.HSTA>; https://gee.bccr.fi.cr/indicadoreseconomicos/cuadro_s/frmvercatcuadro.aspx?idioma=2&codcuadro=%206883

Before GFC, 3m USD Libor was higher than 3m Euribor, reaching maximum of almost 5.5%, due to Fed maintaining higher fed funds rate to curb inflationary pressures. Besides, robust economic growth led to increased demand for credit,

²³³ Lukić, V., & Popović, S. (2025). Interest rate pass-through to deposit interest rates in a dual currency monetary system: Case of Serbia. *Ekonomski horizonti*, forthcoming.

²³⁴ <https://apnews.com/article/european-central-bank-ecb-interest-rates-eurozone-d0df8908a463ff8b000ff858691a0025>

keeping interbank lending rates elevated. In response to early signs of economic slowdown and the subprime mortgage crisis, Fed began cutting interest rates in September 2007. Since Libor is closely tied to the Fed's rate, lower policy rates reduced borrowing costs for banks, leading to a decline in Libor to 2.69% in May 2008. Following the collapse of Lehman Brothers in September 2008, the 3-month USD Libor spiked, reaching approximately 4.06% in October 2008. This happened due to: severe liquidity crisis (banks stopped lending to each other, fearing counterparty risk and insolvency), credit market freeze (despite Fed rate cuts, interbank lending rates surged as banks became reluctant to extend short-term credit) and heightened systemic risk (the financial crisis escalated, leading to Libor rise). In 2009, Libor reached values closer to 0, and remained below 1% until 2017, when it was still at the level below 2%. In 2018 Libor was higher than 2% (but lower than 3%, in response to steady economic growth and rising inflation), at the end of 2019 it fell again below 2%. With the emergence of the pandemic, it fell close to 0, with minimum of 0.12% in September 2021). The Fed's swift actions to cut the fed funds rate to near-zero levels and implement extensive QE measures injected substantial liquidity into the financial system, driving Libor rates down. In 2022, Libor started to rise, reaching maximum of 5.67% in September 2023. After that it stabilized at the high level of around 4.85%²³⁵. FED monetary policy tightening, for the sake of combating high inflation, caused increase in short-term rates, including Sofr.

2. CONSEQUENCES OF LOW INTEREST RATES IN THE FINANCIAL SECTOR

Low interest rates, close to 0% or even negative, were meant to fight very low inflation expectations and increase inflation rates. Reduction of borrowing costs for businesses and consumers, was supposed to motivate savers to spend and businesses to invest. However, although central bank unconventional measures (negative interest rates, market maker of last resort) supported economic recovery and boosted credit growth, they also compressed banking profits, fueled asset bubbles, and increased financial vulnerabilities.

The influence on banks' NIM was twofold. Banks faced surge in loan demand, while low interest rates facilitated mortgage, auto and corporate lending. In USA,

²³⁵ Libor was phased out at the end of 2021, and market participants were encouraged to use risk-free interest rates like Secured Overnight Financing Rate (SOFR: 1,3,6 and 12 months). In June 2017, the US Federal Reserve Bank's alternative reference rates committee selected Sofr as the preferred alternative to Libor. The New York Federal Reserve began publishing the rate in April 2018. SOFR took the place of Libor in June 2023.

consumer loans rose from \$319 billion in February 2010, to \$873 billion in December 2019²³⁶. Commercial and industrial loans increased from \$1.18 trillion (July 2010) to \$3.07 tn (May 2020)²³⁷. Bank real estate loans grew from \$3.49 tn to close to \$4.7 tn (April 2020)²³⁸. In euro area, bank loans to households rose from around €5.1 trillion at the beginning of GFC to €6.65 tn at the end of 2021²³⁹. Also, the non-performing loans (NPL) were reduced, in USA from 5% in 2009, to 0.86% in 2019²⁴⁰, as refinancing became easier. In euro area NPLs reached peak in 2013 of around 8%²⁴¹, and fell to 1.79% in Q3 2022²⁴². On the other side NIM fell. NIM in US was 3.81% in 2010 and fell to 3.25% in 2015²⁴³, in following 3 years it slightly rose, but fell to 2.54% in 2021 and 2.95% in 2022²⁴⁴, indicating reduced profitability. The number of FDIC insured institutions declined from more than 8,500 before GFC, to 4,487 in 2024²⁴⁵ reflecting a significant consolidation within the U.S. banking industry during that period. In euro area, bank profitability was even lower. NIM in 2008 was slightly below 2.1% and fell to 1.5% in 2010, it later rose to 2.1% in 2014²⁴⁶, but immediately after, it fell. In EU the lowest ratio was in July 2021: 1.18%²⁴⁷. The number of credit institutions has declined substantially, from 7,520 in December 2009 to 3,142 in December 2024²⁴⁸. Negative policy rates significantly lowered short-term rates and lending rates, but the transmission to retail deposit rates was limited. Cash and the possibility for deposit withdrawals disabled European banks to charge negative rates on deposit held by households and businesses. So,

²³⁶ <https://fred.stlouisfed.org/series/CCLACBM027NBOG>

²³⁷ <https://fred.stlouisfed.org/series/BUSLOANSNSA>

²³⁸ <https://fred.stlouisfed.org/tags/series?t=loans%3Busa&et=&pageID=1>

²³⁹ <https://data.ecb.europa.eu/main-figures/banks-balance-sheet/loans?tab=Households&indicator=Adjusted+loans%2C+total+-+stocks>

²⁴⁰ <https://fred.stlouisfed.org/series/DDSI02USA156NWDB>

²⁴¹ https://www.bde.es/f/webbde/GAP/Secciones/Publicaciones/InformesBoletinesRevistas/RevistaEstabilidadFinanciera/18/NOVIEMBRE/Non_performing_loans_ingles.pdf

²⁴² <https://www.statista.com/statistics/1122984/non-performing-bank-loans-in-europe/>

²⁴³ <https://fred.stlouisfed.org/series/DDEI01USA156NWDB>

²⁴⁴ <https://www.fdic.gov/quarterly-banking-profile/fdic-quarterly-v18-n4-3rd-quarter-2024>

²⁴⁵ <https://www.fdic.gov/quarterly-banking-profile>

²⁴⁶ <https://fred.stlouisfed.org/series/DDEI01EZA156NWDB>

²⁴⁷ <https://data.ecb.europa.eu/data/datasets/SUP/SUP.Q.B01.W0.Z.I2120.T.SII.Z.Z.Z.PCT.C>

²⁴⁸ <https://data.ecb.europa.eu/search-results?searchTerm=number%20of%20credit%20institutions>

banks that were financed dominantly by deposits, faced higher shrink of NIM than banks that relied more on wholesale markets²⁴⁹.

To offset reduced NIMs, banks turned to fee-based services and trading activities. In US, the ratio between total non-interest and interest income in 2007 was 32%, it grew to 53.7% until 2013 (in the period 2009-2021 it varied around 50%)²⁵⁰. Higher deposit banks in Europe increased lending to households and businesses, especially to riskier and smaller firms, and invested in higher-yielded assets-private debt securities²⁵¹. Since the financial crisis, fees and commissions have become an increasingly important source of income for European banks. The EU weighted average of net fee and commission income to total net operating income has increased from 2014-2024, peaking at 32.9% in March 2020. Throughout 2022 and 2023 it fell, in September 2024 it was almost 28%²⁵². Trade revenues of commercial banks and saving associations in US have been volatile, but had strong increasing trend since mid-2012 (\$2 billion), reaching maximum of \$17.6 billion in Q1, 2023²⁵³. This shift exposed banks to higher market risks and volatility, especially when it comes to activities like trading and investment banking.

The EU banking sector has consistently shown lower profitability compared to the US banking sector: it did not return to pre-GFC profitability levels. In 2021, the return on equity (RoE) in the Eurozone was 6.7%, significantly lower than 11% recorded by US banks. By Q2 2022, this gap had narrowed slightly, with Eurozone RoE at 7.6% and US RoE at 9.9%. Before the crisis, both regions had similar RoE, exceeding 10% comfortably. Additionally, Eurozone banks have consistently faced a higher cost of equity compared to their US counterparts. In 2022, the cost of equity was around 8.4% in the Eurozone, compared to 6.5% in the U.S., further limiting European banks' profitability and competitiveness.

Weaker performance has been reflected in bank valuations, with price-to-book (P/B) ratios of European banks below 1 for a decade, and market capitalization

²⁴⁹ <https://blogs.worldbank.org/en/allaboutfinance/upside-down-banks-deposits-and-negative-rates>

²⁵⁰ <https://fred.stlouisfed.org/series/DDEI01EZA156NWDB>

²⁵¹ <https://www.imf.org/en/Publications/WP/Issues/2019/02/28/Negative-Monetary-Policy-Rates-and-Portfolio-Rebalancing-Evidence-from-Credit-Register-Data-46638>

²⁵² <https://www.statista.com/statistics/1124912/net-fee-and-commission-income-to-total-net-operating-income-for-banks-in-europe/>

²⁵³ <https://www.occ.gov/publications-and-resources/publications/quarterly-report-on-bank-trading-and-derivatives-activities/index-quarterly-report-on-bank-trading-and-derivatives-activities.html>

shrinking compared to US banks. That suggested investors' concerns about shareholder value, and caused higher costs of capital from issuing additional equity. Bank market valuations have been influenced by several factors, including profitability trends, management and operational efficiency, regulatory capital levels and overall macroeconomic conditions²⁵⁴. Before GFC, long-term weighted average of the P/B ratios of euro area and US banks was around 2 and 2.4, respectively. Until March 2009 P/B ratio fell sharply to 0.5, data for both country groups followed similar path, but the US banking sector saw a much stronger recovery afterwards. Since 2010, and more clearly from 2011 onward, average P/B ratios in the US have remained higher. European ratio again fell to 0.5 in 2011 and even lower in following year. Although the ratios converged somewhat in 2014-15, the gap began widening again from 2016 onward. From 2013-2020 US banks ratio varied in the range from 1-1.5, but European banks ratio remained lower than 1 (slightly above 1 in 2014 and 2015)²⁵⁵ In 2001 ratios were 0.6 for European banks and 1.5 for US banks. In 2007 market cap for European banks was €2.7 trillion, while for US banks it was €1.6 tn. In 2012, market cap for US banks remained the same, while for European banks it fell sharply to €1.5 tn. In 2021 market cap of European banks fell even more to €1.4 tn, but for US banks it increased to €2.6 tn²⁵⁶.

GFC had a more severe and prolonged impact on European banks than on US banks. US policymakers responded swiftly, providing large-scale equity injections and FED interventions, allowing banks to recover faster. In contrast, when the EU faced the sovereign debt crisis, its response was hindered by fragmentation, fiscal constraints, and competition policies, forcing banks to manage prolonged uncertainty. While US banks focused on recovery and growth, European banks had to build large capital buffers to manage risks, including NPLs. This cautious approach, combined with slower Eurozone economic growth (1.0% annually vs. 1.6% in the US), led to weaker bank performance, lower profits, and lower valuations. Additionally, lending opportunities declined, with domestic credit to the private sector falling from 102% to 92% of GDP in the EU (2010-2020), while it rose from 182% to 217% in the US. The uneven economic

²⁵⁴ https://www.ecb.europa.eu/press/financial-stability-publications/fsr/focus/2019/pdf/ecb~a18359e8d9.fsrbox201905_05.pdf

²⁵⁵ https://www.bde.es/f/webbde/Secciones/Publicaciones/InformesBoletinesRevistas/InformesEstabilidadFinancera/19/ficheros/fsr_2019_2_Box2_1.pdf

²⁵⁶ https://www.ebf.eu/wp-content/uploads/2023/02/The-EU-banking-regulatory-framework-and-its-impact-on-banks-and-the-economy_30Jan-1.pdf

recovery within Europe further penalized banks with exposure to weaker economies²⁵⁷.

The persistent low profitability of European banks threatens financial stability, as profitability serves as the first defense against financial shocks. Unprofitable banks struggle to build reserves, making it harder and more expensive to raise capital in times of crisis. Low market valuations reflect investors' skepticism about European banks' ability to generate future earnings, regardless of external or internal factors. As a result, banks face constraints on lending expansion, business model upgrades, and mergers or acquisitions. Additionally, prolonged weak profitability may push banks toward excessive risk-taking in pursuit of higher returns, potentially increasing financial instability.

When interest rates across all debt maturities are near-zero or negative, it poses significant challenges for institutions that rely on bonds for income, like banks, insurance companies (IC) and pension funds (PF). Life insurers, which invest premiums in bonds to meet future claims, face lower returns, which impacted their ability to offer attractive policy benefits. Also defined-benefit pension plans struggle to meet future obligations as bond yields decline, potentially leading to funding shortfalls. Low interest rates cause the present value of liabilities to rise more than that of assets for ICPFs, which affects their solvency. Besides, the desire of claimholders to terminate life insurance contracts early, can become a source of liquidity vulnerability for insurance companies, if a period of low interest rates ends with a sudden quick rise. Prolonged period of very low and decreasing interest rates might mean that insurers face guaranteed rates exceeding yields available on highly rated sovereign bonds. Thus, they are forced to invest in high-yielding high-risk instruments²⁵⁸, like private equity or real estate, to achieve higher returns, which may introduce liquidity and valuation risks.

Banks can benefit from the revaluation of longer-term assets (consistent with a positive duration gap between assets and liabilities) in the period of decreasing interest rates. ICPFs typically have negative duration gaps, while their liabilities tend to have longer duration than their assets. In the case of decreasing discount rates, the value of liabilities will rise more than the value of assets, reducing their solvency²⁵⁹. There is however the difference between non-life and life insurance companies, while non-life insurers contracts are usually with short maturity (one

²⁵⁷ https://www.ebf.eu/wp-content/uploads/2023/02/The-EU-banking-regulatory-framework-and-its-impact-on-banks-and-the-economy_30Jan-1.pdf

²⁵⁸ https://www.oecd.org/en/publications/oecd-journal-financial-market-trends/volume-2011/issue-1_fmt-v2011-1-en.html

²⁵⁹ <https://www.bis.org/publ/cgfs61.pdf>

year), and life insurers contracts are with long maturity, that could be even several decades. Life insurers also often have explicit return guarantees like guaranteed interest-rate returns, guaranteed minimum income streams and similar that could be difficult to fulfil in an environment of prolonged low interest rates on government bonds and stagnating or deteriorating capital-market valuations.

In both US and Europe, investors seeking higher returns often shift from traditional fixed-income securities to riskier assets, leading to asset price inflation and potential bubbles. FED low-interest rate policy and global saving glut caused housing prices boom before GFC, but also one that ended in 2022, in US. It led to increase in wealth, consumer spending and a deterioration in current account deficits, exacerbating global imbalances²⁶⁰. In some areas housing prices rose more than 3 times from 2012 to 2022. Median sale price of houses sold for the US doubled in that period²⁶¹. Investors also seek higher returns in the stock market, driving up equity prices. Nasdaq price-to book ratio, in September 2010 was 0.61 and remained below 1 until very end of 2014, after that it started increasing reaching maximum of 5.23 at very end of 2021²⁶². In EU house prices rose close to 55% from 2013 to 2022²⁶³. Share prices in euro area rose 2.2 times from 2012 until the end of 2021²⁶⁴. Long-term government bond yields with 10-years maturity for Euro area reached maximum of 4.7% in April 2011 and fell to low of -0.1% at the January 2021, and from the second half of 2019 to the beginning of 2022, they varied close to 0%²⁶⁵.

3. HIGH INFLATION, RISING RATES AND QUANTITATIVE TIGHTENING

Huge liquidity injections, low and negative key rates, post-pandemic economic recovery, supply chain disruptions, war in Ukraine and sanctions to Russia, led to explosion of commodity prices and sharp increase in inflation in 2022. After a long period of very low, even negative rates, inflation in many countries turned to double digit levels.

²⁶⁰ <https://www.sciencedirect.com/science/article/pii/S0261560623001201>

²⁶¹ <https://fred.stlouisfed.org/series/MSPUS>

²⁶² <https://www.macrotrends.net/stocks/charts/NDAQ/nasdaq/price-book>

²⁶³ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Housing_price_statistics_-_house_price_index

²⁶⁴ <https://fred.stlouisfed.org/series/SPASTT01EZM661N>

²⁶⁵ <https://fred.stlouisfed.org/series/IRLTLT01EZM156N>

Inflation has consequences for the financial service industry. Bank income and expenses related to borrowing and lending are indirectly affected by inflation, as they depend on policy rates, which central banks adjust in response to inflation. On the other hand, non-traditional banking revenues, service fees, salaries and rent are directly impacted by price changes, as they fluctuate with overall inflationary pressures.

When it comes to interest business, maturity composition and mismatch between income and expense, shape bank exposure to inflation (largely indirectly through policy rates). Interest-earning assets and interest-bearing liabilities that are not fixed in nominal terms, are typically linked either directly to policy rates or to market rates that move in tandem with policy rates. Income and expenses from long-term assets or liabilities with fixed contractual payments that do not adjust frequently, will remain insensitive to market fluctuations. Opposite, financial assets with short maturities or those that reprice regularly tend to be highly responsive to changes in market conditions. In the non-interest business, the degree of price and wage rigidity for services provided and costs incurred can create direct exposure to inflation. Some banks rely heavily on fee-based income streams, where pricing may adjust in response to inflationary pressures. Inflation influences also the asset quality. On one side, it may make debt financing easier for borrowers, assuming that policy rates remain the same or increase to a smaller extent. On the other side, inflation triggers monetary policy response and rise in key rates, so borrowers may face larger debt servicing costs for debts indexed to some reference interest rate²⁶⁶.

Central banks responded to rising inflation by increasing their key policy rates and withdrawing liquidity. ECB increased rate on main refinancing operations 10 times, from 0% until July 2022 to 4.5% in September 2023 and they remained high until June 2024. Fed increased key rate 11 times, from March 2022 until July 2023, when it reached maximum of 5.25-5.5% (Figure 2). As a consequence, leading interest rate indicators rose sharply (Figure 4). Euribor 3m rose to 3.97% in November 2023, while Libor 3m rose to 5.66% in September 2023.

Rapid growth of market rates had consequences in the financial sector. Initially high interest rates increased banks' NIM, as landing rates increased faster than deposit rates. In European union, NIM started to rise sharp from Q4 2022, reaching 1.69% in March 2024²⁶⁷, while bank's net profits rose by around 32%

²⁶⁶ <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2025/02/10/Inflation-and-Bank-Profits-Monetary-Policy-Trade-offs-557542>

²⁶⁷ <https://www.eba.europa.eu/publications-and-media/press-releases/eueea-banks-profitability-holding-well-despite-declining-net-interest-margin>

since the previous year, driven by large increase in net interest income. RoE grew from 8.1% in December 2022 to 10.4% in December 2023. On the other side, net fee and commission income and, to a lesser extent, net trading income made negative contributions to RoE (34 bps and 12 bps respectively)²⁶⁸. In US net interest margin grew to 3.3% in 2023 and then slightly fell to 3.22% at the end of 2024²⁶⁹. RoE reached 11.81% at the end of 2022, but fell slightly to 11.37% in 2024. Since competition for deposits intensified, banks had to offer higher interest rates to attract and retain customers, compressing NIMs²⁷⁰.

The extensive policy support implemented during the pandemic led to a significant increase in savings, which in turn boosted bank deposits. A substantial portion of these deposits was invested in long-duration securities, exposing banks to considerable interest rate risk. As interest rates continued to rise, banks faced higher financing costs and a decline in the market value of their securities holdings, leading to a sharp rise in unrealized losses on held-to-maturity and available-for-sale portfolios. FDIC insured corporations had substantial losses on their securities portfolio, in 2023 the loss was \$11.5 billion, while in 2024 it was \$6.2 billion²⁷¹. Unrealized losses on banks' investment securities peaked in the Q3 2023 at \$750 billion, but decreased to \$513 billion in the Q2 2024²⁷², after interest rates reduction started²⁷³. Unfortunately, some banks- even large institutions were not prepared for the high-interest rate environment after a long period of low rates. In March 2023, turmoil in the US banking sector sent shockwaves through the global financial system. The collapse of Silicon Valley Bank (SVB), the 16th largest US bank, was quickly followed by the failures of Signature Bank (SB) and First Republic Bank. These were the first-, the second- and the third-largest US bank failures since Washington Mutual in 2008, in US history. The failure of SV exposed deeper structural vulnerabilities in the business models of certain US banks- banks with large amounts of uninsured deposits, significant unrealized losses, and high exposure to commercial real estate.

The situation was exacerbated by a self-fulfilling deterioration in market confidence, which triggered widespread deposit outflows, especially among

²⁶⁸ <https://www.eba.europa.eu/publications-and-media/publications/profitability>

²⁶⁹ <https://www.fdic.gov/quarterly-banking-profile/fdic-quarterly-2025-volume-19-number-1>

²⁷⁰ <https://www.ft.com/content/dfb7732a-213b-4755-a017-e0f0d5f4b9f7>

²⁷¹ <https://www.fdic.gov/quarterly-banking-profile/fdic-quarterly-2025-volume-19-number-1>

²⁷² <https://www.fau.edu/newsdesk/articles/banks-securities-risk-losses.php>

²⁷³ <https://www.fau.edu/newsdesk/articles/banks-securities-risk-losses.php>

similarly sized or smaller banks. Additionally, deponents shifted toward higher-yield alternatives, such as money market funds, accelerating deposit outflows. While higher interest rates typically enhance bank profitability, the events of March 2023 highlighted how underestimated duration risk has been in the monetary tightening cycle. Technological advances, such as mobile banking and the rapid spread of information via digital communication, amplified the speed and scale of the deposit run, making it unlike any previous crisis in terms of velocity. The March 2023 episode highlighted how digitalization has increased the vulnerability of banks to sudden liquidity pressures, especially when investors sentiment turns negative. The US banking stress increased market uncertainty, global stock markets faced sharp decline, bank indices fell quickly and volatility rose. FED had to intervene again to stem systemic risks and broader contagion. It introduced the Bank term funding program, providing funds to banks at par, with no margin applied to the eligible collateral. Also, FDIC fully covered uninsured deposits at SVB and SBNY by invoking the “systemic risk exception.” This response underscored that, due to the interconnected nature of the financial system, even banks that are not classified as globally systemically important can still pose significant threats to financial stability²⁷⁴. Europe faced similar shock with Credit Suisse failure in the same period, which triggered global contagion effects. It caused abnormal returns for other globally systemically important banks across Europe, North America and Asia, while investors perceived heightened risks in the broader banking sector.

4. CONTEMPORARY CHALLENGES TO MONETARY POLICY

Monetary policy faces several significant challenges, including higher inflation, low growth rates (especially in European leading economy), trade war, financial dominance, fiscal imbalances, ongoing war in Ukraine and climate change.

Inflation rates in many countries have declined in 2024 and 2025, however, the war is still not won. Central banks have been gradually lowering their high key rates. The future path of the policy rates depends on a continuing decline of inflation towards targets. Key question for central banks is how to ensure disinflation and avoid damaging the economy. The goal is soft landing, with inflation back to the level of target, without inducing a recession or larger increase in unemployment. In US, inflation has been volatile in the previous couple of months, it reached the lowest level of 2.4% in September 2024, but then moved to opposite direction, reaching 3% in January 2024, and then dropping to 2.8% in February 2025 (Figure 3). Wall Street analysts expect that the introduction of

²⁷⁴ <https://www.imf.org/-/media/Files/Publications/gfs-notes/2024/English/GFSNEA2024001.ashx>

tariffs on key US trading partners and the immigration repression will likely lead to higher prices. They expect inflation of 2.5% for 2025 (rise from previous forecast of 2.3%). Manufacturers and service firms expected inflation over 2025 is 3.5-4%²⁷⁵. Core inflation in US (food and energy are excluded) was 3.1%²⁷⁶ in February and expectations for 2025 goes to 3% (up from 2.5% in earlier forecast). Due to persistent inflation, Fed might stop decreasing interest rates to cut borrowing costs for consumers and business. Since December 2024 Fed has been keeping its key borrowing rate between 4.25-4.5%, market doesn't expect its decrease soon, but Fed officials said that 0.5% reduction might happen in 2025, depending on inflation and situation in economy and labour market. Fed officials expect the economy to grow by 1.7% this year, down from a previous forecast of 2.1%. In 2026, two rate cuts are expected, followed by one more in 2027, bringing the fed funds rate to its long-term level of around 3%²⁷⁷. Fed also announced intentions to further reduce liquidity, by cutting its bond holdings. The unemployment rate was 4.1% in February and has been fluctuating around that level from May 2024. In the previous 2 years, it was lower, ranging between 3.2% and 3.9%²⁷⁸.

Inflation in Eurozone, in February 2025 has been 2.4%, and core inflation 2.6%²⁷⁹. ECB staff macroeconomic projection from March 2025, forecast inflation of 2.3% in 2025²⁸⁰. Investors, however doubt in further decrease of inflation in Europe (only 7% of European investors expect lower inflation in Eurozone in the next year²⁸¹). GDP growth for 2025 is forecasted at 0.9% in 2025, 1.2% in 2026 and 1.3% in 2027. The weaker economic outlook results from lower export projections and investment expectations due to a greater impact of uncertainty, and belief that competitiveness challenges will persist longer than previously expected. Further deterioration of outlook is possible, as these projections include only bilateral tariffs imposed by the US to Chinese imports. Additionally, there is potential for an increase in defense spending. Since June 2024, ECB has cumulatively reduced its key rates by 185 basis points through March 2025. However the timing and scale of future rate cuts remain uncertain,

²⁷⁵ <https://www.cbsnews.com/news/inflation-trump-tariffs-economists-forecast-2025/>

²⁷⁶ <https://www.bls.gov/news.release/pdf/cpi.pdf>

²⁷⁷ <https://www.cnbc.com/2025/03/19/fed-rate-decision-march-2025.html>

²⁷⁸ <https://www.bls.gov/charts/employment-situation/civilian-unemployment-rate.htm>

²⁷⁹ <https://www.euronews.com/business/2025/03/19/euro-falls-as-eurozone-inflation-sees-downward-revisions-in-february>

²⁸⁰ [https://www.europarl.europa.eu/RegData/etudes/IDAN/2025/764374/ECTI_IDA\(2025\)764374_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2025/764374/ECTI_IDA(2025)764374_EN.pdf)

²⁸¹ <https://www.euronews.com/business/2025/03/19/euro-falls-as-eurozone-inflation-sees-downward-revisions-in-february>

due to higher uncertainty about global macroeconomic environment. ECB staff expects a 25-bps cut in April and additional cut in June, bringing the deposit facility rate down to 1.75%, indicating a more rapid easing cycle than previously anticipated²⁸².

A significant threat to the world economy comes from US tariffs on China (20%), Europe (25%), Canada (10-25%) and Mexico (25%), as well as retaliatory measures²⁸³. The US imposed several rounds of tariffs on Chinese import. In 2018 tariffs ranging from 10% to 25% were imposed on sectors like technology, machinery and consumer electronics. In 2024 additional tariffs were introduced on electric vehicles, batteries, solar panels and certain critical minerals, with rates set between 25% and 100% (effective from September 27, 2024). New tariffs were introduced in February 2025, with rates of 10% on all Chinese imports, which was increased to 20% in March²⁸⁴. In retaliation China implemented tariffs of 10 and 15% to US goods.

The tariff rate on non-energy products from Canada is 25%, while it is 10% on energy and potash²⁸⁵. In response, Canada imposed a 25% surtax on goods from the US²⁸⁶. Trump even announced a 50% tariff on Canadian aluminum and steel in retaliation for Canada's 25% surge on electricity exports to some US states. However, these tariffs were later suspended.

On March, US imposed tariffs of up to 25% on imports of steel, aluminum, and certain products containing steel and aluminum from the EU and other trading partners. (In June 2018, 10% tariffs were implemented on European steel and aluminum exports, then in January 2020 additional tariffs of EU exports of certain derivative steel and aluminum products)²⁸⁷. European Union responded by plans to impose counter-tariffs on some US goods, in April.

²⁸²[https://www.europarl.europa.eu/RegData/etudes/IDAN/2025/764374/ECTI_IDA\(2025\)764374_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2025/764374/ECTI_IDA(2025)764374_EN.pdf)

²⁸³<https://taxfoundation.org/research/all/federal/trump-tariffs-trade-war/>

²⁸⁴https://www.whitehouse.gov/fact-sheets/2025/02/fact-sheet-president-donald-j-trump-imposes-tariffs-on-imports-from-canada-mexico-and-china/?utm_source=chatgpt.com

²⁸⁵<https://www.whitehouse.gov/fact-sheets/2025/03/fact-sheet-president-donald-j-trump-adjusts-tariffs-on-canada-and-mexico-to-minimize-disruption-to-the-automotive-industry/>

²⁸⁶<https://www.cbsa-asfc.gc.ca/publications/cn-ad/cn25-10-eng.html>

²⁸⁷https://ec.europa.eu/commission/presscorner/detail/en/qanda_25_750

New tariffs could reduce US import by 15%, but might generate around \$100 billion per year of extra federal tax revenue. On the other side, they will bring significant costs on the broader economy: disruption in supply chains, raising costs for businesses, elimination of hundreds of thousands of jobs and increasing consumer prices²⁸⁸. According to estimations, US tariffs will decrease US GDP for 0.4 percentage points (pp.) and loose hours worked by 309,000 full-time equivalent job (without accounting for retaliation measures)²⁸⁹. US makes 15% of China's total export, so China is less dependent on the US than before (and export and import make 37% of China's GDP). It has increased trade with EU, Mexico and Vietnam²⁹⁰. If tariffs to China remain on 20%, China's GDP might fall by about 0.6 pp. If Trump increases tariffs to 60% (as announced in his electoral campaign), the loss in GDP growth might rise to 2.5 pp.²⁹¹ Canada and Mexico will be hit harder, US makes 78% of Canadian export, and 80% of Mexican export. Mexican GDP might fall by 3pp.²⁹², Canadian GDP might decline 2-4%²⁹³. European GDP growth might be -0.4%, in the first year, due to tariffs. European exports to US are expected to drop by 15-17% in the first year, with even higher declines in German exports, potentially reaching up to 20%. In Germany, the manufacturing sector will likely be the hardest hit, with the automotive industry expected to see a 4% decline in production²⁹⁴. Retaliation measures will probably impact US fuel exporters, automakers and other advanced manufacturers, including pharmaceutical producers, the most.

Germany, the largest economy and economic engine of Europe, is grappling with structural challenges, as economic growth has stagnated in recent years. Key factors contributing to this slowdown include: labor and skilled worker shortages, excessive bureaucracy, high energy costs and insufficient investment. Export-driven model and limited domestic investment made Germany unprepared for future challenges. Germany's industrial base is shrinking, leading German companies are shifting portions of their production overseas, driven by lower costs and reduced bureaucratic barriers. Industrial production has been in steady decline, with output in 2024 falling to 90% of its 2015 level. The country has

²⁸⁸<https://www.cfr.org/article/what-trumps-trade-war-would-mean-nine-charts>

²⁸⁹<https://taxfoundation.org/research/all/federal/trump-tariffs-trade-war/>

²⁹⁰<https://www.cfr.org/article/what-trumps-trade-war-would-mean-nine-charts>

²⁹¹<https://www.eiu.com/n/the-impact-of-us-tariffs-on-china-three-scenarios/>

²⁹²<https://www.fitchratings.com/research/sovereigns/threat-uncertainty-of-us-tariffs-both-pose-risks-to-mexico-10-02-2025>

²⁹³<https://ppforum.ca/policy-speaking/what-tariffs-could-mean-for-the-canadian-economy/>

²⁹⁴<https://www.ifw-kiel.de/publications/news/trumps-tariff-threats-on-eu-could-trigger-economic-turmoil/>

consistently underinvested in critical areas, while restrictive fiscal policies have further constrained economic expansion. As the workforce shrinks, industries grapple with rising costs and an increasing need for automation. Although the country's unemployment rate remains low at 5%, industrial layoffs and restructuring are anticipated. Rising energy costs, fueled by volatile gas markets, are weakening Germany's competitiveness. Public investments are insufficient, accounting for only 2.8% of GDP—below the EU average of 3.6% and significantly trailing Poland (5.1%) and Sweden (5.2%). Bureaucratic hurdles and a reluctance to embrace deficit spending continue to hinder large-scale projects that could boost innovation and sustainability. Chinese manufacturers of electric vehicles, supported by substantial state subsidies and vertically integrated supply chains, have achieved cost efficiencies and advances in technology that pose a significant threat to automotive sector. Volkswagen, BMW and Mercedes-Benz are struggling with high production costs, regulatory hurdles and slow domestic EV adoption and losing global market share²⁹⁵. Germany's GDP is forecasted to grow only by 0.3% by IMF and 0.2% by Bundesbank, while the Association of German industry expects the contraction of the economy by 0.1% in 2025 (third annual decline in row)²⁹⁶.

Another challenge to monetary policy is financial dominance. The size of financial sector, high levels of private debt and suppressed risk premiums can limit the effectiveness of monetary policy tools and pose risks to financial stability. High levels of private debt can make economies more sensitive to interest rate changes, as households and businesses with significant debt may struggle with increased borrowing costs. This sensitivity can restrict central banks' ability to adjust interest rates without causing financial distress. Household debt varies across European countries. In 2024, household debt in Denmark, the Netherlands, Sweden and Norway was approximately twice the average national income²⁹⁷. According to some estimations, private credit market in US is around 30 trillion USD²⁹⁸.

Escalating fiscal deficits and public debt, present significant challenges to monetary policy in both Europe and the US. Factors such as population aging and

²⁹⁵<https://www.atlanticcouncil.org/blogs/new-atlanticist/germanys-economy-has-gone-from-engine-to-anchor/>

²⁹⁶<https://www.cnn.com/2025/01/29/germany-slashes-economic-growth-expectations-ahead-of-february-election.html>

²⁹⁷<https://www.statista.com/topics/13191/household-debt-and-loans-in-europe/#topicOverview>

²⁹⁸<https://www.mckinsey.com/industries/private-capital/our-insights/the-next-era-of-private-credit>

geopolitical tensions further exacerbate these imbalances, complicating the task of maintaining economic stability. General government gross debt in Eurozone was higher than 88% of GDP in Q3 2024²⁹⁹, in US it was 123% in 2024³⁰⁰. High levels of public debt and persistent fiscal deficits constrain central banks' ability to implement effective monetary policies. Elevated debt levels can lead to higher interest rates, increasing the cost of borrowing and potentially crowding out private investment. Additionally, central banks may face pressure to maintain low interest rates to reduce government debt servicing costs, potentially compromising their ability to combat inflation.

Climate change can pose challenges to economic stability, prompting central banks to integrate environmental considerations into their policy frameworks³⁰¹. The increasing frequency and severity of climate-related events have direct and indirect economic impacts, influencing fiscal policies, financial markets, and monetary stability. There is increased demand for energy, change in agricultural patterns, water scarcity, significant investments in infrastructure are needed. Between 1980 and 2023, weather- and climate-related extremes caused economic losses totaling approximately €738 billion within the European Union³⁰². In US climate-related disasters from 2019-2023 were \$603 billion³⁰³. Climate-related disasters can lead to significant financial losses, affecting both public and private sectors. Banks exposed to high-risk areas may face increased default rates, necessitating enhanced risk assessments and capital buffers. Shifts in asset values due to climate risks require central banks to reassess collateral frameworks and adjust monetary policy tools accordingly. Climate-induced economic shocks can influence inflation and employment metrics, influencing monetary policy transmission and complicating the central banks' role in achieving price stability.

In recent years, monetary policy has undergone an unprecedented shift. The world has experienced the most severe pandemic since the 1920s, the largest conflict in Europe since the 1940s, and the most significant energy crisis since the 1970s. These shocks have reshaped the economic landscape, complicating the

²⁹⁹ <https://ec.europa.eu/eurostat/web/products-euro-indicators/w/2-22012025-ap>

³⁰⁰ <https://fiscaldata.treasury.gov/americas-finance-guide/national-debt/>

³⁰¹ Lukić, V., Popović, S. (2022). The response of monetary policy on the climate change. *Novi ekonomist*. Vol. 16, Issue 32, pp. 61-74.

³⁰² https://www.eea.europa.eu/en/topics/in-depth/climate-change-impacts-risks-and-adaptation?utm_source=chatgpt.com&activeTab=fa515f0c-9ab0-493c-b4cd-58a32dfaae0a

³⁰³ https://www.climate.gov/news-features/blogs/beyond-data/2023-historic-year-us-billion-dollar-weather-and-climate-disasters?utm_source=chatgpt.com

management of monetary policy. This challenge was further intensified by the fact that the pandemic struck after a prolonged period of sluggish growth, low inflation, and historically low interest rates.

Shifts in central bank interest rates policy, have had profound effects on financial institutions. The prolonged period of ultra-low rates following the 2008 financial crisis compressed net interest margins for banks, reducing profitability and pushing them toward riskier investments. The rapid rate hikes since 2022, aimed at controlling inflation, led to higher funding costs and a decline in the market value of long-duration assets, exposing banks to significant interest rate risk. This was evident in the U.S. banking turmoil of March 2023, when some large banks collapsed due to substantial unrealized losses on bond holdings. Similarly, European banks faced higher refinancing costs and asset revaluations, contributing to financial sector volatility and tightening credit conditions.