Bank i Kredyt 55(6), 2024, 697-730

BANK I KREDYT
BANK & CREDIT

Monetary processes in the world economy following the end of the Bretton Woods System

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Submitted: 25 June 2024. Accepted: 23 September 2024.

In Memoriam Edmund Pietrzak (1946–2007)

Abstract

July 2024 marked the 80th anniversary of the creation of the Bretton Woods System (BWS). Its implementation proved to be the milestone for the history of the international monetary system, as it offered a giant step toward fiat money. This anniversary presents a good opportunity to assess its impact on the further sequence of events in the international monetary system. The BWS was far from being flawless. However, its imperfections offered strong incentives to search for new solutions aimed at making the entire system operate more smoothly. Subsequently, there can be talk about the intellectual heritage of the BWS and its impact on the most recent history in the area of the external use of money. The aim of this paper is to review this heritage by focusing above all on the years which followed its demise in the early 1970s until the early 2020s.

Keywords: exchange rates, monetary tools, convertibility, inflation

JEL: N22, N24, E52, E58

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1. Introduction

The 80th anniversary of the creation of the Bretton Woods System (BWS) focuses observers' attention on assessing how this system operated. But it could also present a good opportunity to review its legacy from the point of view of further developments in the international monetary system. Despite lasting only 27 years, the BWS passed into the history of the world economy as capitalism's golden chapter. That is why it is most probably the key reason why the BWS is often perceived with either a certain nostalgia or even envy for having generated a magical formula for preserving economies in sound shape on a sustainable basis.

Even if the aforementioned statement can be relatively easily countered, the BWS must be given some credit for the nostalgic feelings it often creates. After all, the BWS contributed enormously to the reconstruction of the capitalist western economy following the end of WW2, and offered to a large part of its society the first signs of genuine prosperity. Ironically however, implemented during the heyday of the Keynesian trend, with time the BWS started to suit less and less an ever-changing economy.

The system itself was based on Keynesian principles with the key objective of avoiding the spread of deflationary pressures, which had haunted the world economy throughout much of the entire interwar period. However, following its rapid reconstruction, for much of the third quarter of the 20th century the world economy proved to be a different place compared to the interwar period. High economic growth was a bonus to this period, but the growth itself was unevenly distributed (as countries destroyed by the war started to catch up, with US help, with the US). This was not the only flaw of the BWS. Even if the system itself was granted some room to absorb differences in the economic preferences among its members, relatively quickly it proved to be insufficient. This was particularly true for the most important member, which since the 1960s had started to abuse both its dominant and privileged position.

That is why the world economy became a place where inflation pressures coming from the US (and originated by the prolonging Vietnam war and the "Great Society" policy) slowly started to emerge. As a result of its intrinsic feature along with the aforementioned Keynesian nature of the BWS, as early as the mid-1960s price stability started to be under threat. Even if there were serious efforts to reverse this by a large number of its members, they were all thwarted by the sort of indifference displayed by its most important member, who was believed to be incapable of adjusting its exchange rate as a result of the uniqueness of this system.

The final years of the BWS along with its demise in the early 1970s coincided with the intensification of inflationary pressures in the global economy. Even if these pressures were fomented by external events (like the first oil crisis), there is no doubt that in its final years the BWS made the global economy prone to higher inflation.

This state of affairs paved the way for the emergence of new trends in economics which had one common aim, namely restoring global economic balance – which was clearly under threat in the final decade of the BWS existence. One of these trends was known under the name of monetarism. It was derived from the quantity theory of money and, in the wake of the ever more obsolete structure of the BWS, it was becoming a more and more important trend in the discussion about the new shape of the international monetary system – which was conducted well before the fall of the BWS. Another contribution to the discussion about the shape of future policies was the creation of optimal currency areas theory in a relatively short span of time.

As a result of this flamboyant exchange of ideas prior to the end of the BWS and shortly afterwards, policymakers got a lot of interesting options to choose from. That is why, in the aftermath of the collapse of the BWS, the monetary policy of central banks was characterized by great eclecticism manifested by a multitude of new frameworks to be used. This was the result of different preferences in the field of economic policy, lack of experience in the use of monetary policy and increasingly rapidly mounting difficulties in the external environment.

The purpose of this study is to provide a brief overview of the operational tools with which monetary authorities have tried to keep inflation under control since the collapse of the Bretton Woods system to the present day. In order to systematize the notion of eclecticism of monetary policy, it seems necessary to specify the criteria by which the actions of the monetary authorities in the field of monetary policy can be described. As a result the following criteria will be applied:

1) approach to the convertibility of currencies,
2) approach to the exchange rate,
3) approach to other monetary policy tools.

The overview of the events in the international monetary system presented in this paper and using the aforementioned criteria will prove that a magic formula aimed at recreating another golden chapter in the history of the capitalism is yet to be found. Nevertheless the soundness of the world economy today seems to be stronger compared to the heyday of the BWS, especially from the point of view of the resilience to shocks of a versatile nature.

The paper is divided into seven parts. The first part consists of an introduction. The second part will aim to reconstruct the state of monetary affairs at the time of the demise of the BSW. The third part will be dedicated to the criteria of currency convertibility and the dismantling of capital controls in the first quarter of the 21st century following the end of the BWS. The fourth part will focus on the behaviour of exchange rates in the ever more liberalized world economy. The fifth part will offer a detailed description of the evolution of the monetary frameworks which were supposed to fill the vacuum following the end of a regime relying on the supremacy of the external equilibrium over the internal one. The sixth part will assess the impact of the digital revolution on central banking and pose the question whether the intellectual heritage of the BWS can be of any value. Finally, conclusions will be drawn.

2. The effects of the collapse of the Bretton Woods system

The Bretton Woods system was a kind of hybrid, taking into account the requirements of external equilibrium (by pegging individual currencies to the US dollar) and the requirements of internal equilibrium (by deviations of +/-1% around a fixed parity with the US dollar). Of course, the importance of external equilibrium in the aforementioned system was much greater than that of internal equilibrium. However, this does not change the fact that the BWS was the first system to enable the creation of such a hybrid system. The importance of internal equilibrium was not limited to the possibility of relatively small deviations (on the order of +/-1%) from the central parity of a given currency against the US dollar. A wide range of foreign exchange restrictions on capital transactions, but also on current transactions, increased the room for manoeuvre for autonomous monetary policy only on an interim basis. As time progressed many investors acquired, however, the ability to avoid

these restrictions. That is why, in spite of the efforts undertaken by the signatories of the Smithsonian Agreement, the BWS collapsed in early 1973. Nevertheless, the new reality was far from what advocates of restriction free system were looking for.

The key problem was that fact that a new reference point for currencies' exchange rates was missing. The peg against the US dollar could generate inflationary pressure in selected countries, but it was an important element of the stability of the entire system of the capitalist world, and therefore it was not an option to completely disregard what was happening with the dollar's internal or external price. The point is that the US dollar was and continues to be a global currency. The monetary authorities of individual countries following the demise of the BWS could break the peg against the dollar, but they could not immunize their economies against what was happening in the US economy (and thus against the behaviour of the US currency). Despite the decline in the value of the dollar in the late 1960s and early 1970s, the US share in the global economy in 1973 was about 30%. That is why the floating exchange rate took some time before its advantages were to materialise.

The attitude towards the exchange rate mattered a lot, as much attention was attached to its symbolical nature. After all, it was the key postulate of the new trend known under the name of monetarism and which now needs to be referred to briefly. Although the origins of monetarism can be traced back to the 16th century (the Salamanca School, Copernicus, Bodin and Gresham), from the point of view of the 20th century, a turning point was the publication of *A Monetary History of the United States* by Milton Friedman and Anna Schwartz (1963). Some observers put more emphasis on 29 December 1967, when Milton Friedman gave a lecture on *The Role of Monetary Policy* to the American Economic Association (Friedman 1968). Some consider this date to be the beginning of monetarism in the history of economics. And for good reason. Six weeks before this speech, the devaluation of sterling took place (18 November 1967), which could be described as the beginning of the end of the BWS. It makes sense to analyse this speech, by extracting some of its highlights:

"Monetary policy cannot peg these real magnitudes at predetermined levels. But monetary policy can and does have important effects on these real magnitudes. The one is in no way inconsistent with the other." (Friedman 1968).

In the same speech, Friedman posed a provocative question, namely, how should monetary policy be conducted?

"The first requirement is that the monetary authority should guide itself by magnitudes that it can control, not by ones that it cannot control. If, as the authority has often done, it takes interest rates or the current unemployment percentage as the immediate criterion of policy, it will be like a space vehicle that has taken a fix on the wrong star. No matter how sensitive and sophisticated its guiding apparatus, the space vehicle will go astray. And so will the monetary authority. Of the various alternative magnitudes that it can control, the most appealing guides for policy are exchange rates, the price level as defined by some index, and the quantity of a monetary total-currency plus adjusted demand deposits, or this total plus commercial bank time deposits, or a still broader total. For the United States in particular, exchange rates are an undesirable guide. It might be worth requiring the bulk of the economy to adjust to the tiny percentage consisting of foreign trade if that would guarantee freedom from monetary irresponsibility – as it might under a real gold standard. But it is hardly worth doing so simply to adapt to the average of whatever policies monetary authorities in the rest of the world adopt. Far better to let the market, through floating exchange rates, adjust to world conditions

the 5 per cent or so of our resources devoted to international trade while reserving monetary policy to promote the effective use of the 95 per cent. [...]

A second requirement for monetary policy is that the monetary authority avoid sharp swings in policy. In the past, monetary authorities have on occasion moved in the wrong direction – as in the episode of the Great Contraction that I have stressed. More frequently, they have moved in the right direction, albeit often too late, but have erred by moving too far." (Friedman 1968).

The above-mentioned quotes were a sort of credo for those monetary decision makers who opted to become Friedman's disciples. Most of these followers were unable to spot some of the intrinsic weaknesses of the new trend. And it is important to refer to them in a more detailed manner.

Some economists point out that when Friedman and Schwartz were working on their work, the American economy resembled a rather closed economy with a banking system based on small regional banks (Pollock 2019). There were few banks with an international reach. More importantly, the implementation of an ever-denser network of foreign exchange restrictions was delaying the prospects of globalization to come. Most probably, the authors of monetarism were unable to go beyond their surrounding reality, which reflected the spirit of Keynesianism (James 2023).

Therefore, the biggest problem of the new trend was the difference in the circumstances in which it was born and the circumstances in which it began to be introduced. Its essence was best captured by James (2020), who argued that monetarism shaped the political framework and its spectacular success in reducing the level of inflation. However, according to James, it did not provide a precise set of tools for managing money in an increasingly open economy.

But even economists contemporaneous to Friedman were not entirely convinced that a floating exchange rate would cure all the problems the world economy was facing. One of them was the Canadian Robert Mundell. Mundell's nationality matters. Canada was an exceptional case in the BWS as during a significant part of the existence of this system stretching from 1950 to 1962 (Bank of Canada 2010), this country resorted to the floating exchange rate (instead of a fixed exchange rate). Most probably this fact helped Mundell to take a closer view of this framework and subsequently be more realistic about the potential of a floating exchange rate.

According to him, this kind of exchange rate could deliver a desirable result if the world economy were divided into optimal currency areas (TOCA). His deliberations paved the way for the creation of a concept of optimal currency area theory. The novelty of TOCA theory consisted in putting an emphasis on both microeconomic features. Mundell (1961) himself emphasized the importance of labour mobility. Later on, McKinnon (1996) pointed out the significance of the openness of a given currency area, while Kenen (1969) focused on the meaning of resilience of a given economy to the economic shocks of an asymmetric nature.

The TOCA theory generated the greatest interest in continental Europe, where political determination to introduce a monetary union was on the rise. After being awarded the Nobel Prize for his contributions to economics in the same year (1999) when the European Economic and Monetary Union (EMU) was conceived, Mundell is often dubbed as the Godfather of the entire undertaking. Nevertheless, it may be one the greatest ironies that the entrance criteria to the EMU are almost entirely detached from the TOCA.

2.1. Afraid of floating the exchange rate fully

The floating of the exchange rates in March 1973 was intended to be a temporary phenomenon aimed at creating a new exchange rate grid on which the new currency system was to be based. However, this did not happen, largely due to the unstable external environment caused by the first oil shock. On the one hand, the autonomy of monetary policy cushioned the effects of the supply shock. On the other hand, the same monetary authorities had to deal with a lack of experience in conducting monetary policy in the new environment. And as it soon turned out, the inability to exercise the autonomy of monetary policy began to generate pressure on the exchange rate. Furthermore, the economies of individual countries were neither completely nor equally immune to huge exchange rate fluctuations. Therefore, the fear of the latter inevitably encouraged the monetary authorities to monitor the path of the exchange rate more closely, which of course limited the previously acquired autonomy of monetary policy.

This floating exchange rate has created enormous, almost limitless room for resorting to autonomous monetary policy. However, it soon became apparent that the monetary authorities were not fully prepared to conduct an autonomous monetary policy on their own. In addition, as McKinnon (1996) wrote, theoretical models based on the assumption of a floating exchange rate have almost completely proven themselves deficient in the new reality. Until the collapse of the BWS, autonomous monetary policy appeared to be only an interesting alternative to the collapsing system of fixed exchange rates, which could be invoked in the indefinite future. However, after the collapse of the BWS, the monetary authorities had to fill the vacuum created by the departure from a solution based on fixed exchange rates. In order for monetary policy to serve as a tool to support the development of domestic economy, the authorities responsible for it first had to develop a sufficient level of credibility (measured mainly by the demand for the currency they issued). In the era of an uncertain external environment, this was not an easy task.

The above-mentioned exchange rate fluctuations were primarily the result of low liquidity on the currency markets. The network of strong foreign exchange restrictions, which has been in place for decades in some cases, had almost by definition made it difficult to reactivate the flawless operation of the mechanism for the optimal allocation of resources. Its absence only exacerbated the already undesirable exchange rate fluctuations in the global economy. In addition, the outbreak of the oil crisis had a negative impact not only on the inflation rate, but above all on the balance of payments of individual countries. While in the first months of the new system exchange rate fluctuations were the result of adjustment measures to the new reality, with the passage of time the increasing exchange rate fluctuations were the result of mounting imbalances.

Over time, this state of affairs began to contribute to currency crises, the most famous of which was the pound sterling crisis in the autumn of 1976 (and which caused the monetary authorities of Great Britain to ask for help from the IMF) (Roberts 2016). Almost exactly two years later (November 1978), coordinated action was needed to halt the further depreciation of the US dollar. All in all, the 1970s hardly contributed to any exchange rate stability.

Adhering to the principle of the impossible trinity (the inability to achieve autonomous monetary policy, a fixed exchange rate and full capital mobility at the same time), it proves helpful in assessing further reasons why the monetary authorities of individual countries, despite floating their exchange rates, could not afford to be entirely indifferent to what happened to their exchange rates. It was all

about the last vertex of the aforementioned impossible trinity, namely the question of the extent of convertibility of individual currencies.

Until the collapse of the BWS, the convertibility of several currencies was drastically reduced, which was primarily the result of rather futile (but expensive) attempts to save the collapsing system. The advent of the era of floating exchange rates encouraged an increase in the convertibility of money. However, again with a few notable exceptions, the majority of countries hesitated to introduce full convertibility at once, and subsequently opted to dismantle capital controls in line with the abilities of domestic economies to withstand this process.

Further reasons behind the monetary eclecticism discussed here were also primarily a consequence of different preferences in the field of economic policy. While the US monetary authorities, after the flotation of the US dollar, continued to adhere to the US Secretary of Treasury, John Connally's mantra that the US dollar is the currency of the US, but for other countries it is already a problem, and as a result they focused only on internal equilibrium, the countries of Western Europe (under the economic aegis of West Germany) began to look more and more intensively for ways to oppose the American monetary hegemony. It was all about efforts to create an Economic and Monetary Union.

Apart from the above-mentioned preferences, there were additional factors which made selected countries undertake measures depending on the specific circumstances prevailing in a given country. For example, the situation in the United Kingdom was particularly dire, as in addition to a number of macroeconomic difficulties, it struggled with problems resulting from the international position of the pound. As a result of these factors, the UK proved to be prone to the occurrence of advances and delays occurring in transactions involving the British currency (the so called leads and lags mechanism) (Pietrzak 1984).

A special reference must be made to Switzerland and its central bank, SNB, which in the name of saving price stability decided to expose its society to an unprecedented sacrifice by pushing the country's economy into an economic recession unprecedented after the Second World War (where the decline in GDP oscillated around the level of 7% of GDP) (Baltensperger 2016). By doing so in a successful manner, the Swiss franc (in spite of relatively low liquidity) became the synonym of strength and safety, which contributed to its reputation as the favourite safe haven currency of investors. Therefore, from the very beginning of the new system, it was referred to in the literature as the multi-currency system (Pietrzak 1984). As a result of its currency versatility, this system had to be exposed to monetary eclecticism.

After a description of the most important reasons behind the variety of choices the monetary authorities all over the world were facing, it is time to make a more detailed assessment of events taking place in the international monetary system following the demise of the BWS, with the three criteria mentioned in the introduction as the reference points for this analysis.

3. Approach to currency convertibility

The freedom to use fiat money in the international sphere seems to be the most important element of a well-functioning international monetary system. It primarily determines the extent to which the optimal allocation of resources will function at a global level. Analysing the history of the international

monetary system, one can find clear trends in the free use of money. The departure from full convertibility took place at the moment of the de facto collapse of the gold standard at the beginning of the First World War (Reinhart 2011). The last two decades of the gold currency, which functioned in the years 1873–1914, were the period of the greatest freedom of use of money in the international sphere. In the Global Capital Mobility Index with a range from 0 to 1 and developed by Reinhart and Rogoff (2009), the level of capital mobility at the turn of the 19th and 20th centuries was over 0.8. After the First World War, it fell sharply to just over 0.1. The launch of the Gold Bullion Standard in the period stretching from 1925 to 1931 allowed the index to rebound to the level of 0.4. But a combination of the post-Great Depression dire situation and above all the devastating effect of WW2 caused its value to reach a historical low of less than 0.1.

The key intellectual architect of the BWS, John Maynard Keynes, was against moving beyond the current account convertibility. The intention of the creators of the Bretton Woods system was to limit the convertibility of money only to the real sphere. This was not a groundless assumption. The UK experience of a futile attempt to restore the current account convertibility (Naef 2022) in mid-1947 brought about the haemorrhage of capital from Britain. After only six weeks, Britain had to restore her exchange controls.

But even reaching current account convertibility proved to be an over ambitious goal. And the majority of the Western European economies had to wait almost 14 years after the end of WW2 to regain the minimum scope of convertibility for their currencies (although the pound sterling regained de facto this minimum scope in early 1955), but *de jure* most of the currencies of the Western world (including the UK) regained external convertibility only on 28 December 1958 and full convertibility in terms of current account transactions (in accordance with Art. VIII of the IMF Statute) as late as February 1961. Japan only managed to fulfil Article VIII as late as April 1964.

It would be a mistake to assess the convertibility of individual currencies solely through the prism of national legislation. The technological progress that was gaining in importance after the WW2 also began to affect the sphere of economic life. The point is that the new technical possibilities could be used in the economic sphere with a view to circumventing national legislation. This was one of the reasons for the emergence of the Euromarkets. Their increasingly efficient functioning began to erode the foreign exchange restrictions introduced by the national authorities. The only response from the national authorities to the challenge posed by the Euromarkets was to increase the scope of the applied exchange restrictions. For instance in the UK, there was a lot of talk about the Gnomes of Zurich – the description coined in 1964 by the head of Secretary of State for Economic Affairs, George Brown – who were supposed to speculate against the sterling. Apparently this kind of rhetoric was supposed to conceal the authorities' lack of determination needed to introduce painful reforms from the social point of view (but indispensable for the soundness of the domestic economy).

To make things worse, this chronic pressure on the balance of payments produced by the ever deteriorating terms of trade along with expansive fiscal policies was at the expense of not only limiting the mechanism of resource allocation, but also the fundamental rights of its citizens (for instance in the UK the foreign travel allowance of GBP 50 was reintroduced as late as 1966). In its effort to halt outflows, the US opted for the introduction of an equalisation tax, imposed limits on the growth of bank lending to foreigners, and encouraged private companies to repatriate their earnings (Meltzer 1991). These kinds of policies only fuelled the development of the Euromarkets further (Marston 1993). Needless to add, all these administrative means encouraged investors to search measures aimed at

omitting government interference in the optimal resource allocation. In other words, just as in the case of the Laffer curve in determining the maximum marginal point of profitability of tax collection, a similar point existed for the application of foreign exchange restrictions. However the authorities could hardly hit such a point.

The demise of the BWS proved to be the turning point a far as the appliance of capital controls is concerned. The US and the United Kingdom were the pioneers in lifting foreign exchange restrictions. Free of any obligation to defend the value of its currency, the US lifted all controls almost immediately after the US dollar was floated. The United Kingdom – following the return of the Tory party to power in May 1979 and its subsequent change of economic policies – lifted between June 1979 and October 1979 all the capital controls it had introduced successively ever since 1939.

However, not all countries decided to take such moves. Even if the overwhelming majority of countries were dominated by the fear of capital outflow, there had been cases where the restrictions imposed were based on the fear of excessive capital inflows, as evidenced by the experiences of Germany and, above all, Switzerland. Therefore, at the beginning of the 1980s, the value of this index was lower than in the era of the Gold Bullion Standard.

With the passage of time, the view on convertibility began to change, partly under the influence of the experience of the above-mentioned countries. Pietrzak (1996), in his efforts to explain the changes in the reasons for the approach to foreign exchange restrictions, pointed not only to their decreasing effectiveness over time, but also to the high opportunity cost of their application. This cost was primarily the lost opportunity to finance capital raising at a lower cost. Moreover, the experience of the United Kingdom in the early 1980s showed that the lifting of foreign exchange restrictions could actually be helpful in restoring economic balance. As a result of the launch of North Sea oil production in the mid-1970s, the pound temporarily gained the status of a petrocurrency, which resulted in its strong overvaluation. More importantly, the strong appreciation of the pound sterling at the turn of the 1970s and 1980s was one of the reasons behind the most severe recessions in the UK economy since the Great Depression in the early 1930s. However, the appreciation of the sterling in the environment of capital controls would most probably have been even larger. The lifting of foreign exchange restrictions – in the meantime – allowed Britain to export capital, which significantly helped to reduce the extent of the pound's overvaluation.

Most of the other countries opted for a more gradual process, which resulted in a delay in introducing full convertibility. The abolition of capital controls in West Germany had to wait until 1981. This delay was, as it was already said, not out of fear of capital outflows, but of excessive capital inflows, which were generative appreciation pressures on the domestic currency (and which could derail efforts to stabilise selected European currencies against the West German mark). The Netherlands opted to follow the example in 1986, while Denmark made an identical step two years later. France and Sweden joined the trend in 1989 (Bakker, Chapple 2002).

Other western countries were much more reluctant to increase the convertibility of their currencies. In the case of the countries of the then EEC, it was only the announcement of the Delors Plan that motivated selected countries to accelerate the liberalization process. Belgium, for example, was using different exchange rates for current and capital transactions until 5 March 1990 (Timmermans, Delhez, Bouchet 2014). Austria did not make the shilling fully convertible until the beginning of November 1991. The countries admitted to the EEC in the 1980s waited until 1992 to fully liberalize, while Norway, which remained outside the EEC, decided to fully liberalize only in the mid-1990s.

On the other hand, Japan, following a completely different path, decided to pursue a very slow pace of liberalization of the domestic financial system. However, even here, the progressing liberalisation allowed for the transformation of the Japanese economy, which was de facto managed by the government (thanks to the Window Guidance mechanism), towards more market-oriented solutions. The Window Guidance was abolished as late as mid-1991 (Shirai 2018).

If until the late 1980s the attitude towards capital controls resembles the Kroenungstheorie, according to which its dismantling must be preceded by restoring order in the domestic economy, the end of the 1980s and the early 1990s saw a drastic change in the attitude towards capital controls. The debt crises which hit the emerging economies in the early 1980s took some time to overcome. Among the attempts to overcome it, the programme known under the name of the Washington Consensus, coined by John Williamson, deserves special attention. One of its cornerstones was worldwide current account convertibility. Even if the Washington Consensus was designed with the Latin America economies in mind, it delivered excellent results in the CEE economies (Berend 2010). Some of these economies (above all the Baltic States) went even further and started to dismantle capital controls. By the mid-1990s these three tiny states were in command of fully convertible currencies.

As a result of the aforementioned processes, from the early 1990s the full convertibility started to be perceived as a measure with the help of economic reforms that can be implemented in a more efficient way. That is why all of a sudden convertibility at the capital level was becoming a desirable standard. The outbreak of the East Asian crises somewhat slowed down the aforementioned trend. As a result, some of the emerging economies opted to use prudential measures instead of capital controls in their attempt to shield the domestic economies from excessively volatile capitals flows. But these measures were unable to reverse the trend which was initiated in the aftermath of the fall of the BWS.

While immediately after the collapse of the BWS, the level of convertibility of the currencies of the most developed countries was less than 33%, at the beginning of the 21st century it had increased to over 90% (Shaw, Eidelman 2011). More importantly, in the early 1990s the liberalisation trend began to spread to emerging economies. In the case of these economies, however, the liberalisation process was not without collisions, as was reflected in the wave of currency crises of 1994–2002.

Notwithstanding these crises, at the end of the 20th century the level of capital mobility began to approach the pre-1914 level (i.e. above the value of 0.8), and at the beginning of the 21st century it even exceeded it (largely due to an increase in the percentage of emerging economies in the world economy) (Pettinger 2020), approaching the level of 0.9 for the first time in the history of the international monetary system. On the other hand, despite this trend, the world's second largest economy, the People's Republic of China (PRC), still takes a very cautious approach to the total convertibility of its currency, while a number of other emerging economies – as already mentioned – are trying to influence capital flows by means of prudential policy.

4. Approach to the exchange rate

It took a long time for the monetary authorities of individual countries to give up influencing the exchange rates of the currencies they issued. Despite the advent of the era of floating exchange rates, the Fed itself began to intervene as early as July 1973 in order to significantly reduce the strong

fluctuations of the US dollar. The first coordinated interventions took place in February 1975, when the central banks of the USA, West Germany and Switzerland decided to coordinate the purchase of US dollars (Jacobson 1990). In February 1975, the Fed itself sold USD 433 million in German marks, USD 123.3 million in Swiss francs, USD 46.9 million worth of Dutch guilders, and USD 16.7 million worth of Belgian francs (Holmes, Pardee 1975). Over the next two years (i.e. until the end of October 1978), the US currency lost 20% of its value at the effective nominal exchange rate. Such a decline forced the need for further currency interventions to rescue the US currency.

However, the fate of the US currency in the years shortly after the fall of the BWS was determined neither by the Fed's individual interventions nor by coordination, but by Paul Volcker's rise to power in the Fed in 1979. His shift in the policy of the central bank towards sharp tightening (described in detail in the next section on monetary policy) helped not only to stabilize the exchange rate of the dollar, but also engineered a sharp appreciation of the US currency.

At the same time, some selected EEC countries were trying to introduce a monetary union. The Prime Minister of Luxembourg (who held office between 1959–1974 and 1979–1984) Pierre Werner announced in 1970 a plan which envisaged the launch of the common currency as early as 1980. The oil crisis was one of the reasons why this plan was not implemented. In the mid-1970s it even seemed that this plan would be postponed indefinitely. It was not until Roy Jenkins' speech in Florence in 1977 that the efforts for the common currency were reinvigorated. On 13 March 1979, the European Exchange Rate Mechanism was launched as part of the European Monetary System. Contrary to the fears of many observers, it did not share the fate of its predecessor, the snake in the tunnel. One of the reasons for the success of the ERM in its first years of existence was the break from yet another symptom of what is known as the Bretton Woods mentality, which perceived the exchange rate in terms of national pride. In other words, the devaluation of a given currency was supposed to mean a loss of esteem of the country in question.

Another important factor in helping the ERM survive the first few years was the establishment of a unit of account modelled on the effective exchange rate ECU. The system itself offered some genuine novelties, among them the so-called parity grid, aimed at detecting early warnings for the system. This threshold was different for each country, and its value depended primarily on the GDP of a given country. The higher the share of a given currency in the ECU, the less room was given for it to deviate from the parity against the ECU. In practice, however, the stay at the ERM consisted of closely following the policy of the Bundesbank.

Indeed, especially between 1979 and 1983, exchange rate adjustments were very frequent, which paradoxically affected the credibility of the system described here in a positive way. A factor facilitating stability in the ERM was the appreciating US dollar. The point is that the outflow of capital from Europe – as opposed to its inflow – was symmetrical. On the other hand, the asymmetric nature of capital inflows to Europe resulted from the preference for assets denominated in German marks (Noelling 1993). Efforts aimed at distributing these inflows evenly among the ERM member states proved to be extremely unpopular (especially from a political point of view), as they resulted in raising interest rates above the level set by the Bundesbank.

The first half of the 1980s coincided with the aforementioned strong appreciation of the US dollar against all the currencies in the Western world. For a long time, the Volcker administration remained faithful to the current of monetarism which almost by definition excluded government interference in the form of currency interventions (Corden 1994). The situation changed in 1985. In February of that

year, the dollar reached its highest rating against the German mark since July 1971. While the strong growth of the US dollar until mid-1982 (when the Fed rate rather rarely fell below the 15% threshold) could be explained by the very restrictive policy of the Fed (Corden 1994), from the second half of 1982 its growth became increasingly difficult to explain. Already at the end of 1983 its quotations began to show symptoms of a strong overvaluation. Between 1981 and 1984 the value of the dollar against many European currencies more than doubled, but it was not until March 1985 that the appreciation trend described here was reversed. Six months after the initiation of the new downward trend (i.e. on 22 September 1985), an agreement was concluded at the Plaza Hotel, thanks to which the central banks of the G5 countries (USA, West Germany, Japan, France and the United Kingdom) began to carry out a coordinated sale of the US currency.

The conclusion of the Plaza Accord was a sign of an effective return (even if it proved to be of an interim nature) to cooperation between the states at the international level. The correction of the US dollar exchange rate was successful to such an extent that less than 18 months after the meeting in the Plaza, it was necessary to take measures to counteract its further decline. An accord signed in February 1987 at the Louvre by the participants of the G6 countries was to set informal exchange rate ranges that were not made public at the time of the announcement. A few weeks later, the pound sterling exchange rate was informally pegged to the exchange rate of the German mark. At the same time, eight years after its turbulent launch, the European Exchange Rate Mechanism began to show the first signs of more durable stability, as a result of which most of the EEC countries began to think more and more boldly about the introduction of the single currency.

The exchange rate stabilization in the international monetary system turned out to be temporary and, as a result, did not stand the test of time. According to one of the signatories of the Plaza Accord, the British Chancellor of the Exchequer, Nigel Lawson, it lasted about four years (Takagi 1989), i.e. until the end of 1989 (Jacobson 1990). And Lawson himself during his tenure in office experienced a drastic shift in his opinions, namely from being a supporter of tough monetarism towards an advocate of closer ties to Europe. Following the signing of the Plaza Accord, Lawson wanted the pound sterling to join the ERM – an idea strongly opposed by Margaret Thatcher. He did not give up and following sterling's sharp depreciation (the side effect of a fall in oil prices) he managed to implement in April 1987 the aforementioned policy which consisted of sterling shadowing the D-Mark.

However, even the period stretching from late 1985 to late 1989 was not free of severe exchange rate pressures. The sharp collapse of shares on the New York Stock Exchange in October 1987 forced a temporary withdrawal from the agreements concluded at the Louvre. In March 1988, the pound sterling's exchange rate floated again, resulting in its strong but rather short-lived appreciation. Only the ERM was still highly resilient to currency shocks throughout the entire period. In the second half of 1988 the Louvre Accord came into force again. Coordinated currency interventions were still undertaken to keep rates around the parities set in Louvre. Their particular intensification took place in the second quarter of 1989, when the dollar's exchange rate against the German mark exceeded the DM2 ceiling. The dollar's strength did not last for too long. A combination of the Fed lowering interest rates and, above all, events in Central and Eastern Europe saw its exchange rate suffer substantially, thus bringing the four-year interval of exchange rate stability to an end.

The departure from coordinated foreign exchange interventions in the early 1990s was dictated by various events that led Germany, the United States and Japan to refocus exclusively on their respective internal equilibrium. The US was hit by a shallow but prolonged economic recession, which de facto

forced the Fed to radically loosen its monetary policy. The unification of Germany, and especially the pseudo-monetary union between Germany and East Germany, which was fuelled by political factors, constituted a strong inflationary impulse for the economy of the united country. Japan, on the other hand, preferred to focus on the effects of the bursting of the speculative bubble on the local stock and real estate markets. Paradoxically, Japan initially did not seem to be afraid of the deflation that would eventually come five years later. The country's main fear was of the effects of a temporary (as it later turned out) increase in inflation. Therefore, instead of rapidly loosening their monetary policy, the Japanese authorities decided to tighten it. This kind of constellation led to a sharp collapse in the value of the US dollar in the first half of the 1990s. At that time, large currency interventions took place only in Europe, with the vast majority of countries unsuccessfully trying to maintain a strictly fixed exchange rate against the German mark until 1993 (as a result of which the allowed size of fluctuations within ERM was extended substantially).

It was the experience of European countries (and the United Kingdom in particular) that was the key reason why currency interventions started to lose their importance. The point is that the monetary authorities were aware that in the face of the rapidly increasing daily trading volume in the global currency markets, their foreign exchange reserves were simply becoming insufficient to change the direction of the trend. Since then, foreign exchange interventions have been sporadic. The monetary authorities were aware of the existence of a necessary condition, without the fulfilment of which such actions were doomed to failure. The point was that interventions can take place if and only if they are supported by the so-called economic fundamentals. The essence of this condition is evidenced by four episodes: the coordinated interventions to support the US dollar in August 1995, the interventions to rescue the Japanese yen in 1998, the coordinated purchases of the euro in October 2000, and the coordinated sale of the yen in March 2011 following the Fukushima disaster.

The 20th century ended with the accomplishment of the European EMU in 1999, as a result of which 11 states (joined by Greece in 2001) gave up their currencies in favour of the single currency (the euro). Outside the EMU, there were also other extremely important processes taking places in the international monetary system which occurred in the last decade of the 20th century.

Perhaps the most important of them was a whole series of foreign exchange crises, the contagion of which spread to many but not all emerging markets (i.e. Poland). They started in Mexico in late 1994 and ended in Argentina at the turn of 2001 and 2002 and neighbouring Uruguay (in mid-2002). These crises depicted the complexity of the impossible trilemma, and above all the original sin – as a result of which the majority of these countries could not contract debt in their domestic currencies. The origin sin led many entities to contract loans in foreign currency – thus leaving them at the mercy of FX markets (Eichengreen, Hausmann, Panizza 2022).

Out of the crises taking place in the aforementioned period, the East Asian crisis in mid-1997 deserves special attention. Firstly, it hit all these economies by surprise. Little wonder, since the IMF itself was full of pride for them just less than six months prior to the crisis. Secondly, this crisis emphasized the role of the PRC as a cornerstone of regional stability. At a certain point in the second half of 1997, the sequence of events in East Asia started to resemble "Beggar Thy Neighbour" policies, even generating some associations with the Great Depression from the early 1930s. The commitment of the People's Bank of China to its exchange rate peg helped to avoid disaster. Thirdly, the consequences of this crisis had serious consequences for the way the international monetary system operated in the early years of the 21st century.

With many of the East Asian economies becoming suspicious of the IMF recommendations, they opted to amass a huge amount of capital and its subsequent export. This kind of attitude (along with a similar policy pursued by Japan and the PRC) started to shape the direction of capital flows in the international monetary system in the years to come. Asian savings started to offset deficits in the US and some other counties (the UK). These imbalances encouraged some experts to draw parallels with the Bretton Woods system. Dooley, Folkerts-Landau and Garber (2003) went as far as to refer to the constellation as the Bretton Woods 2 system.

The advent of the 21st century also marked the rise of importance of the so-called carry trade, where currencies with low interest rates depreciated sharply against their counterparts with higher interest rates. The outbreak of financial crisis in 2008 saw the RORO (risk on, risk off) strategy gaining in importance. Obviously, the trends in the first quarter of the 21st century can be confined to these two trends. Nevertheless, one important trend was observed, to be discussed in more detail below.

In retrospect, it can be seen that, paradoxically, it was only the reduction in the frequency of currency interventions and, above all, the abolition of foreign exchange restrictions that began to reduce the amplitude of exchange rate fluctuations of the main currencies of the international monetary system. At the dawn of the era of floating exchange rates, foreign exchange markets were very shallow, which only increased their sensitivity to exchange rate fluctuations. These foreign exchange restrictions further reduced the volume of trading and, as a result, made the exchange rates of individual currencies more susceptible to undesirable fluctuations. While the dollar's exchange rate against the German mark at the beginning of the 1980s was around DM 1.74, in 1985 it rose to over DM 3.47, only to fall below DM 1.57 at the end of 1987. In the case of the yen, the amplitude of fluctuations in the 1980s ranged from JPY 120 to JPY 278.

As recently as 1983, the average daily turnover on the foreign exchange market was about USD 100 billion (Jorion 1996), which accounted for about 9% of the world's GDP. In 1986, the Bank for International Settlements in Basel (BIS) began measuring the volume of trading in the world foreign exchange markets at three-year intervals. At that time, the average daily turnover was just over USD 200 billion per day. In the next three years, 1986–1989, the turnover in question more than tripled, reaching the level of over USD 640 billion. In 1995, the USD 1 trillion mark was crossed, and three years later the USD 1.5 trillion mark was broken, which accounted for about 4.7% of the world's GDP. In the last decade of the 20th century, this increase translated into a slight narrowing of fluctuations in the case of the yen (from JPY 160 to JPY 80) and a much greater narrowing in relation to the German mark (from DM 1.35 to DM 2.38).

The first decade of the 21st century saw a further narrowing of exchange rate fluctuations, among other things, as a result of a further increase in turnover. While in 2001 there was a temporary decline in the daily average volume to less than 1.3 trillion (among other things, as a result of the introduction of the euro, which resulted in the cancellation of the relationship between the German mark and other currencies of the ERM countries), in 2007 the turnover surpassed the threshold of USD 3 trillion. Three years later, in 2010, the same turnover increased to almost USD 4 trillion per day (BIS 2023). Higher FX turnover apparently seemed to insulate the exchange rates of major currencies from excessive movements.

This time (namely in the first decade of the 21st century) a significant narrowing of the USDJPY took place, with quotations ranging from JPY 130 to JPY 90. On the other hand, in the case of the newly created euro, an increase in fluctuations of EURUSD (compared to the USDDEM in the 1990s) took

place and ranged from 0.82 to approx. 1.60, which was largely the result of the sharp decline of the euro in the first three years of its existence. In the second decade of the 21st century meanwhile, a further narrowing of fluctuations was recorded in the case of both relations described above as the turnover on the foreign exchange market itself increased by another 50% and exceeded the USD 7.5 trillion mark, which in terms of global GDP amounted to over 7.5%.

It is yet to be seen what will happen throughout the entire 2020s. For the time being a certain widening of the USDJPY (the side effect of Japanese monetary policy detaching itself from the rest of the core countries) has been observed, but they still represent a far cry from what was observed in the late 20th century. Last but not least, it takes far shorter time for exchange rates to address economic imbalances. Perhaps the most convincing sign of today's regime is the fact that there is no serious talk of a return to anything that would resemble the imbalances from the BWS period.

5. Approach to monetary policy tools

5.1. Monetarism in the USA

Monetarism in monetary policy is viewed through the lens of monetary aggregates. One of the reasons the monetary authorities decided to appeal to these aggregates was pragmatism. The point is that in the era of high inflation, rising interest rates no longer reflected the level of restrictiveness of monetary policy. The latter depended on the size of inflation. For example, the impact of a real interest rate amounting to 2% is different for a 2% inflation country (A) than for a 10% inflation country (B). In country B, the impact of a real interest rate of 2% could be the same – from the point of view of an increase in nominal rates – as the impact of a real rate of 0.4% in case A. In both cases an increase of nominal interest rates would amount to an extra 20% of their original level. And the other way round. The effect of real interest rates of 2% in country A would equal 20% in country B, as in both cases a doubling of the original level of interest rates would occur. Hence, there was a need for modifications aimed at gauging the aforementioned restrictiveness better.

Therefore, monetary aggregates were to become the new benchmark for interest rates. It was their formation that determined when and by what extent the level of interest rates had to be changed in order to achieve an appropriate level of restrictiveness of monetary policy. Originally, it was also believed that announcing predetermined growth dynamics targets for a given aggregate would have a positive impact on the formation of expectations of a future inflation level.

Paradoxically, their origins, which go well before the advent of monetarism, date back to 1943 (Bernanke 2006), when the Fed began to publish data on the money supply. There were two rows (groups): the first was money outside the banks and the second was the current account money. As Walters (1989) writes, both time series laid the foundations for the M1 aggregate, the formation of which was made available to the public. It was not until 1971 that the Fed began to take into account M2 and M3, and this was the result of economists' calls for the money supply to take into account its hoarding function. Initially, the Fed's leadership refused to provide information on the projected dynamics of money supply growth, pointing primarily to problems related to determining the speed of money circulation.

Unfortunately, central banks' experience with monetary aggregates did not live up to the hopes originally placed in them. The main reason for the failures related to the use of aggregates was the changing environment, which was primarily reflected in the demand for money. The stability of the latter was almost *a sine qua non* for the success of the new monetary policy. On top of that, there was an extremely unstable external environment, manifested primarily by a supply shock (which was an almost fourfold increase in oil prices).

Therefore, relying on monetarism in such a volatile environment was a risky venture. The effectiveness of monetarism also depended on the goals set for it, and the Fed's leadership, especially under the leadership of the Polish-born Chairman Arthur Burns, had a lot of problems with their precise definition. In general, it is a period (i.e. 1970–1978) that is often referred to as the least successful period in the history of the Federal Reserve. One of the main reasons for this was the US administration's attempts to politicize the Fed. This was especially true of President Robert Nixon (French 2010), for whom his re-election was the top priority immediately after the collapse of the BWS. This was not a favourable circumstance for the introduction of an orthodox version of monetarism. Therefore, McKinnon (1996) argued that in the first years immediately following the floating of the dollar, the Fed's operating policy did not change much.

Chairman Arthur Burns himself was quite sceptical about the tools of monetary policy. Although distancing himself from Keynesianism, Burns leaned more toward the use of administrative tools such as controlling wage increases and prices. At that time, the Fed's policy was primarily aimed at combating the rapidly growing unemployment. More importantly, it had ideological overtones. The point is that the Fed Chairman Arthur Burns, like his predecessor, viewed his role through the prism of patriotism. In his opinion, the central bank should support the US government in reducing deficits (which sooner or later will have to be financed by the central bank). From the point of view of this attitude, the importance of low unemployment made additional sense. However, it did not make it easier to fight inflationary pressures.

Unfortunately, the combination of a strong oil shock and a depreciating dollar was not conducive to disinflation. And the Fed's increasingly apparent lack of a clear and coherent strategy only exacerbated the inflation overhang. The Fed executives (and Burns in particular) saw the growing phenomenon of stagflation as temporary. Therefore, the Fed's actions focused on the short term and the reluctance to fluctuate interest rates too much. Although the Fed itself was not responsible for the quotations of the US currency, its indecision about the actual priority of its policy often led to a massive sell-off of the US dollar. And the latter only intensified inflationary pressure in the domestic economy.

Defining the place and importance of these aggregates in the Fed's toolkit is not an easy task. Bindseil (2004) argues that after 1973 the Fed focused on short-term goals in general. Until 1973, the Fed continued the reserve doctrine begun in the 1920s, according to which the central bank tried to influence a given monetary aggregate by means of central bank reserves, the level of which were determined by open market operations. Yet, after 1973, the Fed reclassified reserves on private deposits from being an operational target to being an intermediate target (along with M1).

More importantly, significant structural changes began to take place in the monetary aggregates promoted by the monetarists. Rocheteau (2007) pointed to changes in the structure of the M3 aggregate. While in 1959 the share of M1 in M3 was almost 50%, a quarter of a century later it was more than halved (to slightly above 20%). Even greater changes took place in the velocity of the circulation of money. The latter, measured by the ratio of GDP to M1 from the end of the 19th century to the end

of the 1950s, ranged from about two to about four. By the mid-1970s it had risen to six, and by the early 1980s it had almost doubled (to about eight). Worse still, it was difficult to explain the reasons for such a rapid increase in the velocity of money (Rocheteau 2007). All these changes made the task of relying on these aggregates even more difficult.

That is why, most probably from an operational policy perspective, the Fed's attention was primarily focused on short-term interest rates, which are set by open market operations. The fed fund rate, which was launched in 1928, was still a tool of the Fed, and the role of monetary aggregates (at least until October 1979) was very limited.

Almost all sources in the literature agree that the fed fund rate was the primary target for the central bank. Thornton (2000), however, questions whether the implementation of the target between 1974 and 1979 was carried out through open market operations. The point is that the fed fund rate should have been subject to much greater fluctuations (than it actually had been) as a result of frequent changes in the projected dynamics of monetary aggregate growth. It was not the case until the reform of October 1979 – to be described later in this section.

However, it was not until 1975 (under pressure from Congress) that the Fed began publishing projected ranges for the growth dynamics of individual aggreates (Bernanke 2006). These targets were reviewed on a quarterly basis. However, the Fed's policy was not very transparent, as will be shown in the following example. In February 1976 the growth rate of the monetary aggregate M1 was announced, ranging from 4.5% to 7.5%. Publishing these types of indicators only generated additional confusion. Although the Fed reported that such indicators were not binding in the short term, the market tried to use them to guess the central bank's intentions during open market operations. Needless to add, such situations created misunderstandings. For instance, the announcement of the new range in February 1976 was preceded by a weak growth rate of M1 in the second half of 1975 (in the order of 2.7% *per annum*). Such a state of affairs generated market expectations for monetary policy easing. On the other hand, the Fed lowered the dynamics from 5% to 4.5%, which resulted in a tightening of the monetary policy (Poole 1976). That is why the combination of aggregate diversity and their frequent (as described above) revisions were not conducive to increasing their usefulness from the point of view of the Fed's operating policy. Furthermore, the Fed behaved as if the level of interest rates were still important to it. Friedman described this period explicitly by stating that the Fed targeted interest rates rather than targeting money growth directly (Rotemberg 2013). And according to him, the anachronic procedures related to the former led to "self-reinforcing" errors in the latter.

All of the above-mentioned specifics of monetary aggregates made any monetary tightening in the US ineffective and had a negative impact on the US dollar. The latter were so low that on 1 November 1978 there had to be a coordinated intervention to save the US currency, which was mentioned above. The intervention purchase of the US proved to be a temporary solution, and from mid-1979 there was a renewed sell-off of the dollar. That same year, Paul Volcker became the Fed's Chairman, and his tenure is widely regarded as the beginning of a new chapter in the Fed's history. The need for a new chapter was mounting as the hitherto policies did not reflect the ideas Friedman was advocating for.

Friedman believed that monetarism would not bring the desired result unless the Fed opted to target its monetary base and let interest rates be shaped by the market. Volcker was not deaf to this rhetoric and on 6 October 1979 he announced a shift of focus in the Fed policies from aggregates and interest rates to the reserves held by banks at the central bank. There is a clear link between the level of reserves and the level of the fed fund rate. Indeed, the fed fund rate alone can be either a reserve-

-independent variable (where the rate determines the level of reserves alone) or a dependent variable (Goodfriend, Whelpley 1986), where the level of the rate was determined by the aggregate supply and demand for reserves. The latter combination is known in the literature under the name of total reserve targeting and is rather considered as a theoretical one. But most probably it was a sort of reference point for Volcker, who stood up to the task of changing the hitherto policies.

The Fed opted for a solution, where it tried to smooth the fund rate movements against sharp and unexpected movements in reserves demand. During the period prior to 6 October 1979 there can even be talk – in the wake of the aforementioned importance of interest rates to the Fed – of explicit interest fed fund rate targeting (Goodfriend, Whelpley 1986). However, in October 1979, as a result of Volcker's determination for a breakthrough in his efforts to conquer inflation, the Fed opted for a new solution, referred to in the literature as non-borrowed reserves. In fact, this is a solution lying somewhere in the middle between the extreme variants described above. The key to understanding this new solution is the relationship between the rate offered by the discount window and the fed fund rate. In the solution described here, the reserves held at the central bank are provided by the Fed in two ways (Goodfriend, Whelpley 1986):

1) by means of open market purchases (non-borrowed reserves),

2) with discount window borrowing (borrowed reserves).

As a result of the referred change in the policy, the Fed opted to fix the level of non-borrowed reserves to depositary institutions. This objective was achieved with the help of the discount rate, which set a sort of frontier point between nonborrowed reserves controlled by the Fed and borrowed reserves for which the level of interest rates was set by the market. In other words, up to the ceiling set by the Fed, the price of loans was fixed and equal to the discount rate. Of course, the essence of the solution was that the threshold of unborrowed reserves had to be low enough to guarantee that the fed fund rate would be above the discount rate. The latter was essential for the entire reform to be efficient. The new system implied that an increase in demand for reserves stemming from higher money stock generated upward pressure on the fed fund rate (Cook 1989).

As a result of the aforementioned reform, the interest rates became far more volatile, which was entirely in line with decision maker's intentions. The range of value that interest rates were allowed to take was expanded substantially. By setting the level of discount rate, however, the Fed preserved some room to exert influence aimed at stabilising the rates and it was probably the key reason for the central bank to focus on nonborrowing reserves instead of total reserves (Rotemberg 2013).

It is widely believed that as a result of Volcker's reform, it was the only time when the application of real monetarism in the USA took place. Alan Greenspan described his predecessor's move as the most important manoeuvre in US monetary policy in the last fifty years (i.e. since the Great Depression of 1929). It is in this move that many authors see the beginning of the long lasting process of disinflation (Goodfriend, King 2005).

The Fed departed from the formula introduced in October 1979 just over three years after its introduction. In late autumn of 1982, the US macroeconomic situation was decidedly different from what it had been three years earlier. First of all, the inflation rate fell to 3.8% in December 1982 (US Inflation Calculator 2024), the lowest level since February 1973, the last month of operation of the Bretton Woods system adjusted for the Smithsonian agreements.

The price of such painful disinflation was two recessions in the early 1980s, the first from January to July 1980 and the second from July 1981 to November 1982 (ECB 2009), i.e. de facto at the end of

the Fed's policy of non-borrowed reserves. The second 16-month recession was particularly severe, with US GDP shrinking by 2.7% (Elwell 2012) and unemployment above 10%. At the same time, there was a significant decline in the yield on US 10-year Treasury bonds. While in July 1982 their level was still above 14%, six months later it fell below the threshold of 10.4%. And such a sharp drop in interest rates occurred with oil prices still very high, which at that time oscillated around the USD 30 level. It was not until the turn of 1985 and 1986 that the above-mentioned yield of 10Y Treasuries fell below 10% (most probably as a result of the decline in oil prices).

It was quite ironic that monetary aggregates renowned for their pragmatism were able to generate the badly needed disinflation in its orthodox version only. But it was perhaps even more ironic that the strategy pursued by Volcker between 1979 and 1982 had a mixed record as far as keeping the money growth within their announced target (Rotemberg 2013). That is why in October 1982 the Fed decided to put smaller emphasis on M1. The latter apparently was more and more detached from economic activity. As there was more and more evidence regarding a sustainable fall in inflation, there was no need for further monetary orthodoxy. After moving away from M1, the Fed briefly paid attention to M2 and M3. Neither of them brought satisfactory results (Meulendyke 1988) and the attention was moved from nonborrowed reserves to borrowed ones. Summarizing, Volcker will be forever remembered for conquering inflation in the USA, but his main achievements paradoxically de-emphasized the relevance of the aggregates referred here.

5.2. Experiences with the monetarism in other countries

Disinflation started to intensify over time. In particular, the collapse of oil prices in the first half of 1986 accelerated the dynamics of the decline in world prices. In some countries (such as Germany or Switzerland), the dynamics of price growth have even temporarily reached a negative level, which was largely the result of the appreciation of these currencies at the turn of 1985 and 1986 (as part of the Plaza Accord). Paradoxically, it was these two countries that made the longest appeal to the policy of monetary aggregates. Germany until the introduction of the euro, and Switzerland until the end of the 1990s, which is a year longer.

While in the 1970s the threats to price stability were primarily in the real economy, in the following decade it was the financial sphere which became a source of new challenges for monetary policymakers due to the progressive deregulation of financial markets. Liberalization began to destabilize the demand for money. This is evidenced by the examples of Australia, New Zealand, and the Scandinavian countries, with a particular emphasis on Sweden.

A special case was the United Kingdom, where monetary destabilization began to be accompanied by tension in the decision-making centre in the field of broadly understood monetary policy. The position of the Bank of England was extremely weak and almost entirely subordinate to the Chancellor of the Exchequer. At a crucial moment from the point of view of financial deregulation, there was also a substantive conflict between the Chancellor of the Exchequer Nigel Lawson and Prime Minister Margaret Thatcher. As a result of these tensions, the UK authorities lost the ability to control both inflation (while in 1986 it was still at 2.5%, it exceeded 10% four years later) and the exchange rate (which proved to be very volatile from March 1988 to October 1990 – when the UK joined the Exchange Rate Mechanism at a rather overvalued rate). The UK's experience highlighted the importance of central bank independence.

The failure of monetarism is often shown through the prism of the British experience of 1986–1988. However, one can have reservations about such an argument precisely because of the lack of independence on the part of the Bank of England. Therefore, it is important to demonstrate the weaknesses of monetarism in the case of the Swiss Central Bank (SNB). As Baltensperger (2016) points out, the SNB's position began to get complicated as early as 1987, when the money supply growth was set at 2%. The rapid appreciation of the Swiss franc encouraged the SNB to tolerate an increase in supply above the set level. In addition, the crash of the New York Stock Exchange in October 1987 was a strong enough excuse to postpone monetary policy tightening. In order to avoid a recession, the SNB not only did not tighten its policy, but even loosened it. In 1988, the target for money supply growth was set at 3%. Unfortunately, structural factors were added at the same time. Firstly, the Electronic Settlement System (SIC) was introduced. Secondly, a revision of liquidity requirements was conducted (SNB 1990). The combination of the two factors caused a huge drop in the demand for reserve money from banks. The SNB's response was appropriate and boiled down to supplying the banks with reserve money. Unfortunately, the structural nature of these changes meant that the SNB was unable to assess the scale of the need for additional reserves.

According to Baltensperger (2016), the bank should have paid more attention to interest rates under such circumstances. Instead, the SNB preferred to focus on monetary aggregates. In addition, the SNB found it increasingly difficult to explain its moves clearly. Back in 1987, the SNB announced that the 3% growth ceiling for 1988 could be exceeded. In fact, there was a 4% decline in the money supply (generated by the aforementioned structural factors). In the face of such a turn of events, the SNB began to inject additional liquidity into the market. As it turned out over time, the SNB overestimated the degree of power provided, and despite a quick withdrawal from the expansionary monetary policy back in 1989, the SNB did not manage to avoid the consequences of its mistakes. The latter included the overheating of the economy and speculation on the real estate market. The inflationary pressures thus generated were enormous, leading to a price increase of 6.6% in the first half of 1991.

Due to the mistakes made, the SNB made an adjustment in its monetary policy. Monetary aggregates remained its main point of reference, but their time range changed. Whereas until 1990 they were published at annual intervals, in December 1990 it was decided to extend their period. As a result, a switch towards a medium-term approach took place. The SNB's decision makers wanted to make the interdependence of price stability and the potential growth of the economy more prominent (Rich 2007). On the one hand, the extension itself (up to five years) was supposed to guarantee greater flexibility of monetary instruments in the face of environmental uncertainty, and help to anchor inflation expectations more firmly on the other.

The proposed adjustments managed to restore price stability only after three long years. A factor hindering disinflation was the depreciation of the Swiss franc against the German mark. It was not until 1994 that inflation reached 2% and began to show a further downward trend. Its excessive decline, according to Baltensperger (2016), was a consequence of the overly restrictive monetary policy this time. The mistakes made at the end of the 1980s forced the SNB to be overly cautious in its assessment of the economic situation in the following years. This time, the bank overestimated the impact on economic growth (despite the introduction of VAT in 1995) (OECD 2022), which resulted in an overly restrictive monetary policy. This was due to the continued undue emphasis on monetary aggregates at the expense of other monetary indicators. Due to the overly restrictive policies pursued in the 1990s (especially during the tenure of President Markus Lusser), the SNB was often blamed for economic stagnation in the same period (Rich 2007).

Summarising, the experience with monetarism strategies was rather mooted. The point is that already in the first years after the collapse of the BWS, eclecticism in monetary policy was noticeable. However, the high level of inflation discouraged the search for new solutions, especially of an operational nature. It was not until the significant reduction in inflation in the mid-1980s that the search for new solutions was encouraged. All the more so, as the monetary aggregates were becoming less and less credible. It is not without reason that the former governor of the Bank of Canada, Gerald Bouey, famously said in November 1982 that, "We didn't abandon monetary aggregates, they abandoned us" (Mishkin 2000). Furthermore, technological innovations started to disturb money demand, thus making the task of relying on monetary aggregates even more difficult.

At the time of efforts aimed at preserving price stability, both the art of forecasting and communication started to play an ever more important role. The inability to explain the reasons behind a wrong forecast were far more detriment than the forecast itself. One of the problems of the UK monetary authorities in the mid-1980s with their aggregates consisted of an inability to justify wrong forecasts. Their response to a bad forecast was to deliver almost immediately a new reference point for the next forecast. Their behaviour stood in stark contrast with the Bundesbank's behaviour. The German central bank, in its effort to target initially central bank money and from 1988 the M3 aggregate, proved unable to meet its own target on 11 occasions in the period stretching from 1975 to 1998. Nevertheless its ability to admit the mistake, justify it in a convincing manner (instead of implementing a new reference level), and above all to stick to the same variable, helped the Bundesbank to preserve its own credibility.

The Bundesbank's way of communicating with the outside world proved to be a reference point for a new monetary framework. Measures to improve the central bank's communication with the environment were included in the direct inflation targeting (IT) strategy announced in 1989 and introduced a year later by New Zealand. The IT started to spread quickly round the world, even if initially the IT was not particularly warmly greeted by the most important central banks (including the Bundesbank). However, by early 2013 all of them were already in possession of this strategy, even if their names differed slightly. Not without significance was another attempt made in 2003 to directly influence the expectations of entities through explicit guidance, which with the passage of time evolved into forward guidance.

When it comes to improving the quality of monetary policy, it is important to note the Taylor Rule of 1993, which focused on the relationship between the conduct of monetary policy and what happens to potential GDP. The Fed emphasizes that a very important principle of Taylor was the principle that the scope of the fed fund rate increase was to be greater than the corresponding increase in inflation. The Taylor Rule gave rise to what can be described as pre-emptive strikes. Not without significance was the improvement on the part of the central bank in the process of communicating with the market. Until February 1994, the Fed did not publish information from its meetings at all. The role of inflation expectations also began to grow, and central banks focused on them not to remain indifferent.

Assessing the role of monetarism in conquering inflation (whose origin go back to BWS) is quite difficult as its demise in some countries coincided with the advent of the Great Moderation which generated, amongst others, a sharp fall in inflation and a subsequent further fall in interest rates. When analysing the decline in both inflation and interest rates, it is necessary to look at other factors, such as the rise of the PRC. While at the beginning of the 1990s, the PRC's share of global GDP (measured by the market rate) was less than 3%, at the beginning of this decade it was already over 18%.

The importance of emerging economies, which account for more than half of the world's GDP, has grown even further. The effects of migration on the global labour market must not be overlooked. This important factor is highlighted by Goodhart and Pradhan (2020), among others. This is due to the effect of the incorporation of a well-educated workforce from the PRC and Central and Eastern European countries into the global labour market. According to the two authors mentioned above, the so-called effective labour force in the years 1980–2010 almost tripled. While in 1980 this labour force consisted of just over 700 million people, in 2010 the number of people working effectively exceeded the threshold of 2 billion. Both authors refer to this increase as the largest positive supply shock to labour markets in human history. This increase, along with the decline in the importance of trade unions, was one of the key factors inhibiting wage pressure and which contributed enormously to the decline in inflation.

There were also other factors at stake in explaining the structural fall in inflation, like demographic processes (Goodhart, Pradhan 2020). This is the so-called baby boomer effect, or the contraceptive pill effect. Thanks to this medical achievement, baby boomers were able to completely distort (or even reverse) the current appearance of the age pyramid. However, the reversal of this age pyramid did not contribute to a change in the income structure of society. Therefore, most of the savings remain at the disposal of baby boomers. People from this retiring generation do not seek to spend their savings. The increase in life expectancy has made baby boomers more restrained in spending their savings. As a result, instead of decreasing, their stock in the world economy increased. This demographic trend seemed to be one of the most important reasons for the decline in interest rates, which was first initiated in Japan and then spread to other selected parts of the world. And this fall in interest rates revealed the impotence of the strategies pursued so far by central banks, thus paving way to yet another chapter in the history of monetary policy.

5.3. Unconventional monetary policies

Staying in Japan, the strong appreciation of the yen as a result of the Plaza Accord only exacerbated Japan's economic problems. In the 1990s the economic problems of Japan only deteriorated as the country could not find a way out from the post bubble economy reality. Higher exposure to the world economy, ever rising pressure from the US to solve trade dispute, demographic tendencies, the East Asian crisis and above all the emergence of PRC were the key reasons behind the emergence of deflationary tendencies in the then second largest economy.

In 1999, Japanese rates reached 0%. At the time, the Japanese case was seen as an unprecedented phenomenon. In 2001 the Bank of Japan introduced a new framework. The quantitative easing policy (QEP) was conceived and introduced on 19 March 2021. The adoption of the quantitative easing policy in March 2001 implied that the Bank of Japan had to provide additional funds to financial institutions that did not have incentives to hold a large amount of excess reserves. Shirai (2018) described this policy as reserve targeting, since the operation target was switched from the uncollateralised overnight call rate to the outstanding balance of current accounts at the Bank of Japan. The target was set initially at JPY 5 trillion and surpassed the level of required reserves by JPY 1 trillion. After nine upward adjustments, the target reached a range spreading from JPY 30 trillion to JPY 35 trillion (Shirai 2018).

The 2001 quantitative easing ended in 2006 and contributed to a decline in the current account by about 2/3 of its value. It is difficult to assess the easing. Attention should be paid primarily to

economic growth. Between 2003 and 2007, the economy recorded uninterrupted economic growth. In the discussed period, it amounted to almost 2% on average. The situation was worse with inflation, which oscillated around 0% most of the time, with the exception of episodes (where the increase was generated mainly due to the increase in commodity prices). The aforementioned increase in commodity prices caused the Bank of Japan to even decide to tighten monetary policy. From the end of June 2006 to the beginning of May 2007, rates rose from 0% to 0.5%. James (2023) argues that the quantitative easing of 2001 contributed to the creation and subsequent intensification of the carry trade in the global currency markets and was one of the reasons for the growing imbalances in the global economy. The best example of the imbalance was the US current account deficit, which measured in terms of GDP reached a record 6% in 2007.

The accumulation of imbalances in the global economy was one of the causes of the Great Financial Crisis of 2008. Its beginning is generally considered to be the bankruptcy of Lehman Brothers on 15 September 2008. However, its origins can be traced back to the events of August 2007, when BNP Paribas froze the operations of its three funds with large exposure to the US market (Cassola, Hortaçsu, Kastl 2011) and which led to a supply intervention from the ECB (in the amount of EUR 95 billion) (Cour-Thimann, Winkler 2013). The financial system began to experience upheavals, the most spectacular example of which was the Northern Rock case. Its de facto collapse led to the first bank run in the UK in 150 years. In order to stop this panic and prevent the contagion effect, the bank, specializing mainly in granting mortgage loans, was nationalized. The number of financial institutions in the UK that needed further state support after 2007 grew. Examples include the Royal Bank of Scotland, Lloyds, and Bradford and Bingley. According to Marlière (2014), the nationalization of these financial institutions marked the end of the neoliberal current, which is considered to have begun with the rise of Thatcher in 1979. The same conclusions can be reached by following the statements of the then Chancellor of the Exchequer, Alistair Darling, who drew attention to the importance of state intervention. That is why Marlière sees the events of October 2008 as a departure from neoliberalism and, as a result, a return to Keynesianism.

While quantitative easing originated in Japan, it was popularized by the intervention actions of the Fed (November 2008 and March 2009) and the Bank of England (March 2009). Quantitative easing, by attaching importance to stimulating aggregate demand, seems to be a solution referring to the teachings of Keynes. Quantitative easing has been supported by economists (i.e. DeLong 2015) who identify themselves with the neo-Keynesian trend. The unconventional monetary policy was the result of the exhaustion of the tools included in the previous monetary policy referred to as conventional. The main manifestation of the new policy is the shift from the short-term interest rate to the monetary base. A consequence of both asset purchases and negative interest rates is a huge increase in the balance sheets of central banks. The total assets of the SNB (which consisted mainly of accumulated FX reserves) exceeded 100% of GDP in August 2016. A little over two years later, the same threshold was exceeded by the Bank of Japan (Sano, Uetake 2018).

Unconventional monetary policy went far beyond the purchase of assets. It included some of the tools which were applied long before the emergence of unconventional policies, but which did not mean a complete break with the tools of conventional policy. In September 2016, the Bank of Japan began to refer to yield curve control (YCC), which was used in the US back in the 1940s. A similar variant of monetary policy was pursued by Australia in 2020–2021 in the face of the outbreak of the Covid-19 pandemic. These actions only confirm the thesis concerning the eclecticism of the solutions used in the first quarter of the 21st century.

Another manifestation of unconventional monetary policy has been negative interest rates. After the reference rate reached the level of 0% in Japan as early as 1999, another 10 years were needed to see the price of money falling below this psychological level. The Riksbank's deposit rate, which is practically not used by Swedish banks (Sellin 2018), reached a negative value in 2009, while the reference rate reached a negative value at the beginning of 2015. In the second decade of the 21st century, negative interest rates were applied to Denmark (2012), the euro area (2014), Switzerland (2015) and Japan (2016), amongst others.

Criticism of these policies (and negative interest rate policies) was vociferous. Even central banks themselves admitted that it was a mistake. The Riksbank wrote in its February *2020 Monetary Policy Report* that low interest rates bear significant side-effects. According to this report, low interest rates can create incentives for excessive risk-taking. Assets may become overvalued, risk may be incorrectly priced and the indebtedness of various agents may increase in an unsustainable manner. The functioning of financial markets can also be affected in an undesirable way. The Riksbank, however, emphasized that these side effects were manageable.

Other voices – including the Riksdagen report (Flug, Honohan 2021), which embodies the people's voice – were more critical. This report puts a big emphasis on the inequality generated by the excessively low interest rates. Little wonder that more and more critical voices about the way monetary policies were conducted started to mount.

The early 2020s proved to be a difficult period for the world economy. Having hardly recovered from the Great Financial Crisis, the monetary authorities worldwide had to face another crisis, namely the pandemic one. Several central banks (including those in the emerging world) had to resort to large purchases of assets to avoid derailment of their domestic economies. Confinement, aimed at containing the spread of the virus, distorted the way these economies operated. This concerned, above all, the labour market. To make things worse, the outbreak of belligerent conflict in the east of Europe paved the way to higher commodity prices. An increase in inflation worldwide proved to be unavoidable, thus forcing central banks worldwide to tighten their policies. The departure by the Bank of Japan in March 2024 from the control of the monetary base and a return to controlling short-term interest rates proved to be symbolic.

However, a combination of raising interest rates with only very gradual reversal of balance sheets (as a result of ceasing to reinvest the earlier purchased assets) started to generate new challenges from the point of view of the central banks' perception. If during the negative interest rate period central banks were charging their counterparties for depositing their funds, now a reversal had occurred. As a result, central banks are remunerating their clients, namely commercial banks. While the latter receive at least a deposit rate, their offer to their own customers is far less attractive – causing outrage among some observers (De Grauwe, Ji 2023).

6. Will the digital revolution help efforts to find an alternative to fiat money?

The Great Financial Crisis and the consequent sharp decline in interest rates undermined not only confidence in the two-tier banking system, but also in fiat money, especially in terms of its role as a store of value. That is why, at the beginning of 2009, there were reports about the first cryptocurrency, bitcoin, created by a person (or a group of people) with the pseudonym Satoshi Nakamoto. Its further

development has progressed along with a prolonged period of very low (often zero or even negative) interest rates and quantitative easing policies.

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, 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 crossed. This rapid growth in bitcoin's quotations has not yet contributed to generating interest in it from the websites of the currency authorities. Especially since at the end of 2013 its value began to decrease, and in May 2015 the quotations fell to the level of about USD 230. Such high volatility of bitcoin quotations was not conducive to the spread of the popularity of cryptocurrencies and their use as an alternative to fiat money.

It was only its resurgence from the second half of 2015 that began to arouse more and more interest of the 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 1000. In September 2017, the quotations reached over USD 4000 and continued to show an upward trend. The monetary authorities of the world could no longer remain indifferent to the phenomenon initiated in 2009.

The first scientific studies on CBDC (Central Bank Digital Currency) were published in 2016 (Hodgson 2016; Barrdear, Kumhof 2016). However, it was not until September 2017 that at least three central banks expressed their views on central bank-issued currencies (CBDCs). Sweden's Riksbank led the way with its report on the e-krona (Riksbank 2017). Earlier in its quarterly review, the Bank for International Settlements in Basel devoted a separate chapter to the same topic (Bech, Garrat 2017). Finally, in the same month, the German Bundesbank expressed its view on cryptocurrencies (and especially on the distributed accounting entry of Distributed Ledger Technology) in its monthly publication Monatsbericht (Bundesbank 2017). This was a very preliminary stage of research, when the acronym CBDC did not yet de facto exist. The BIS even used the term central bank crypto currency (CBCC) in its study. One of the first banks to coin the acronym CBDC was the Bank of Denmark in December 2017 (Danmarks Nationalbank 2017). It is worth emphasizing that the Danish central bank has never been enthusiastic about the whole concept:

"However, the potential benefits of introducing CBDC for households and businesses in Denmark are not assessed to match the considerable challenges that the introduction would present. In a country like Denmark, with a secure and effective payment system, it is difficult to see what CBDC would contribute that is not already covered by the existing payment solutions. In a Danish context, digital currency thus already exists, as bank deposits." (Danmarks Nationalbank 2017).

Nevertheless, the demand for cryptocurrencies did not disappear. On the contrary, bitcoin along with similar undertakings of the same genre started to reach new highs. The pandemic and subsequent new expansionary policies pursued by central banks helped in early 2021 to take the bitcoin level above USD 60,000. The exit from QEP by the major central banks in 2022, along with the sharp tightening of their policies, saw bitcoin giving up much of the earlier gains, and subsequently falling well below USD 20,000. However, fears that central banks may loosen their policies again without attaining their own inflation targets helped bitcoin to regain unprecedented momentum. It was strong enough for bitcoin in early April 2024 to reach a new all-time high above the mark of USD 71,600, before giving up some of its games at the turn of summer and autumn. The sharp increase in value of bitcoin coincided with a sharp increase in the value of gold and other commodities. That is why more and more observers ask the same question, whether bitcoin may pose an alternative to fiat money.

This is an important question, which needs to be assessed more closely. The latest upward streak in the price of bitcoin saw several central banks speed up their works on CBDC. However, little points to the prospect that this intensification of works on CBDC (which focuses above all on the payment system) may alter the way operational policies are conducted. Otherwise, the legacy of monetary policy (which goes back well before the inception of the BWS) would be at stake. The future fate of CBDC seems to be confined to one key question, namely, who will be entitled to hold CBDC in the central bank. If this privilege is confined to banks, it should not pose any drastic change to the current two--tier banking system. If this privilege is extended, however (to include non-banking institutions, not to mention citizens), it may pose a revolution in the way the entire monetary system works (Meaning et al. 2021). Under current circumstances, such a scenario seems neither necessary nor even feasible. The perspective of operating in the floor scenario (instead of the corridor one) for a long, long time already poses too many challenges for the central banks.

That is why the Danish central bank reiterated its attitude on CBDC initially declared in 2017 in the new statement originating from 2022. Its contents foment even more doubts concerning the key question, as to whether the CBDC creates any added value to the already well-functioning payment system.

"At present, and with the associated costs and possible risks, it is not clear how retail CBDCs will create significant added value relative to the existing solutions in Denmark. With new technology, however, it is often the case that it is not clear from the outset how and to what extent a new solution will create value. Likewise, it may also be difficult to predict which financial solutions and services will be in demand in the future." (Danmarks Nationalbank 2022).

Nevertheless in the ever-changing environment, a further scrutiny of the development of CBDC seems to be of paramount importance. And this is exactly yet another message from the 2022 report on CBDC delivered by the Danish central bank:

"Danmarks Nationalbank monitors the development closely and participates actively in international working groups and forums that focus on new technology and on the opportunities, risks and costs connected with a retail CBDC." (Danmarks Nationalbank 2022).

The Danish central bank preserved a similar opinion in the years to come (Danmarks Nationalbank 2023).

7. Summary and conclusion

The period immediately after the end of the BWS lasted almost twice as long as the BWS itself. Throughout this period stretching for more than half a century, many ideas conceived during the BWS were applied, either in an original or (more frequently) modified version. That is why there will be no exaggeration in claiming that the intellectual heritage of BWS helped to shape the post-BWS order.

In spite of early difficulties, the post-BWS period saw a drastic fall in inflation, in stark contrast to the BWS itself. This fall in inflation owes to the fact that in the same period a number of events of a structural nature occurred, which helped the disinflation processes in the world economy. But these processes should not inhibit central banks from taking credit for preserving a low inflationary environment. There was no universal formula aimed at preserving low inflation. Some countries opted to float their currencies entirely, others decided to give up their exchange rates in the name of fostering regional integration priorities.

The launching of the euro was probably one of the most important events in recent history – an event which probably would not have taken place had it not been for the intellectual discussions conducted with the purpose of saving the BWS from collapse. But perhaps the most important feature of the post-BWS period was the financial deregulation, which began in the 1970s (as a side effect of the suspensions of policies aimed at avoiding the disintegration of the BWS), and which started to affect the way the global economy operated. Along with prudent macroeconomic policies, it helped to generate advantages for the countries which opted to dismantle capital controls. However at the same time, and as a result of this deregulation, the world economy became even more sensitive to potential financial imbalances. Such a risk was augmented by the fact that policymakers often had to act under totally new circumstances, thus making them more prone to potential mistakes.

Therefore, the outbreak of the Great Financial Crisis of 2008 was a huge shock to which the monetary authorities worldwide could not remain indifferent. On the one hand, the measures aimed at mitigating the negative effects of the crisis made it easier to overcome it (and minimise the damage), but on the other hand, with these measures they undermined the trust of many citizens in both the broadly understood financial system and, above all, fiat money.

The sequence of the last two crises (financial and pandemic) forced central banks to cut interests even to levels well below those observed during the BWS. These policies were often pursued to avoid a sharp contraction in the GDP levels, with all its negative consequences, such as a massive hike in the level of unemployment.

This may be one of the greatest ironies, that in spite of ensuring low inflation (and relatively stable growth), the post-BWS period has – in contrast to the BWS itself – hardly generated a positive feeling in society. One of the key reasons behind this irony is that much of this growth was not proportionally distributed. Tough competition from the emerging economies also contributed to a stagnation of standards of living in the most industrialized countries.

It must be stated that central banks got little credit for their aforementioned achievements (low inflation and in many cases rather low unemployment), which were often taken for granted. Much more attention has been focused on the fact that fiat money as a store of value began to be questioned. The prolonged period of negative rates started to question this function of money. This state of affairs began to encourage a number of private, rather anonymous entities to look for an alternative to fiat money. This search was facilitated by the development of technology, and the internet in particular. This is how at the turn of the first and second decades of the 21st century cryptocurrencies were created. While their development was initially treated as a curiosity, the prolonged period of zero or even negative interest rate policy began to generate more and more interest in cryptocurrencies and, as a result, translated into an increase in demand for them. The monetary authorities could no longer remain indifferent to this phenomenon.

Central banks' response to the rise of cryptocurrencies has been to start working on central bank-issued digital currencies (CBDCs). The assessment of the work started depends on the criterion used. It will be different if we confine its impact to the existing payment system. Things may start to look differently if the impact of the CBDC enters into the area of monetary policy. So far, efforts to include CBDCs in the transmission mechanism of monetary policy are in their embryonic stages, and there is no indication at all that this will change soon. The point is that the introduction of CBDCs to the transmission mechanism could change the way the existing transmission mechanism works entirely. At the current stage of CBDC development, however, making such changes to the transmission mechanism seems to be neither desirable nor feasible from the point of view of its safe functioning.

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Procesy monetarne zachodzące w gospodarce światowej po upadku systemu z Bretton Woods

Streszczenie

W lipcu 2024 r. miała miejsce 80. rocznica powstania systemu z Bretton Woods. Uruchomienie tego systemu na skutek wprowadzenia w życie postanowień konferencji z Bretton Woods (która odbyła się w dniach 1–22 lipca 1944 r.) okazało się kamieniem milowym w historii międzynarodowego systemu monetarnego. System z Bretton Woods stanowił gigantyczny krok w kierunku pieniądza fiducjarnego. Stało się tak przede wszystkim za sprawą odejścia od tego, co Keynes nazywał „reliktem barbarzyństwa", czyli złota. System wprawdzie gwarantował pośrednią wymienialność na złoto, jednak w pierwszych 14 latach jego funkcjonowania była ona mocno ograniczona za sprawą *de facto* braku wymienialności do końca 1958 r. Tym samym w przypadku wielu krajów to równowaga wewnętrzna stawała się faktycznym punktem odniesienia podczas podejmowania decyzji odnośnie do polityki pieniężnej.

Rocznica powstania systemu z Bretton Woods stanowi dobrą okazję do oceny, jaki był jego wpływ na późniejsze wydarzenia w międzynarodowym systemie walutowym, przede wszystkim w ciągu pięciu dekad po jego upadku. Jak się okazało, zainicjowana transformacja w kierunku pieniądza fiducjarnego okazała się bezpowrotna. Jak dotąd żaden kraj nie zdecydował się na emisję pieniądza krajowego mającego pokrycie w złocie.

System z Bretton Woods był daleki od doskonałości. Wiele jego mankamentów wynikało jednak z bardzo silnego impulsu do poszukiwania nowych rozwiązań mających na celu usprawnienie działania całego systemu walutowego. Przykładem mogą być rozważania na temat monetaryzmu sięgające początku drugiej połowy ubiegłego stulecia, a zwłaszcza dyskusje naukowe prowadzące do powstania teorii optymalnych obszarów walutowych (będące skutkiem dyskusji na temat monetaryzmu), które walnie przyczyniły się do powstania unii gospodarczej i walutowej w strefie euro.

Istnieją zatem przesłanki, by mówić o dziedzictwie intelektualnym systemu z Bretton Woods i jego wpływie na najnowszą historię w obszarze zewnętrznego wykorzystania pieniądza. W niniejszym artykule dokonano przeglądu tego dziedzictwa, skupiając się na okresie po upadku systemu – od lat 70. XX w. do początku obecnej dekady.

Jako kryterium podziału wydarzeń opisywanych w opracowaniu zastosowano podejście władz walutowych do polityki kursowej, narzędzi polityki pieniężnej (w ujęciu operacyjnym) oraz do wymienialności pieniądza (a dokładniej transakcji bieżących i kapitałowych).

Bezpośrednio po upadku systemu z Bretton Woods politykę pieniężną banków centralnych charakteryzował ogromny eklektyzm przejawiający się mnogością stosowanych rozwiązań. Był on efektem odmiennych preferencji w zakresie polityki gospodarczej, braku doświadczenia w realizowaniu polityki pieniężnej oraz szybko piętrzących się trudności w otoczeniu zewnętrznym.

Upadek systemu z Bretton Woods zbiegł się z ogromną presją inflacyjną w gospodarce światowej. Nurtem w ekonomii, który coraz bardziej zyskiwał na znaczeniu, stawał się wspomniany już monetaryzm, wywodzący się z ilościowej teorii pieniądza. Monetaryzm powstawał w warunkach zupełnie innych od tych, w jakich zaczął być wprowadzany w życie. Stojąc w opozycji do keynesizmu, monetaryzm stał się częścią składową dominującego po 1973 r. nurtu neoliberalnego. To, kiedy rzeczywiście monetaryzm był stosowany, pozostaje kwestią sporną. Jeszcze trudniejsza jest ocena dziedzictwa

monetaryzmu. Rzecz w tym, że ostatnie lata monetaryzmu w międzynarodowym systemie walutowym zbiegły się z początkami tego, co w literaturze określa się mianem wielkiego uspokojenia, czyli Great Moderation.

Odwoływanie się do monetaryzmu zbiegło się z długoterminowym trendem spadku rynkowych stóp procentowych. Wynikał on m.in. z asymetrii (mierzonej tendencjami demograficznymi w społeczeństwie) w rozkładzie oszczędności w krajach najwyżej rozwiniętych. Ogromna nadwyżka tych oszczędności generowała spadek oprocentowania rynkowego, a w ślad za nim ceny pieniądza ustalanej przez banki centralne. Wybuch Wielkiego Kryzysu Finansowego z 2008 r. oraz kryzysu pandemicznego 12 lat później oznaczał koniec supremacji nurtu neoliberalnego oraz zwrot w kierunku rozwiązań nawiązujących do keynesizmu. W celu stymulowania popytu wewnętrznego niektóre banki centralne zaryzykowały i zdecydowały się nawet na wprowadzenie ujemnych stóp procentowych.

Może być ironią losu, że pomimo zapewnienia niskiej inflacji i w miarę stabilnego wzrostu począwszy od drugiej połowy lat 80. – w przeciwieństwie do okresu funkcjonowania systemu z Bretton Woods – w ostatnich trzech dekadach raczej nie obserwowano pozytywnych odczuć w społeczeństwie. Jednym z powodów jest to, że znaczna część tego wzrostu gospodarczego nie została rozłożona proporcjonalnie. Ostra konkurencja ze strony gospodarek wschodzących przyczyniła się także do stagnacji standardów życia w krajach najbardziej uprzemysłowionych, a sama niska inflacja raczej nie rekompensuje tego spadku.

Dodatkowo należy stwierdzić, że banki centralne nie cieszyły się i nadal się nie cieszą dużym uznaniem z powodu wspomnianych osiągnięć (niskiej inflacji i w wielu przypadkach raczej niskiego bezrobocia), które często uważano za oczywiste. Znacznie więcej uwagi poświęcono temu, że funkcja pieniądza fiducjarnego jako nośnika wartości zaczęła być kwestionowana. Przyczynił się do tego okres ujemnych stóp procentowych. Taki stan rzeczy zaczął zachęcać wiele prywatnych, raczej anonimowych podmiotów do poszukiwania alternatywy dla pieniądza fiducjarnego. Poszukiwania te ułatwił rozwój technologii, a w szczególności Internetu. Na przełomie pierwszej i drugiej dekady XXI w. powstawały kryptowaluty. O ile ich rozwój początkowo traktowano jako ciekawostkę, o tyle przedłużający się okres zerowych lub wręcz ujemnych stóp procentowych przyczynił się do wzrostu zainteresowania kryptowalutami, a w efekcie przełożył się na wzrost popytu na nie. Władze monetarne nie mogły już pozostać obojętne na to zjawisko. Z tego powodu coraz więcej banków centralnych rozpoczęło prace nad pieniądzem cyfrowym. Jest jednak za wcześnie, by oceniać, jak skuteczne będą tego rodzaju działania.

Słowa kluczowe: kursy walutowe, instrumenty polityki pieniężnej, wymienialność, inflacja