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## Monetary measures and currency regulation during macroeconomic instability and world uncertainty

**Abstract**

This study is devoted to the comparative analysis of the rules of foreign exchange regulation and control, as well as monetary measures implemented in developed countries during 2003–2020. Accordingly, the purpose is to compare currency restrictions imposed as a response to several economic, political and epidemiological situations and determine their relevance. The study consists of three main parts. The first section highlights the evolution of the monetary policies of different countries during the rapid global economic growth (2003–2007) and key monetary novation before and after the 2008–2009 great recession (macroprudential approach to monetary regulation). The second section describes the world post-crisis monetary system in terms of foreign exchange regimes. Finally, in the third section, the main focus is directed on the period of the COVID-19 crisis and, eventually, key monetary policy measures imposed in the leading economic areas as a reaction to macroeconomic instability and world uncertainty. The practical implications of this study are noteworthy to consider as the problem is outlined in three aspects: 1) evolutionary (with a step-by-step analysis of economic events from 2003 to 2020); 2) instrumental (with analysis of the tools of monetary, macroprudential and monetary policy); 3) country (in the context of world uncertainty). In most cases, the results show that countries produce shocks that transferred to the rest of the world (spillbacks effect). Also, in a financially integrated world, macroprudential policies are valuable and essential because instability becomes a key defect of the modern market system. That is why monetary policy, especially after the crisis, is critical in stabilizing macroeconomic fluctuations.

**Keywords**

Central bank, foreign exchange rate, foreign exchange regulation, global uncertainty, monetary policy

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**1 Introduction**

The current world economic situation forces central banks to make an appropriate response to the atypical crisis. That is why the main focus of this study is monetary measures and currency regulation during macroeconomic instability and world uncertainty. This study is focused on analyzing major advanced economies and countries with highly developed foreign exchange markets and a group of countries that are systemically important for the world economic and financial system. The data of the USA, China, Eurozone, Japan, Great Britain, Australia, Canada are considered. Also, attention is paid to the newly industrialized countries (NICs).

Historically, financial, economic and monetary stability is the goal for each country and its government. For this reason, central banks are always called for making an appropriate response to the atypical crisis. However, the relevance of such measures is often at the center of the most heated intellectual debate.

Borio (2014) suggests that no policy regime in history has simultaneously achieved sustained monetary and financial stability. Besides analytical and empirical knowledge gaps, the issues of time consistency, central bank independence, and international policy coordination are becoming more complex (Canuto and Cavallari, 2013). Even though, macroprudential policies are needed to reduce

systemic risks, and thereby both the frequency and severity of financial crises (Viñals and Nier, 2014).

The vast majority of conclusions proved the strong countries interdependence in the current world economy. On the one hand, it has improved access to new markets and technologies, intensified flows of trade capital, people, and ideas. On the other hand, it has also produced challenges in markets regulation. Overall, it creates a highly uncertain environment for policy decisions (Lastauskas and Nguyen, 2021).

A considerable number of researches is devoted to studying the impact of a single country or unions' monetary policy shocks on the global economic system. Special attention is on the United States. Mishra and Rajan (2016) agree that the monetary policy actions by one country can lead to significant adverse cross-border spillovers on others, mainly as countries contend with the zero-lower bound. For its part, Buitron and Vesperoni (2015) found that interest rates in the United States appear to affect interest rates elsewhere beyond.

Uncertainty intensifies around the reaction and behavior of investors, households and firms on monetary policy changes. In particular, Bloom (2009) concluded that uncertainty appears to jump up after major shocks like the Cuban Missile Crisis, the assassination of JFK, the OPEC oil-price shock, and the 9/11 terrorist attacks.

Understanding the nature of financial and economic spillovers, and how they are transmitted between countries is the subject of a large body of literature in recent years. However, there are some limitations, especially in the context of world uncertainty. It is fair to say that such understanding is essential for assessing the potential benefits of coordinating monetary policy and foreign exchange regulation.

## **2 Evolution of external environment and monetary policies (pre- and during great recession)**

Over the past twenty years, the world financial system has faced economic, political, environmental and epidemiological shocks, accompanied by macroeconomic destabilization. As a result, the world environment changed, and modifications to the countries' monetary policy basics and foreign exchange regulation were made.

When the central bank decides to establish the current exchange rate regime, it pays attention to how it will be able to conduct an independent monetary policy, despite external shocks. According to the chronology, the modern evolution of the world financial market can be divided into six periods, 4 of which are critical, and 2 periods are transitional.

As shown in Table 1, a favorable external environment characterizes the post-crisis period of 2003–2007. At the time, the monetary policies of the leading countries were moderate, commodity prices were rising, and international investors were not particularly concerned about risks.

The middle of 2008–2009 is known as the time of the global financial and economic crisis. The United States, as the epicenter, suffered the most. In 2007–2009, the S&P500 index fell by 57%, and it was estimated that the US households lost 16 trillion USD in net equity, a quarter of which lost at least 75% of equity and more than half 25%. The losses of the EU countries were smaller, but in the peripheral countries of the Eurozone, a sovereign debt crisis had begun.

The key novation for this period is introducing a macroprudential approach to monetary regulation, which aims to ensure the stability of the financial system as a whole, rather than the individual institution to prevent significant disruptions in lending and other financial sectors that are vital for stable economic growth. Another difference between monetary policy and macroprudential policy is that the central bank conducts the first, and the second can be conducted either by national regulators or a union-wide regulator (Agénor and Silva, 2018).

Typically, macroprudential instruments relate to lending, capital and liquidity. For example, to overcome excessive credit growth and leverage it is used the countercyclical capital buffer, loan-to-value or loan-to-income caps, sectoral requirements, and leverage ratio. Net stable funding ratio and liquidity buffer ratios are aimed at excessive maturity mismatch and market illiquidity. However, no set is final, as central banks may implement additional instruments depending on the current condition of the financial sector and monetary objectives.

According to Borio (2014), it would be unwise to rely exclusively on the macroprudential frameworks to tackle the financial imbalances. In addition, it can quickly become overburdened as it does not tackle aggressively. For example, if monetary policy is not sufficiently prudent, it led

to a sharp decline in creditworthiness. The sovereign debt crisis in the peripheral countries of the Eurozone proves this suggestion.

## **3 The current world monetary system in terms of currency liberalization**

A vital feature of the financial market of the 21st century is the recurrence of crises, followed by recovery. At the same time, their frequency increases, and recovery periods are reduced. In 2010–2012, the recovery of a favorable global financial environment took place with currency liberalization.

Eventually, economies with floating exchange rate regimes have overcome the negative impact more quickly, as they have been able to mitigate the inflationary pressures by providing more room for monetary correction in the condition of capital outflows. Also, in such countries, monetary interest rates were reduced or reached almost zero, which eased lending conditions. Therefore, some economies with fixed exchange rate regimes in these years began the transition to floating regimes to use the exchange rate as an anti-crisis monetary instrument.

Looking at the world monetary system in terms of changes in foreign exchange regimes, the current process of currency liberalization seems static, and most countries remain soft-pegs (Figure 1). Canuto and Cavallari (2013) guess that such a tendency is characterized as “fear of floating” when “floaters” become more like “fixers”.

The figure shows that until 2007, the countries distribution favored fixed exchange rate regimes. It was 57% of the total number of IMF member countries. The share of countries with floating and residual regimes was 43%. A quarter of the countries kept hard pegs. However, that year the trajectory has changed towards greater regulation due to USD devaluation and strengthening the euro's role. However, the total share of countries with floating exchange rate regimes remained unchanged until 2009 (22%).

The challenges of the global financial crisis have forced central banks to resist exchange rate volatility and the national currencies devaluation through greater foreign exchange interventions. This situation led to a global reclassification from September 2008 to January 2009. The share of countries with hard and soft pegs decreased from April 2008 to April 2009, from 55% to 45%, due to the changes:

- 13 countries of the EU have established floating exchange rate regimes;
- 26 countries have stopped using the hard peg exchange rate regime;
- six countries that earlier used pegged exchange rate regime have adopted floating exchange rate mechanisms in the frame of an IMF-supported program (e.g. Mongolia and Seychelles);
- nine countries abandoned the stabilization arrangement.

Countries with stabilization arrangement have easily established the floating regimes because they did not have a formal obligation to peg to another currency. However, countries such as China, Azerbaijan, São Tomé and Príncipe have remained pegged arrangement to reduce pressure on the exchange rate.

Also, during the crisis, six countries of CAEMC and eight countries of WAEMU declared soft peg regime, and 6 ECCU

TABLE 1 Evolution of the external environment, changes in monetary policies and foreign exchange regulation of leading countries, 2003–2020

Period	External environment	Monetary policies and foreign exchange regulation (fundamental changes)
2003–2007	<ul style="list-style-type: none"> <li>– global economic recovery is becoming more visible;</li> <li>– increase of global uncertainty due to the slow decline in housing prices in the US after the mortgage boom;</li> <li>– impressive growth of the newly industrialized countries (NICs) and China;</li> <li>– a significant increase in prices for fuel and non-fuel commodities, especially oil.</li> </ul>	<ul style="list-style-type: none"> <li>– Eurozone: lowering of interest rates, which offset the impact of the euro appreciation;</li> <li>– Japan: mass currency interventions to strengthen the yen;</li> <li>– the USA and other developed countries: falling interest rates, low level of real long-term interest rates on government securities;</li> <li>– Asian countries: fixed exchange rate regimes pegged to USD;</li> <li>– the intensive transition to floating arrangements.</li> </ul>
2008–2009	<ul style="list-style-type: none"> <li>– the world economy in recession;</li> <li>– the USA is the epicenter of the crisis;</li> <li>– Asian countries: weak impact of the USA mortgage collapse, but the decline in world trade due to high dependence on manufacturing products exports;</li> <li>– Europe: the crisis of the financial system, a sharp drop in demand for durable goods.</li> </ul>	<ul style="list-style-type: none"> <li>– in most countries with fixed exchange rate regimes, regulators took the following steps: reduced foreign exchange reserves, raised interest rates, maintained the peg exchange rate, allowed national currencies to depreciate;</li> <li>– in developed countries monetary interest rates were reduced or reached almost zero and credit conditions were eased;</li> <li>– the development of a macroprudential approach to foreign exchange regulation.</li> </ul>
2010–2012	<ul style="list-style-type: none"> <li>– global economic recovery;</li> <li>– slow growth of crediting;</li> <li>– Europe: financial tensions as a result of the sovereign debt crisis in the peripheral countries of the Eurozone;</li> <li>– economic growth in oil-exporting countries.</li> </ul>	<ul style="list-style-type: none"> <li>– some economies with fixed exchange rate regimes switched to floating regimes to use the exchange rate as a monetary instrument;</li> <li>– introduction of new standards of market discipline by the norms of Basel III;</li> <li>– China's progress in financial liberalization;</li> <li>– developed economies have reached very low interest rates or close to zero.</li> </ul>
2013–2015	<ul style="list-style-type: none"> <li>– global prospects have improved again, but the recovery of developed economies remains uneven;</li> <li>– fiscal problems in the United States and Japan;</li> <li>– a sudden inflation growth in developed countries;</li> <li>– growing geopolitical tensions (Russia and CIS countries);</li> <li>– global concern about China's economic growth.</li> </ul>	<ul style="list-style-type: none"> <li>– most countries established floating exchange rate regimes and inflation targeting (IT);</li> <li>– Japan: use quantitative easing to achieve a new inflation target of 2% (depreciation of the Japanese yen by 20%);</li> <li>– the ECB has announced several measures to lower inflation, interest rates, targeted easing of crediting to increase liquidity;</li> <li>– the USA: monetary policy remains expansive, there has been a decrease in monthly assets purchases by Federal Reserve.</li> </ul>
2016–2019	<ul style="list-style-type: none"> <li>– uncertainty over the Brexit;</li> <li>– new non-economic risks (political conflicts, geopolitical tensions);</li> <li>– China: growth of trade barriers;</li> <li>– the growth of nominal wages in most developed countries remains lower than in the pre-crisis 2008–2009 (unemployment, insufficient use of labor in the form of part-time employment).</li> </ul>	<ul style="list-style-type: none"> <li>– many exporting countries with developing economies adhere to fixed foreign exchange regimes, or currency peg to USD, in some cases to EUR;</li> <li>– the USA: short-term interest rates increased to 1-1.25%;</li> <li>– in some countries, such as Brazil, India and Russia, there was disinflation, which allowed to ease monetary policy.</li> </ul>
2020–currently	<ul style="list-style-type: none"> <li>– extreme world uncertainty due to the COVID-19 pandemic;</li> <li>– many countries are in a multi-crisis condition (health and economic crisis).</li> <li>– in developing countries, there is a sharp decline in both domestic and external demand;</li> <li>– the Great Lockdown in April 2020;</li> <li>– a significant economic decline due to the establishment of social distancing and restrictions in some areas (tourism, air transport, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>– central banks introduced monetary incentives and mechanisms to increase liquidity and reduce systemic stress;</li> <li>– countries have taken unconventional monetary measures to mitigate the increase in long-term interest rates;</li> <li>– central banks of many countries reduced interest rates by about 1/3;</li> <li>– only developed economies provided fiscal support to households and firms (direct tax and expenditure measures, credits and guarantees), and central banks by expanding asset purchasing programs and lower interest rates.</li> </ul>

countries declared currency board. Such reclassification emphasized the internal anchoring of African countries. Currently, the floating exchange rate regime operates in 66 out of 191 (35%) IMF member countries.

In 2013–2015, global prospects improved again, but the recovery of developed economies remained uneven. Economic growth has been very slow in the Eurozone, the United States and Japan have overcome fiscal problems, Russia and the CIS countries have increased geopolitical tensions. At that time, central banks were actively implementing Quantitative Easing (QE) programs aimed at large-scale assets purchases by central banks to influence inflation expectations, lowering interest rates and revive economic growth through three main channels:

optimization of the investment portfolio; an announcement by the central bank of a plan to keep interest rates low over the long term; depreciation of the national currency to create more favorable conditions for exports.

There are some interesting points regarding QE programs in the Eurozone, the USA and Japan. Firstly, it is their volume. The ECB program was the smallest – 11.5% of GDP, and Japan's was the largest – 27% of GDP.

Secondly, it is the reverse dynamics of interest rates. They began to decline before central banks started to conduct QE. In the USA, the rate was 3.9% before QE1, and it decreased to 3.3%. In Japan, on the contrary, it increased from 0.6% to 0.8%. Since central banks began assets purchases in the crisis, and markets have already reacted to this.

In summary, there can be highlighted the following effects from the QE programs implementation by central banks in 2008-2015:

- the central bank's balance sheets were corrected, and the amount of money in circulation was increased;
- in Japan, the exchange rate initially strengthened but then depreciated;
- in the USA, the exchange rate and inflation rate fluctuated significantly, and with the implementation of QE1 suddenly strengthened;
- there is no objective evidence that QE has had a significant impact on national economies.

#### 4 Key monetary policy measures in the leading economic areas under world uncertainty

Since 2016, global markets have faced non-economic risks. These include political conflicts, trade and tariff wars created the conditions of global geopolitical tensions. It has the sense to look at the USA strict tariff policy results against China and Brexit, compare how central banks have reviewed the role of monetary policy in the context of managing the economic consequences of tariff shocks.

Before the tariff escalation in 2018, the USA imports from China was about 500 billion USD, and Chinese imports from the USA was 130 billion USD per year. Accordingly, at the beginning of the trade war, the tariff on imports from China was 4%, while for the United States 7%. However, during the fourth quarter of 2019, the average tariff set by the United States for goods originating in China increased five times, rising to almost 20%. According to Agénor and Silva (2018), such a situation is an essential issue because China is the biggest commodity exporter and can increase its spillover effects on other countries. As a result, many advanced and commodity-exporting countries were indirectly influenced by a reduction in the US imports.

In Europe, uncertainty about Brexit has also led to significant volatility in commodity and foreign exchange markets. For example, only on the day of the referendum announcement results, the EUR/USD exchange rate fell by 2% and GBP/USD by 8%. The depreciated pound made imports from the United States more expensive, which affected its volume too (in 2019 – 147.4 billion USD against 141 billion USD in 2018).

The risk of economic downturn and global uncertainty primarily increased inflation expectations, which forced central banks again to ease monetary policy during 2018-2019:

- The US Federal Reserve reduced the target rate on federal funds three times (by 75 basis points) to 1.5-1.75%.
- The ECB lowered the negative interest rate on deposits by ten basis points to -0.5% and introduced a two-tier system of rewarding excess liquid resources to reduce costs for banks.
- The cost of new long-term refinancing operations was reduced in the Eurozone, and a net asset purchasing program was introduced.
- The Bank of Japan maintained a negative interest rate and monitored the yield curve.

It can be surmised that the problems between the two countries or the country and the economic-political union should not affect the others, but given the size of these economies, there is an expectation of negative consequences for global commodity and financial markets.

The internal countries' factors can threaten world stability, and 2020 showed that the unpredictability and uncertainty caused by the pandemic factor could damage global economic activity much more than the explicit events. Now, there is no way to tell exactly what the economic damage from the global COVID-19 coronavirus pandemic is and will be as it continues.

Activity in many sectors was shut down. Travel and mobility curtailed. Looking at the Panel A of Figure 2, it is evident that the pandemic caused an extensive economic shock for the world economy for the first time in the last ten years, causing a collapse in global activity. Thus, the world GDP decreased by 5.2% in just one year. The biggest decline was in advanced economies -7%, emerging market and developing economies lost 2.5%.

The current economic situation forces countries to increase the debts, especially the government (by 1.6% from 2019 to 2020). But the high levels of public debt may cause additional pressure, especially in emerging and developing countries (Panel B of Figure 2).

Many countries provided large and significant macroeconomic support to mitigate the economic crash and force stabilization in financial markets. Central banks in advanced economies have cut policy rates and eased monetary policies to provide liquidity and maintain investor confidence (Panels C and D of Figure 3).

An extreme uncertainty gave rise to the need for stronger international cooperation to help end the pandemic more quickly, speed up the global economic recovery, and avoid harming the catch-up process of

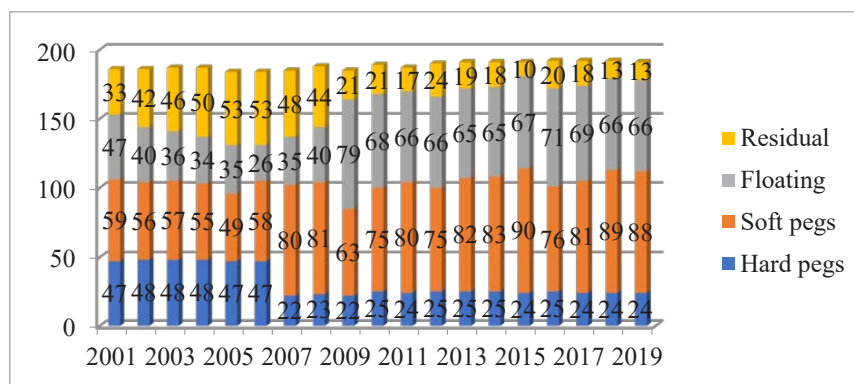


FIGURE 1 Distribution of IMF member countries according to their exchange rate regime (de jure IMF classification), 2001–2019

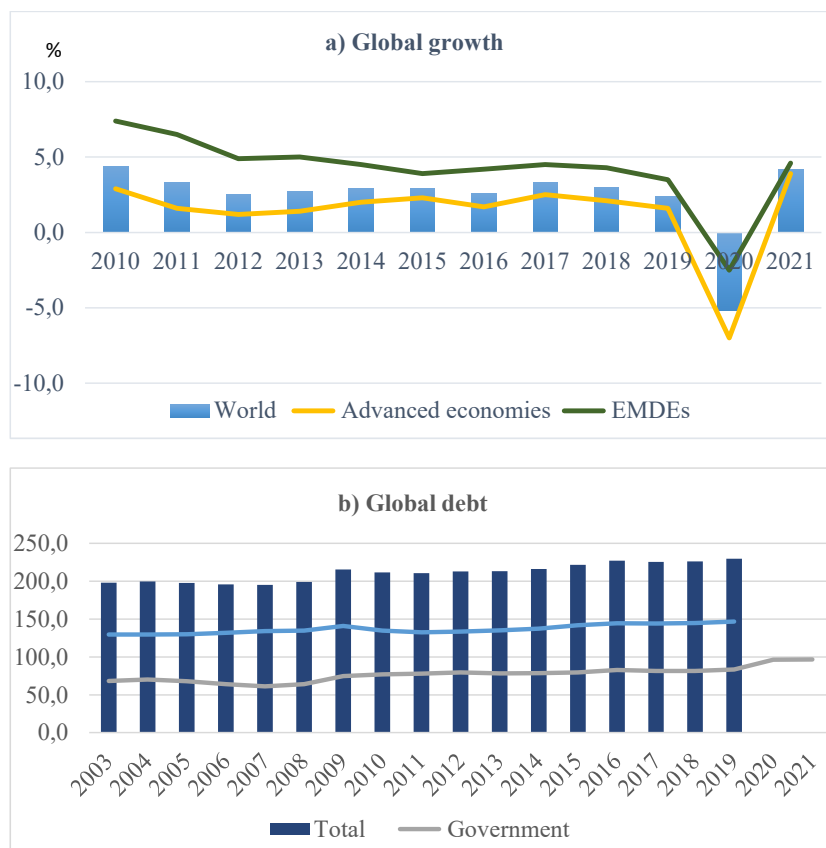


FIGURE 2 Global economic activity, including pre- and during-COVID pandemic period

emerging-market economies and developing countries. With this aim, six key central banks (the Federal Reserve, the European Central Bank, the Bank of England, the Bank of Japan, the Bank of Canada, and the Swiss National Bank) enhanced existing swap lines by extending the maturity, increasing the frequency and lowering the price of operations. It was made to help ease pressures in global USD funding. On top of that, central banks of the main economic areas implemented different key monetary policy measures that helped to mitigate the currency pressure, financial and economic imbalances (Table 2).

All countries tried, first of all, to take measures to support lending to small and medium-sized businesses by broadening the collateral base, removing credit quality requirements, providing temporary relief from capital requirement and making regular stress testing for banks. Asset purchases were used actively to ease domestic financial conditions and lower borrowing costs, and increase lending. ECB introduced Pandemic Emergency Purchase Program by 1.35 trillion EUR of public and private securities. Bank of Japan issued Commercial paper and corporate bonds by 20 trillion JPY.

TABLE 2 The map of key financial policy measures in the leading economic areas

Measures	US	EU	JP	UK	AU	CN
Lowering rates	+	+		+	+	+
No measures for FX rate	+	+		+		
FX rate is adjusted flexibly			+		+	+
Interventions in the FX market						
Expand overnight and term repurchase	+			+		
Longer-term refinancing operations		+	+			
Government securities			+	+	+	
Repo operations				+		+
Establishment of a swap line with U.S. Fed	+	+	+	+	+	
Measures to support lending to small and medium-sized businesses	+	+	+	+	+	+
Deactivation of the countercyclical capital buffer						
Asset purchases	+	+	+	+	+	

Compiled by the author according to the date of Federal Reserve Bank of New York, People's Republic of China, International Monetary Fund.

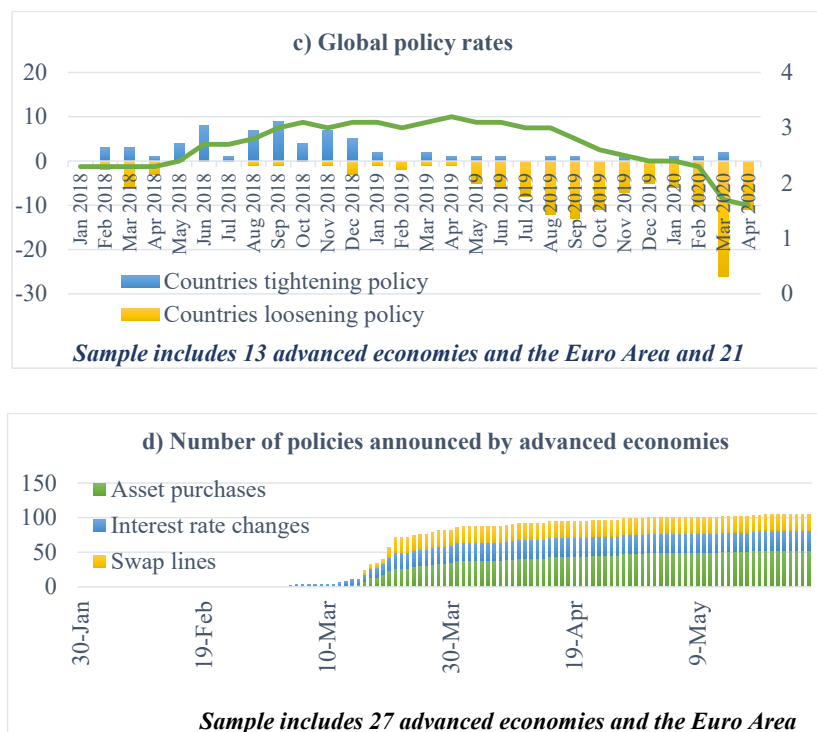


FIGURE 3 Global monetary system during pre- and COVID pandemic period

Federal Reserve, ECB and Bank of England did not introduce any measures for the FX rate. However, the Bank of Japan, the Reserve Bank of Australia and the People's Bank of China allowed the exchange rate to adjust flexibly.

Despite all these measures aimed at macroeconomic stabilization, policymakers now face unprecedented challenges: government budget deficits are elevated; public debt raised to exceptionally high levels in many countries; interest rates have been reduced to zero or below; central bank balance sheets have expanded dramatically.

#### 4 Conclusions

The purpose of this paper has been to discuss the fundamental changes that occurred in the approach of conducting monetary policy, the establishment of special measures, restrictions or, on the contrary, easing the foreign exchange regulation during different crisis period over the last 20 years. Special attention was paid to coordinating all these processes during world uncertainty and assessing how central banks and government act in practice. Several key

conclusions are formed from this analysis: the transmission of shocks is from advanced economies to the rest of the world, as well as from a group of countries with medium and lower income to the rest of the world (spillbacks effect); in a financially integrated world, macroprudential policies are valuable and essential, and macro-prudential instruments are effective at the national level (the case of 2008–2009 recession); the instability is a key defect of the modern market system; the role of monetary policy, especially after any crisis, is critical in stabilizing macroeconomic fluctuations; the effect on the economy depends not only on central banks' actions but also on what agents expect them to do (the effect of market expectations); the basic idea of monetary policy is to be more symmetric across the boom and bust phases of financial cycles, given current regimes.

All in all, maintaining macroprudential policy coordination, imposing monetary measures, and currency regulation is challenging in practice even if the output of such actions is large. It could help not only deal with an issue of world uncertainty but also to timely respond to financial risks.

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