National Bank of Ukraine

Emerging Markets Central Banks' Toolkit

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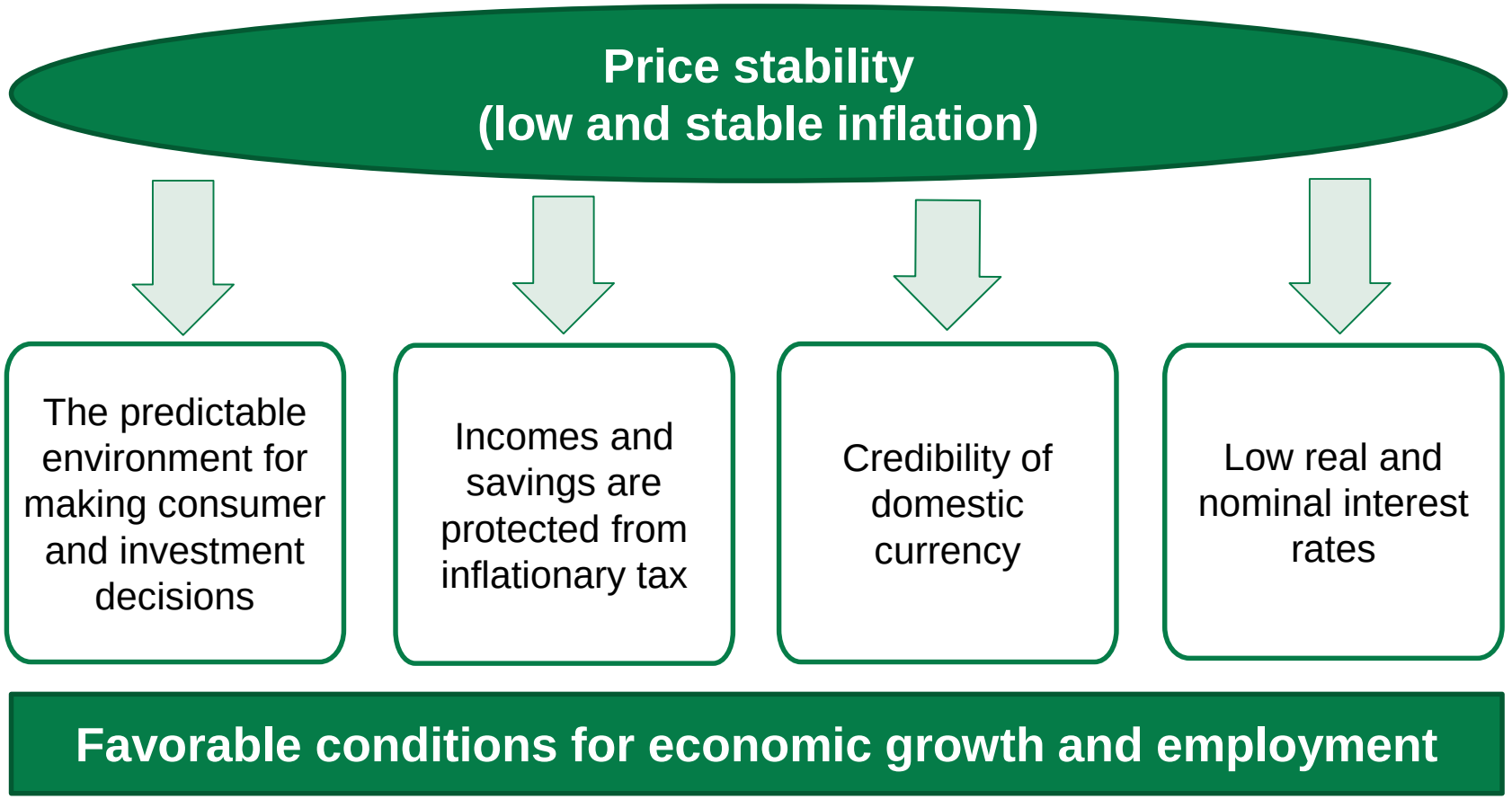
Outline

- Price stability as the key objective of the monetary policy: regimes, targets, transmission from tools
- Monetary policy operational framework
- Unconventional monetary policy
  - Quantitative easing
- Reserve requirements
- FX interventions
- Capital controls
- Monetary policy communications

Price stability as the key objective of the monetary policy

Price stability is a primary objective of the monetary policy



- *Inflation is always and everywhere a monetary phenomenon* (M. Friedman)
- The unique CB's function – to supply money for economy – naturally determines responsibility of CB for price stability

Monetary frameworks

Regime	Target	Advantages	Disadvantages
Fixed exchange rate	Exchange rate level	Allows to reduce inflation fast Clear targets, well perceived by the population	Monetary policy losses its independence Economy suffers from shocks and financial instability
Monetary targeting	Money growth	High level of coordination between monetary policy and macroeconomic policy Fast response in the case of target change	Precondition is a stable demand for money For general public it is not easy to understand
Inflation targeting	Inflation	Long-term objective with short-term flexibility Systemic approach and predictability	Effects of non-monetary factors on inflation Anchoring inflation expectations takes up time More challenging for CBs in terms of analytical capacities
Nominal GDP level (or growth) or price level targeting	Level (or growth rate) of nominal GDP or a certain level of prices	Mixed objectives of CB (balancing between inflation and output gap) Commitment to speed up inflation in a future	Delays in GDP data publication, frequent updates Absence of prioritization of objectives, difficulties with communications and accountability

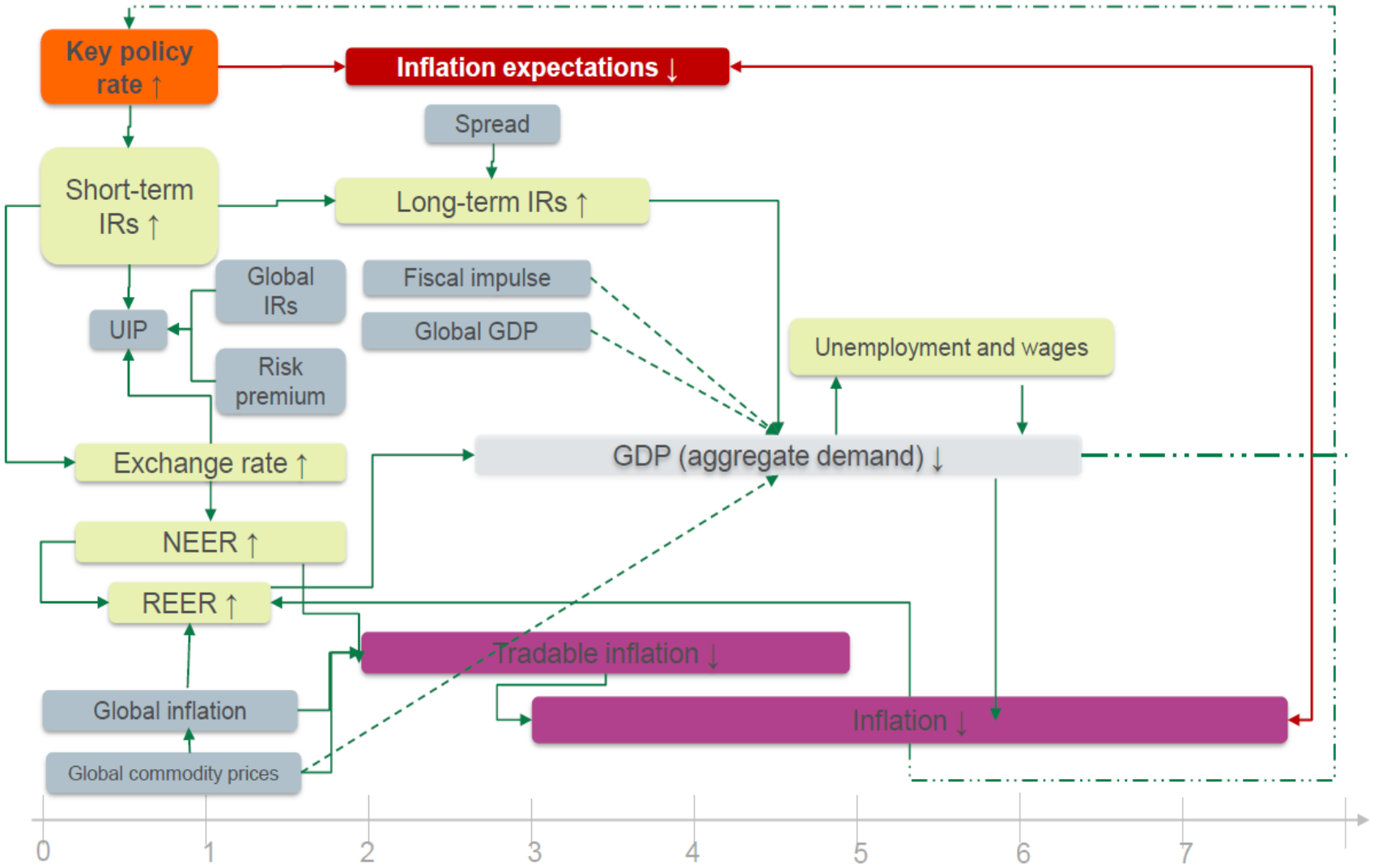
What is Inflation Targeting regime?

Inflation as the only quantitative target

Clear institutional mandate for the central bank to achieve it

- A collection of modern central banking practices
- Distinguished features:
  - Interest rate is the main instrument
  - Relatively flexible exchange rate
  - Strong emphasis on forecasts and analysis of risks
  - Focus on transparency and accountability
- Appealing long-term solution for many countries
  - Some adopted it out of necessity in a balance-of-payments crisis

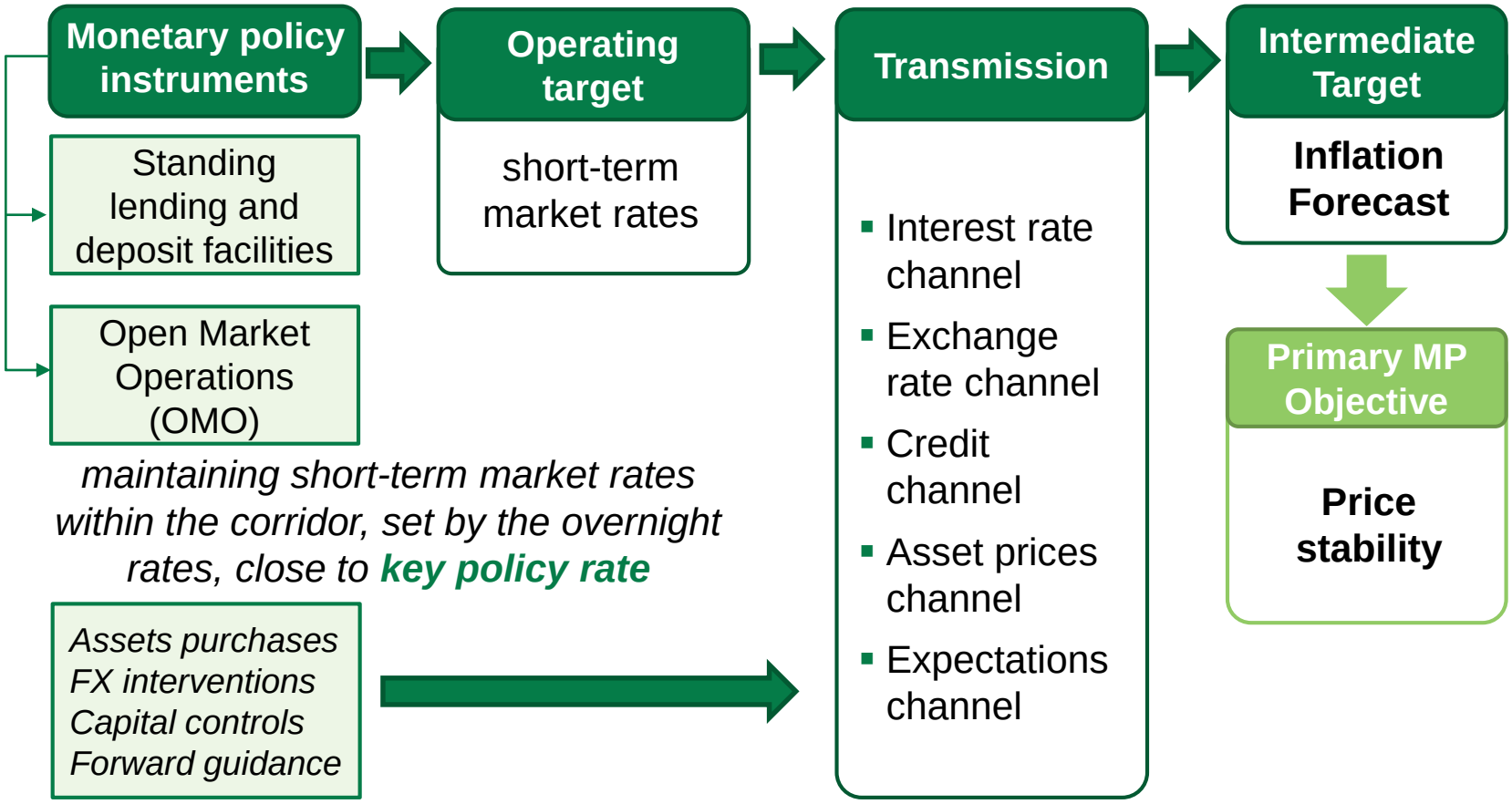
The channels of transmission mechanism. Time lags in transmission



Monetary policy operational framework

Operational framework of monetary policy under inflation targeting

MP operational framework comprises the **operating target** and the monetary instruments the central bank uses to manage the liquidity of banking system and the conditions in the interbank money market necessary to achieve its operating target



The key policy rate is set for the liquidity provision or absorption operation depending on the banking system liquidity stance

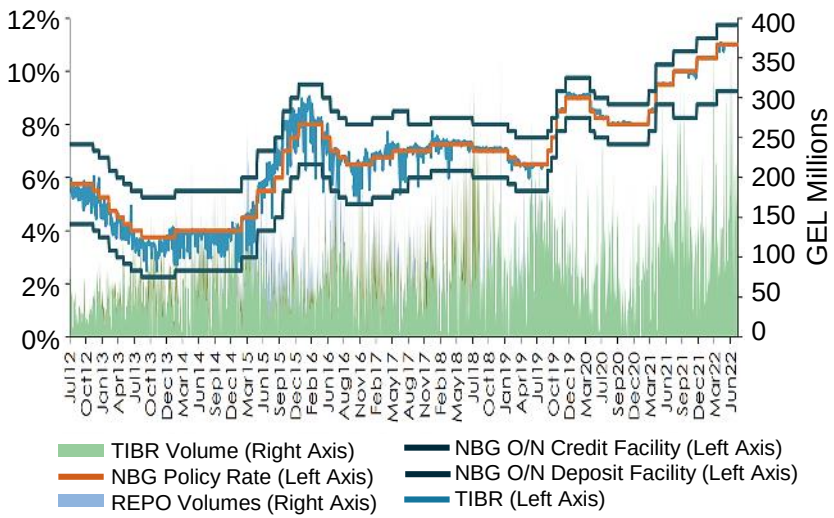
Central bank	Key rate	Liquidity condition
ON LIQUIDITY ABSORPTION OPERATIONS		
Poland	1-week bills	**Surplus**
Czech	2-week reverse repo	**Surplus**
Serbia	1-week reverse repo	**Surplus**
Russia	1-week deposit auctions	**Surplus**
Moldova	2-week certificates of deposit	**Surplus**
ON LIQUIDITY PROVISION OPERATIONS		
Georgia	1-week refinancing loans	**Deficit**
Turkey	1-week repo	**Deficit**
Albania	1-week repo	**Deficit**

Key Policy Rate

- Signals the CB's commitment to use its open market operations to steer short-term interbank market rate close to the operating target
- Signals the policy stance
- Supports the achievement of the primary MP objective

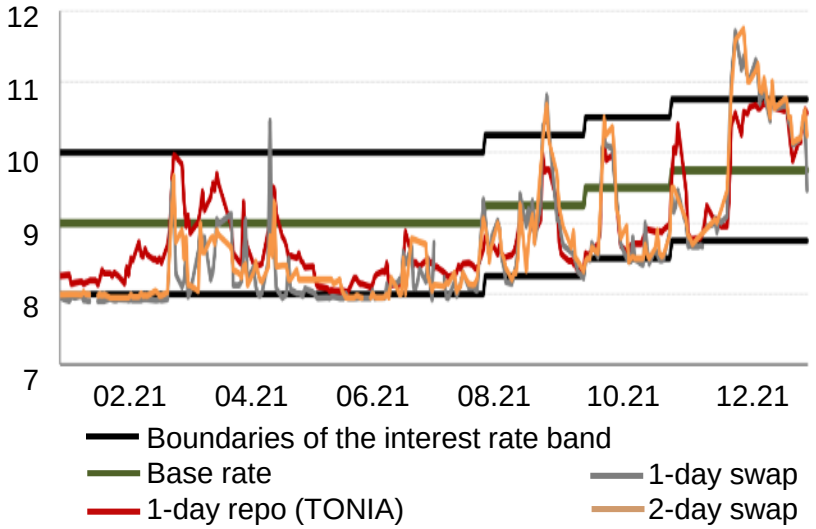
The CB's operational frameworks reflect the approach of liquidity management

Georgia: the key policy rate, interest rate corridor, market rate and volumes of operations, %



Source: NBG Monetary Policy Report (August 2022).

Kazakhstan: the key policy rate, interest rate corridor and market rates, %



Source: NBK Annual Report (2021).

- **The width of interest corridor matters.** Narrow corridor sends **clear policy signal**, while wide corridor provides the Central bank with **the flexibility**
- The proximity of short-term market rates to the operating target indicates the **effectiveness of the CB's liquidity management and operational framework**
- Main configurations of CB's operational framework are currently in use: **Floor System** and **Mid-Corridor System (**Fixed-at-the-Policy-Rate Full-Allotment System and Flexible-Price Fixed-Quantity Auctions)

“Floor System” approach

- **Key policy rate** is the rate on excess reserves (lower limit)
- **Full-allotment** provision of liquidity by the Central bank
- **Temporary** banking system **liquidity surplus, unstable liquidity position**
- Norway (mid 1990-s - 10.2011)

Pros:

✓ Works even under the conditions of a weak, underdeveloped interbank market

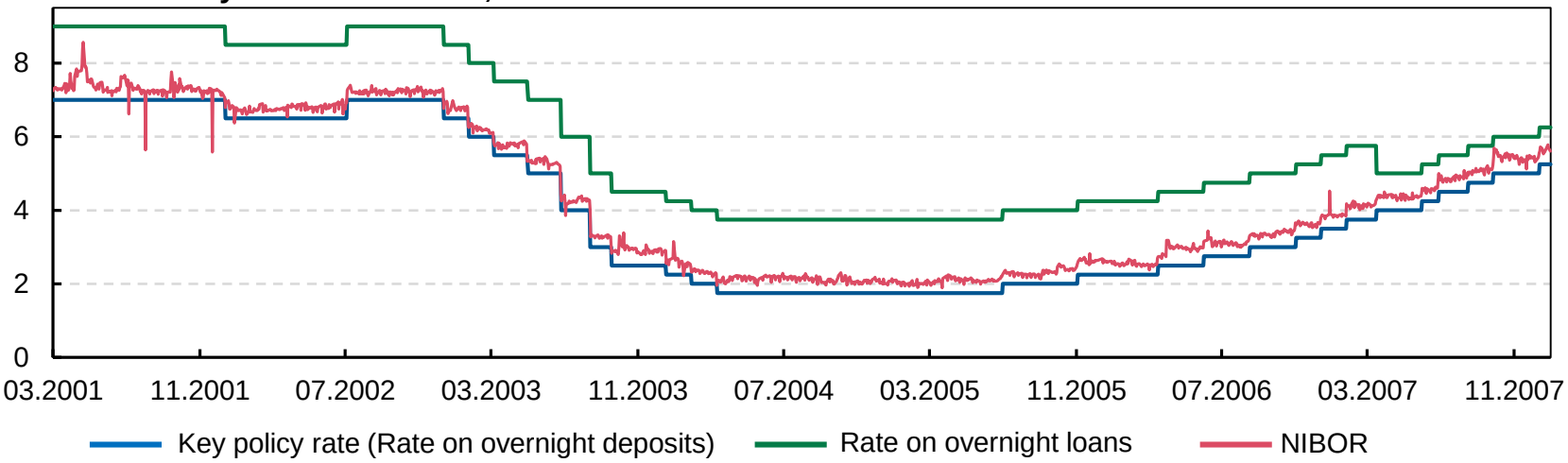
✓ An accurate CB forecast of the banking system liquidity is not required

✓ No need to conduct frequent liguidity management and fine-tuning operations by the CB

Cons:

X Destimulates the development of the interbank market, banks tends to conduct operations only with the CB

Bank of Norway rates and NIBOR, % annual

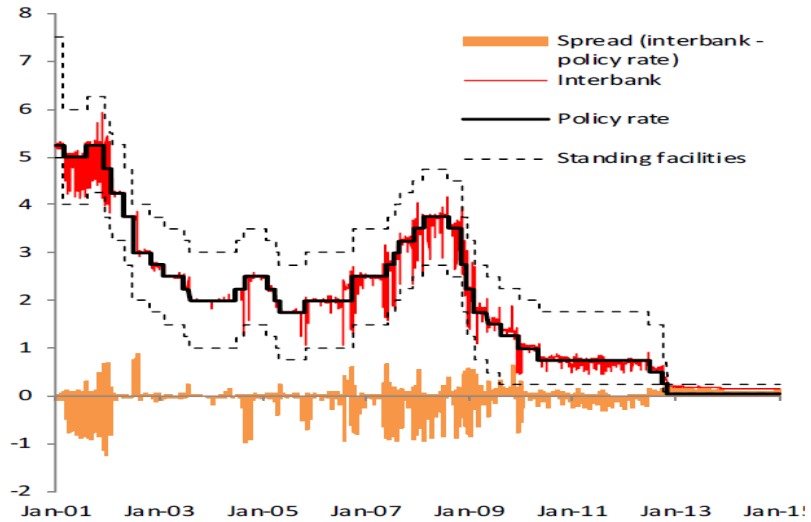


Source: Central bank of Norway.

“Fixed-at-the-Policy-Rate Full-Allotment System” approach

- The Central bank offers short-term liquidity injecting or absorbing instruments **at the policy rate** and **at the full amount demanded**
- The policy rate is **in the middle of a corridor, set by the standing facilities**
- Czechia, Moldova, Slovakia, Ukraine (before war)

Czech National Bank’s monetary policy interest rates and market rate, %



Source: IMF Working Paper (2020)

Pros:

- ✓ Gives banks more incentives to trade on the interbank market than the floor system
- ✓ An accurate Central bank forecast of the banking system liquidity is not required
- ✓ No need to conduct frequent liguidity management and fine-tuning operations by the Central bank

Cons:

- X Demands from banks a high-quality forecast of liquidity
- X Overbidding/underbidding problems

“Flexible-Price Fixed-Quantity Auctions” approach

- The Central bank provides the banks with resources **at a flexible price by auctions with fixed volumes**
- More relevant for **structural liquidity deficit**
- The ECB (2000-2008)

Pros:

✓ Encourages banks to conduct transactions on the interbank market, promotes its development

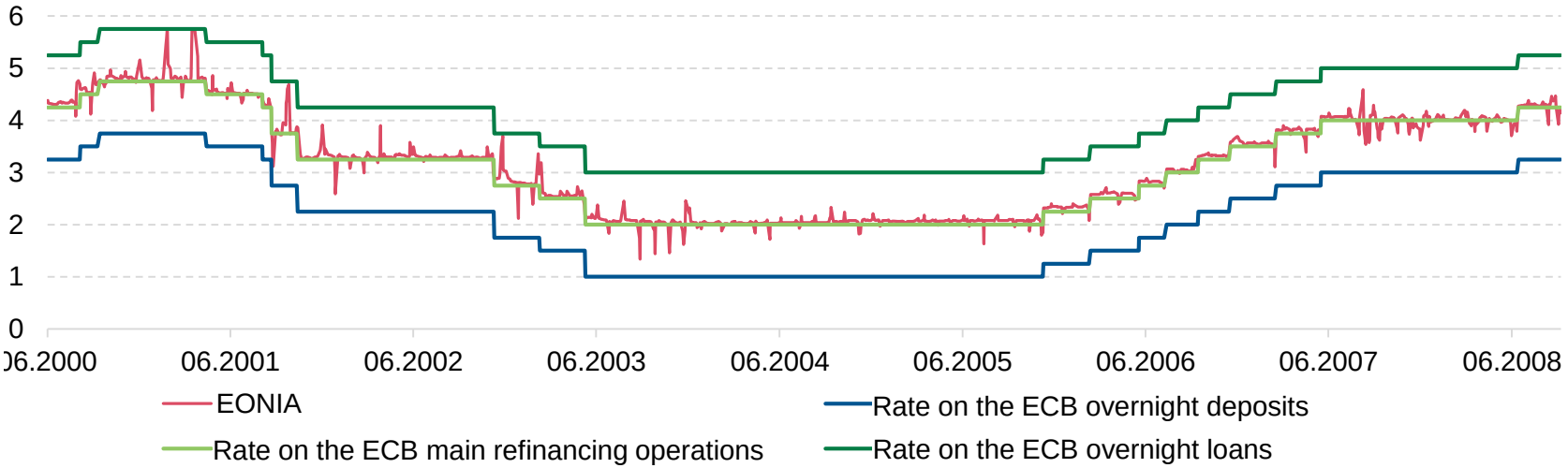
✓ Can reduce the volatility of market rates and bring them closer to the key rate

Cons:

X An accurate Central bank forecast of the banking system liquidity is required

X Market rates can significantly deviate from the key policy rate (if the Central bank makes a mistake in determining the volume of the auction)

The ECB rates and EONIA, % annual



Source: ECB.

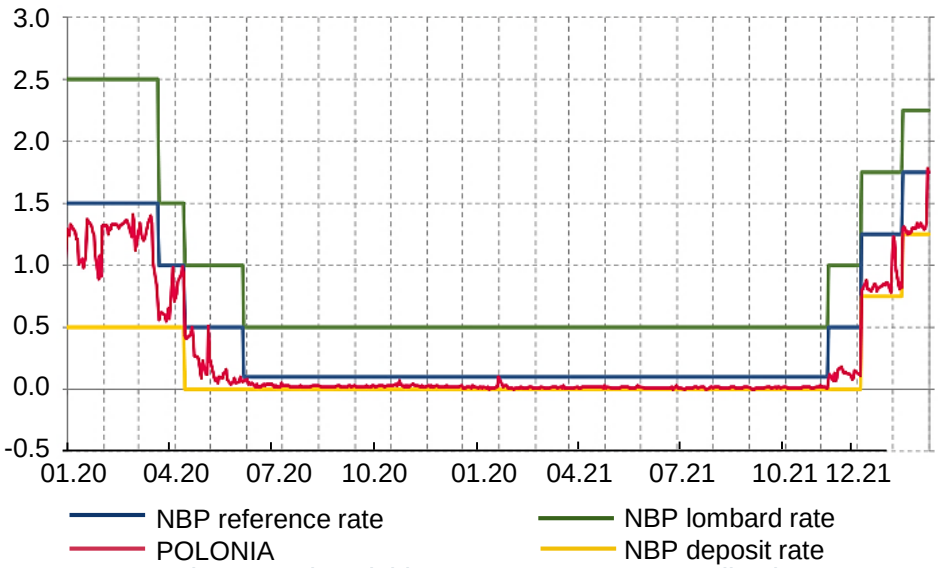
NBP: Monetary policy instruments

Operational Goal

to keep the **POLONIA** rate running close to the **NBP reference rate**. Depending on the market conditions, the POLONIA rate may deviate from the NBP reference rate within the corridor set by the NBP lombard rate and the NBP deposit rate

MP rates and instruments

NBP interest rates and the POLONIA rate in 2020-2021, %



Source: Narodowy Bank Polski Report on Monetary Policy in 2021

NBP interest rates:

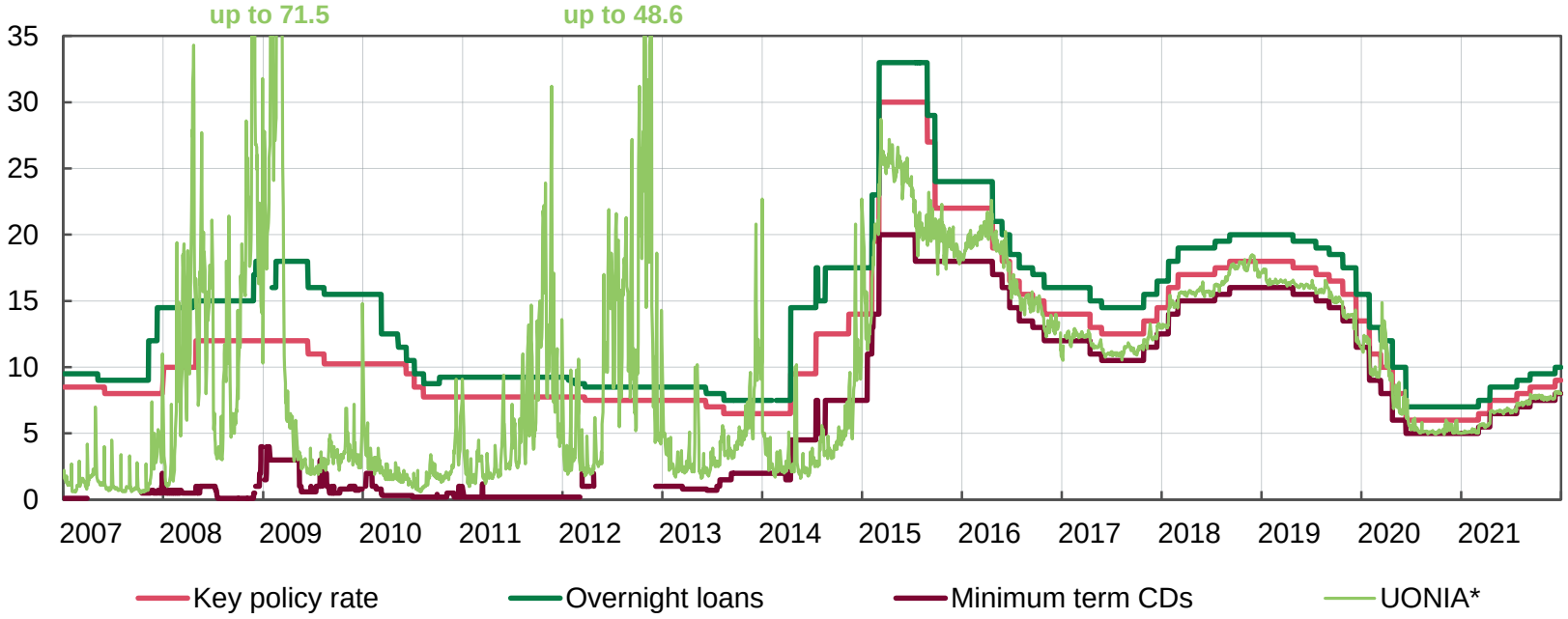
- reference rate determines the yield on open market operations
- NBP interest rate corridor (lombard rate for overnight borrowing from the NBP; deposit rate for overnight deposits with NBP)

MP instruments:

- Open market operations
- Standing facilities
- FX market interventions
- Required reserves
- FX swaps

The development of the MP operational framework in 2015 allowed the NBU to manage interest rates in the interbank market

NBU Policy Rates and Ukrainian Index of Interbank Rates, %



* Before 25.12.2015 – average interbank interest rate, 25.12.2015 - 22.06.2020 – Overnight interbank (UIIR).
Source: NBU.

- Prior to 2015, the key policy rate played a rather symbolic role in the money market
- The NBU strengthened the role of the key policy rate by applying this rate to main operation in the interbank market - the placement of two-week certificates of deposit
- After the NBU switched to a new operational framework of its monetary policy, the key policy rate has an effective impact on short-term rates in the interbank market

Evolution of the NBU's MP operational framework

		NBU's decision motivation	Main operation *(on key policy rate)*	Interest Rate Corridor for Standing Facilities	
				Overnight CDs	*Overnight loans*
Coronacrisis	**April 2016**	Streamlining of the MP operational framework	CDs with maturity of 14 days	Key rate -2 pp	Key rate +2 pp
	January 2019	To be more flexible in responding to changes in the liquidity of Ukraine's banking system and effective in achieving its operational target	CDs with maturity of 14 days **+ refinancing loans with maturity of 14 days**	Key rate -2 pp	Key rate +2 pp
	March 2020	To give banks greater flexibility as they manage their liquidity in response to heightened turbulence in the financial markets	CDs with maturity **of 7 days** + refinancing loans with maturity **up to 30 days**	Key rate -2 pp	Key rate +2 pp
	April 2020		CDs with maturity of 7 days + refinancing loans with **maturity up to 90 days**	Key rate -2 pp	Key rate +2 pp
	June 2020	To ensure the achievement of the operational target	CDs with maturity of 7 days + refinancing loans with maturity up to 90 day	**Key rate –1 pp**	**Key rate +1 pp**
	July 2021	MP operational framework normalization in order to increase the efficiency of monetary transmission	CDs with maturity of 14 days	Key rate -1 pp	Key rate +1 pp
War	**March 2022**	To maintain a proper liquidity level of the banking system	**Is not conducted**	Key rate -1 pp	Key rate +1 pp
	June 2022	To provide additional room for reviving the interbank market	Is not conducted	**Key rate -2 pp**	**Key rate +2 pp**

Unconventional monetary policy
Quantitative easing (QE)

Unconventional monetary policy tools

For several decades, **CBs typically used a policy interest rate** as main tool for conducting MP

CBs in many advanced economies **lowered their policy interest rates to near-zero levels** in response to the Global Financial Crisis (2007–2009)

CBs began to rely on **unconventional MP instruments**

Unconventional MP instruments have again become prominent as CBs (both in AEs and EMs) respond to the economic consequences of the COVID-19 !

Asset purchases	Negative interest rates	Adjustments to market operations	Term funding facilities	Forward guidance
CB can set a target for: ▪ **price of assets** ▪ **quantity of assets** it will purchase = **quantitative easing (QE)**	CBs set negative policy rates, motivating that by the need to avert a deflationary currency appreciation	▪ providing large amounts of liquidity to the financial system ▪ expanding the range of collateral ▪ increasing the range of eligible counterparties that they allow to engage	CBs provide low-cost, long-term funding to financial institutions at rates below the cost of most of their existing funding sources	CB's communication of the stance of MP

Source: Reserve Bank of Australia Explainer, BIS CGFS Papers No 63 "Unconventional monetary policy tools: a cross-country analysis" (October 2019)

Quantitative Easing: Definition, purpose and importance

❑ Definition

"Quantitative easing (QE) – changes in the composition and/or size of a CB's balance sheet that are designed to ease liquidity and/or credit conditions" (Blinder, 2010)

❑ The policy has two main purposes:

1. Attend the disruption of the interbank market
2. Reduce interest rates relevant to private sector through buying:
   - Agency assets, etc to **lower the liquidity premium**
   - Long-term gov. securities (twist) to **lower term premiums**
   - Securities private companies issued to **lower credit premium**

❑ Two channels at work for QE to provide monetary stimulus:

1. Portfolio rebalancing
2. Signaling

Unconventional MP has the same goals as conventional MP, but …

There are potential side effects of unconventional MP:

1. The willingness of CBs to provide liquidity **may reduce the incentive of financial institutions to hold adequate buffers** → could make future episodes of financial stress more likely → CBs have put in place **requirements to ensure that financial institutions hold adequate liquidity buffers**

2. **Adverse effects of persistently low or even negative interest rates:**
   - damage banks profitability and reduce their capacity to lend
   - allow less productive business to survive when they would not normally be viable
   - fuel excessive increases in asset prices (e.g. rising prices of houses and shares) despite weak economic growth → can increase the risk of financial instability.

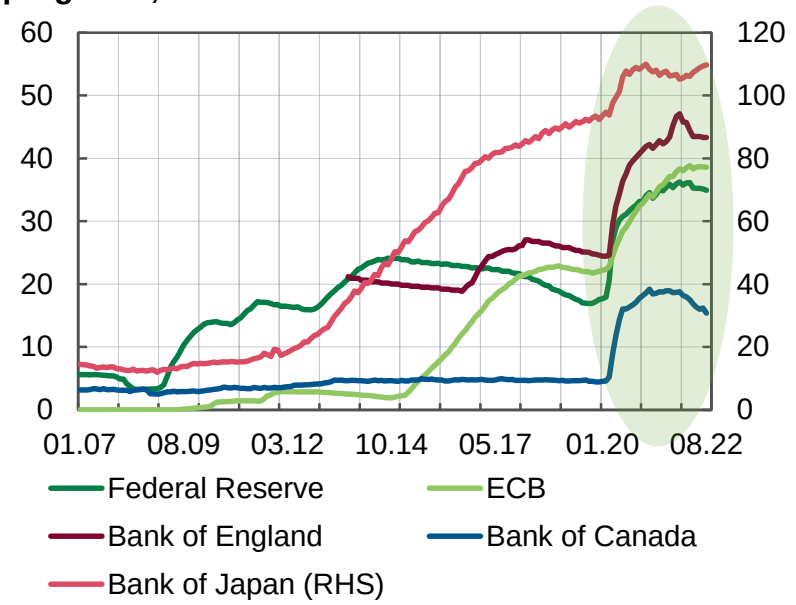
3. Threat to CB's independence

4. CBs asset purchases are seen to disproportionately benefit some groups in society

5. **Risks of unconventional MP is higher for low-income countries**

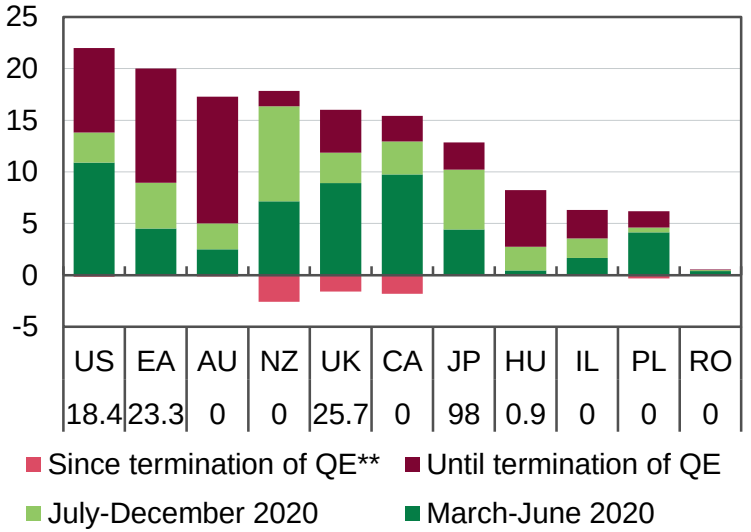
Quantitative easing became the main MP instrument of the major central banks during the coronavirus crisis

Asset purchase programs and additional lending programs, % of GDP



Source: official web-pages of central banks, national statistical agencies.

Asset purchases*, % of 2020 GDP

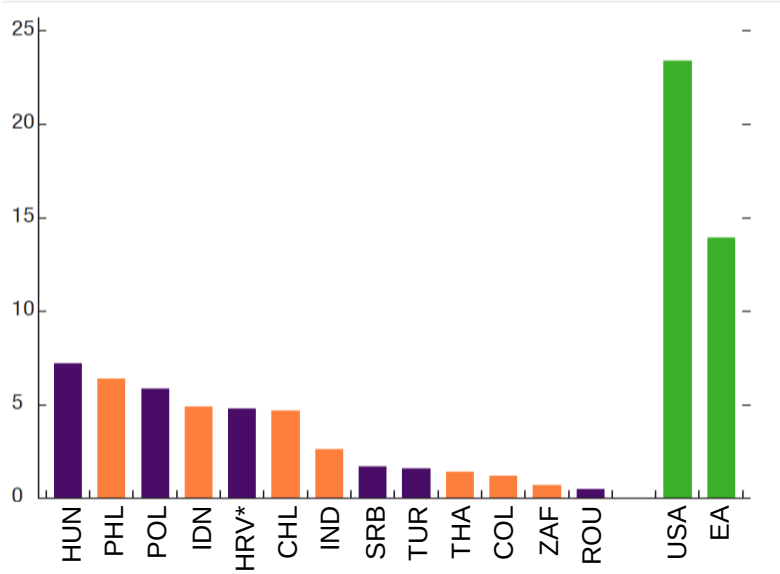


* The amount of assets held by the CB, purchased under QE in previous periods, in % of 2020 GDP, as of February 2020, is shown under the country codes.
** By August 31, 2022.
Source: official web-pages of central banks, NBU estimates.

- Most countries terminated their QE programs by the end of 2021 while some major economies continued them by
  - 2022 Q1 – US and Australia
  - 2022 Q2 – Eurozone and Canada
- Bank of Japan halted a part of the corporate bond purchase program (associated with the coronavirus crisis) in 2022 Q1, but continues to buy government bonds under QQE

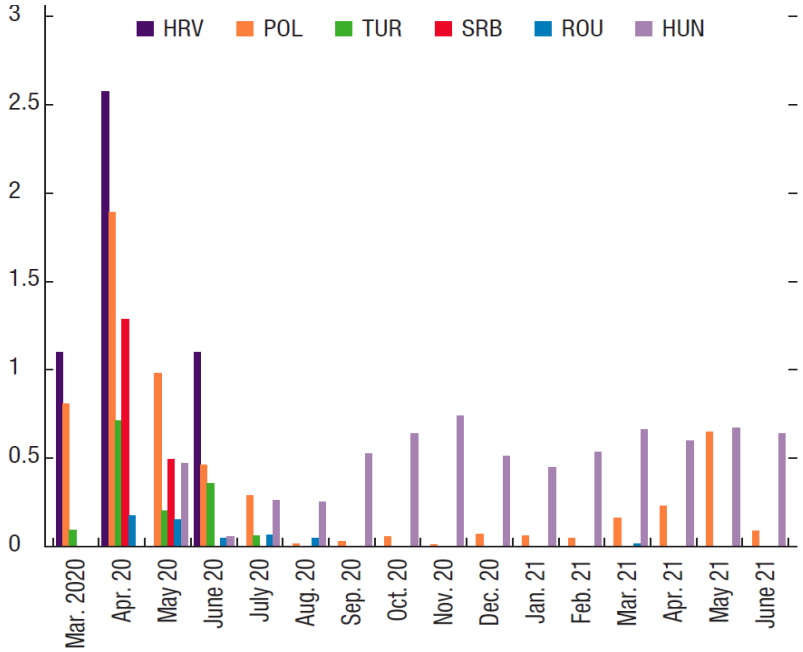
Asset purchase programs in emerging markets

Asset purchases by central banks during pandemic
(% of 2020 GDP; end-February 2020 to end-June 2021)



*The market value of securities purchased by the Croatian National Bank is 5.5 percent of GDP.
Source: Asset Purchase Programs in European Emerging Markets, IMF (2021)

European EM central bank asset purchases
(per month as a % of 2020 GDP)

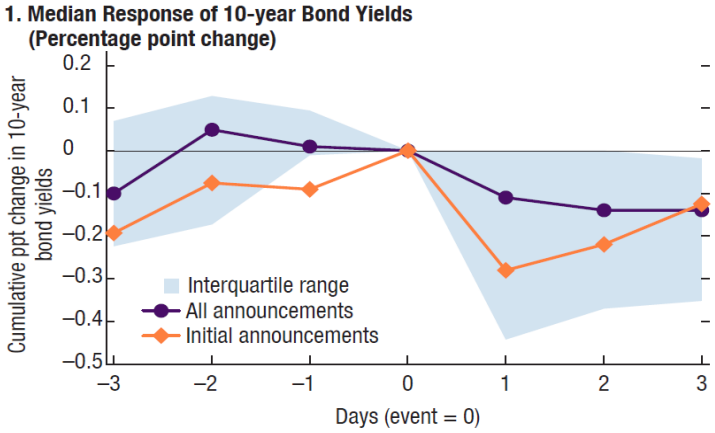


Source: Asset Purchase Programs in European Emerging Markets, IMF (2021)

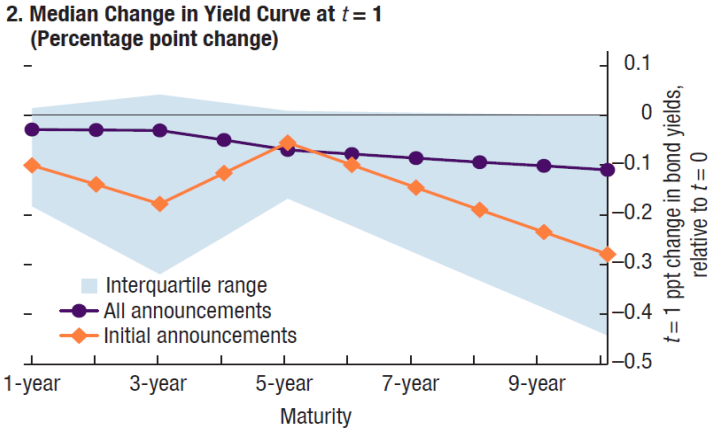
- The scale of APPs introduced in EMs ranges from small (Romania, Serbia, Turkey) to more sizable (Croatia, Hungary, Poland), though all have been smaller in magnitude compared to those conducted by the Federal Reserve and the ECB
- Asset purchase activity peaked in April and May 2020 and then fell off sharply. The bulk of EM central bank asset purchases in Europe had paused by the mid-2020 (Hungary and Poland being notable exceptions)

Government bond market response to the asset purchase program announcements (European EM countries case)

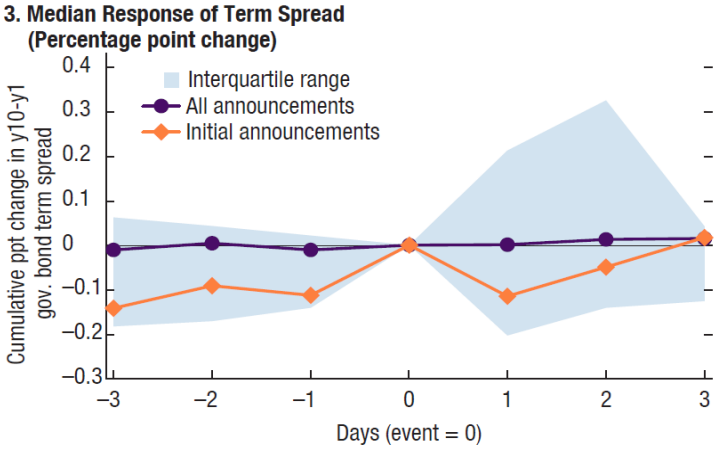
Following APP announcements, long-term bond yields declined, more so for initial announcements, ...



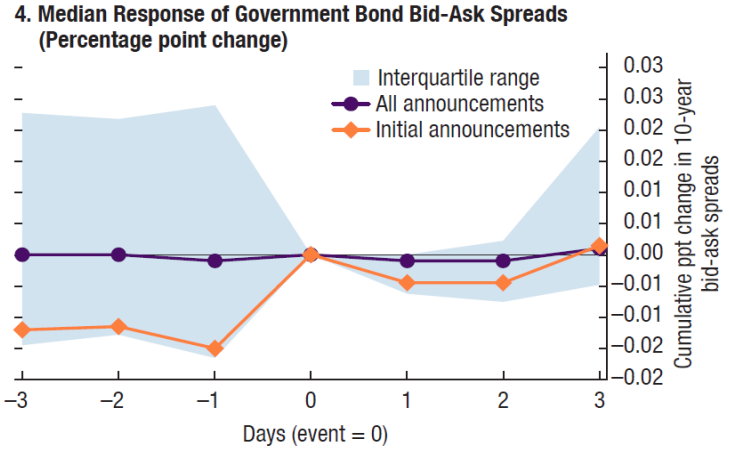
... and the yield curve flattened



Term spreads declined following the initial announcements, but the decline was short-lived and did not extend to subsequent announcements.



Liquidity conditions in the bond market, as captured by bid-ask spreads, temporarily improved



Source: Asset Purchase Programs in European Emerging Markets, IMF (2021)

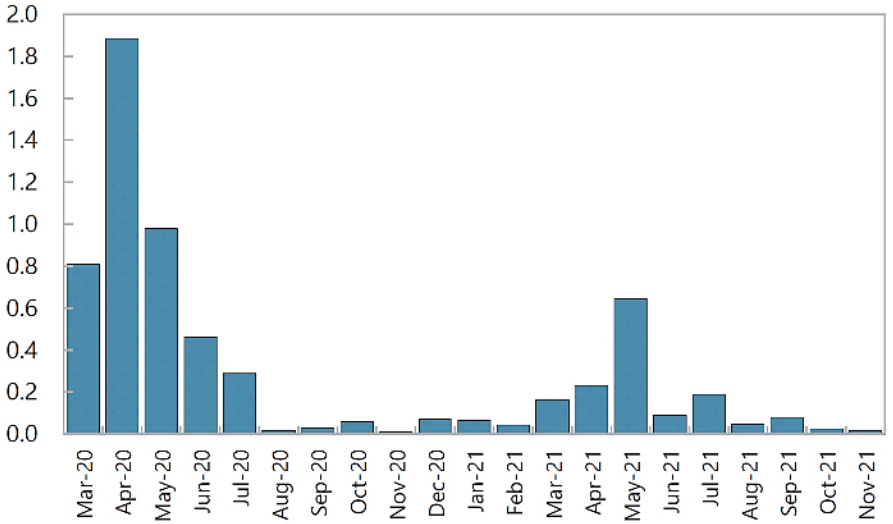
QE programme conducted by NBP in 2020-2021

Large-scale purchases of T-bonds or government-guaranteed bonds on the secondary market as part of the structural open market operations (SOMO)

The objectives of purchases:

- to change the long-term liquidity structure in the banking sector
- to ensure liquidity in the secondary market for repurchased securities
- to strengthen the MP transmission mechanism

NBP Asset Purchases
(per month of settlement as a percentage of 2020 GDP)



Source: 2021 ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR THE REPUBLIC OF POLAND (Feb 2022)

- **IMF**: "The central bank's asset purchase program has been effective in providing liquidity to government securities markets and strengthening monetary policy transmission"
- **OECD**: "Monetary policy has been appropriately accommodative. Monetary policy has reacted forcefully and quickly to the emerging coronavirus crisis"

The CBs of EM countries use unconventional MP instruments in response to coronavirus crises

Focus area	Key tools	CBs (EM+IT countries), that use such instruments
To lower the interest rates	Asset purchases («quantitative easing»)	Poland, Romania, Hungary, Mexico, SAR, Turkey, India, Indonesia, Thailand, Philippines, Colombia, Chile
To maintain liquidity and to expand the resource potential of banks	FX swaps with banks	Serbia, Turkey, Georgia
	Long-term refinancing instruments for banks and other financial institutions	**Ukraine**, Hungary, India
	Targeted longer-term refinancing operations	Poland, Hungary, Mexico, Kazakhstan, Turkey, Georgia, Egypt and other
	Interest rate swap with banks	**Ukraine**
Encouragement of crediting by administrative measures	Restrictions on lending interest rates	Hungary
	Loan repayment holidays, moratorium on loan repayments	**Ukraine**, Hungary, India, Georgia, SAR, Serbia
	Extension of loan repayment period	Brazil, Turkey

The NBU also responded to the challenges posed by the coronavirus crisis

NBU AGAINST CORONA-crisis

MONETARY POLICY MEASURES

In 2020, the NBU **markedly eased its monetary policy** and cut key interest rate to 6% – an all-time low nominal level

Updated operational design of monetary policy – to give banks greater flexibility in managing their liquidity:

- the frequency of tenders to place CDs and issue short-term refinancing loans was increased from every other week to once a week
- the maturity of CDs was shortened (from 14 to 7 days)
- the maturity of refinancing loans was extended to 90 days (from 14 to 30 initially)
- the interest rate corridor was narrowed to +/- 1 pp (from +/- 2 pp)

Extended eligible collateral: by government-guaranteed corporate bonds and municipal bonds

Long-term refinancing loans with maturities of up to five years (provided at a floating interest rate under the same collateral as for short-term loans)

Interest rate swap was introduced to help banks manage interest rate risks

MACROPRUDENTIAL POLICY MEASURES

Relaxed requirements on credit risk assessment: loans restructuru due to quarantine-related restrictions do not have negative impact on banks' capital

Temporarily suspended requirements on building up capital buffers, requirements on assessment of property collateral and inspections of banks

Extended deadlines for submitting reports and financial statements

Postponed certain requirements to banks:

- IT-solutions for risk management systems and NPL management processes
- stress testing and SREP assessment

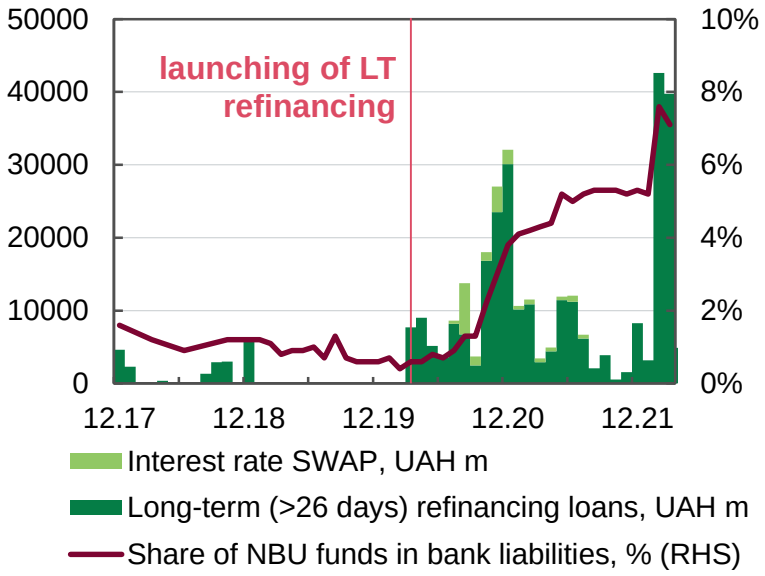
Recommended banks to **refrain from dividend distribution**

Facilitated banks to:

- offer "loan payment holidays" and launched restructuring of loans to crisis-hit borrowers
- reduce commissions for cashless transactions and promote cashless payments

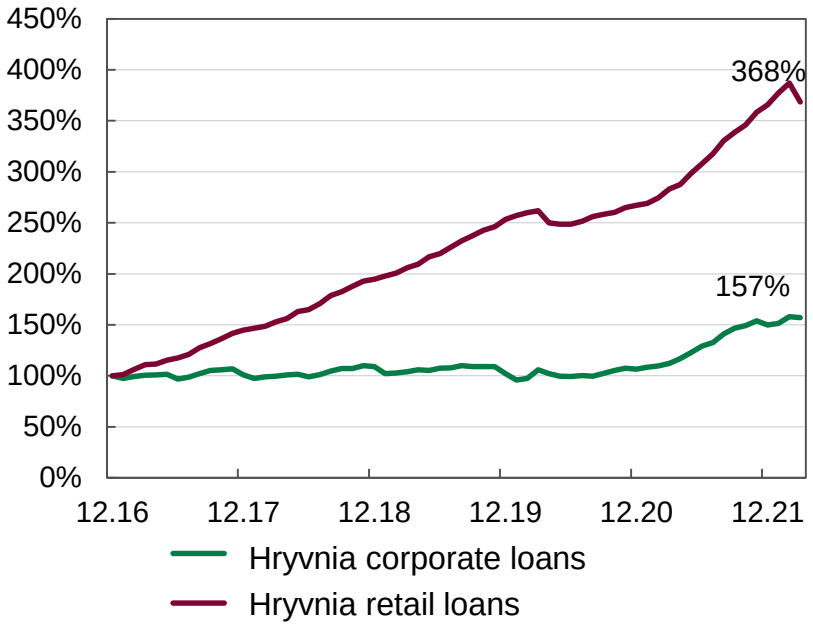
Banks actively used long-term refinancing

Refinancing loans (except overnight), interest rate swaps and share of NBU funds in bank liabilities



Source: NBU.

Net hryvnia corporate and retail loans, 12.2016=100%



Source: NBU.

- IT regime and design of monetary policy instruments provide banks with continuous access to financing in order to maintain sufficient liquidity
- The NBU can launch long-term refinancing instrument to support bank lending in times of crisis. Thus, in March 2020, the NBU introduced long-term refinance loans for a term of up to five years
- Monetary policy design guarantees banks' ability to lend to households and businesses during both periods of structural surplus and periods of structural deficit

The NBU responded to the challenges posed by the invasion

NBU AGAINST CONSEQUENCES OF THE FULL-SCALE WAR

MONETARY and FX POLICY MEASURES

- Key policy rate revisions were suspended (until June)
- The exchange rate was fixed
- A number of administrative restrictions on FX transactions and capital controls were introduced
- **Monetary policy operational design was adjusted:**
  - Introduction of (blank) refinancing tenders
  - suspension of the tenders for placing 14-day certificates of deposit issued by the NBU
  - cancelation of the decision to raise reserve requirements that was made in early February
- Adjustment ratios for domestic government debt securities pledged as collateral for refinancing loans were abolished
- The option to exchange cash hryvnias abroad was offered

➕ The NBU urgently transferred a portion of its distributable profit in the amount of UAH 19 billion to the State Budget of Ukraine.

➕ For the period of martial law the NBU was given the opportunity to purchase government debt securities

MACROPRUDENTIAL POLICY MEASURES

Regulatory and operational

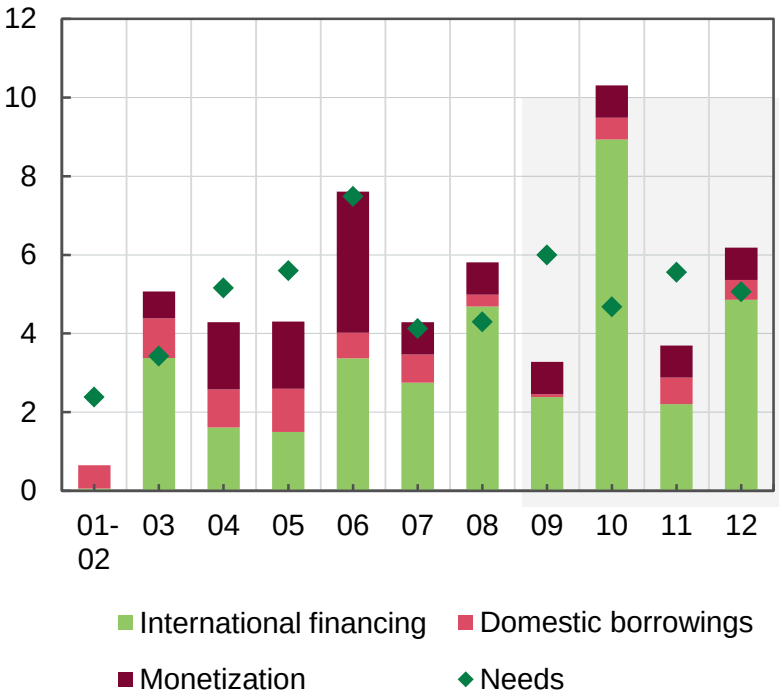
- Banks were exempt from corrective actions for violating capital adequacy and liquidity ratios and other requirements
- Dividend payouts were forbidden
- Bank resilience assessments, including stress tests, were canceled
- **Some requirements to banks were postponed:**
  - introduction of capital buffers
  - revaluation and verification of collateral
  - NSFR increase to 100% (currently 90%)
  - submission of financial reports and some stat reports
- Fees for NBU BankID services were temporarily canceled
- Regular updates of recovery plans were suspended
- The use of cloud services by banks was allowed
- Simplified verification was temporarily expanded, onsite AML/CFT inspections were suspended

Customer-oriented

- Fines, penalties, and loan rate increases were forbidden. Loan restructurings were promoted
- The interchange fee for PROSTIR NPS services was cancelled for 2 months, then lowered below pre-war level

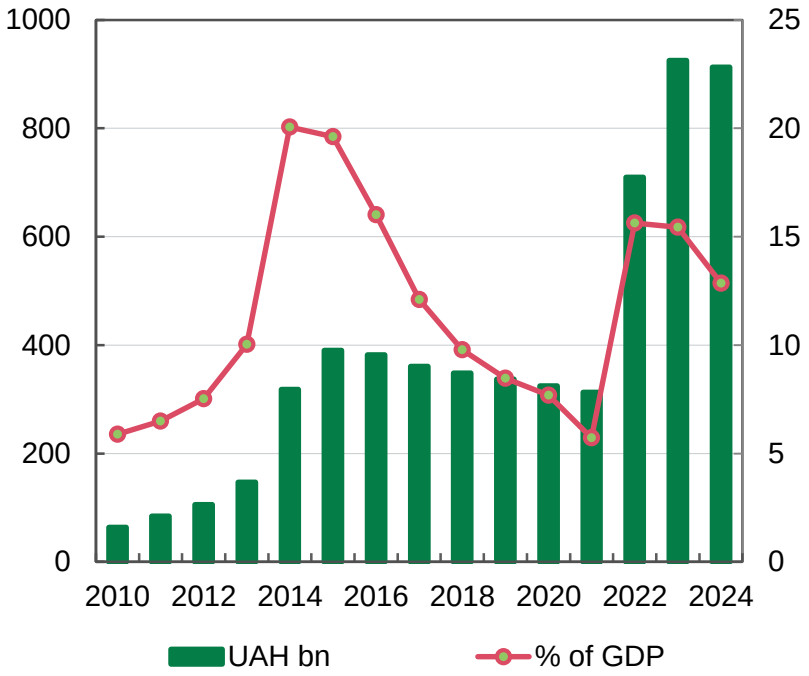
Monetization of fiscal deficit as the reaction to the invasion

Fiscal needs*, monetization and expected external funding in 2022, USD bn



* General fund of the state budget, excluding grants.
Source: STSU, MoF, NBU staff calculations.

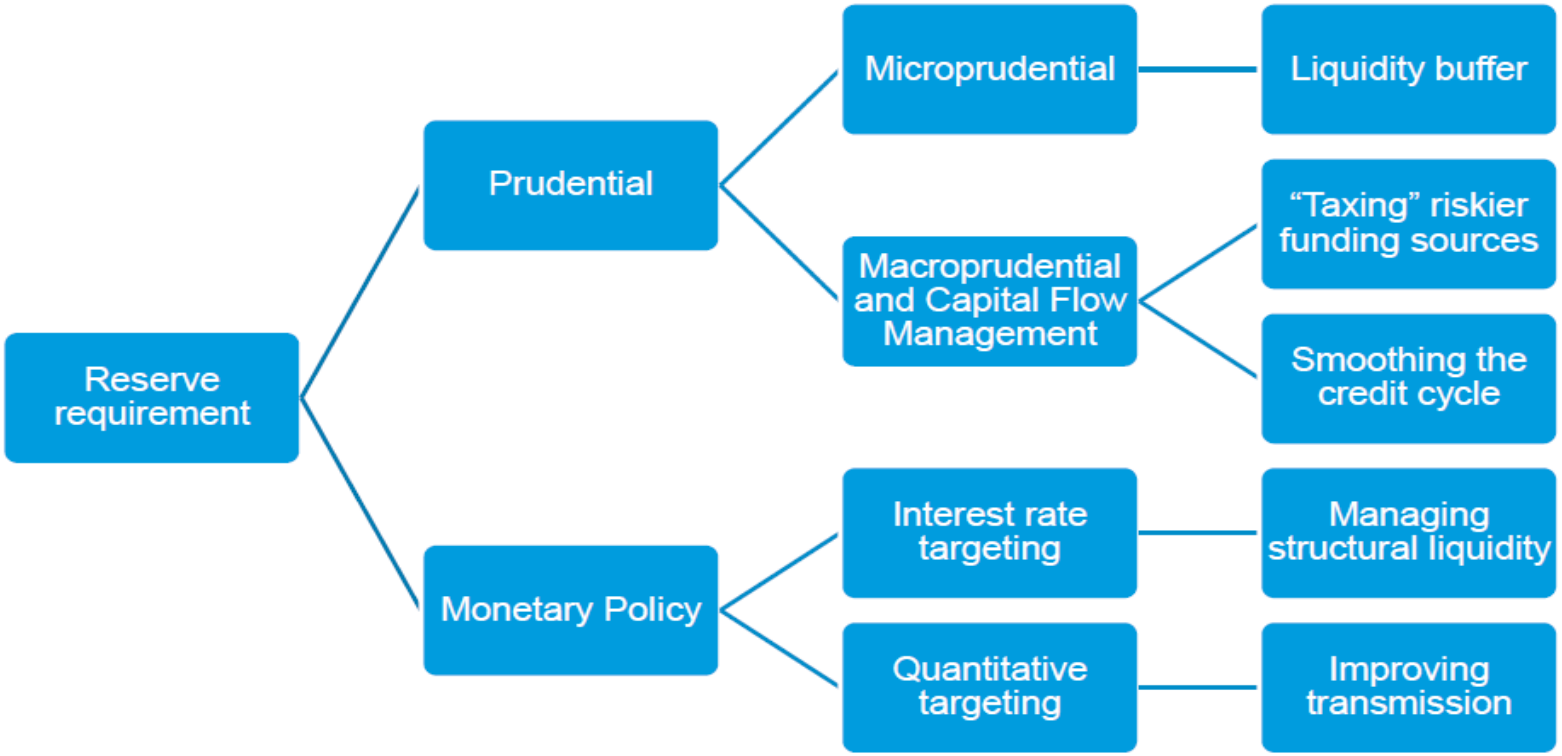
G-bonds in the NBU`s portfolio



Source: NBU, forecast as of July 2022 Inflation Report.

Reserve requirements

Reserve requirements objectives



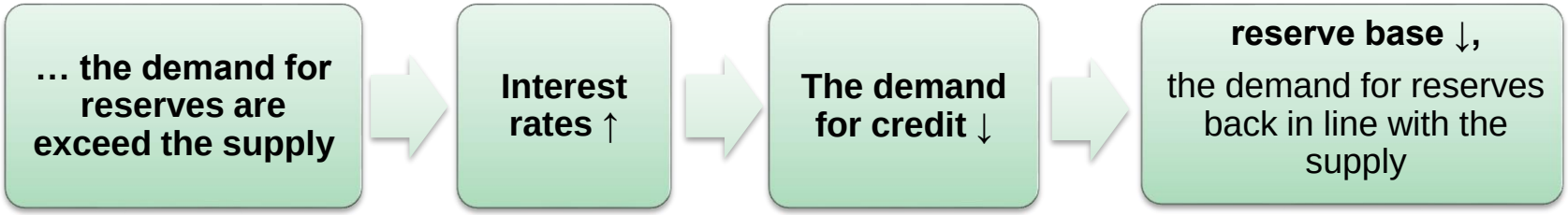
- Central bank motivations for imposing the reserve requirements are generally aligned with mandates **of maintaining price and financial stability.** RR is designed to meet **either monetary or prudential policy objectives**. However, some central banks have used it to pursue a combination of different objectives in different categories

RR for monetary policy objectives: quantitative targeting

The RR was used to control base money and guide credit growth

The supply of reserves **is set by the CB at the desired level for an inflation objective and a given potential output**

If credit expansion is not consistent with desired level for an inflation objective and a given potential output ….



The reserve requirement amplifies the traction of the demand for reserves on rates, and its ratio can be adjusted to speed up or slow down the tightening process if necessary

Reserve requirements for interest rate targeting

Mid-corridor system ***(the mid-rate is the operating target)***	***Floor system*** ***(the market rate pinned to the floor)***
The RR can play a key role in calibrating open market operations as RR with averaging would set a stable total demand for reserves. Central banks may influence the OMOs size by adjusting the structural liquidity position by using the RR. Changes in the RR should be supported by medium-term forecasts of the structural liquidity position	CB aims at satisfying slightly more than the precautionary demand for reserves, which is remunerated at the policy rate. If a RR is in place, the central bank would have to provide more than the demand for *excess* reserve because the RR is known exactly *ex ante*. The demand for excess reserve could be relatively stable if the RR is high enough and if averaging is allowed

Interest rates could be targeted without a RR

- With accurate liquidity forecasts and well-functioning interbank markets, central banks would only need an open market operations to steer interest rates, independent of the interest rate targeting framework
- **The RR becomes redundant under quantitative easing**. Several central banks that engaged in balance sheet expansion after the global financial crisis pushed the excess reserve supply far into the section of the demand curve in which interest rates did not respond to liquidity shocks. In these circumstances, the RR does not play any monetary policy role

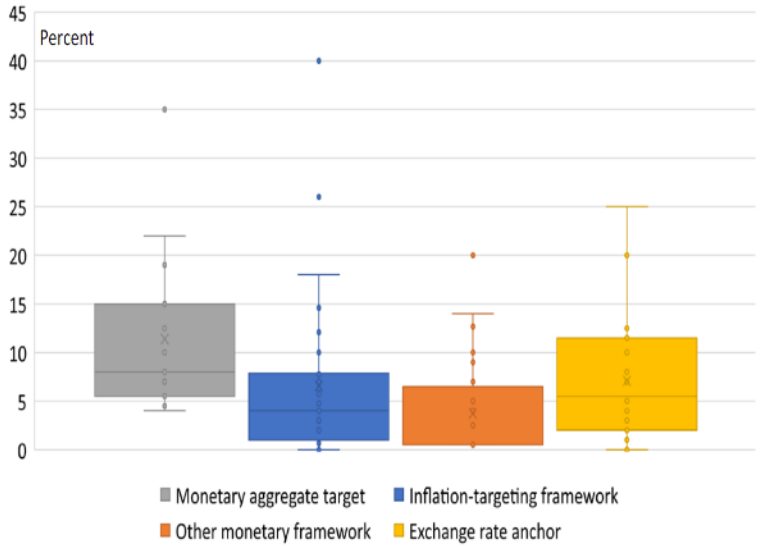
Global trends in reserves requirements: Low activity till 2022, hybrid objectives

COUNTRY	CB's objectives for using RR			RR in national currency			RR in foreign currency		
	MP	Liquid. Manag.	Macro-prudent.	%	Changes in 2022	Interest pay, %	%	Changes in 2022	Interest pay, %
CZECH REP.	-	-	-	2%	- (last change 07.10.**1999**)	Key policy rate	2%	- (last change 07.10.**1999**)	Key policy rate
POLAND	+	+	-	**↑3.5%**	31.03.**2022**	Key policy rate	**↑3.5%**	31.03.**2022**	Key policy rate
ROMANIA	+	+	-	0-8%	- (last change 24.05.**2015**)	0.60%, 24.08.2022	0-5%	- (last change 24.11.**2020**)	0.00% EUR, 24.06.2020; 0.05% USD, 24.08.2022
HUNGARY	+	+	-	**↑5%/ up to 10%**[1]	From 01.10.**2022**	Key policy rate	**↑5%/ up to 10%**[1]	From 01.10.**2022**	Key policy rate
SERBIA	+	+	+	0%[2]/ 5%[3]	- (last change 18.02.**2011**)	0.75%, 18.06.2022	13%[2]/ 20%[3]	- (last change 18.02.**2016**)	not paid
MOLDOVA				**↑37%**	16.07.**2022** 16.06.**2022** (↑to 34%), 16.05.**2022** (↑to 32%), 16.04.**2022** (↑to 30%), 16.01.**2022** (↑to 28%)	Overnight deposit rate, 07.05.2019	**↑42%**	16.07.**2022** 16.06.**2022** (↑to 39%) 16.05.**2022** (↑to 36%), 16.04.**2022** (↑to 33%)	0.01%, 07.05.2019

[1] - depending on declaration of the credit institution
[2] - over 2 years
[3] - up to 2 years
Source: official web-pages of central banks.

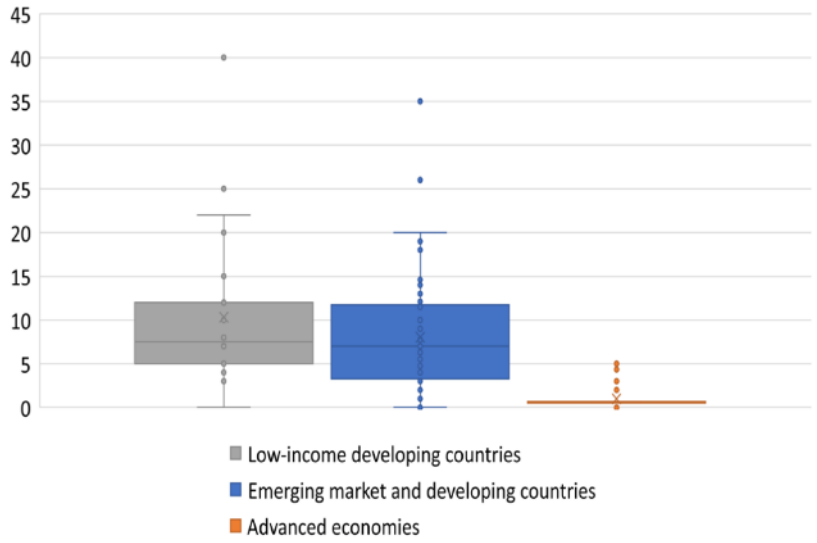
RR ratios in the context of monetary policy framework and market type

RRR and CB's monetary policy framework



Source: Reserve Requirements, IMF, July 2022

RRR by market type

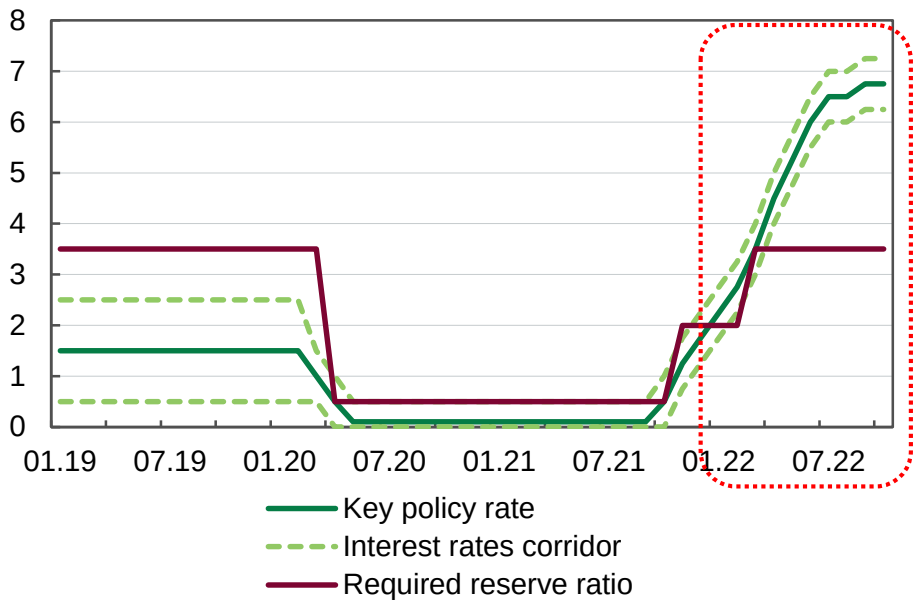


Source: Reserve Requirements, IMF, July 2022

- RR ratios are lower in inflation-targeting countries
- Advanced economies used to have a leaner balance sheet than emerging markets and low-income countries because their needs for FX reserves and for monetary financing of government operations were smaller

NBP have increased the key policy rate and the required reserve ratio as inflationary pressures have risen

Poland: key policy rate, interest rates corridor and required reserve ratio, %



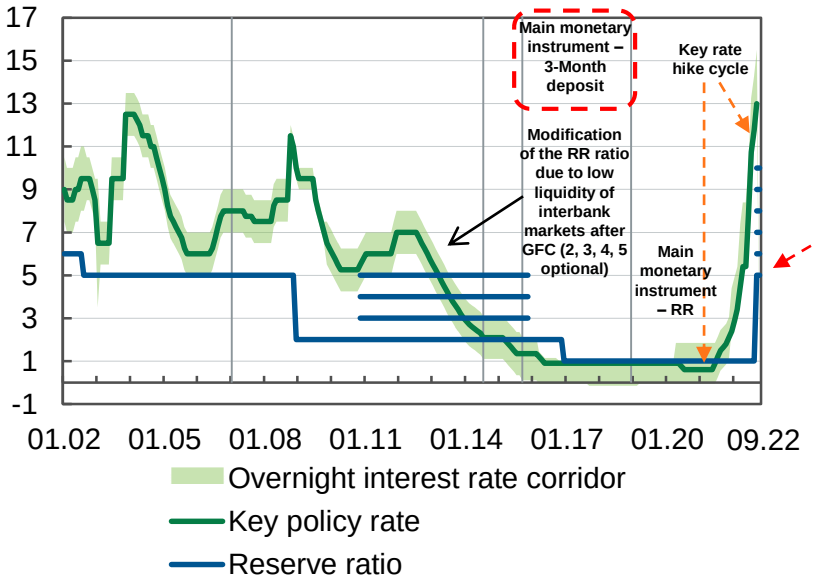
Source: National bank of Poland

- Starting from **6 October 2021** the National Bank of Poland raised **the key policy rate** on every meeting of the Monetary Policy Council
- Monetary policy decisions are striving to **decrease inflation to the NBP target in the medium term** and at curbing inflation expectations

- NBP increased the RRR from 0.5% to 2% in October 2021. NBP Governor pointed out in the interview that the decision to increase the RRR was purely operational in character: it aimed to **facilitate the stabilization of the POLONIA rate close to the key policy rate.** This is not a decision that directly affects the degree of restrictiveness of monetary policy, it only facilitates the implementation of this policy
- In February 2022, the **required reserve ratio** was increased to 3.5%

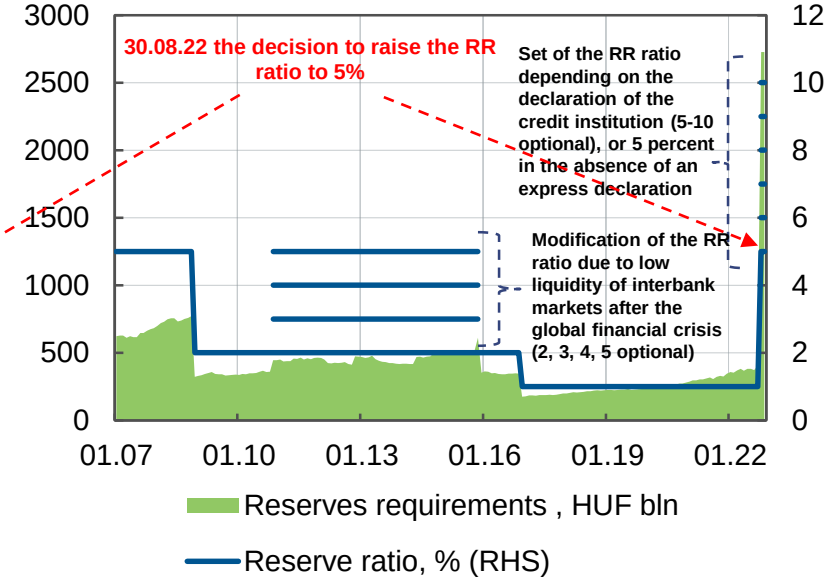
Central Bank of Hungary: Reserves requirements as the main MP instrument over the three years until June 2021

Overnight interest rate corridor and reserve ratio of MNB, %



Source: official website of Magyar Nemzeti Bank.

Reserve requirements and reserve ratio of MNB

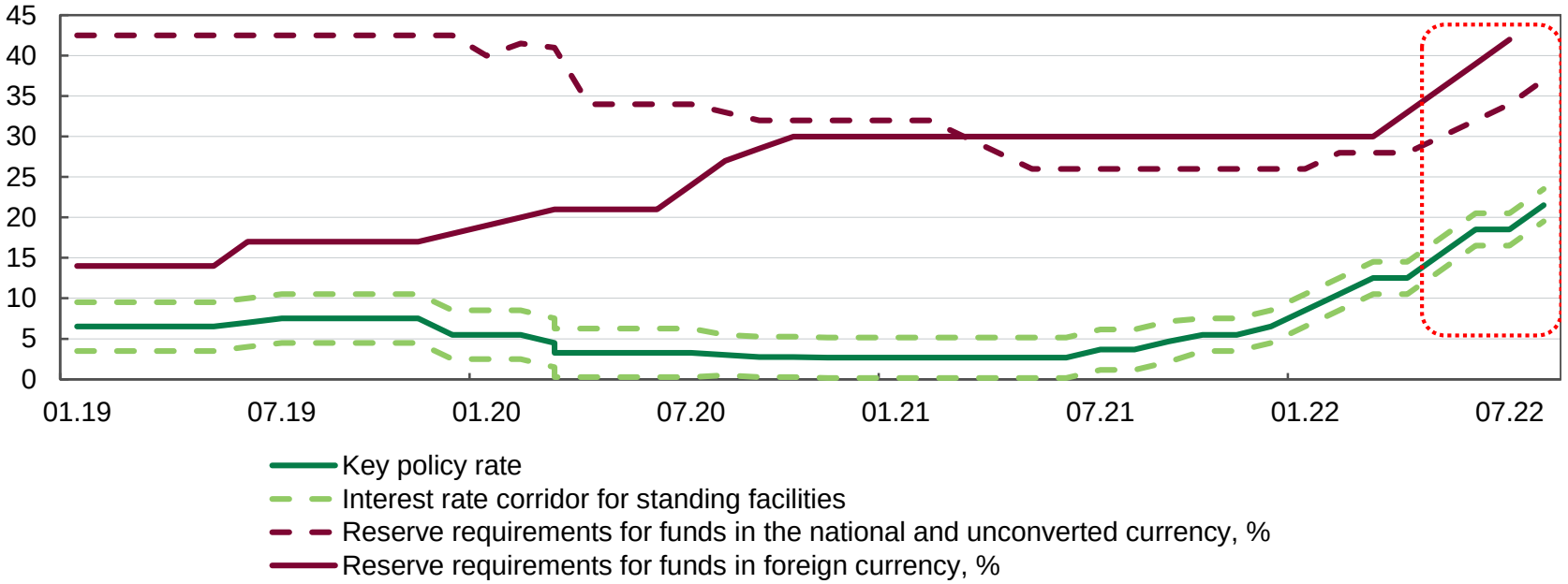


Source: official website of Magyar Nemzeti Bank.

- From September 2015 until December 2018, the 3-month MNB deposit was the key policy instrument of the MNB. Since the reduction of the volume of the 3-month deposit to zero, **the role of the main policy instrument has been fulfilled by the reserves requirements**
- Since June 2021, the MNB returned to an active interest rate policy
- After the MPC meeting on 27 August 2022, the MNB announced introduction of new measures to decrease interbank liquidity**, including increasing the reserve requirements ratio from 1% to 5%** (up to 10% - depending on the declaration of the credit institution) effective from 1 October 2022

In order to reduce inflation, the CB of Moldova strengthens monetary policy, including by increasing RRR

Moldova: key policy rate, interest rate corridor and reserve requirements ratio, %



Source: National Bank of Moldova.

- The RR is **a complementary instrument of the monetary policy**, which is used to control the level of excess liquidity as well as to mitigate its impact on interbank interest rates
- RR in foreign currency are mainly aimed to prevent an excessive growth of foreign currency lending by banks
- In January and August, the Central Bank of Moldova significantly increased the entire range of interest rates, as well as reserve requirements ratios to ensure decrease in inflation

FX interventions

How do central banks with IT use FX interventions

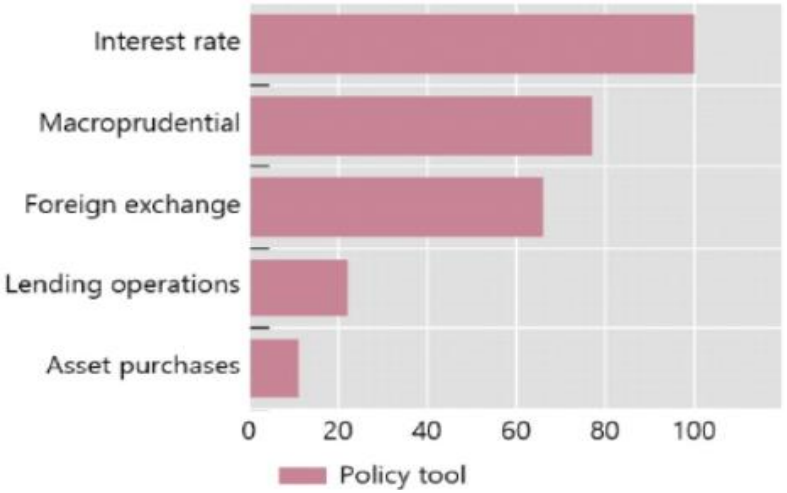
«Currency market interventions are one of the instruments at the disposal of a central bank. For a central bank that targets inflation, the primary instrument is, however, the interest rate. But at a time when the exchange rate is a serious upside risk in the inflation forecast and deviates markedly from a reasonable value, a situation may arise where currency market interventions are motivated as an additional element in the work of continuously ensuring price stability»

Urban Backstrom, Governor of the Riksbank (1994 – 2002)

- A significant number of IT central banks use FX interventions as an additional element in the work of continuously ensuring price stability. The consistent use of interventions leads to increase in the level of confidence in the IT regime
- Central banks of **developed countries** with deep financial markets used interventions as an instrument to achieve the inflation target when the key interest rate was zero or negative
- Central banks of **developing countries** use foreign exchange interventions to: accumulate FX reserves, limit exchange rate volatility, support liquidity in the foreign exchange market

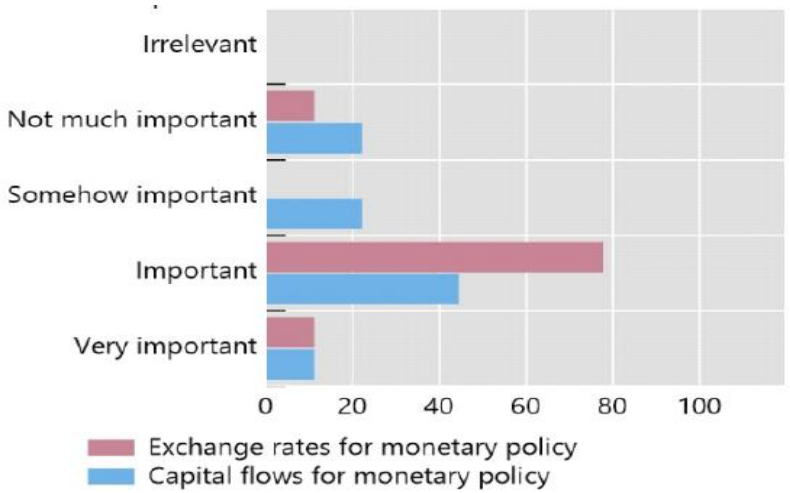
After the global financial crisis the role of FX interventions has increased

Policy tools used (pre-pandemic period), in per cent*



*Answers are not mutually exclusive. For a few economies macroprudential include capital flows management measures
Source: BIS Questionnaire, April 2021

Exchange rate in policy decisions, in per cent*

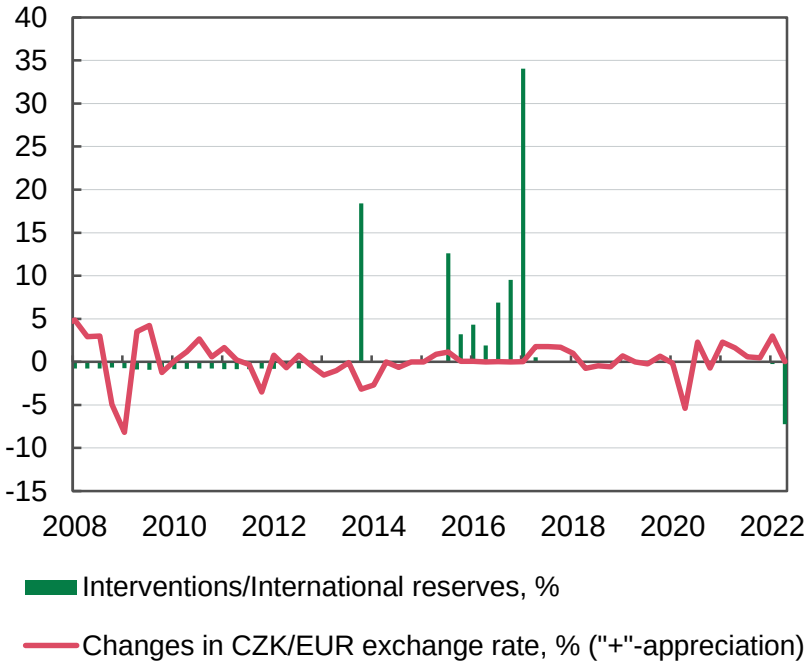


*Answers are mutually exclusive
Source: BIS Questionnaire, April 2021

- While interest rates remain at the core of monetary policy frameworks, central banks have responded to the sharp movements in exchange rates post-GFC and the tighter link between domestic and foreign financial conditions by deploying additional tools to reduce the exposure of the domestic economy to capital flows and exchange rate swings
- Exchange rates as well as the nature of the shock underlying their changes are important inputs for monetary policy
- During pandemic period FX interventions were widely used by many central banks

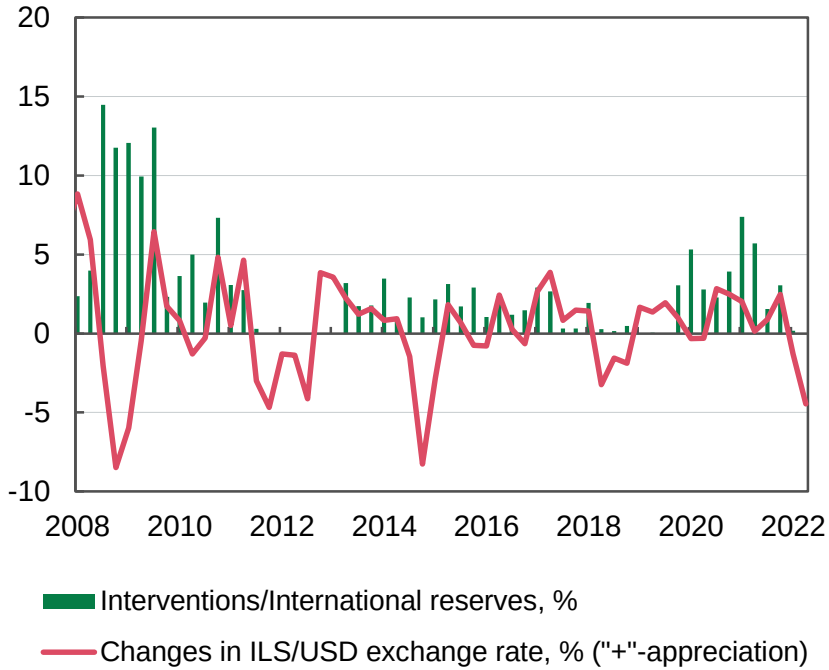
Scale of FX interventions can be significant during certain periods

Czech Republic



Source: Czech National Bank official website.

Israel



Source: Bank of Israel official website.

Why do central banks intervene in different periods and under different economic conditions?

Motives	Examples
Leaning against the wind	Maintaining symmetric volatility (devaluation or appreciation), prevention of exchange rate short-term “overshoot" and its rapid change. Typical for central banks both developed and developing economies *Brazil, Great Britain, Romania, Turkey, Czech Republic, Japan, Ukraine*
Reducing exchange rate misalignment	Exchange rate adjustment in the medium-term (in case of significant deviation of current exchange rate from equilibrium rate). Only those central banks that have accumulated sufficient FX reserves are able to withstand medium-term market trend
Managing or accumulating FX reserves	Accumulation of international reserves as implementation of risk-oriented monetary policy or official declaration of the purpose of their accumulation *Mexico, Turkey, South Africa, Czech Republic, Chile, Ukraine*
Ensuring FX liquidity, stabilizing FX market	Adjustment of imbalances between supply and demand on the shallow FX market, especially during pandemic period *Brazil (in October 2008), Indonesia (in October-November 2008), Israel (in 2008-2009), Mexico (in 2009), New Zealand (in 2007), Poland (in April 2010 and September-December 2011), South Korea (in 2008-2009), Chile (in January 2011), Switzerland (since 2009), Serbia, Turkey, Georgia, Brazil, Mexico, India, Indonesia, Kazakhstan, Ukraine (during pandemic period 2020-2021)*

Tasks of FX interventions in selected countries in recent period

Country	ER arrangement de-facto (IMF classification, 2021)	Tasks of FX interventions
Brazil	Floating	➢ smoothing excessive exchange rate volatility ➢ provide liquidity and hedge, with the ultimate objective of assuring a functioning foreign exchange market
Israel	Floating	➢ limitation unusual exchange rate fluctuations ➢ smoothing foreign exchange market functioning
Mexico	Free floating	➢ foreign exchange hedging program to smooth volatility ➢ providing liquidity through foreign currency swap line
Poland	Free floating	➢ if necessary to ensure domestic macroeconomic and financial stability
Turkey	Floating	➢ limitation excessive exchange rate fluctuations ➢ providing liquidity to contribute to FX liquidity management of banks
Czech Republic	Free floating	➢ to influence the koruna exchange rate ➢ moderate excessive exchange rate volatility in exceptional situations
Chile	Free floating	➢ to keep the currency near its equilibrium value ➢ replenishment and expanding the international reserves
Switzerland	Crawl-like arrangement	➢ to dampen excessive appreciation
Sweden	Free floating	➢ under extraordinary circumstances (for example, participation in concerted interventions with other CBs)

The National Bank of Poland: FX interventions

NARODOWY BANK POLSKI

Monetary policy is implemented under **the floating exchange rate regime**, which **does not rule out** interventions in the foreign exchange market (MP Guidelines)

!!! but

Like most EM central banks with inflation targeting, **the NBP has FX interventions in its monetary policy toolkit** and uses them if necessary

NBP can carry out FX interventions to ensure domestic macroeconomic and financial stability (AREAER 2021)

… the range of instruments used by NBP can be adapted to the nature of disturbances observed in the economy and market conditions (MP Strategy)

«…NBP will take all necessary actions in order to ensure macroeconomic and financial stability, including above all to reduce the risk of inflation remaining elevated. **NBP may intervene in the foreign exchange market, in particular to limit fluctuations of the zloty exchange rate that are inconsistent with the direction of monetary policy»**

(***Press release from the meeting of the Monetary Policy Council held on 7 September 2022***)

Applying FX Interventions as an Additional Policy Tool Under Inflation Targeting (*Grui, Lepushynskyi, 2016*)

Volatility under different policy responses (normalized to the case w/o FX interventions)

	GDP gap	∆ ER UAH/USD	REER gap	Key interest rate	CPI q-o-q changes	Trade balance
W/o Interventions						
Any shock	1	1	1	1	1	1
With Interventions						
Aggregate demand shock	1.0	0.4	1.0	0.9	1.6	0.9
Aggregate supply shock	1.2	0.5	1.5	0.8	**0.9**	1.5
Risk premium shock	0.5	0.4	0.6	1.1	**0.7**	0.7
Foreign IR shock	0.7	0.5	0.7	1.8	**0.9**	0.8
Terms of trade shock	1.1	0.3	0.9	1.2	2.1	1.2

Monetary policy could benefit from using FX interventions in addition to IR:

- In case of shocks to supply, risk premium or foreign interest rate – inflation volatility is mitigated. If shocks are leading to appreciation pressure, the NBU is advised to accumulate international reserves
- In case of aggregate demand or terms of trade shocks, FX interventions lead to higher inflation volatility – retain from using under depreciation pressure. The trade-off arises under appreciation pressure: inflation volatility vs. international reserves. Thus, overall macroeconomic context needs to be taken into account.

The NBU's FX interventions in peacetime and during the war time

In peacetime, FX interventions are an additional* monetary policy instrument

Tasks of interventions

- Smoothing-out FX market functioning
- International reserves accumulation and keeping them at the level, coherent with generally accepted adequacy criteria
- Supporting the transmission of the key policy rate as the primary tool for conducting monetary policy in the case when its effectiveness is not enough

Principles of interventions

- Compliance with inflation targeting regime
- Consistency with the floating exchange rate regime
- Minimum adequacy of the foreign exchange interventions
- Constructive uncertainty of the parameters and tactics of the FX interventions for the market participants
- Equal opportunities for the FX market participants

During war time, FX interventions are the main monetary policy instrument

- Under high level of uncertainty, caused by full-scale hostilities, **a stable exchange rate is the main anchor** for stabilizing expectations and the key tool for fulfilling main functions of the NBU – ensuring price and financial stability
- For keeping the exchange rate stable, the NBU carries out FX interventions and uses FX restrictions

National Bank of Ukraine

*According to the Foreign Exchange Intervention Strategy of the National Bank of Ukraine

Communication of FX interventions by NBU and NBP

NBU's approach – full disclosure

The NBU according to Foreign Exchange Intervention Strategy without time lag publishes information about:

- its **intention to conduct at FX auctions** – as of the day the auctions shall be conducted;
- **motives for conducting FX interventions** through public statements, made by its authorized staff, press releases, as well as in its regular publications
- the **outcomes of FX auctions** as of the day the auctions are held
- **generalized information about all types of FX interventions** it has conducted. Such information is published once a month, no later than the fifth business day after the reporting month has ended

BUT! *The NBU shall not publish* *an announcement of its intention to conduct any other form of FX interventions (single-rate, best rate, targeted interventions) and motives of such operations to ensure their effectiveness*

NBP's approach – very limited disclosure

The NBP discloses information with time lag about:

- motives for conducting FX interventions in its regular publications (Inflation Reports, Report on Banking Sector Liquidity Monetary Policy Instruments of Narodowy Bank Polski) and sometimes through public statements, made by its authorized staff
- Amounts of FX operations carried out by the CB in its annual Report on Banking Sector Liquidity Monetary Policy Instruments of Narodowy Bank Polski

***The NBP does not publish statistical data on FX* interventions on its website!**

Both CBs publish forward guidance on their intensions to conduct FX interventions in Press releases on Monetary policy

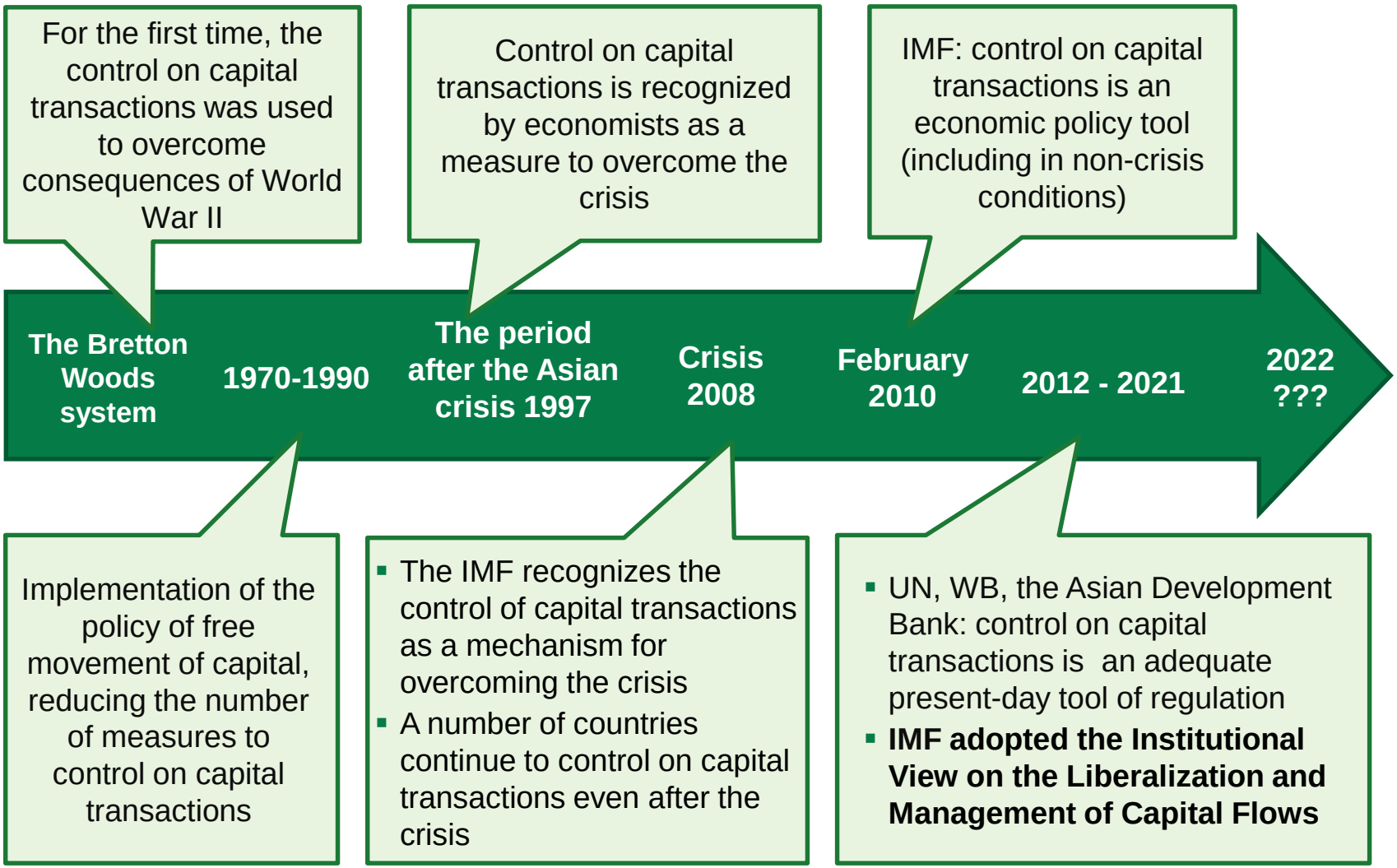
This NBP's approach to Communication of FX interventions is criticized by:

- ***Market participants and experts:*** "Our National Bank of Poland is weak in verbal interventions. One could say that they are even having the opposite effect. What [central bank] Governor Adam Glapiński and some other [rate setters] are saying is bad for the zloty" (Marian Noga, 2022)
- ***IFIs:*** "In such circumstances, FX intervention would also need to be supported by clear communication, including on an exit strategy…" (2020 IMF ARTICLE IV)

  "Should the NBP intervene in the foreign exchange market, it should publish the relevant data, in line with best practices" (2021 IMF ARTICLE IV)

Capital controls

Controls on capital transactions is one of the recognized methods for regulating the economy



Institutional View on the Liberalization and Management of Capital Flows

The IMF first adopted the Institutional View in 2012 at a time when many emerging markets were contending with large and volatile capital flows

2012

- IMF recognizes capital flows can bring significant benefits to recipient countries, but they can also result in macroeconomic challenges and financial stability risks
- Capital flow management measures (CFMs) can be useful in certain circumstances but should not substitute for warranted macroeconomic adjustment
- Capital flow liberalization should be well-sequenced and planned

2022 Review

- CFMs and macroprudential measures (MPMs) can be applied pre-emptively, even when there is no surge in capital inflows
- Pre-emptive CFM/MPMs to restrict inflows can mitigate risks from external debt. Yet they should not be used in a manner that leads to excessive distortions. Nor should they substitute for necessary macroeconomic and structural policies or be used to keep currencies excessively weak

Control on capital transactions is used by countries for:

- supporting of financial stability goals
- preventing of "overheating" of an economy due to inflows of "hot", speculative capital

!!! Capital control measures are not used by countries directly to achieve the target inflation, but they can hide the goals of inflation targeting indirectly

Controls on capital transactions in the inflation-targeting countries

Emerging market and developing economies (Ukraine – data before the war)

	European countries							Other countries			
	Albania	Poland	Romania	Serbia	Turkey	Hungary	**Ukraine**	Brazil	India	Chile	South Africa
Controls on capital transactions:											
On capital market securities	+	+	+	+	+	+	+	+	+	+	+
On money market instruments	+	+	+	+	+	+	+	+	+	+	+
On collective investment securities	+	+	+	+	+	+	+	+	+	+	+
Controls on derivatives and other instruments	+	+	+	+	+		+	+	+	+	+
Commercial credits		+			+		+	+	+		+
Financial credits		+		+	+	+	+	+	+	+	+
Guarantees, sureties, and financial backup facilities				+			+		+	+	+
Controls on direct investment		+	+	+	+	+	+	+	+	+	+
Controls on liquidation of direct investment							+		+		
Controls on real estate transactions	+	+	+	+	+	+	+	+	+	+	+
Controls on personal capital transactions				+			+		+		+
Provisions specific to: Commercial banks and other credit institutions	+	+	+	+	+	+	+	+	+	+	+
Institutional investors	+	+	+	+	+	+	+	+	+	+	+

Sources: IMF, Annual Report on Exchange Arrangements and Exchange Restrictions (Washington, July 2022).

Restrictions on capital flows[1]

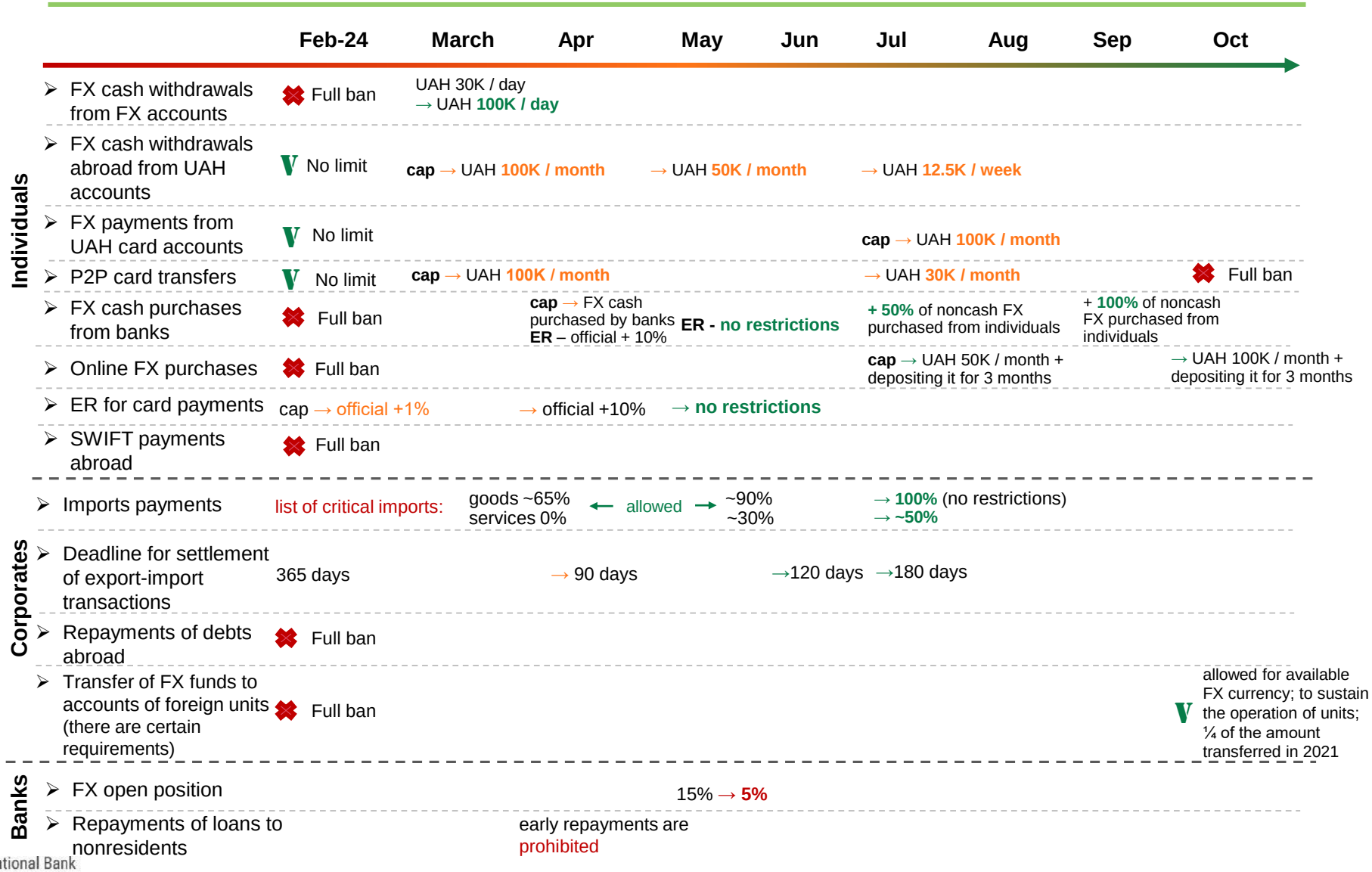
Controls on:	Poland	Ukraine[2]
Foreign exchange market	+	+
Transactions in capital and money market instruments	-	+
Transactions in derivatives and other instruments	-	+
Credit operations (commercial and financial credits)	-	+
Use of foreign exchange among residents	-	+
Financing requirements for imports	-	+
Repatriation requirements for exports	-	+
Guarantees, sureties, and financial backup facilities	-	+
On collective investment securities	+	+
Direct investment/liquidation of direct investment	+/-	+/+
Real estate transactions	+	+
Personal capital transactions	-	+
Prescription of currency requirements	-	+
Differential treatment of deposit accounts in foreign exchange/ held by nonresidents	-/-	+/+
Provisions specific to commercial banks and other credit institutions/institutional Investors	-/+	+/+
Exchange rate tax[3]	-	

[1] https://www.elibrary-areaer.imf.org/Documents/YearlyReport/AREAER_2021.pdf

[2] The official ER has been fixed and a number of temporary FX restrictions have been introduced. Authorized institutions were forbidden to trade in FX, except for some cases. The NBU has banned some international FX payments, for instance for servicing private debt. Making settlements and withdrawing cash using payment cards abroad and a number of other transactions are an exception to this ban.

[3] Ukraine. There are proposals to levy special tax on FX purchases for import transactions. No decision has been made.

NBU: some measures on the FX market to stabilize situation and prevent the unproductive capital outflow



National Bank of Ukraine

Communications on monetary policy decisions

Why does central bank communicate?

Transparency is the cornerstone of the **inflation targeting regime, because…**

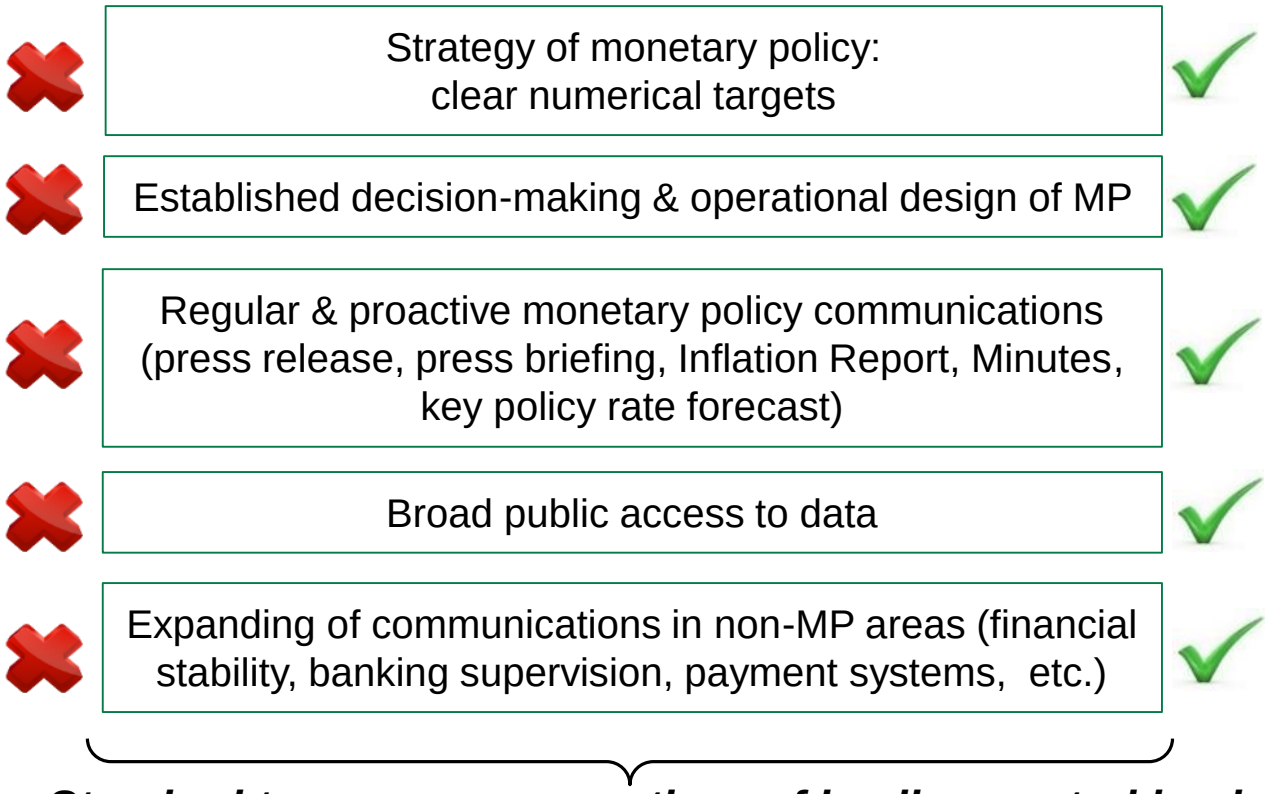
- Transparency is an element of accountability given CB independence
- Transparency reduces economic and financial uncertainty
- Transparency enhances MP predictability
- Transparency is a tool to anchor inflation expectations
- CB should communicate its goal(s) and targets clearly
- It is necessary to explain deviations from the target in times of shocks

MONETARY POLICY EFFECTIVENESS

What to communicate?

Implementation of best practice in communications is bringing central bank to another reality

FROM MYSTERY ***TO TRANSPARENCY***



Standard transparency practices of leading central banks

How to communicate?

1 Social media activity

Sample of IT-countries*	*number of countries, that have pages in social networks***					
	Twitter	**YouTube**	**Facebook**	**Flickr**	**LinkedIn**	**Instagram**
High-income*** **(16 countries)**	14	15	10	6	8	5
Low & middle-income*** **(27 countries)**	22	25	21	7	12	12

The most followed pages *(% of pop.)*:
on Facebook: Peru (3.95%), Georgia (1.20%), Hungary (1.17%), Thailand (1,06%), Philippines (0.72%)
on Twitter: Paraguay (1.07%), Peru (0.84%), Colombia (0.75%), Mexico (0.68%), Canada (0.53%)

2 Press conferences/other communication events, campaigns among targeted groups

3 Publication of:

- Strategic documents
- Overviews and reports
- Presentations
- Working papers

4 Financial literacy projects:

- road-shows
- seminars for university professors
- lectures on monetary policy at universities
- museums

5 Research communications:

- research conferences
- open research seminars

6 Broad access to data

*IMF, Annual Report on Exchange Arrangements and Exchange Restrictions (2020)
** Links to social networks pages on the official web-site of central bank, as of 03.06.2022
***WB Analytical Classifications

Quantitative assessment of CB's transparency

Dincer, Eichengreen and Geraats (2022)

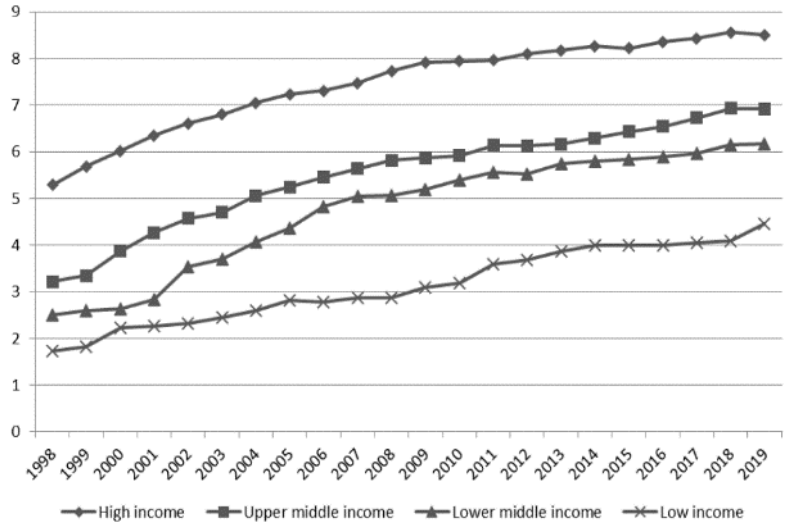
0 – secrecy **15 – transparency**

Monetary Policy Transparency Index

Political transparency	▪ formal statement and prioritization of the objectives ▪ quantification of the main objectives ▪ explicit institutional arrangements, such as instrument independence
Economic transparency	▪ key macroeconomic and financial variables ▪ macroeconomic model(s) used by the CB for its MP analysis ▪ numerical macroeconomic forecasts by the CB
Procedural transparency	▪ explicit MP strategy ▪ comprehensive, timely account of MP deliberations (or explanations in case of a single central banker) ▪ voting record for MP decisions
Policy transparency	▪ prompt announcement of adjustments in the main monetary operating instrument or target ▪ explanation of MP decisions ▪ explicit policy inclination or forward policy guidance
Operational transparency	▪ evaluation of the achievement of the main MP operating targets ▪ shocks affecting the transmission of MP ▪ evaluation of MPoutcomes

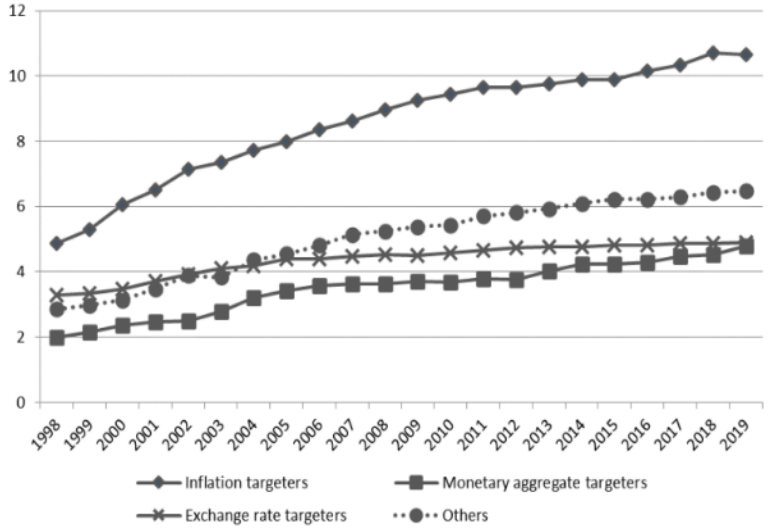
Transparency is associated with better economic outcomes and inflation targeting regime

Transparency by level of economic development*



*Unweighted average monetary policy transparency index across central banks grouped by World Bank income classification for fiscal year 2019.
Source: Dincer, Eichengreen and Geraats (2022).

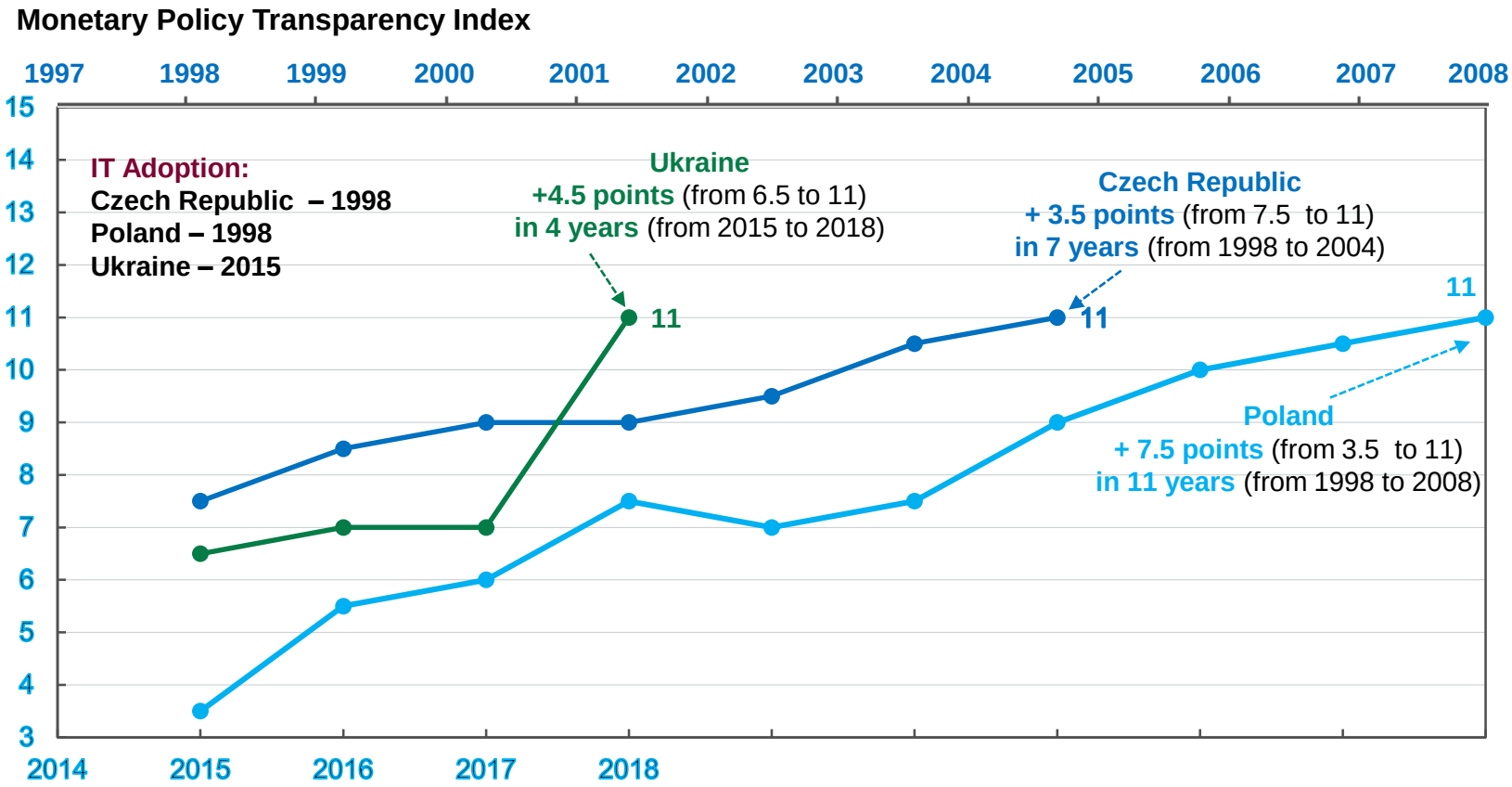
Transparency by monetary policy framework*



*Unweighted average monetary policy transparency index by IMF de facto monetary policy framework for 2019.
Source: Dincer, Eichengreen and Geraats (2022).

- Evidence from 112 central banks over 1998-2019
- Central banks from **high-income countries** experienced the strongest increase **in the first half of sample period**. **Upper-middle income and lower-middle-income countries** starting to catch up **in the early 2000s**, and **low-income countries** – **in the early and late 2010s**
- These trends partly reflect the adoption of inflation targeting, first in advanced economies and then also in emerging markets
- Inflation targeters tend to display much greater transparency than CBs with other MP frameworks

CBs in EM may vastly benefit from tapping existing experience in central bank communication and transparency



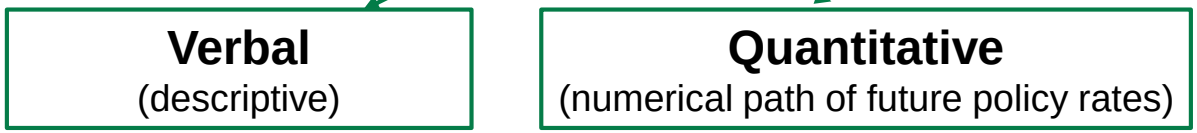
Source: Dincer/Eichengreen/Geraats Central Bank Transparency Data for 1998-2019.

The NBU, following the examples of leading central banks on targeting inflation, has an opportunity to minimize the time lag between IT adoption and achieving a high level of monetary policy transparency

What to communicate? Forward guidance

Most central banks publish their MP decisions,

…but it is important to inform the public about future course of policy decisions to guide inflation expectations → FORWARD GUIDANCE



- **Not a new element** of MP, even at zero lower bound
  - Many inflation forecast targeters use forward guidance regularly
  - Forward guidance at the **ZLB** was first adopted by the Bank of Japan in the context of its zero interest rate policy in 1999
- Filardo and Hofmann (BIS QR Mar 2014)
  - Provide additional stimulus at the ZLB when CBs communicate that policy rates will remain lower for longer could reduce long term rates (mortgages)
  - Reduce uncertainty, thereby lowering interest rate volatility and through this channel possibly also risk premium
- **Policy makers should ensure that conditional nature of projections is not mistaken with (unconditional) commitments**

“Delphic” and “Odyssean” forward guidance

Delphic FG

Forecast of macroeconomic performance and likely or intended MP actions based on the policymaker’s potentially superior information about future macroeconomic fundamentals and its own policy goals

effect

Improves macroeconomic outcomes by reducing private decision makers’ uncertainty

BUT! It does not publicly commit the policymaker to a particular course of action

Examples

Narodowy Bank Polski, 2022:
“Further decisions of the Council **will depend on** incoming information regarding perspectives for inflation and economic activity, including the impact of the Russian military aggression against Ukraine on the Polish economy”

National Bank of Ukraine, 2022:
“The baseline scenario of the macroeconomic forecast envisages that the key policy rate will be maintained at 25% at least until Q2 2024. At the same time, the balance of risks to the key policy rate forecast is assessed as having shifted upwards. If these risks materialize, the NBU could raise its key policy rate and interest rates on its monetary operations beyond their current levels …”

When unexpected events expose weaknesses and shortcomings in a Delphic framework, ***Odyssean communications arising***

Odyssean FG

effect

Communication that publicly commits the CB to a future action (time-based or state-based)

Policymakers can change public expectations of their actions tomorrow in a way that improves macroeconomic performance today

BUT! In practice, it’s quite difficult to make credible commitments of this sort → policymakers must rely on their reputations for accuracy and honesty to make their commitments credible

Examples

state-based

Bank of England, 2013:
“At its meeting on 1 August 2013, the MPC agreed its intention not to raise Bank Rate from its current level of 0.5% at least until the Labour Force Survey headline measure of the **unemployment rate had fallen to a ‘threshold’ of 7%”**

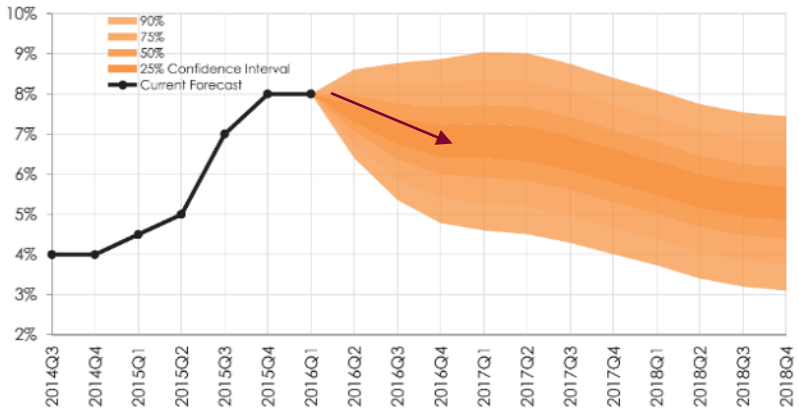
time-based

ECB, 2018:
“We decided to keep the key ECB interest rates unchanged and we expect them to remain at their present levels **at least through the summer of 2019...”**
But! There is part of delphic FG here:
“…and in any case for **as long as necessary** to ensure that the evolution of inflation remains aligned with our current expectations of a sustained adjustment path”

Publication of the key rate forecast affects the yield curve

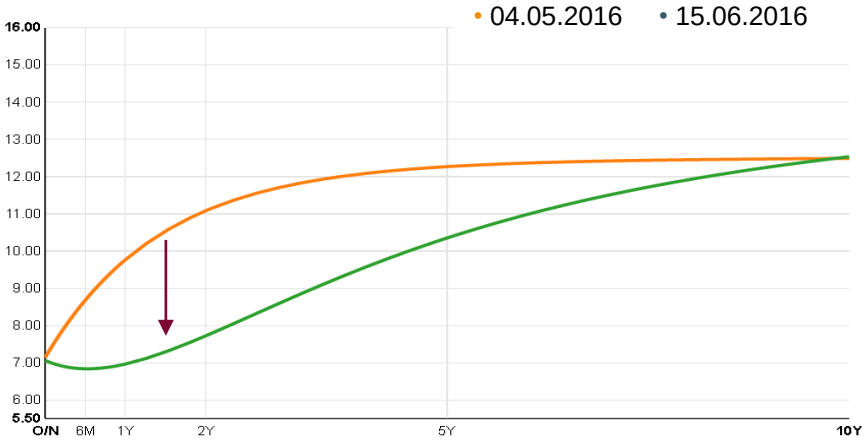
Case of Georgia

Forecast of the NBG key policy rate (IR, May 2016), %



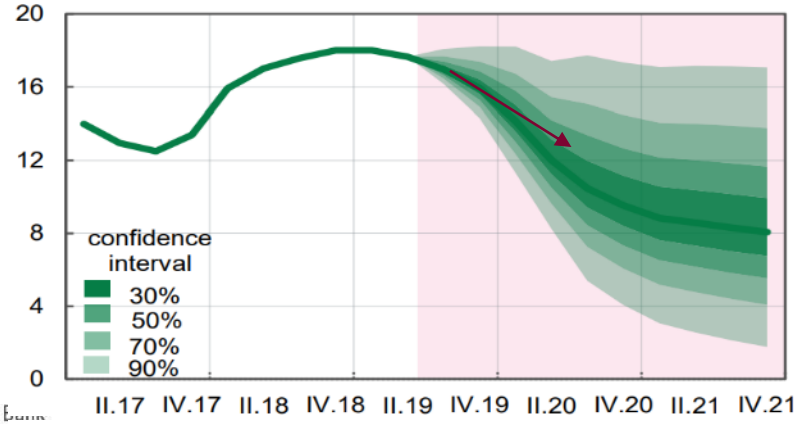
Source: The National Bank of Georgia

Yield curve



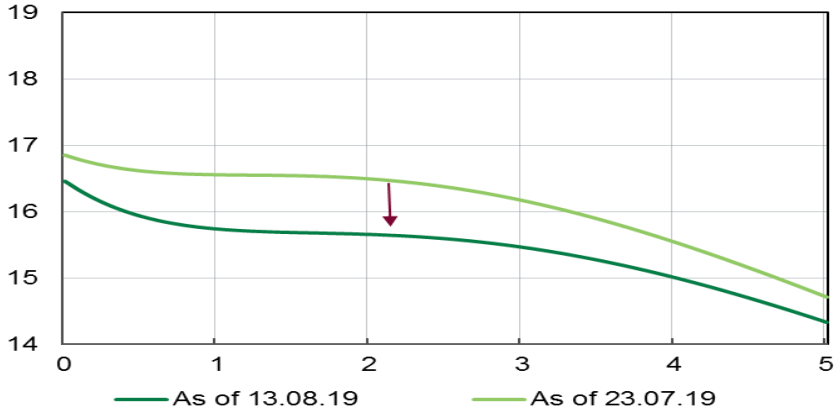
Source: The National Bank of Georgia

Forecast of the NBU key policy rate (IR, July 2019), %



Source: The National Bank of Ukraine

Yield curve



Source: The National Bank of Ukraine

NBP's & NBU's communication cycle on the decisions on monetary policy issues

	NBU	NBP
MPC meeting	+	+ *Decision making body*
Board meeting	+ *Decision making body*	–
Press release	+ *On the day the decision is taken*	
Press briefing		
Inflation Report (IR)	+ *On the 7th day after decision (quarterly)*	+ *Three times a year (In March, July, November)*
Minutes	+ *On the 11th day*	+ *>30 days after decision, the schedule of publication is predetermined*
Voting results	–	+
Meeting with experts - discussion of the forecast and the IR	+ *On the12th day after decision (quarterly)*	–