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Inflation Targeting

Institutional features of the strategy in practice

Joanna Niedźwiedzińska



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Contents

| | |
|---|----|
| Abstract | 4 |
| 1 Introduction | 5 |
| 2 Acknowledging price stability as the primary goal of monetary policy | 9 |
| 2.1 Conceptual issues | 9 |
| 2.2 Central banks' practices | 11 |
| 2.2.1 Central banks' mandates | 11 |
| 2.2.2 Exchange rate regime | 12 |
| 2.2.3 Central banks' goal independence | 14 |
| 2.2.4 Central banks' functional and institutional independence | 15 |
| 2.2.5 Decision-makers' personal independence | 17 |
| 2.2.6 Central banks' financial independence | 20 |
| 2.2.7 Central banks' instrument independence in legal acts | 21 |
| 3 Public announcement of a numerical target for inflation | 22 |
| 3.1 Conceptual issues | 22 |
| 3.2 Central banks' practices | 26 |
| 3.2.1 Previous changes to inflation targets | 26 |
| 3.2.2 Types of inflation targets | 29 |
| 3.2.3 Targeted inflation measure | 32 |
| 3.2.4 Time horizon of inflation targets | 34 |
| 3.2.5 Level of inflation targets | 35 |
| 4 Formulating monetary policy on the basis of a very broad set of information | 38 |
| 4.1 Conceptual issues | 38 |
| 4.2 Central banks' practices | 40 |
| 4.2.1 Preparation of forecasts | 40 |
| 4.2.2 Forecasted variables | 42 |
| 4.2.3 Ownership of forecasts and involvement of staff in decision-making | 44 |
| 4.2.4 Decision-making bodies | 45 |
| 4.2.5 Frequency of decision-making meetings | 47 |
| 4.2.6 Decision-making process | 49 |
| 4.2.7 Releasing voting records | 51 |
| 5 Applying high transparency and accountability standards | 53 |
| 5.1 Conceptual issues | 53 |
| 5.2 Central banks' practices | 55 |
| 5.2.1 Main central banks' publications on monetary policy | 55 |
| 5.2.2 Central banks' communication on monetary policy decisions | 55 |
| 5.2.3 Central banks' reporting to parliaments | 57 |
| 5.2.4 Central banks' open letters | 58 |
| 5.2.5 Decision-makers' background materials | 59 |
| 6 Conclusion | 61 |
| 7 Literature | 63 |

Abstract

New Zealand was the first country to introduce a monetary strategy known as inflation targeting (IT) in 1989. Since then, many other countries have adopted an inflation targeting regime. The paper discusses in detail the key institutional features of an IT strategy, as practiced by central banks. It includes an overview of mandates, inflation targets, decision-making processes and accountability mechanisms of inflation targeters. Instead of only describing the current state of IT, in many instances the paper indicates changes introduced in the past years to central banks' practices. The historical perspective relates to such aspects as reformulations of inflation targets and the evolution of decision-making processes. The paper analyses more than 40 IT central banks and indicates similarities and differences among advanced and emerging market economies. The main finding is that the reviewed institutional features have not been homogenous – neither across time, nor across central banks. In particular, when comparing advanced and emerging market inflation targeters, while in many aspects there is hardly any difference to be noted, in some cases the approach of advanced economies differs significantly from that of emerging market economies. This holds especially for the key feature of the strategy – namely defining the inflation target.

JEL Codes: E31, E52, E58, E61.

Key words: Monetary Policy, Central Banking, Policy Design.

1. Introduction

The Reserve Bank of New Zealand was the first central bank to introduce a strategy known as inflation targeting (IT) in 1989. It followed the adoption of *The Reserve Bank of New Zealand Act of 1989* that acknowledged price stability as the main objective of the monetary authority. The framework was supposed to be a pragmatic solution to the country's problem of persistently elevated inflation¹ and despite – or maybe because of – its simplicity, it proved very successful. Since then, many other advanced and emerging market economies have adopted IT (Chart 1). Currently more than 40 central banks are following this strategy and some others are preparing to join the group of inflation targeters. Alan Bollard, the Governor of the Reserve Bank of New Zealand, quite rightly assessed that “inflation targeting is one of New Zealand's successful exports” (Bollard, 2008).

Chart 1 Inflation targeters as of 2017



Source: Own compilation based on information from central banks' websites and the IMF (2018).

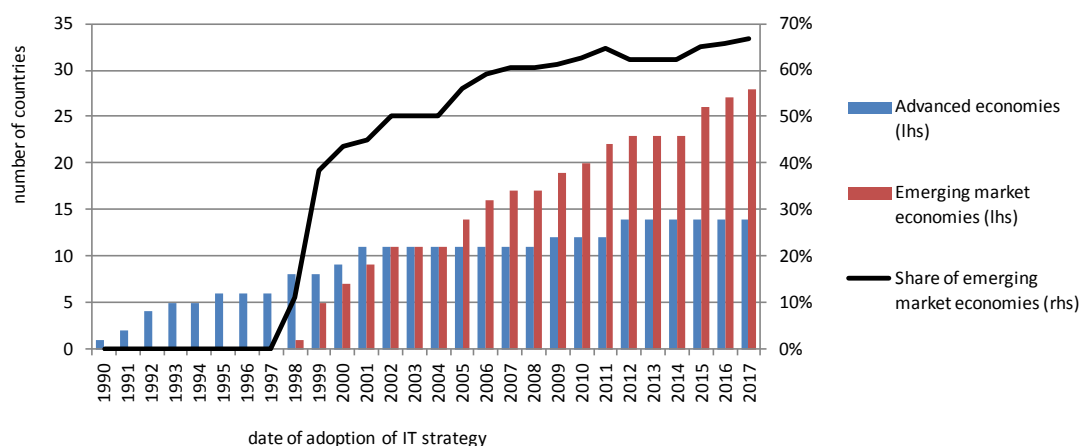
Notes: Inflation targeters include countries that describe their strategy as IT and are classified as following an inflation targeting framework in the IMF *Annual Report on Exchange Arrangements and Exchange Restrictions 2017* (IMF, 2018). Quasi-inflation targeters include major advanced economies that do not describe their strategies as IT, but follow a monetary policy strategy that shares almost all the key features of IT and in practical terms is indistinguishable from IT.

In the 1990s, inflation targeting spread to other advanced economies (Canada, Israel, the United Kingdom, Australia, Sweden). Shortly thereafter it was also adopted by some emerging market economies in South-East Asia and Latin America (Korea, Brazil, Chile,

¹ For over a decade around the 1980s inflation in New Zealand exceeded 10%, which was one of the highest inflation rates among OECD countries at that time.

Colombia), as well as transition countries in Central and Eastern Europe (the Czech Republic, Poland). By the early 2000s the shares of IT countries in advanced and emerging market economies were equal and nowadays even more inflation targeters belong to the latter group. Based on information from central banks' websites cross-checked with an overview of monetary policy frameworks published by the IMF (IMF, 2018), currently, an IT or quasi-IT strategy is used by 14 advanced economies and 28 emerging market economies (Chart 2).²

Chart 2 Number of IT countries



Source: As in Chart 1.

Notes: The chart does not include countries that followed an inflation targeting framework, but subsequently joined the euro area. Advanced economies include those classified as such by the IMF. Emerging market economies include emerging market and developing economies together with countries in transition, as classified by the IMF. In 2009 the Czech Republic was reclassified to advanced economies, which is accounted for in the chart.

In many cases the adoption of an IT framework, especially in the initial years, was a decision taken under crisis circumstances – like the ERM crisis of 1992, the Asian currency crisis of 1997-1998, the Czech currency crisis of 1997, the Latin America financial crisis of 1998, and the global financial crisis of 2008. More recently, although there are still exceptions to that rule, launching an IT strategy is often the final stage of a longer preparation process than a crisis solution. And indeed sometimes it requires considerable time to meet institutional arrangements, build up forecasting capacities and develop communication tools needed to become a fully-fledged inflation targeter. Nevertheless,

² The number does not include Uruguay, although it has been classified as following an inflation targeting framework in the IMF (2018). The reason for that is that the Central Bank of Uruguay describes its strategy as an inflation target scheme based on monetary aggregates.

the effort seems worth it, as no country that had adopted an IT regime has ever decided to change it for another monetary policy strategy.³

As the strategy emerged as an answer to specific problems faced by some central banks in the 1990s, it has been evolving over time to address new challenges that policy makers have been confronted with over the last 30 years. Therefore, during that period, a number of papers have reviewed various aspects of the strategy as put into practice by IT countries. Those reviews include, among others, Debelle (1997), Mishkin (2001), Heenan et al. (2006), Roger (2010), Hammond (2012), Grostal et al. (2014), and Naudon and Pérez (2017). They helped to build a general understanding of what constitutes crucial elements of inflation targeting and promote commonly-used practices among central banks already following that strategy or only preparing for its adoption.

Based on those analyses, it seems that the key elements of an IT strategy, as indicated also, for example, in Mishkin (2001), include acknowledging price stability as the primary goal of monetary policy, a public announcement of a numerical target for inflation, formulating monetary policy on the basis of a very broad set of information, and applying high transparency and accountability standards to central banks' policies. All of the points listed above are discussed in detail in the next sections by presenting some theoretical arguments behind them and describing central banks' practices.

The paper focuses on central banks' implementation of an IT strategy. It contributes to the already existing literature in a number of ways. First, it discusses in detail the key institutional features of the strategy, as practiced by central banks. It includes an overview of mandates, inflation targets, institutional set-ups, decision-making processes, and accountability mechanisms of inflation targeters. Second, instead of only describing the current state of inflation targeting, in many instances the paper indicates changes introduced in the past 30 years to the central banks' practices. The historical perspective

³ An interesting case is Iceland, which after the financial crisis of 2008 focused its monetary policy on stabilizing the exchange rate. However, Iceland did not officially change its monetary policy framework at that time, and thus has been counted as an inflation targeter. Moreover, some European countries that had pursued an IT strategy in the past (Finland since 1993, Spain since 1995) subsequently joined the euro area. As this was a decision driven by a process of economic and political integration, those cases should not be treated as abandoning inflation targeting because of its inadequacy. Moreover, the euro area is following a strategy very similar to the IT and has been counted as a quasi-inflation targeter.

relates to such aspects as reformulations of inflation targets and the evolution of decision-making processes. Finally, in contrast to many other studies, the paper encompasses more than 40 central banks pursuing an inflation targeting strategy, as of 2017, and indicates similarities and differences among advanced and emerging market inflation targeters.

The following economies are analysed: Albania, Argentina, Armenia, Australia, Brazil, Canada, Chile, Colombia, the Czech Republic, the Dominican Republic, the euro area, Georgia, Ghana, Guatemala, Hungary, Iceland, India, Indonesia, Israel, Japan, Kazakhstan, Korea, Mexico, Moldova, New Zealand, Norway, Paraguay, Peru, the Philippines, Poland, Romania, Russia, Serbia, South Africa, Sweden, Switzerland, Thailand, Turkey, Uganda, Ukraine, the United Kingdom and the United States. Out of that list, the euro area, Japan, Switzerland and the United States do not describe their strategy as IT, but because they follow monetary policy strategies that share almost all the key features of inflation targeting and in fact in practical terms are indistinguishable from IT, they have been included in the review. The time frame of the analysis ends in mid-2018.

2. Acknowledging price stability as the primary goal of monetary policy

2.1. Conceptual issues

Although there are many schools of economic thought, among central bankers it is rather widely accepted that monetary policy should be made responsible for maintaining price stability, as a way to create a predictable economic environment and reduce uncertainty arising from price changes. In particular, the New Keynesian model, which in its benchmark version showed that constant inflation is the optimal policy delivering a zero output gap, supported that claim (Blanchard et al., 2010). High and volatile inflation may influence decisions of economic agents (e.g. on investment and consumption), possibly disturbing proper resource allocation (Grostal et al., 2014). Therefore, safeguarding price stability should be a valuable contribution of monetary policy to sustainable economic growth. In the aftermath of the recent global financial crisis, it was, however, disputed whether caring for price stability with an eye on economic growth is enough, or whether central banks should have broader mandates, also including financial stability issues. What was criticised at that time was a too narrow focus of central banks on keeping low inflation, but not the mandate of maintaining price stability itself.

The related issue is associated with the rule: one goal – (at least) one instrument (Tinbergen, 1952), arguing that if monetary policy should strive for reaching more than one goal, it should be given more instruments. In the past, i.e. before financial stability issues became dominant in the debate, what was discussed in that context was the role of exchange rates under IT and the fear of floating (Mohanty, 2013). The argument here was that countries – especially emerging market economies – prefer smoother exchange rate movements than the exchange rate changes occurring under a floating regime. And while flexible exchange rates may act as a shock absorber and smooth output volatility, excessive volatility in exchange rates may in fact increase output volatility and itself become a source of vulnerability. Thus, despite officially floating their currencies, countries may be reluctant to let exchange rates fluctuate freely in response to macroeconomic shocks (Calvo and Reinhart, 2000). From a practical point of view, however, having any kind of exchange rate target might reduce credibility of the inflation target, as the two objectives may at times be in conflict. Therefore, while not a prerequisite for an IT strategy, it is generally accepted to conduct IT under a floating exchange rate regime and ensure that any exchange rate

interventions are consistent with the monetary policy stance geared towards meeting the inflation target.

In turn, following from arguments of dynamic inconsistency, what is also quite broadly supported is the need to grant at least instrument independence to central banks (Cukierman et al., 1992). The reasoning is that highly discretionary monetary policy – irrespective of previous promises – would generally tend to support higher economic activity at the cost of higher inflation, leading in the longer run simply to higher inflation with no beneficial effects for economic growth (Kydland and Prescott, 1977). By tasking a central bank with one main inflation goal, and making monetary authorities independent in choosing the way they achieve it, inflationary bias may be minimised. What is worth mentioning is that central banks' instrument independence is postulated as a necessary condition of monetary policy effectiveness not only under an inflation targeting strategy (Bernanke and Mishkin, 1997). At the same time, goal independence is not advocated that strongly, as governments also have incentives for choosing price stability as the main aim of monetary policy.

Instrument independence may have many different aspects, including functional, institutional, personal and financial independence (ECB, 2016). Functional independence can be described as providing a central bank with a clear objective, stated in a legally certain way. Institutional independence encompasses a prohibition to give instructions and approve, suspend or even invalidate monetary policy decisions by the government. Personal independence should, in turn, prevent conflicts of interest and requires fixed and relatively long terms of office for governors and other members of central bank decision-making bodies, accompanied by restricted grounds allowing for their dismissal. Financial independence means that a central bank has at its autonomous disposal sufficient financial resources to fulfil its mandate and is not required to finance a fiscal deficit (monetary financing).

2.2. Central banks' practices

2.2.1. Central banks' mandates

A look at the legal rules applied to inflation targeters and how they operate reveals important differences among central banks relating to acknowledging price stability as the primary goal of their monetary policy.

Chart 3 Objectives of inflation targeting central banks

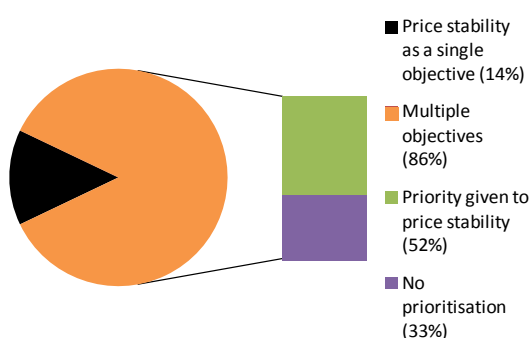
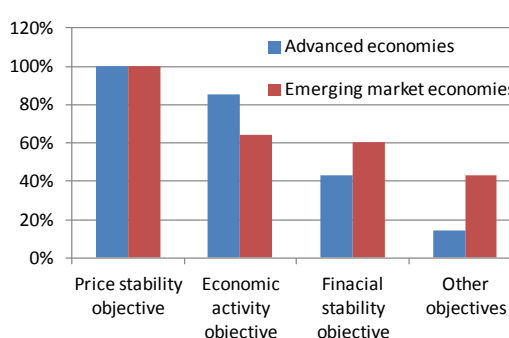


Chart 4 Share of countries with different objectives



Source: Own compilation based on information from central banks' websites.

Notes: Price stability objective is interpreted here rather broadly and apart from an explicit price stability objective includes, among others, protecting the value of money. Economic activity objective is interpreted here rather broadly and includes, among others, contributing to full employment, supporting (or at least taking into account) the policies of the government, adding to the nation's welfare. Financial stability objective is interpreted here rather broadly and includes, among others, supporting the development of the banking system. Other objectives may include ensuring a stable payment system.

Although all the analysed inflation targeting central banks have price stability objectives, contrary to conventional wisdom their legal mandates are not always formulated in a way guaranteeing its primacy (Chart 3). In fact, in 14 IT countries central banks have multiple objectives, with no priority given to low inflation. This is the case in 5 advanced economy inflation targeters (Australia, Canada, Switzerland, the United Kingdom and the United States), and 9 emerging market economy inflation targeters (Argentina, Brazil, Chile, the Dominican Republic, Guatemala, Paraguay, Russia, Thailand and Uganda). The rest of inflation targeters have either price stability as a single objective (6 inflation targeters – one advanced economy – New Zealand⁴, and 5 emerging market economies – Colombia,

⁴ In early 2018 a new Policy Targets Agreement stipulated that monetary policy in New Zealand should “be directed at achieving and maintaining stability in the general level of prices over the medium term and supporting maximum sustainable employment.” However, the Reserve Bank of New Zealand Act of 1989 has not been amended and so the primary function of the Reserve Bank is still to achieve and maintain stability in the general level of prices.

Kazakhstan, Peru, the Philippines and Romania), or price stability has explicit priority over other goals (22 countries – 8 advanced economies, and 14 emerging market economies).

Among other goals, the most frequently encountered is an economic activity objective, which may mean contributing to maximum sustainable employment or supporting the policies of the government (30 inflation targeters have a mandate including an economic activity objective – 12 advanced economies, and 18 emerging market economies; Chart 4). Nowadays, the second most often stipulated goal is a financial stability objective, which can be seen as a lesson learnt from the recent global financial crisis (23 inflation targeters have a mandate including a financial stability objective – 6 advanced economies, and 17 emerging market economies). Regarding other goals, the difference between advanced economy inflation targeters and emerging market economy inflation targeters does not seem considerable (Chart 5; Chart 6).

Chart 5 Objectives of central banks in advanced economies

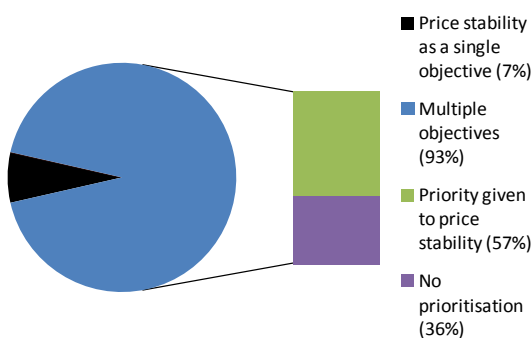


Chart 6 Objectives of central banks in emerging market economies



Source: As in Charts 3 and 4.
Notes: See notes to the previous Chart.

2.2.2. Exchange rate regime

Regarding exchange rate regimes, currently all the analysed inflation targeters officially use a floating exchange rate regime (Chart 7). In the past, countries very rarely officially declared using other exchange rate arrangements. This was the case for Israel (between 1992 and 2003) and Hungary (between 2001 and 2006). Those countries decided to keep their soft peg arrangements at the early stages of using an inflation targeting strategy, when the fear of floating was still strong and the credibility of the new monetary policy framework not yet established. This was, however, a source of problems, as the exchange

rate target was not always in line with the inflation target, creating a dilemma for these central banks.

Chart 7 *De jure* classification of exchange rate regimes used by inflation targeting central banks

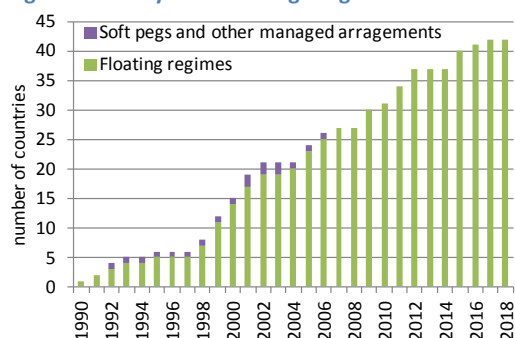
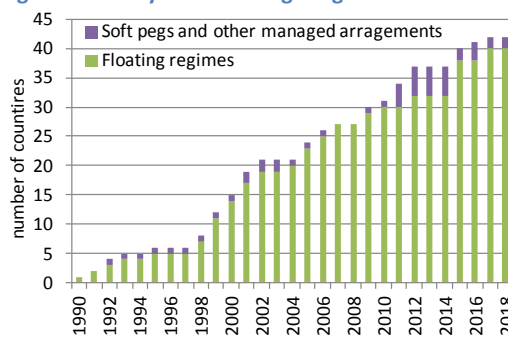


Chart 8 *De facto* classification of exchange rate regimes used by inflation targeting central banks



Source: As in Charts 3 and 4.

Notes: IMF classification for all countries, based of end-year regime. Floating regimes include floating (managed floating) and free floating (independently floating). Soft pegs and other managed arrangements include soft pegs (stabilised arrangement, pegged arrangement, crawl-like arrangement) and other managed arrangements.

Looking at *de facto* classification, the picture is slightly more nuanced (Chart 8; Table 1). Although currently the vast majority of countries use a floating exchange rate regime (with only the Dominican Republic and Serbia using soft peg arrangements), in the past there were more exceptions to that rule. Apart from Israel and Hungary, at some points – for relatively short periods – other countries also decided to more actively stabilise their exchange rates. Looking at regimes as of end-year, this was the case for Armenia (between 2013 and 2014), the Czech Republic (between 2013 and 2016), Georgia (in 2009 and 2012), Guatemala (in 2011 and between 2013 and 2016), Indonesia (in 2010 and 2012), Paraguay (in 2011), Peru (in 2011), and Switzerland (between 2011 and 2014).

Among those, the particular examples of Switzerland and the Czech Republic are worth commenting. In those two countries, the central banks decided to use the exchange rate as an instrument providing more accommodation to domestic monetary conditions, with the view of avoiding deflation, and thus maintaining price stability, when interest rates reached their lower bound and could no longer be lowered. In both cases the aim of the central bank was to weaken the exchange rate, which was supposed to support the return of inflation to the target. Thus, the decisions of those central banks relating to exchange rates were fully in line with the inflation targeting framework.

Table 1 Different exchange rate regimes (*de facto* classification) used by inflation targeting central banks

| IT countries using other exchange rate regime than a floating regime (based on end-year regime) | | | | | | | | | |
|---|---------|-----------|-------------|----------------------|----------------|------|------|--------|------------|
| before 2009 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | after 2016 |
| Israel (1992-2003) | | | Switzerland | | | | | | |
| | | | | | Czech Rep. | | | | |
| Hungary (2001-2006) | Georgia | | | Georgia Indonesia | | | | | |
| | | Indonesia | | Guatemala | Guatemala | | | | |
| | | | | | Dominican Rep. | | | | |
| | | | Paraguay | | | | | | |
| | | | Peru | | | | | | |
| | | | | | Armenia | | | Serbia | |

Source: As in Charts 3 and 4.

Notes: See notes to the previous Chart. Blue shading refers to advanced economies (also in other Tables). Red shading refers to emerging market economies (also in other Tables). The classification is based on the regime as of end-year, thus dates indicated in the Table do not fully correspond to the timing of adopting exchange rate restrictions by a given country. For Armenia – a crawl-like arrangement. For the Czech Republic – other managed arrangement and stabilised arrangement. For the Dominican Republic – crawl-like arrangement. For Georgia – other managed arrangement and stabilised arrangement. For Guatemala – stabilised arrangement and crawl-like arrangement. For Hungary – pegged arrangement. For Indonesia – stabilised arrangement and crawl-like arrangement. For Israel – crawl-like arrangement. For Paraguay – other managed arrangement. For Peru – crawl-like arrangement. For Serbia – stabilised arrangement. For Switzerland – other managed arrangement and crawl-like arrangement.

2.2.3. Central banks' goal independence

Central banks' mandates are, as a rule, stipulated in legal acts and, thus decided by other institutions than monetary authorities. They are, however, formulated in rather general terms and – as already noted – very often encompass multiple objectives. It is therefore important who is entitled to interpret those mandates and, in particular, to set a numerical value for targeted inflation which would be in line with the notion of maintaining price stability and delivering other goals expected from monetary policy.

Goal independence means that it is the central bank that translates the legal mandate into a specific inflation target. There are, however, good reasons to advocate for an involvement of the government in that process, as it would imply some commitment to the announced target also from the fiscal authorities. In some cases, the competence to choose an inflation target lies solely with the government.

As far as the details of goal independence are concerned, in half of the countries the target is set jointly by the central bank and the government (this is the case in 21 inflation targeters – 7 advanced economies, and 14 emerging market economies). In slightly fewer cases (16 countries – 5 advanced economies, and 11 emerging market economies) the target is set by the central bank on its own, and in only a few countries (5 inflation targeters – 2 advanced economies, and 3 emerging market economies) the target is set

solely by the government. Looking at the share of countries within advanced and emerging market economies with different authorities responsible for setting the inflation target, the differences are very minor (Chart 9; Chart 10).

Chart 9 Authority responsible for setting inflation target in advanced and emerging market economies

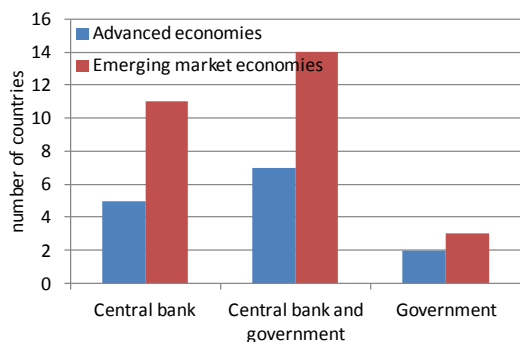
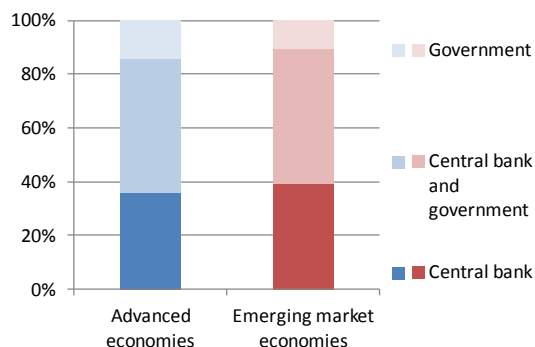


Chart 10 Share of countries with different authorities responsible for setting inflation target



Source: As in Charts 3 and 4.

2.2.4. Central banks' functional and institutional independence

Considering different aspects of instrument independence, while functional independence is less of an issue, as mandates of inflation targeting central banks are stipulated in their legal acts and are specified rather clearly by setting inflation targets, other areas of independence are worth looking at in more detail.

Chart 11 Involvement of government representatives in decision-making process in advanced economies

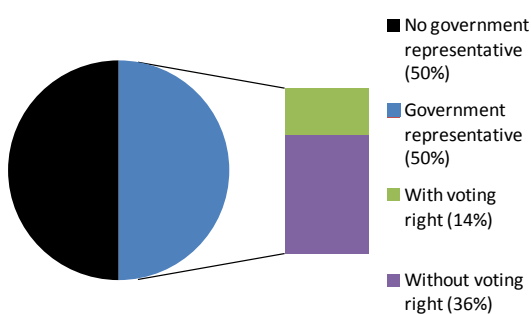
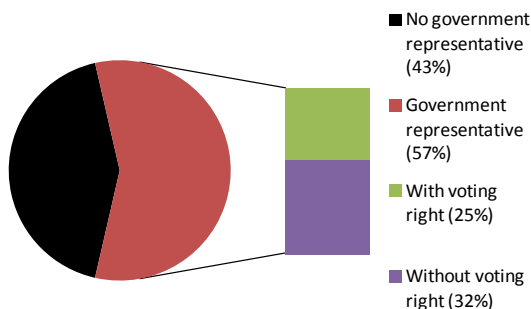


Chart 12 Involvement of government representatives in decision-making process in emerging market economies



Source: Own compilation based on information from legal acts on central banks.
Notes: Government representative means any member of the government or its representative.

Institutional independence in many countries is not that straightforward. In slightly more than half of the analysed economies (23 inflation targeters – 7 advanced economies, and

16 emerging market economies) a government representative – most frequently a minister of finance or his/her representative – has the right to attend the meetings of the decision-making body of the central bank⁵ (Chart 11; Chart 12). And in almost half of those cases (9 countries where a government representative is attending monetary policy meetings – 3 advanced and 6 emerging market economies⁶) the government representative is even a member of the decision-making body of the central bank. In one country (Colombia) the minister of finance is even the presiding member of the decision-making body of the central bank.

Table 2 Countries where the government has the right to influence monetary policy decisions

| Powers of government representative relating to monetary policy decisions | |
|--|--|
| Canada | The Minister of Finance may, after consultation with the Governor and with the approval of the Governor in Council, give to the Governor a written directive concerning monetary policy. |
| Japan | The Minister of Finance or the Minister of State for Economic and Fiscal Policy (or designated official of the Ministry of Finance or the Cabinet Office) when attending the Board meetings may submit proposals concerning monetary control matters, or request that the Board postpone a vote on proposals on monetary control matters submitted at the meeting until the next Board meeting. The Board decides whether or not to accommodate the request by voting. |
| Korea | Where the Minister of Strategy and Finance considers the decisions taken by the Monetary Policy Board to be in conflict with the Government's economic policy, he may request the Board to reconsider them. If the Board takes the same decision with at least five Members voting for it, the final decision rests with the President of Korea. |
| New Zealand | The Governor-General may, from time to time, by Order in Council, on the advice of the Minister, direct the Bank to formulate and implement monetary policy for any economic objective, other than the economic objective of achieving and maintaining price stability, for such period not exceeding 12 months as shall be specified in the order. |
| Norway | The King in Council may adopt resolutions regarding the operations of the Bank. Such resolutions may take the form of general rules or instructions in individual cases. |
| United Kingdom | The Treasury, after consultation with the Governor of the Bank, may by order give the Bank directions with respect to monetary policy if they are satisfied that the directions are required in the public interest and by extreme economic circumstances. |
| Chile | The Minister of Finance has the right to suspend the application of any decision passed by the Board for a period not exceeding 15 days and also to veto the resolutions of the Board. However, a unanimous favourable vote by the Board Members means that suspension or veto have no effect. |
| Uganda | The Minister may, after consultation with the governor and subject to this Act, give directions of a general nature in writing, relating to the financial and economic policy of the bank. |

Source: As in Charts 11 and 12.

Being a member means that the government representative has full voting rights at meetings. The exception here is Canada, where the government representative has no voting rights. In other cases, if the government representative is not a member of the decision-making body, he/she has the right to speak, so potentially also to influence

⁵ The notion “a decision-making body of the central bank” may mean either the governor – in countries where the governor is a single decision-maker, or some kind of a committee – in countries where decision-making is with collegial bodies (those may include boards, councils, committees).

⁶ Australia, Canada and Korea from advanced economies, and Colombia, Guatemala, Kazakhstan, the Dominican Republic, the Philippines and Uganda from emerging market economies.

monetary policy decisions, but has no voting rights. In turn, the exception here is Russia, where government representatives are not members of the decision-making body, but apart from the right to attend meetings, they also have the right of a consultative vote.

Looking at those issues separately for advanced and emerging market economies shows that central banks are somewhat more institutionally independent in the first group of countries, with slightly less involvement of government representatives in decision-making processes. However, in a few countries (8 inflation targeters – out of which 6 are advanced economies – Canada, Japan, Korea, New Zealand, Norway and the United Kingdom, and only 2 emerging market economies – Chile and Uganda) the government has the right to directly influence monetary policy decisions by suspending or even invalidating them (Table 2). As more such cases relate to advanced economies, it may suggest that central banks in emerging market economies are *de jure* more institutionally independent.

2.2.5. Decision-makers' personal independence

Personal independence can be assessed, in particular, by looking at terms of office of decision-makers⁷ (Chart 13). The rationale behind this is that the longer the period governors and other members of decision-making bodies hold office, the more independent they should feel.

The most typical period for both groups, i.e. governors and members, is 5 years. However, the term of office of the governor may be as short as 2 years (in the Dominican Republic), and as long as 8 years (in the euro area). In the case of other members of decision-making bodies the minimum period is 1-2 years (in the Dominican Republic and Guatemala) and the maximum is 10-14 years (in Chile and the United States). In one country (Brazil) the term of office is not specified at all. In the majority of countries the term of office of the governor is the same as other members of the decision-making bodies. In some countries (8 inflation targeters) the governor holds office longer than other members, and in a few cases (3 inflation targeters) the governor has a shorter term of office than other members.

⁷ Members' term of office refers to the term of office of the majority of members of the decision-making body.

Overall, while advanced economies tend to have slightly longer terms of office of decision-makers than emerging market economies, the difference is rather minor, and in other aspects related to the term of office, advanced and emerging market economies are also very similar (Chart 14).

Chart 13 Term of office of governors and other members of decision-making bodies

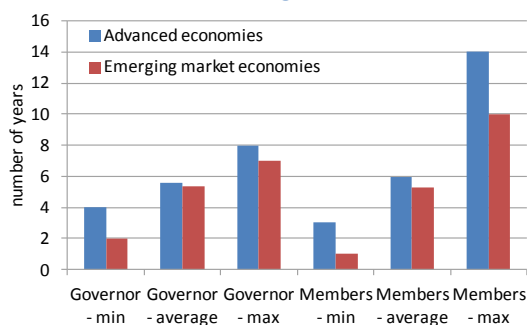
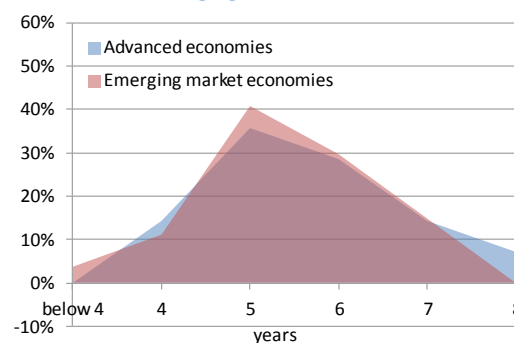


Chart 14 Dispersion in governors' term of office in advanced and emerging market economies



Source: As in Charts 11 and 12.

Notes: Members' term of office refers to the term of office of the majority of members of the decision-making body. In some cases there are different kinds of members with different terms of office (e.g. deputy governors in principle have the same term of office as governors, while other members may have a shorter term of office, in turn, government representatives have terms depending on other rules than stipulated in legal acts on central banks). For the euro area, rules referring to Board members are considered (apart from Board members, the Governing Council also consists of governors of national central banks who are appointed according to national regulations which may vary from country to country). Sweden is counted as a case when the term of office is 6 years (in the legal act it is stipulated that the appointment is "for a period of five or six years").

Another aspect related to personal independence of decision-makers is the possibility of their reappointment (Chart 15; Chart 16). The argument here is that with the view of being reappointed, decision-makers may be more easily influenced. This would be more of an issue if combined with a relatively short term of office.

What can be seen is that reappointment is quite frequently allowed. In 31 IT countries⁸ (10 advanced economies, and 21 emerging market economies), governors can be reappointed and in 19 inflation targeters (5 advanced economies, and 14 emerging market economies), there are no limits on how many terms he/she may serve. The situation with other members of decision-making bodies is very similar – in 23 inflation targeters (7 advanced economies, and 16 emerging market economies), other members can be reappointed, and in 15 IT central banks (4 advanced economies, and 11 emerging market economies), there

⁸ In cases where no explicit rule on reappointment could be found, it is assumed that reappointment is not possible.

are no limits on how many terms they may serve. Evidently, rules on reappointments in advanced economies do not materially differ from those in emerging market economies.

Chart 15 Possibility of reappointment of governors

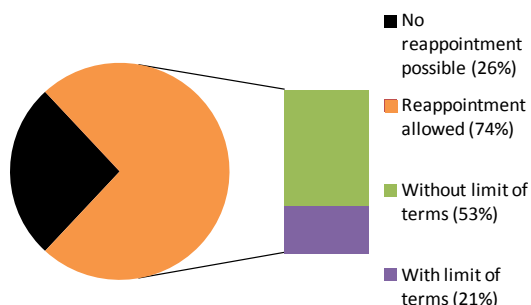
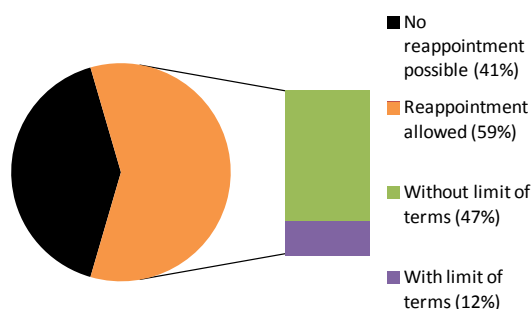


Chart 16 Possibility of reappointment of other members of decision-making bodies



Source: As in Charts 11 and 12.

Notes: Rules on reappointment of members as stipulated in legal acts on central banks are considered here. In some cases there are different kinds of members with different rules applying to their reappointment (e.g. reappointment of government representatives is not regulated by legal acts on central banks). In some legal acts on central banks it is explicitly stated that reappointment is allowed (with or without a limit of terms), or that it is not allowed. In cases where no explicit rule on reappointment could be found, it is assumed that reappointment is not possible.

If one combines rules regulating terms of office and reappointment of governors, clearly members of euro area decision-making bodies have institutional settings fostering their far reaching independence (Table 3). Without formulating too strong conclusions, on the other end of the scale is Brazil (with no fixed term indicated in legal acts) and the Dominican Republic (with a relatively short term of office and possibility of unlimited reappointment).

Table 3 Possibility of reappointment of governors and their term of office

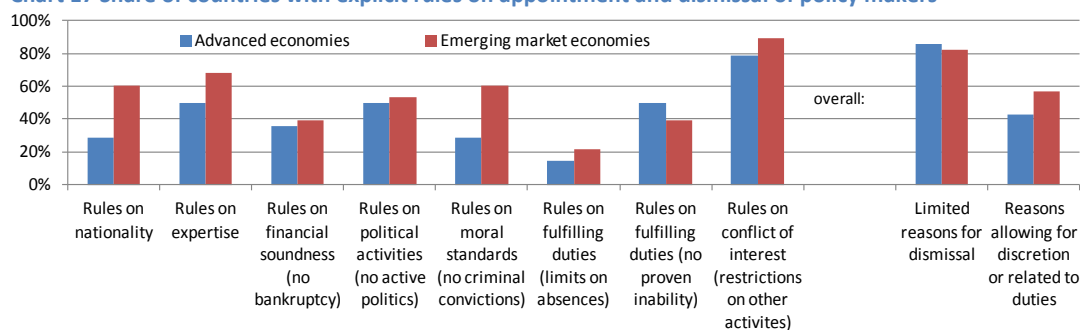
| | Term of office in years | | | | | | | |
|------------------------------------|-------------------------|----------------|---------------|----------------|-------------|-----------|---|-----------|
| | no fixed term | 2 | 4 | 5 | 6 | 7 | 8 | |
| Reappointment possible | Brazil | Dominican Rep. | Ghana | Chile | Argentina | Albania | | |
| | | | | India | Serbia | Georgia | | |
| | | | | Paraguay | Switzerland | Moldova | | |
| | | | | Romania | | Australia | | |
| | | | | Turkey | | Canada | | |
| | | | | Uganda | | | | |
| | | | | Japan | | | | |
| | | | | New Zealand | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Reappointment possible with limits | | | Colombia | Indonesia | Hungary | Ukraine | | |
| | | | Korea | Russia | Philippines | | | |
| | | | | Iceland | Poland | | | |
| | | | | Israel | Czech Rep. | | | |
| | | | | | Norway | | | |
| No reappointment | | | Guatemala | Peru | Armenia | | | Euro Area |
| | | | United States | South Africa | Kazakhstan | | | |
| | | | | Thailand | Mexico | | | |
| | | | | United Kingdom | Sweden | | | |
| | | | | | | | | |
| | | | | | | | | |

Source: As in Charts 11 and 12.

Notes: See notes to the previous Chart. Sweden is counted as a case when term of office of a governor is 6 years (in the legal act it is stipulated that the appointment is “for a period of five or six years”).

Personal independence also depends on rules on appointment and dismissal of policy makers (Chart 17). In the vast majority of countries those issues are regulated in legal acts. In many important aspects, such as regarding rules limiting political involvement of central banks' policy makers or conflict of interests, there are no major differences among advanced and emerging market economies. Overall, in 35 inflation targeters (12 advanced economies, and 23 emerging market economies) the reasons allowing for dismissal of policy makers are explicitly stated in legal acts. However, in 22 countries (6 advanced economies, and 16 emerging market economies) the legal acts leave room for discretion in interpreting them or vaguely relate to duties of the policy makers.

Chart 17 Share of countries with explicit rules on appointment and dismissal of policy makers



Source: As in Charts 11 and 12.

Notes: Rules related to the appointment and dismissal of governors may differ slightly from rules related to other members of decision-making bodies (also taking into account different types of members). The graph depicts the rules applying to the majority of decision-makers in a given central bank. The last category “reasons allowing for discretion or related to duties” includes reasons such as “gross misconduct of their duties”, “professional misconduct”, “committing an act unbecoming his status”, “violating his/her functional obligations”, “serious misconduct or gross incompetence in the performance of duties” without specifying the meaning of such phrases.

2.2.6. Central banks' financial independence

Moving to financial independence, the first thing to notice is that it is difficult to verify. However, looking at the legal rules relating to financing of the government by the central bank shows that this issue is often explicitly regulated. In 24 inflation targeters (6 advanced economies, and in 18 emerging market economies) central banks are legally prohibited from financing the government (Table 4; Chart 18). At the same time, in only in 5 countries, out of which 2 are advanced economy inflation targeters (Japan and Korea) and 3 are emerging market economy inflation targeters (Argentina, Paraguay and Uganda), are central banks formally allowed to finance governments to some extent. This would suggest

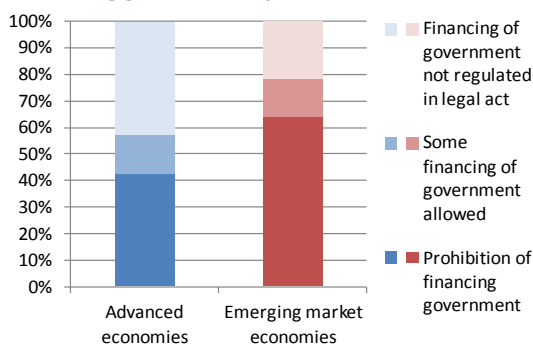
that emerging market economies put some more weight on financial independence, which could probably be partly driven by their past negative experiences.

Table 4 Countries with prohibition on financing government by central bank

| Prohibition of government financing | | |
|-------------------------------------|----------------|-------------|
| Czech Republic | Dominican Rep. | Peru |
| Euro Area | Georgia | Philippines |
| Iceland | Guatemala | Poland |
| Israel | Hungary | Romania |
| Norway | Indonesia | Russia |
| Switzerland | Kazakhstan | Serbia |
| Albania | Mexico | Turkey |
| Armenia | Moldova | Ukraine |

Source: As in Charts 11 and 12.

Chart 18 Share of countries with different rules relating to financing government by central bank



2.2.7. Central banks' instrument independence in legal acts

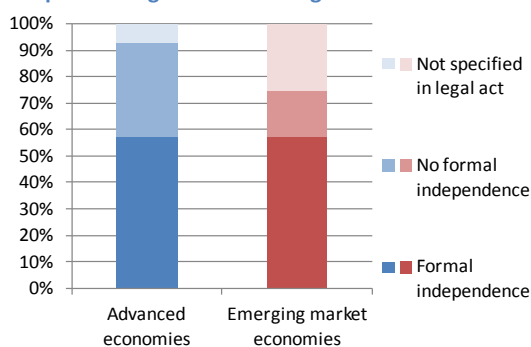
The importance of central banks' independence is, in many countries, reflected in guarantees in legal acts. In 24 inflation targeters (8 advanced economies, and in 16 emerging market economies) central banks' instrument independence is explicitly safeguarded in legal acts (Table 5; Chart 19). Regarding this aspect, no difference can be seen between advanced and emerging market economies.

Table 5 Formally independent central banks

| Independence guaranteed in legal act | | |
|--------------------------------------|-----------|-------------|
| Czech Republic | Albania | Paraguay |
| Euro Area | Armenia | Peru |
| Iceland | Chile | Philippines |
| Israel | Georgia | Romania |
| Japan | Hungary | Russia |
| Korea | Indonesia | Serbia |
| Sweden | Mexico | Turkey |
| Switzerland | Moldova | Ukraine |

Source: As in Charts 11 and 12.

Chart 19 Share of countries with central bank independence guaranteed in legal act



3. Public announcement of a numerical target for inflation

3.1. Conceptual issues

The aim of announcing a numerical target for inflation is to provide a clear nominal anchor. The use of inflation – a commonly known, frequently measured and generally understood variable – should strengthen the anchoring effect (Bernanke and Mishkin, 1997). In this way monetary policy influences the formulation of inflation expectations, presumably stabilising them close to the announced target. With inflation expectations anchored at the target, maintaining price stability should become easier, especially due to lower risks of second-round effects occurring in the aftermath of shocks hitting the economy.

There are, however, several factors that limit the ability of central banks to keep inflation at the target. Inflation developments are the outcome of many processes, some of which are beyond any control of monetary policy (e.g. weather conditions affecting crops), and some of which are to a lesser or greater extent affected by monetary policy (e.g. the labour market situation). Thus, inflation is by no means directly controlled by the monetary authority, which can only partially influence it by adjusting monetary policy instruments.

Adjusting monetary policy instruments in the right way is also easier said than done. All instruments have their limitations and there are long and variable transmission lags between monetary policy decisions and their strongest impact on the economy. What should help, is to focus monetary policy on inflation as expected within the time horizon of monetary policy transmission, which speaks in favour of devoting a lot of attention to forecasts. The problem with forecasts is that they are – by definition – uncertain. On top of that, economies are frequently hit by unexpected shocks that potentially have significant effects on inflation but cannot be predicted.

From a practical point of view central banks try to overcome the difficulties by formulating their inflation targets in such a way as to minimise potential credibility losses. In particular, one can distinguish between targets specified as a point target or as a target band, and between targets specified for headline or for core inflation (Bank of Canada, 2011).

Regarding the first choice, the target may be set as a point target (with or without an explicit band for deviations) or a band target (with or without an explicit midpoint). The

key argument in favour of a point target is that it should more strongly anchor inflation expectations on a specific level of inflation. The key argument against a point target is that it is almost impossible for a central bank to meet it, in the sense of keeping inflation at the announced level. In turn, the big advantage of a target band is that it is easier to steer inflation in between the lower and upper limit of the band, and so meeting the target should be easier. The disadvantage of a target band is that it does not give clarity to the public with respect to the level of inflation the central bank aims to achieve. Thus, the trade-off here is between the credibility of the central bank stemming from its ability to meet the target and its anti-inflation commitment stemming from less acceptance of a deviation from the narrowly specified target (Schaechter et al., 2000, and Debelle, 1997).

Moving to the targeted measure, the target may be set for headline inflation or for core inflation (i.e. inflation excluding some category of prices – typically more volatile and/or influenced to a large extent by factors beyond the control of monetary policy). The important benefit of using headline inflation is that it is commonly understood and in principle should reflect changes in the general price level as felt by the public. The drawback of headline inflation is that it is potentially significantly influenced by factors beyond the control of a central bank. In turn, a nice feature of core inflation is that it is more strongly influenced by monetary policy instruments, as it generally excludes prices that are driven by other factors (e.g. food prices, administered prices). The shortcoming of core inflation is that it may detach from headline inflation and may not be intuitive for the public. Thus, the choice here is between the credibility of the central bank stemming from its ability to meet the target and its accountability stemming from the public's understanding of the target (Mishkin, 2001, and Heenan et al., 2006).

Regardless of what kind of targets one considers, what is also important for every central bank is the time horizon for meeting the target. There can be either end-year targets or continuous ones, meaning valid not only for December of a given year, but at all times. As already noted, it is obviously impossible to “keep” inflation at the target in each period. The idea behind a continuous target is rather to constantly strive to stabilise inflation around the target level in the medium term. “Medium term” is very often not defined, giving central banks flexibility to decide how quickly or slowly inflation should be brought back to the target depending on the nature of the shock.

And indeed two approaches to IT can be distinguished – strict inflation targeting and flexible inflation targeting. The first option means that the central bank fully focuses on meeting the inflation target, irrespective of the costs it can entail in terms of the output level or volatility. Thus, under strict inflation targeting, whenever inflation deviates from the target, the central bank reacts by adjusting monetary policy instruments in order to bring inflation back to the target as soon as possible. In turn, the second option means, that the central bank pays attention to both inflation and output (Svensson, 2002, and Ingves, 2011). Therefore, under flexible inflation targeting, whenever inflation deviates from the target, the central bank decides within what time horizon it should be brought back to the target, while minimising the cost for the real economy. There are cases (e.g. supply shocks) when expanding the horizon limits the decline in real variables (e.g. output and employment), as well as mitigates the volatility of the real variables, the exchange rate and interest rates (Svensson, 2009, and Walsh, 2009). Under the flexible approach, the credibility of central banks may be at risk if the time horizon is too long, but the answer to that problem is a clear communication about the intentions of the monetary authorities rather than moving to strict inflation targeting.

Another way to mitigate credibility losses is to explicitly state a list of conditions under which the central bank accepts temporary deviations of inflation from the target, since striving to meet the target would cause undesirable volatility of output and employment. Such a list is typically called an “escape clause” and includes, for examples, natural disasters, agricultural conditions, changes in indirect taxes (Heenan et al., 2006).

Last but not least, while speaking of numerical targets for inflation, of key significance is their level. There are arguments advocating for a low, but not too low, level of targeted inflation. The target should, on the one hand, allow for preserving the value of money and mitigate distortions to the economy caused by changing prices and, on the other hand, provide room for adjustments amidst downward nominal rigidities and limit the risk of hitting an effective lower bound for nominal interest rates⁹ – the main instrument of IT central banks.

⁹ An effective lower bound used to be called a Zero Lower Bound (ZLB), but since recently a number of central banks have cut their interest rates below zero, the notion “effective lower bound” seems more accurate.

The frequently recalled costs of high and volatile inflation include the following elements. It introduces uncertainty and in particular it may provide misleading signals if price changes are wrongly interpreted as reflecting movements in demand (Lucas, 1973). As typically contracts are specified in nominal terms, by affecting the real value of nominal assets and liabilities, elevated inflation means shifting wealth from creditors to debtors, and its higher volatility significantly impedes avoiding those redistribution effects. High and volatile inflation amidst staggered price adjustments and downward nominal rigidities may also lead to misallocation of resources, via a potentially negative influence on expected profits and labour markets. Higher inflation also increases the real value of tax obligations and imposes a cost from holding liquid assets, such as currency.

At the same time, too low inflation may also be problematic. Until recently, the main argument to support that claim was related to the “grease-the-wheels” story. If nominal wages are downwardly rigid, some positive price growth facilitates real wage “cuts”, potentially improving labour market efficiency (Tobin, 1972). While this still seems to be a valid point, nowadays more emphasis is given to the “zero-lower-bound” issue. The lower the inflation target, the lower the “equilibrium” nominal interest rate and the higher the risk that a central bank will reach the limit of cutting its policy rate, if the economy is hit by a major shock. This restricts the central bank’s ability to stimulate the economy with its standard instrument, and may force the monetary authority to use non-standard measures (Bank of Canada, 2011). The effectiveness and costs related to those unconventional policy tools are, however, not always easy to assess. Another reason for choosing a positive level of targeted price growth is the existence of a positive measurement bias, meaning that inflation may in fact be lower than indicated by statistical data (ECB, 2013)¹⁰. Moreover, central banks in emerging market economies should also take into account the consequences of a catching-up process for domestic price developments, and in particular a possible Balassa-Samuelson effect, which speaks for somewhat higher inflation targets in that group of countries.

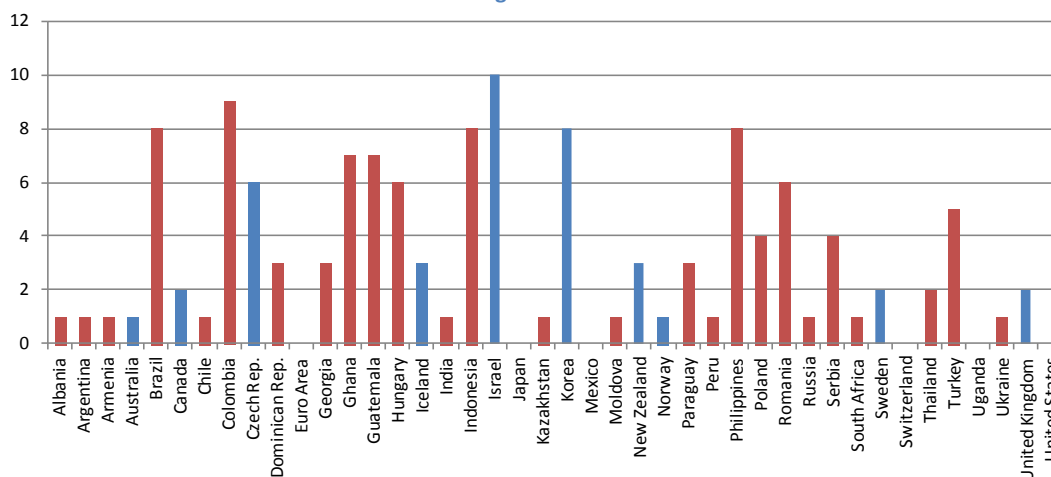
¹⁰ It is often indicated that consumer price inflation may not be correctly measured, especially since it is difficult to capture price changes adjusted for quality improvements and substitution among products.

3.2. Central banks' practices

3.2.1. Previous changes to inflation targets

Central banks do pay attention to the formulation of their target, as evidenced by the fact that almost all of them changed it at least once in the past (Chart 20).

Chart 20 Number of reformulations of inflation targets until mid-2018



Source: As in Charts 3 and 4.

Notes: Blue bars refer to advanced economies (also on other Charts). Red bars refer to emerging market economies (also on other Charts). Reformulations may include several changes introduced at one occasion. The already announced changes in the target levels that are going to take place in 2019 and subsequent years are not counted, because it would distort the comparison between countries. Reformulations of the inflation target may include changing the type of the target, the level of the target, the width of the tolerance band around a point target, targeted inflation measures, or the target horizon. The revisions to the already announced target for a given year are not counted (those were, however, very rare).

There are only 6 countries that have never reformulated their inflation targets. They include 4 advanced economies – the euro area¹¹, Japan, Switzerland and the United States, and 2 emerging market economies – Mexico and Uganda. All the others have changed either the level of the target, the type (point/point with a tolerance band/band/band with a midpoint¹²), the inflation indicator to which the target refers (headline vs. core inflation)

¹¹ Though in 2003 the ECB slightly changed the wording of its definition of price stability from “below 2%” to “below, but close to, 2%”, claiming that this was not a change of the target, but its clarification.

¹² Point targets indicate only the single number at which inflation expectations should be anchored. Point targets with tolerance bands indicate a number at which inflation expectations should be anchored (a point target) with a surrounding interval (a tolerance band) that explicitly should make it clear for the public that some upward and downward deviations of inflation from the point target are inevitable, and as long as they are small monetary authorities may not react to them. Band targets indicate an interval within which inflation should hover, without pointing to any number

or time horizon of the target (end-year vs. continuous). Among countries where targets have been most often modified, i.e. at least 8 times (whereas on one occasion several features of the target might have been changed) are Israel and Korea from advanced economies, and Brazil, Colombia, Indonesia, and the Philippines from emerging market economies.

If additionally one takes into account how long a country has been pursuing an IT strategy, still within the group of advanced economy inflation targeters, 2 – Israel and Korea (with an average of 0.4 changes per year) – have most frequently changed their definition of their targets. And in the case of emerging market economies, if the same threshold of at least 0.4 changes per year is used, the group becomes significantly larger. It includes 15 economies, whereas the targets have been most frequently modified in Kazakhstan and Ukraine (with an average of 1 change per year)¹³, Indonesia and Ghana (with an average of 0.6 changes per year), Argentina, Colombia, the Dominican Republic, Guatemala, Romania and the Philippines (with an average of 0.5 changes per year), and Brazil, Hungary, Paraguay, Serbia and Turkey (with an average of 0.4 changes per year).

Two points should be mentioned here. First, a number of countries adopted an inflation targeting strategy as the final stage of a disinflation process (15 inflation targeters), which almost by definition implied that their targets changed more often (Chart 21). This was the case for 2 advanced economies (Israel, Korea), and 13 emerging market economies (Argentina, Brazil, Colombia, the Czech Republic¹⁴, Georgia, Ghana, Hungary, Indonesia, Kazakhstan, Poland, Romania, Serbia and Ukraine). Second, the most often changed feature of inflation targets has indisputably been their level (changed on 119 occasions – 32 in advanced economies, and 87 in emerging market economies), but the type of inflation targets has been – though much less – also relatively frequently modified (changed 28 times – 15 in advanced economies, and 13 in emerging market economies). Other modifications have been rather rarely introduced (Chart 22). The target horizon was changed 14 times (3 in advanced economies, and 11 in emerging market economies), the

preferred by the central bank. Band targets with midpoints indicate an interval within which inflation should hover, but also a number (a midpoint) preferred by the central bank at which inflation expectations should be anchored.

¹³ Kazakhstan adopted an IT strategy only in 2015, whereas Ukraine only in 2017.

¹⁴ When the Czech Republic was adopting an IT strategy it was still classified as an emerging market economy (the Czech Republic was reclassified to advanced economies in 2009).

width of tolerance bands was adjusted on 11 occasions (4 in advanced economies, and 7 in emerging market economies), and changes to the targeted inflation indicator happened only 8 times (6 in advanced economies, and 2 in emerging market economies).

Chart 21 Initial motivation for announcing inflation targets

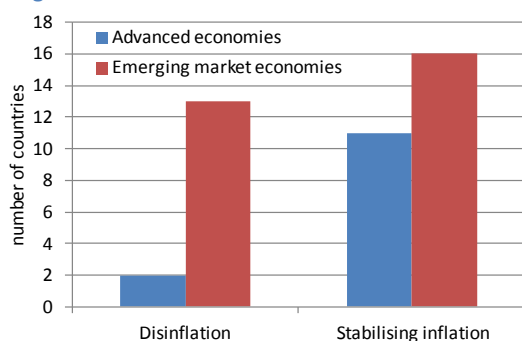
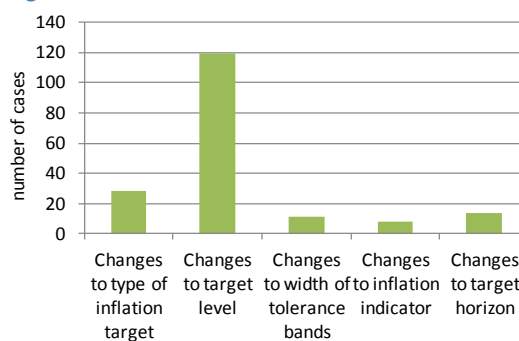


Chart 22 Number of reformulations of inflation targets until mid-2018



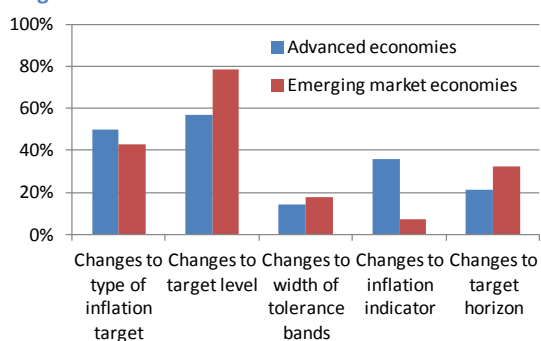
Source: As in Charts 3 and 4.

Notes: If the target was changed from a point target with tolerance bands to a point target, this change is counted as a change to the type of inflation target, but not as a change to the width of tolerance bands. If the target was originally formulated as a point target with tolerance bands and the width of tolerance bands changed, but the point target remained the same, this change is counted as a change to the width of tolerance bands, but not as a change to the target level. The exception to this rule is Iceland, as tolerance bands were asymmetrical for the first two years of implementing an IT strategy there. If the target was originally formulated as a band target and changed to a point target, this change is counted as a change to the target level, even if the midpoint of the band target is the same as the level of the point target. The Czech Republic is counted as an emerging market economy on the left hand chart (when the Czech Republic was adopting IT strategy it was classified as emerging market economy).

If one considers countries that in the past were more eager to reformulate their targets (Chart 23; Chart 24), not much difference can be seen between advanced and emerging market economies in the case of changes to the type of inflation target (7 advanced economy inflation targeters, and 12 emerging market economies changed it at least once) or the width of tolerance bands (2 advanced economies, and 5 emerging market economies decided to modify it). At the same time, advanced economies were more willing to modify the targeted inflation measure (5 advanced economies, and 2 emerging market economies changed it), which can be attributable to the fact that initially it was much more common that targets referred to some kind of core inflation measure and only later it became more typical to target headline inflation. Since emerging market economies joined the group of inflation targets later, very often they adopted headline inflation targets straight away, and thus had no reasons to change that afterwards. In turn, emerging market economies more frequently modified the level of the target (in the case of advanced economies such a change occurred in 8 inflation targeters, and in emerging

market economies in 22 countries) and target horizon (it was changed in 3 advanced economies, and in 9 emerging market economies), which to a great extent may be explained by the already mentioned disinflation process. To sustainably lower inflation, gradually decreasing end-year targets were announced. If disinflation succeeded and countries moved to stabilising inflation at a constant level, they usually switched to continuous targets.

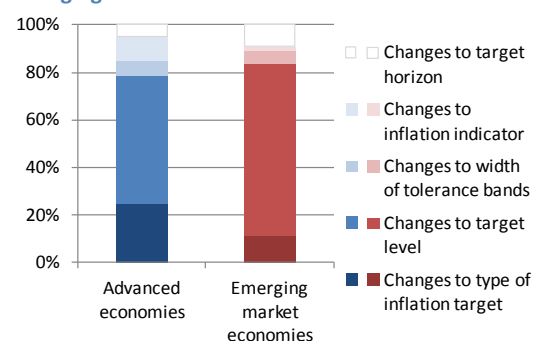
Chart 23 Share of advanced and emerging market economies introducing any changes to inflation targets



Source: As in Charts 3 and 4.

Notes: See notes to the previous Chart.

Chart 24 Different kinds of reformulations of inflation targets introduced in advanced and emerging market economies



3.2.2. Types of inflation targets

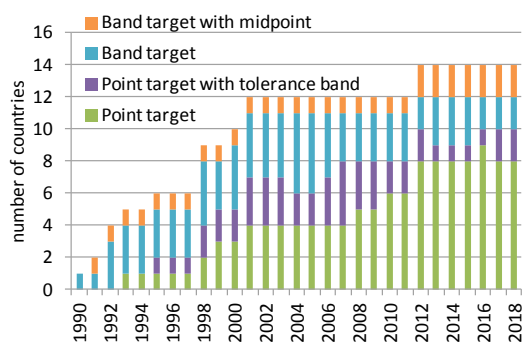
Looking at different types of inflation targets, all of them are used (point targets by 14 inflation targeters, point targets with tolerance bands by 23 countries, band targets by 3 countries, and band targets with midpoints by 2 countries), but over time some types clearly became more popular (Chart 25; Chart 26).

In the case of advanced economies, initially a band target was most commonly used, but over the last 10 years point targets have become dominant (currently 8 advanced economies use point targets). Regarding the choice of target type, the rest of advanced economy inflation targeters have remained quite diversified, as some of them use point targets with tolerance bands (currently 2 – the Czech Republic and Sweden), band targets (currently 2 – Australia and Israel) and band targets with midpoints (currently 2 – Canada and New Zealand).

In turn, in the case of emerging market economies, quite early a strong preference for point targets with tolerance bands have become apparent (currently 21 emerging market

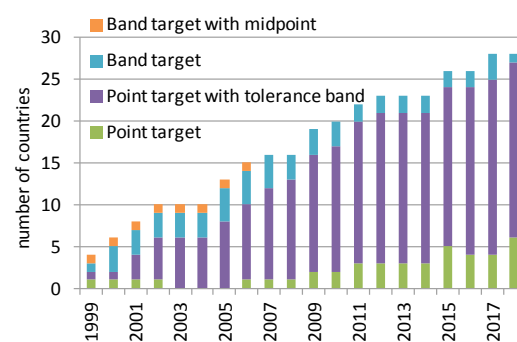
economy inflation targeters use point targets with tolerance bands). The second choice for emerging market economies are nowadays point targets (currently used by 6 countries – Albania, Argentina, Georgia, Kazakhstan, Russia and Uganda), with almost no support for the other two target types (currently one emerging market economy uses a band target – South Africa).

Chart 25 Type of inflation targets used by advanced economies – number of countries



Source: As in Charts 3 and 4.

Chart 26 Type of inflation targets used by emerging market economies – number of countries



The proportion of countries with a certain target type often changed in response to incorporating the newcomers in the counting, but changing the target type by inflation targeters after some years was also practiced quite a lot. Within advanced economies 6 countries decided to switch between different target types at least once (in half of the cases – Israel, Korea and Sweden – the change occurred even more than once, and in the Czech Republic, Iceland and New Zealand only one reformulation of the target type was decided). The situation looked similar within emerging market economies, out of which 13 countries (Albania, Argentina, Armenia, Chile, Colombia, Ghana, Guatemala, Hungary, India, Kazakhstan, the Philippines, Poland and Thailand), decided to change at some point the target type (however, in this group only in Hungary has the change been revised, while in other countries if a country decided to switch from a band target to a point target with or without tolerance band, it stayed with its latter choice).

Chart 27 Width of tolerance bands used by IT economies – number of countries

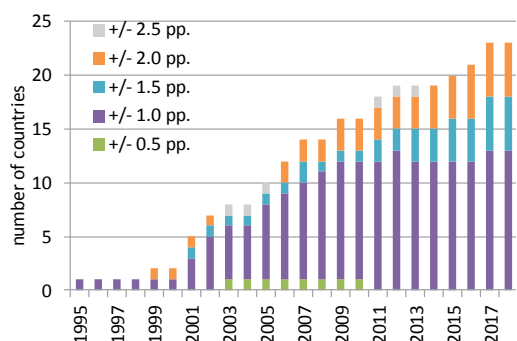
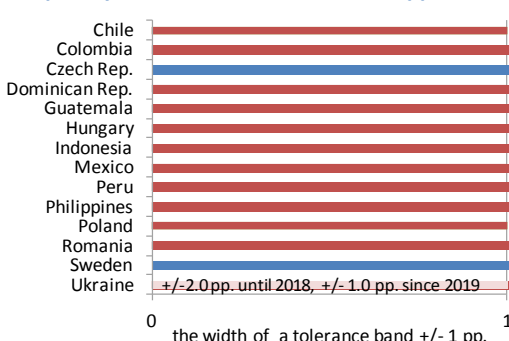


Chart 28 Countries with a point target with the most frequently used tolerance band of +/- 1 pp.



Source: As in Charts 3 and 4.

Notes: Only countries with a point target with tolerance bands are included. Iceland, despite the fact that in the first two years it used an asymmetrical tolerance band (the lower limit was always set at -1.5 pp., but the upper limit was initially higher and was gradually reduced to 1.5 pp.), was treated as belonging to the group of countries with tolerance bands of “+/- 1.5 pp.”.

Among economies using a point target with a tolerance band (23 inflation targeters – 2 advanced economies, and 21 emerging market economies), the most frequently used tolerance band width is +/- 1 pp. (preferred by 13 out of the 23 inflation targeters using a point target with a tolerance band – 2 advanced economies, and 11 emerging market economies; Chart 28). Some countries use wider bands of +/- 1.5 pp. (5 countries – all of which are emerging market economies) or +/- 2.0 pp. (5 countries – again all of which are emerging market economies), while previously applied narrower bands of +/- 0.5 pp. and much wider bands of +/- 2.5 pp. are no longer used (Chart 27; Table 6).

Table 6 Different widths of tolerance bands

| IT countries with targets specified as a point target with a tolerance band - with the width of a tolerance band other than +/- 1 pp. | |
|---|--|
| | 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 |
| +/- 0.5 pp. | Colombia (since 2003, until 2010) |
| +/- 1.5 pp. | Iceland (since 2001, until 2007) Armenia (since 2007) Serbia (since 2011) Moldova (since 2013) Thailand (since 2015) Brazil (since 2017) |
| +/- 2.0 pp. | Brazil (since 1999, until 2002) Brazil (since 2006, until 2016) Turkey (since 2006) Serbia (since 2009, until 2010) Ghana (since 2011) Paraguay (since 2014) India (since 2016) Ukraine* (since 2017) |
| +/- 2.5 pp. | Brazil (since 2003, until 2005) Paraguay (since 2011, until 2013) |

Source: As in Charts 3 and 4.

Notes: See notes to the previous Chart.

Apart from the already noted short episode in Iceland (where tolerance bands were asymmetrical for the first two years of implementing an inflation targeting strategy, with the lower limit kept at -1.5 pp., but the upper limit initially set higher and gradually decreased to +1.5 pp.), all countries use symmetrical tolerance bands, which signals that deviations both above and below the target are treated the same way.

3.2.3. Targeted inflation measure

Regarding the targeted inflation measure, while in the early years of IT – when the credibility of the new strategy had not yet been tested – countries tended to use some kind of core inflation measure, or in some other way stressed that monetary policy cannot control the general level of prices (e.g. by using explicit “escape clauses”). Nowadays, it is rather an exception to the rule, as the vast majority of inflation targeters (40 IT central banks) of both advanced (13 countries) and emerging market economies (27 countries) base their targets on headline inflation (Chart 29; Chart 30). Only Sweden and Uganda are targeting some kind of exclusion measure. An interesting case is Korea, where first the target referred to headline inflation, then – for a few years – to a core measure, and lately again to headline inflation. In turn, in Chile the target relates to both headline and core inflation.¹⁵ As regards the use of “escape clauses”, again only 2 countries – one advanced economy (the Czech Republic), and one emerging market economy (Romania) – currently use them, listing conditions that excuse the central bank from taking actions aimed at bringing inflation back to the target.

It is important to note that the way inflation is measured is not uniform across countries (and even within countries there might be differences, as is the case in Peru, where CPI for Metropolitan Lima is used, and in South Africa, where CPI for urban areas is used).¹⁶ In particular, headline inflation may include different price categories, depending on the chosen methodology. In some countries, the cost of mortgage interest payments or

¹⁵ The central bank of Chile does not specify which inflation indicator it considers more relevant for evaluating its actions – headline CPI or CPI excluding prices of vegetables, fruit and fuel. If shocks related to the excluded price categories are random, it can be expected that headline inflation hovers around core inflation, so while deviations from the target of headline inflation are generally higher than that of core inflation, the average of the two measures should be more or less equal. This is, however, not always the case.

¹⁶ In those two countries, apart from difficulties with measuring prices in the whole country, an important argument for using an inflation measure with smaller geographical coverage, is the fact that their population is concentrated in regions covered by the restricted inflation measure.

imputed rents for owner-occupied dwellings are treated as parts of consumer prices, while in other countries those prices do not appear in headline inflation. Likewise core inflation, which in principle is computed by excluding certain types of prices from the headline measure, may encompass various categories of goods, thus having a different meaning, depending on the applied exclusion criteria.¹⁷

Chart 29 Targeted inflation measures in advanced economies – number of countries

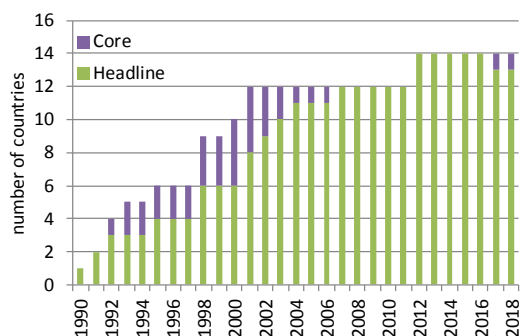
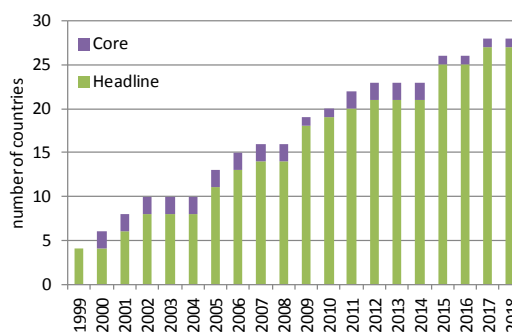


Chart 30 Targeted inflation measures in emerging market economies – number of countries



Source: As in Charts 3 and 4.

Notes: The following notation is used: Headline – headline measure of consumer price inflation (e.g. CPI in Poland, HICP in the euro area, PCE in the United States), Core – any kind of exclusion measure of consumer price inflation (e.g. inflation excluding food and energy prices or inflation excluding mortgage interest payments). In Chile the target relates to both headline and core inflation, but here Chile is counted as using a headline inflation target.

Considering examples of countries that at some stage decided to target any kind of core inflation measure, in principle there were two price categories that tended to be excluded from the targeted measure (Table 7). The first group consists of prices that are beyond the control of monetary policy, i.e. prices of food and energy or regulated prices. Those prices fluctuate due to, for example, weather conditions, OPEC agreements, government policies and other factors that cannot be influenced by monetary policy decisions. In turn, the second group of prices includes prices that are very strongly affected by monetary policy, such as, for example, the costs of mortgage interest payments. If monetary policy is tightened, those costs almost automatically increase, counter-intuitively leading in the short-run to higher headline inflation, which in principle – when monetary transmission mechanism is given some time to work through the economy – should decrease as a result of monetary policy tightening (the reverse happens when monetary policy is loosened).

¹⁷ The often applied exclusion criteria include excluding prices of food and energy, excluding the most volatile prices, excluding administered or regulated prices.

These prices are therefore often excluded from the targeted inflation measure, as their changes introduce misleading signals.

In the past, Australia used to target CPI excluding prices of fruit and vegetables, petrol, interest costs, public sector prices, and other volatile prices (between 1993 and 2003). Other countries decided to exclude prices more selectively. The most typically disregarded prices were prices of agricultural products and oil, as in Korea (between 2000 and 2006) and Thailand (between 2001 and 2014), mortgage interest payments, as in South Africa (between 2001 and 2008) and the United Kingdom (between 1992 and 2003), and regulated prices, as in the Czech Republic (between 1998 and 2001). Currently, Chile – apart from the headline CPI measure – is also targeting CPI excluding prices of vegetables, fruit and fuel, Sweden – CPI with fixed interest rate (since late 2017), and Uganda – inflation excluding food crop prices (since 2012).

Table 7 Different measures of targeted inflation

| IT countries targeting a measure other than headline inflation | | | | | | | | | | | | | | | | |
|--|-----------|------|-----------|------|------|------|------|------|------|------|-----------|-----------|--------------------------|------|------|------|
| 1992 | 1993-1997 | 1998 | 1999-2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009-2011 | 2012-2014 | 2015 | 2016 | 2017 | 2018 |
| United Kingdom (since 1992, until late 2003) | | | | | | | | | | | | | | | | |
| Australia (since 1993, until 2003) | | | | | | | | | | | | | | | | |
| Czech Republic (since 1998, until 2001) | | | | | | | | | | | | | | | | |
| Korea (since 2000, until 2006) | | | | | | | | | | | | | | | | |
| South Africa (since 2001, until 2008) | | | | | | | | | | | | | | | | |
| Thailand (since 2001, until 2014) | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Uganda (since 2012) | | | |
| | | | | | | | | | | | | | Sweden (since late 2017) | | | |

Source: As in Charts 3 and 4.

Notes: For Australia – CPI excluding fruit and vegetables, petrol, interest costs, public sector prices and other volatile prices. For Chile – CPI excluding vegetables, fruit and fuel. For the Czech Republic – CPI adjusted for regulated prices and for the effect of administrative measures (e.g. indirect tax increases, subsidy cancellations). For Korea – CPI excluding agricultural products and oil. For South Africa – CPI for urban areas excluding mortgage interest costs. For Sweden – CPI with fixed interest rate. For Thailand – CPI excluding raw food and energy prices. For Uganda – inflation excluding food crop prices. For the United Kingdom – retail price index excluding mortgage interest payments.

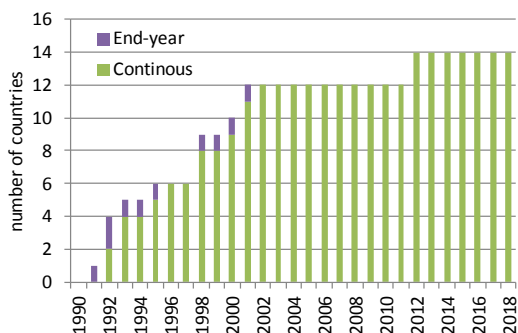
3.2.4. Time horizon of inflation targets

Looking at the time horizon of the targets, the most prevalent choice is a continuous target (Chart 31; Chart 32). Continuous target means that inflation should run close to the target possibly at all times, i.e. the target should be met on a continuous basis, i.e. each month, quarter, year (currently it is used by all advanced, and 24 emerging market economy inflation targeters).¹⁸

¹⁸ As already noted, in the past, in many countries, especially those that used an IT strategy for finalising disinflation, in the first years the targets were set as end-year targets. It was rather a

The only 4 countries that keep to end-year targets are Argentina, Ghana, Turkey and Ukraine. Those countries have not yet managed to permanently lower their inflation levels to their longer-term targets, so they may be seen as continuing disinflation processes.

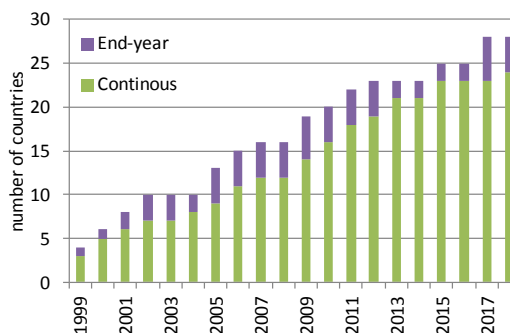
Chart 31 Time horizon of inflation targets in advanced economies – number of countries



Source: As in Charts 3 and 4.

Notes: In a number of cases the initial target was set as a certain inflation level targeted within a few years' time. Thus, strictly speaking, in the first years there was no target specified.

Chart 32 Time horizon of inflation targets in emerging market economies – number of countries



A topic related to the time horizon of the targets is how quickly inflation should be brought back to the target, if it deviates from it (e.g. as a result of an external shock). Here almost all countries explicitly indicate that they aim at stabilising inflation at the target in the medium term. This reflects the transmission lags of monetary policy and allows for flexibility in reacting to shocks, under flexible inflation targeting.

3.2.5. Level of inflation targets

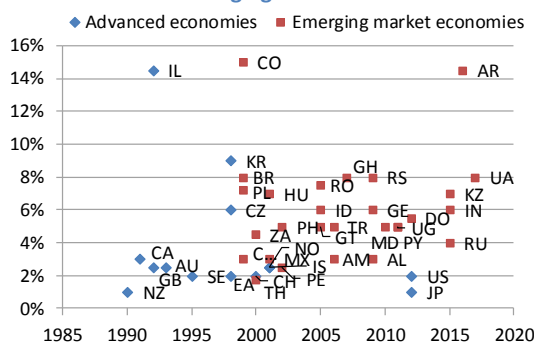
Finally, of key importance is the level of the inflation target. When comparing target levels¹⁹, there are several points worth mentioning. Firstly, there has been a visible decline of target levels across countries over the years, but still advanced economies tend to have lower targets than emerging market economies (Chart 33; Chart 34). This holds both for initial target levels (with an average for advanced economies standing at 3.8% compared to an average for emerging market economies standing at 6.0%) and current target levels (an average of 2.1% for advanced economies compared to an average of 4.3% for emerging market economies; Chart 35; Chart 36).

standard practice to move to a continuous target once the longer-run level of the inflation target was announced.

¹⁹ Target level is the midpoint of the target, independent of the target type.

A prominent exception to the trend to lower inflation targets was New Zealand, which in fact increased its target from the initial level of 0-2%, first to 0-3% in 1996, and later to 1-3% in 2002. After that change all inflation targeters officially strive to maintain price growth at a positive level (only in the case of Switzerland, with the target specified as “less than 2%”, it is not clear if 0% inflation should be considered as consistent with the target).

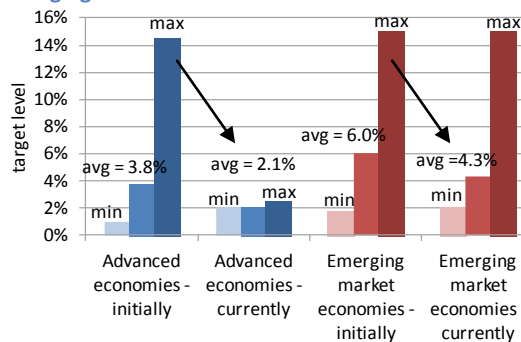
Chart 33 Initial target level and date of IT adoption in advanced and emerging market economies



Source: As in Charts 3 and 4.

Notes: Target level in the case of point targets is the value of the point target and in the case of target bands – the midpoint of the band. In the case of economies when the target is specified as "below x%" it is assumed that the target is x%. Initial target level is the target announced when an IT strategy was adopted (at times it was not a target for the first year of pursuing IT, but a target with a more distant horizon). Current target level refers to inflation targets for 2018. Two-letter country codes are used on the left hand Chart.

Chart 34 Changes in target levels in advanced and emerging market economies



Higher target levels in emerging market economies seem to reflect lower levels of economic development of those countries, and the ongoing catching-up process. Higher preferable levels of inflation should simply allow for the catching-up process to take place also via nominal price adjustments. In other words, higher target levels follow from considering the possible Balassa-Samuelson effects. At the same time, as still many emerging market economies, often less developed, join the group of inflation targeters, with newcomers often using an IT strategy first to finalise disinflation, this effect is exaggerated. Almost by definition, including newcomers increases the average level of inflation targets in that group of countries. However, in many emerging market economies target levels are already low and comparable to advanced economies (this is the case for Peru with a target of 2% +/- 1 pp., Poland and Romania with targets of 2.5% +/- 1 pp. and Thailand with a target of 2.5% +/- 1.5 pp.).

Chart 35 Changes to inflation target levels in advanced economies

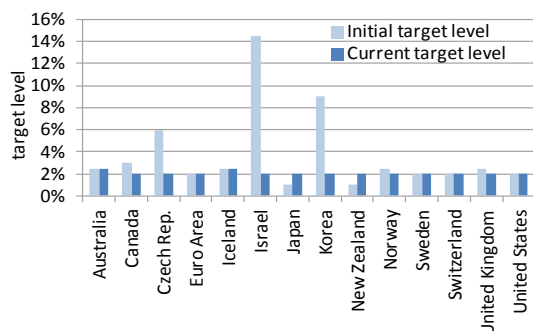
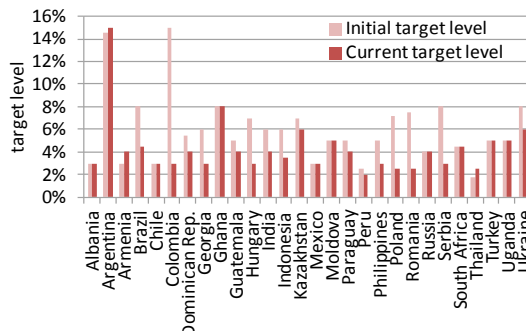


Chart 36 Changes to inflation target levels in emerging market economies

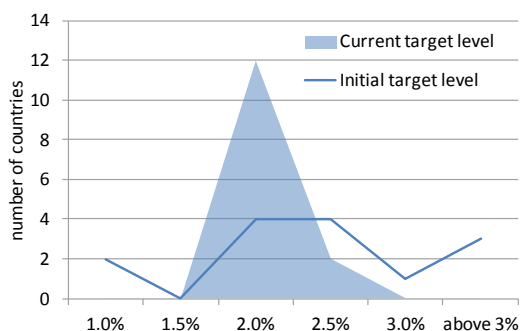


Source: As in Charts 3 and 4.

Notes: See notes to the previous Chart.

Secondly, the dispersion of target levels has decreased over time – for both groups of economies, but much more significantly for advanced economies (12 countries from that group use around a 2% target, and 2 countries – Australia and Iceland – use slightly higher targets of around 2.5%; Chart 37). Within emerging market economies, the most frequently used targets are around 3% targets (8 countries from that group use around a 3% target) and around 4% targets (adopted by 6 countries), but the general dispersion of target levels in emerging market economies is relatively high (ranging from around a 2% target in Peru to around an 8% target in Ghana and around a 15% target in Argentina). And again, the key argument here is that among emerging market economies there are much more newcomers that – as others in the past – use an IT strategy first to disinflate (Chart 38).

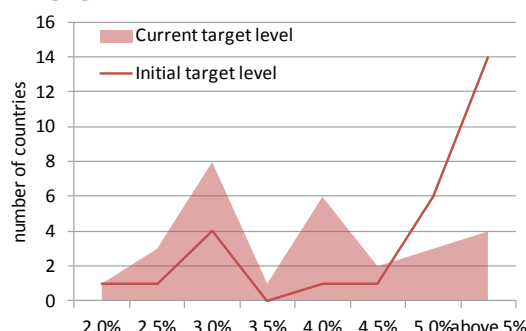
Chart 37 Dispersion in inflation target levels in advanced economies



Source: As in Charts 3 and 4.

Notes: See notes to the previous Chart.

Chart 38 Dispersion in inflation target levels in emerging market economies



4. Formulating monetary policy on the basis of a very broad set of information

4.1. Conceptual issues

An IT strategy does not use intermediate targets, i.e. variables that a central bank can more directly influence than inflation, for which some reference values would be set in order to facilitate meeting the final inflation target.²⁰ At the same time, for assessing what monetary policy stance would be appropriate, IT requires looking at many macroeconomic developments that can affect inflation, without specifying any preferred reference values or targets for them. There is no check list, but a standard scope of the analysis encompasses a decomposition of inflation, factors affecting economic activity, the labour market situation, developments in the external environment, and financial market movements.

Formulating monetary policy on the basis of a very broad set of information should help to reinforce its flexibility. This is needed because central banks' reactions to shocks hitting an economy should depend, among others, on their sources, persistence and strength. Not all deviations of inflation from its target require the same policy response, and in particular, shocks to the demand side of the economy should be addressed differently than supply-side shocks. Assessing those aspects should lead to better decisions, which by no means are mechanical, and should result in forward-looking monetary policy.

A forward-looking orientation means that, apart from inflation itself, its determinants, and factors affecting the monetary transmission mechanism, one of the key elements that should be taken into account while deciding on monetary policy are inflation forecasts.²¹ To emphasise their importance, an inflation targeting strategy has even been sometimes called a forecast targeting strategy (Svensson, 1997, and Woodford, 2007).

Forecasts can in fact be seen as intermediate targets, as due to transmission lags central banks should try to target inflation within the next few quarters. Policy makers cannot

²⁰ Examples of intermediate targets include exchange rates or monetary aggregates.

²¹ The terms "forecasts" and "projections" are used interchangeably here, whereas in the literature it is sometimes distinguished that forecasts are based on endogenous interest rate paths, and projections are based on external assumptions regarding interest rate paths (e.g. market-implied or constant future interest rates).

directly influence current price developments and if in their decisions they also put weight on output stabilisation – which, as already indicated, is a rule rather than an exception – the horizon relevant for them may be even longer. For that reason, it is of great value to have medium-term inflation projections, which in practice means forecasts for the next 2-3 years.

Projections can also be seen as summarising possibly all relevant information on current and expected macroeconomic developments influencing inflation. They are, however, always based on numerous assumptions and rely on past regularities encompassed by the model used to prepare them. Moreover, there are no guarantees that the model employed to make the forecasts is the right model. Thus, projections have their limits and, especially during periods of heightened uncertainty or in times of structural changes, should be treated with caution. They offer a useful reference point, to which expert judgment should always be applied.

For that reason, a comprehensive set of information, including forecasts, must be processed by a competent decision-maker. It is, however, not clear who would be best in designing monetary policy – a single policy maker or a committee, a committee deciding by a majority vote or a committee deciding consensually, an individualistic committee or a collegial committee, a committee consisting of economists only, or a committee also encompassing other members (Blinder, 2007).

Collective decision-making evidently has significant advantages, as it engages people with different backgrounds that have different preferences (i.e. the weight they put on inflation vs. economic activity), potentially better reflecting social preferences. Additionally, members may have a different understanding of how the economy works (i.e. they may use different models of the economy) which affects the way they process information and reach conclusions. Moreover, because information normally also includes some noise, collective decision-making helps at least to neutralise noise that is specific to each decision-maker, i.e. idiosyncratic noise (Maier, 2010). Groups are also presumably better in collecting a broader set of information and collective decision-making reduces the likelihood of extreme positions (Naudon and Pérez, 2017).

At the same time, there are also disadvantages of group decision-making. A strong divergence of views may impede reaching decisions, possibly delaying them and increasing policy inertia, which raises the probability of a too late and too weak reaction to macroeconomic developments (Blinder, 1998). In turn, if the group does want to take decisions jointly, some members may choose to follow the group, meaning that one of the biggest strengths of collective decision-making – namely heterogeneity of members – is not fully used (Maier, 2010).

Simulating monetary policy under uncertainty about the state of the economy shows that group decisions deliver better results, on average, than the decisions of a single policy maker (Lombardelli et al., 2005, Blinder and Morgan, 2007). Empirically, it is, however, not easy to verify whether monetary committees do indeed outperform individual policymakers, especially since a dominant member within a committee may start to strongly influence or even control the group, blurring the difference between decisions reached by a single policy maker or a committee.

4.2. Central banks' practices

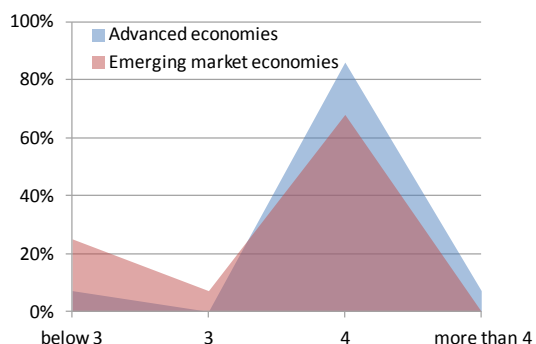
4.2.1. Preparation of forecasts

Looking at central banks' use of forecasts, as the key element of a comprehensive set of information based on which decisions are taken, it is clear that all IT central banks regularly publish projections (Chart 39; Chart 40).²²

The majority of them prepare projections on a quarterly basis and in that respect there is little difference between advanced and emerging market economies. 31 inflation targeters (12 advanced economies, and 19 emerging market economies) publish projections on a quarterly basis. Countries producing less than 4 forecasts per year include the Dominican Republic, Ghana, India, Kazakhstan, South Africa and the United States (with forecasts published biannually) and Guatemala and Poland (with 3 forecasts per year), i.e. one advanced economy, and 7 emerging market economies. The only country publishing more than 4 forecasts per year is Sweden, with 6 forecasts produced annually.

²² An exception here is only Argentina.

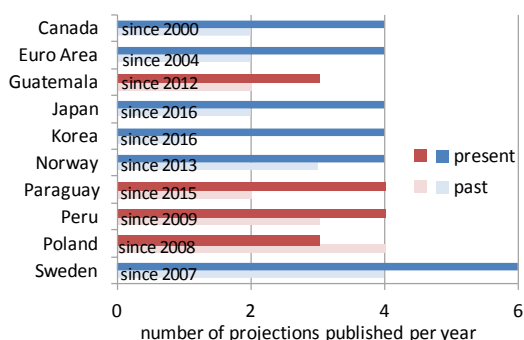
Chart 39 Share of countries with different frequency of publishing projections per year in advanced and emerging market economies



Source: As in Charts 3 and 4.

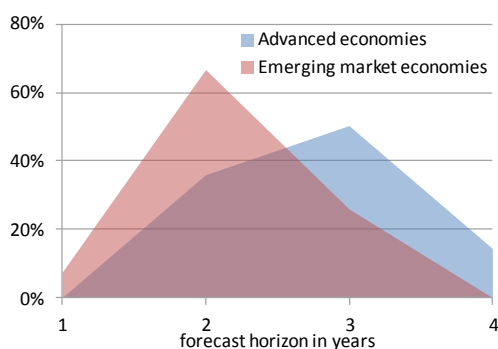
Notes: In Argentina and Uganda the frequency of publishing inflation reports does not correspond to the frequency of publishing forecasts (in Argentina projections are not published, in Uganda not every report includes a forecast).

Chart 40 Changes to the number of projections published per year



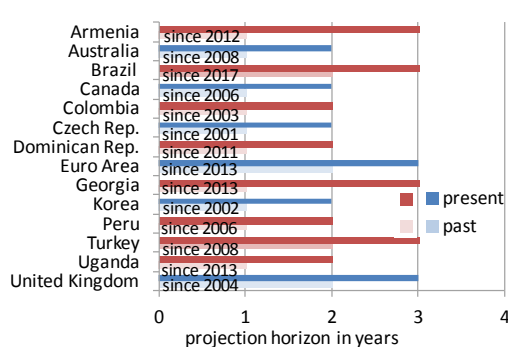
Regarding the forecast horizon, over the years central banks have tended to extend it. Currently, in most cases projections cover 2-3 years ahead, which corresponds to the medium-term nature of inflation targets (Chart 41; Chart 42). The forecast horizon is somewhat longer in advanced economies (between 2 and 4 years), and somewhat shorter in emerging market economies (between 1 and 3 years).

Chart 41 Share of countries with different forecast horizons in advanced and emerging market economies



Source: As in Charts 3 and 4.

Chart 42 Changes to the projection horizon



4.2.2. Forecasted variables

Considering forecasted variables, it is no surprise that all inflation targeters forecast inflation²³ (in many cases both headline and core inflation; Chart 43). Quite frequently inflation forecasts are accompanied by GDP projections (32 inflation targeters publish projections of both variables – 12 advanced economies, and 20 emerging market economies), and much less often, by interest rate projections (in 7 inflation targeters – 5 advanced economies – the Czech Republic, New Zealand, Norway, Sweden and the United States, and 2 emerging market economies – Georgia and Guatemala) and unemployment rate projections (in 3 advanced economy inflation targeters – Australia, the United Kingdom and the United States). Only one advanced economy (the Czech Republic) also publishes forecasts of nominal exchange rates against a single currency (the euro)²⁴.

Chart 43 Share of countries with different forecasted variables in advanced and emerging market economies

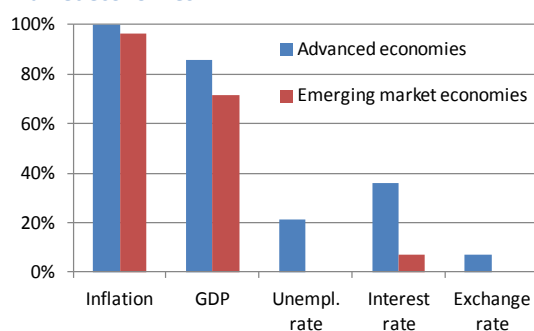
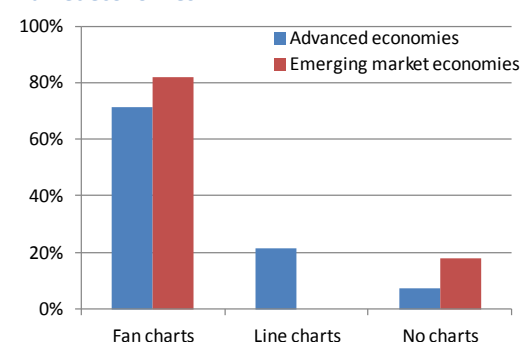


Chart 44 Share of countries with different forms of presenting forecasts in advanced and emerging market economies



Source: As in Charts 3 and 4.

Notes: Until mid-2016, Brazil also published forecasts of GDP growth. Since 2012, until early 2013, Guatemala also published forecasts of GDP growth. Until early 2010, Moldova also published forecasts of the exchange rate against the euro and US dollar, and interest rates of 91-day T-bills. Until late 2016, New Zealand published forecasts of 90-day bank bill rates. From late 2005 to 2006, Norway also published forecasts of import-weighted exchange rates. From mid-1997 to 2000, the United Kingdom also published forecasts of 3-month interest rates.

Over the years, while inflation and GDP have become standard variables to forecast – predominantly in the form of fan charts emphasising forecast uncertainty – the approach to publishing projections of other variables has not been unified (Chart 44). Around 2007-2008 some advanced economies decided to communicate their interest rate projections,

²³ Again, the only exception is Argentina, which does not publish projections.

²⁴ Although during a period of an asymmetric exchange rate commitment and a few quarters afterwards, the forecast of the korona nominal exchange rate was not published. It became available again starting from projections published in 2018.

but since their experience with those forecasts was mixed, not many followed suit.²⁵ Among both advanced and emerging market economies, the publication of interest rate forecasts is therefore rare. One of the biggest challenges with publishing interest rate projections seems to be conveying the message that they should not be treated as a commitment of the central bank to follow a certain path in setting future interest rates. Such a disclaimer is valid independent of whether interest rate projections are owned by decision-makers (as is the case in Norway, Sweden, the United States and Georgia), the central bank (as in New Zealand) or staff (as in the Czech Republic and Guatemala).

At times, central banks decided to discontinue publishing projections of certain variables (Table 8). Brazil and Guatemala used to forecast GDP growth but stopped publishing it. Moving to less frequently forecasted variables, the United Kingdom published forecasts of 3-month interest rates, Norway released forecasts of import-weighted exchange rates and Moldova published forecasts of exchange rates against the euro and US dollar and interest rates on 91-day T-bills.

Table 8 Forecasted variables other than inflation and GDP

| | before 2000 | 2001-2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010-2011 | 2012 | 2013-2014 | 2015 | 2016 | after 2016 |
|-----------------------|--|-----------|--|------|------|---|--|-----------|------|-----------|------|------|---------------------------------------|
| Australia | | | | | | | | | | | | | unemployment rate (since early 2015) |
| Czech Rep. | | | | | | interest rate path (since 2008) | koruna-euro nominal exchange rate (since 2009) | | | | | | |
| New Zealand | 90-day bank bill rate (until late 2016) | | | | | | | | | | | | official cash rate (since late 2016) |
| Norway | | | interest rates - sight deposit rate (in late 2005) import-weighted exchange rate (in late 2005) | | | interest rates - key policy rate (since 2007) | | | | | | | |
| Sweden | | | | | | repo rate (since 2007) | | | | | | | |
| United Kingdom | 3-month interest rate (since mid 1997, until early 2000) | | | | | | | | | | | | unemployment rate (since mid 2013) |
| United States | | | | | | | | | | | | | federal funds rate (since 2012) |
| Georgia | | | | | | | | | | | | | monetary policy rate (since mid-2016) |
| Guatemala | | | | | | | | | | | | | monetary policy rate (since 2012) |

Source: As in Charts 3 and 4.

²⁵ Besides difficulties with agreeing on the projected interest rate path by committee members, the other issues that became evident during the global financial crisis included credibility losses in case financial market expectations of policy rates prove better than central bank forecasts. Moreover, publishing interest rate projections, by reducing the perceived uncertainty, may have encouraged economic agents to take up more risk (Grostal et al., 2014)

4.2.3. Ownership of forecasts and involvement of staff in decision-making

In some central banks it is clearly communicated that projections are owned by decision-makers or by staff. In the latter case, decision-makers do not have to share the assessment of staff. In turn, in some central banks it is indicated that the projections are the bank's projections, which in fact is unclear whose assessment the projections are supposed to show.

Looking at forecasts published by central banks, in most cases projections are owned by the bank or staff, which means that they do not necessarily reflect the views of decision-makers (this is the case in 30 inflation targeters – 9 advanced economies, and 21 emerging market economies; Chart 45). Only in 10 countries – 5 advanced economies (Japan, Norway, Sweden, the United Kingdom, the United States), and in 5 emerging market economies (Brazil, Chile, Georgia, Ghana, Thailand), are projections owned by decision-makers. Therefore, in advanced economies it is slightly more frequent that projections are shaped by decision-makers rather than by staff.

Staff are, however, involved in decision-making not only via producing forecasts, but also by formulating formal recommendations for the decisions (Chart 46).

Chart 45 Share of countries with different ownership of forecasts in advanced and emerging market economies

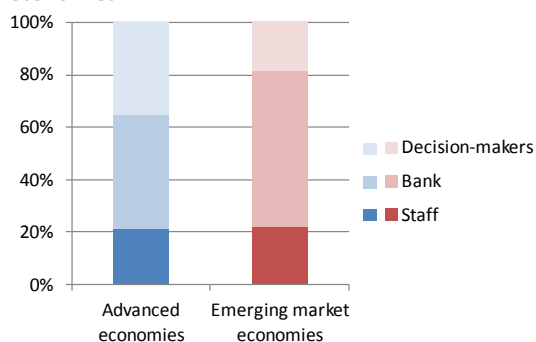
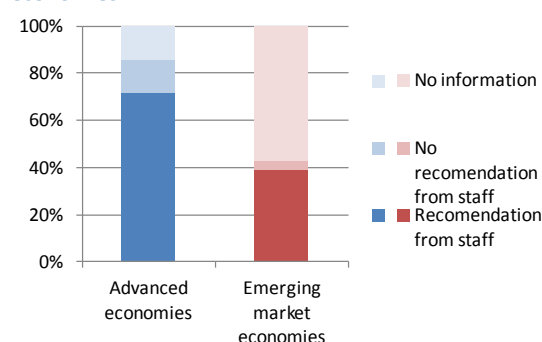


Chart 46 Involvement of staff in decision-making processes in advanced and emerging market economies



Source: As in Charts 3 and 4.

Notes: Blue bars refer to advanced economies. Red bars refer to emerging market economies.

While in many cases (18 countries), no information is available on how the monetary policy meetings proceed, in the vast majority of countries where such information is given, staff recommendations are part of the decision-making process. This is the case in 21 countries – 10 advanced economies, and 11 emerging market economies.

In some countries recommendations are formulated by staff working in economic departments as a part of preparations for the decision-making meetings. However, in some countries there is a formal committee that meets shortly before the decision-making body to discuss and formulate formal recommendations for the monetary policy actions. Examples include Georgia and New Zealand, where governors are single decision-makers, but also in Canada, Kazakhstan and the Philippines, where decisions are taken anyway by collegial decision-making bodies. Additional committees can also be found in Romania and Ukraine, but their competences are somewhat different, as they include formulation of the strategy, objectives and guidelines for the central bank.

Only in 2 advanced economies (Korea and the United Kingdom), and in one emerging market economy (Armenia), where information on decision-making process is revealed, it seems that no formal recommendations are prepared. This would suggest that involvement of staff in decision-making processes is in fact somewhat heavier in advanced economies.

4.2.4. Decision-making bodies

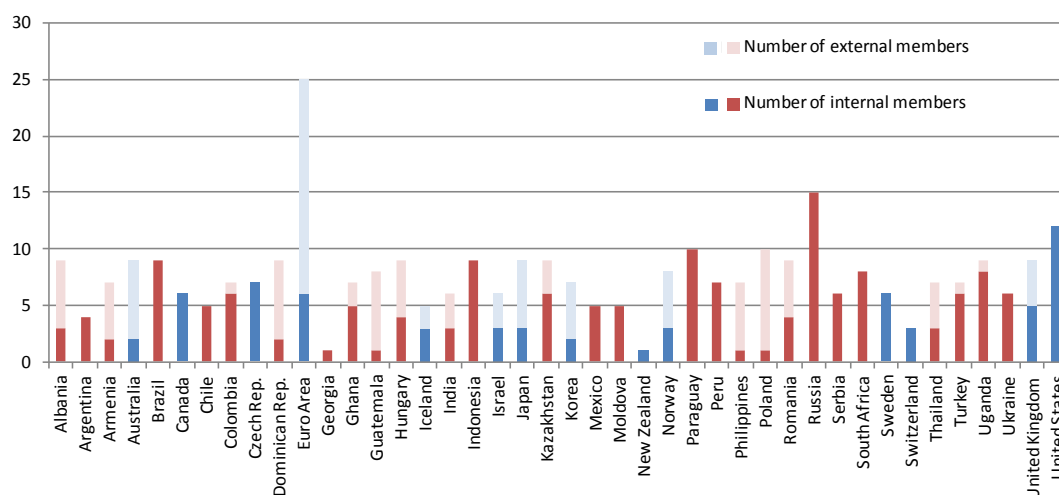
Looking at decision-makers themselves, a few points can be made (Chart 47). First, with only two exceptions – one advanced economy and one emerging market economy (New Zealand and Georgia) – monetary policy decisions are taken by committees, which shows a strong preference for collegial decision-making (this is the case in 40 inflation targeters). And – as already mentioned – also in Georgia and New Zealand there are collegial advisory bodies helping the governor to formulate the decision (a Monetary Policy Committee consisting of 12 internal members in Georgia and an Advisory Committee consisting of 12 members, including 2 external members, in New Zealand).²⁶

Second, with relatively few exceptions, the committees include between 5 to 10 members, which shows a clear inclination for a relatively broad spectrum of opinions, but still manageable from the organisational point of view (35 out of 40 countries with committees belong to this group – 10 advanced economies, and 25 emerging market economies have committees consisting of 5 to 10 members). Apart from cases of a single decision-maker,

²⁶ Until 2010 also in Israel monetary policy decisions were taken by the governor, but in 2011 a Monetary Committee was established.

only Switzerland and Argentina have smaller committees (with 3 and 4 members, respectively), while on the other end of the scale is the euro area (with 25 members)²⁷, Russia (with 15 members) and the United States (with 12 members)²⁸.

Chart 47 Composition of decision-making bodies in advanced and emerging market economies



Source: As in Charts 3 and 4.

Notes: Internal members are members from inside the central bank. Representatives of the government are treated as external members. In countries where the size of the committee may vary, the maximum allowed number of members is assumed. In Hungary the committee may consist of 5-9 members. In Indonesia the committee may consist of 6-9 members. In Paraguay the committee consists of around 10 members. In Uganda the committee may consist of 7-9 members.

Third, with a number of exceptions, committees consist of both internal and external members, which should allow for combining decision-makers with different backgrounds. Out of all inflation targeters with committees, 17 countries²⁹ (5 advanced economies, and 12 emerging market economies) have committees with no external members. Out of the remaining 23 countries with collegial decision-making bodies, in many the ratio of external members to internal members is substantial. It can be as high as 86% in the Philippines, 88% in Guatemala and 90% in Poland (in 16 countries, it is 50% or more, out of which 6 are advanced economies, and 10 emerging market economies).

²⁷ Since 2015, the euro area Governing Council (a decision-making body of the ECB) acts within a rotation system concerning the allocation of voting rights – all members of the Governing Council have the right to speak, but voting rights rotate.

²⁸ The Federal Open Market Committee (a decision-making body of the US Fed) also acts within a rotation system concerning the allocation of voting rights – all members of the FOMC have the right to speak, but voting rights rotate.

²⁹ Argentina, Brazil, Canada, Chile, the Czech Republic, Indonesia, Mexico, Moldova, Paraguay, Peru, Russia, Serbia, South Africa, Sweden, Switzerland, Ukraine and the United States.

Chart 48 Share of countries with different composition of decision-making bodies in advanced economies

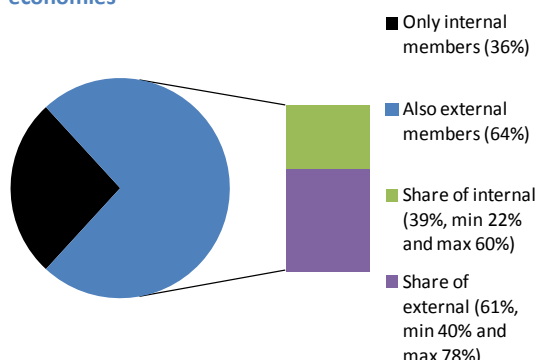
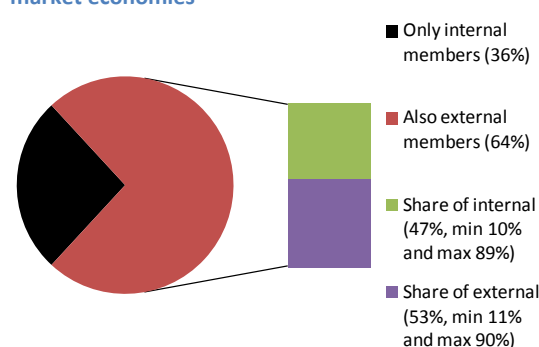


Chart 49 Share of countries with different composition of decision-making bodies in emerging market economies



Source: As in Charts 3 and 4.

Notes: See notes to the previous Chart.

Regarding the composition of committees, there are few differences between advanced and emerging market economies (Chart 48; Chart 49). However, the share of internal members is somewhat lower in decision-making bodies of advanced economies compared to emerging market economies.

4.2.5. Frequency of decision-making meetings

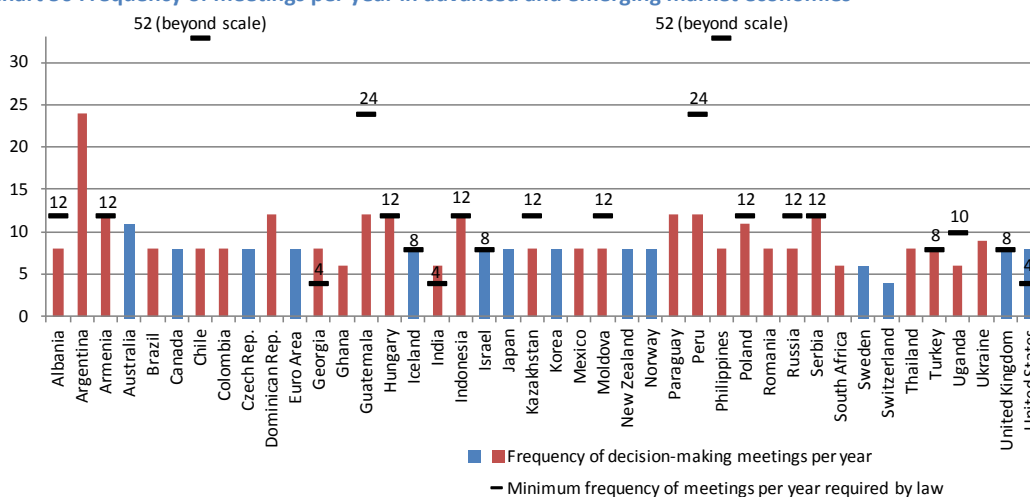
Considering the frequency of decision-making meetings, the most typical number among inflation targeters is currently 8 per year – 24 of the analysed decision-making bodies meet with semi-quarterly frequency (11 advanced economies, and 13 emerging market economies; Chart 50). Only 6 countries have a lower number of meetings (2 advanced economies – Switzerland with 4 per year and Sweden with 6 per year, and 4 emerging market economies – Ghana, India, South Africa and Uganda with 6 per year), and 12 countries (one advanced economy and 11 emerging market economies) have a higher number of meetings (ranging from 9 to 24)³⁰. Thus, on average monetary policy meetings are somewhat more frequently held in emerging market economies compared to advanced economies.

³⁰ Argentina has 24 scheduled meetings per year, out of which 12 should be devoted to discussing the monetary policy rate and the other 12 to setting the cut-off rate on open market operations. Australia and Poland have 11 meetings per year, Armenia, the Dominican Republic, Guatemala, Hungary, Indonesia, Paraguay, Peru and Serbia – 12 per year, and Ukraine – 9 per year.

What is interesting, in quite a lot of countries the number of scheduled decision-making meetings is lower than the frequency of all meetings required by law (which is either quarterly, semi-quarterly, monthly, semi-monthly, or even in some cases weekly). This is not necessarily inconsistent, since not all meetings must be devoted to current monetary policy issues, and evidently in many cases are not. In Korea, for example, it is clearly communicated that some meetings are designed to discuss financial stability issues.

In all central banks, apart from scheduled meetings, there is a possibility to call an extraordinary decision-making meeting, if the need arises. It is a rarely used option, but at times very important.³¹

Chart 50 Frequency of meetings per year in advanced and emerging market economies



Source: As in Charts 3 and 4.

Notes: In many cases no information was available on the minimum frequency of meetings required by law.

The dominant practice of 8 decision-making meetings per year is rather a new phenomenon. In the past, it was much more often that monetary policy decisions were taken 12 times per year, i.e. on a monthly basis (Chart 51; Chart 52). Quite a lot of countries – predominantly emerging market economies – moved to a semi-quarterly frequency around 2010-2013, and a number of advanced economies have recently followed suit. Apparently, the majority of IT central banks came to the conclusion that there is no need to review their monetary policy stance more often.

³¹ In particular, following the collapse of Lehman Brothers, on 8 October 2008, the central banks of Canada, the euro area, Japan, Sweden, Switzerland, the United Kingdom and the United States, called extraordinary monetary policy meetings and issued an unprecedented joint statement showing their continuous close cooperation in reducing strains in financial markets.

Chart 51 Changes to the meeting schedules in advanced economies

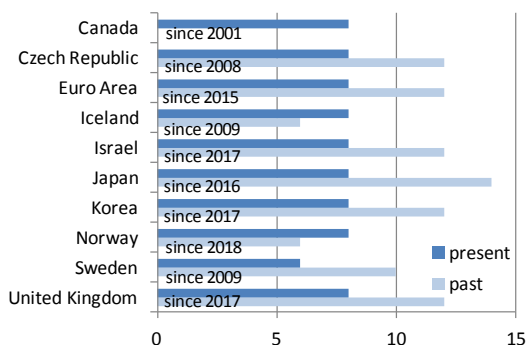
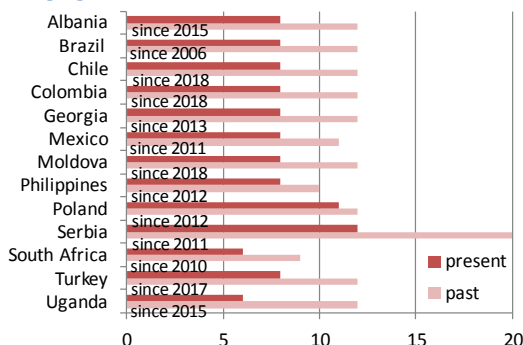


Chart 52 Changes to the meeting schedules in emerging market economies



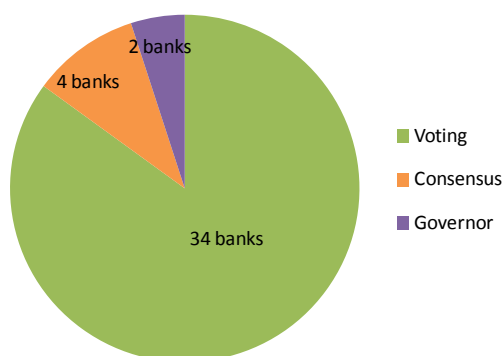
Source: As in Charts 3 and 4.

Notes: In Canada, until 2000, there was no fixed schedule for meetings. Until 2011, Norway had between 8 and 9 meetings per year. Until 2006, the Philippines had between 11 and 15 meetings per year. Until 2009, South Africa had between 5 and 9 meetings per year. Until 2008, Sweden had between 7 and 10 meetings per year.

4.2.6. Decision-making process

Another important aspect of the decision-making process is how the decisions are taken (Chart 53; Table 9). In the past, especially before an inflation targeting strategy became widespread, most central banks had a single decision-maker – the governor. But starting in the 1990s in many countries collegial decision-making bodies were established (the examples include Brazil, Japan, Norway, Sweden, Switzerland, and the United Kingdom), and thus voting became standard practice.

Chart 53 Decision-making processes



Source: As in Charts 3 and 4.

Notes: In Paraguay and Switzerland no information is available on how decisions are taken.

Table 9 Countries with different approaches to decision-making

| | Decision-making process | | | |
|----------------|-------------------------|--------------|------------------|--|
| voting | Albania | Mexico | Uganda | |
| Australia | Argentina | Moldova | Ukraine | |
| Czech Rep. | Armenia | Peru | consensus | |
| Iceland | Brazil | Philippines | Canada | |
| Israel | Chile | Poland | Euro area | |
| Japan | Colombia | Romania | Ghana | |
| Korea | Dominican Rep. | Russia | Indonesia | |
| Norway | Guatemala | Serbia | governor | |
| Sweden | Hungary | South Africa | New Zealand | |
| United Kingdom | India | Thailand | Georgia | |
| United States | Kazakhstan | Turkey | | |

Currently, 34 IT central banks have a committee deciding by majority voting (10 advanced economies, and 24 emerging market economies).³² Only 4 banks look for consensus among

³² The rule is that each member has one vote with the governor (chairperson) having a casting vote in the case of a tie.

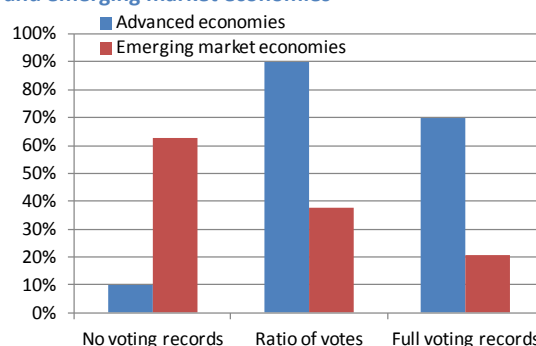
collegial decision-makers – Canada and the euro area from advanced economies, and Ghana and Indonesia from emerging market economies (whereas in Indonesia if no consensus can be reached, the governor decides as a single decision-maker). And merely in 2 cases – one advanced economy and one emerging market economy (New Zealand and Georgia) – are the decisions from the very beginning with the governor. However, as already noted, also there collegial advisory bodies prepare recommendations for the decisions. Looking at the shares of countries with different decision-making processes, not much difference can be seen between advanced and emerging market economies.

Considering developments related to committees, in the past there was somewhat more support for consensus-based decision-making, although its popularity was always much lower than that of voting. Judging by information on the ratio of votes, in the past, 3 countries changed the means of reaching decisions from consensus to majority voting (Table 10). Those include one advanced economy – Norway, and 2 emerging market economies – Brazil and South Africa.

Table 10 Changes to decision-making processes in advanced and emerging market economies

| | Decision-making process | Rules on making the decisions | |
|---------------------|---|-------------------------------|--------------------------|
| Norway | voting, although consensus is preferred | consensus (until mid-2017) | voting (since mid-2017) |
| Brazil | voting, although consensus is preferred | consensus (until late 2006) | voting (since late 2006) |
| South Africa | voting, although consensus is preferred | consensus (until late 2014) | voting (since late 2014) |

Chart 54 Share of countries with different approaches to publishing voting records in advanced and emerging market economies



Source: As in Charts 3 and 4.

Notes: Information on when the rules on decision-making processes changed is based on the dates when any kind of voting records became available. Regarding information on voting records, only countries where decisions are taken by voting are considered. Ratio of votes means voting records as a ratio of votes for and against the decision. Full voting records mean voting records of individual members, i.e. with names.

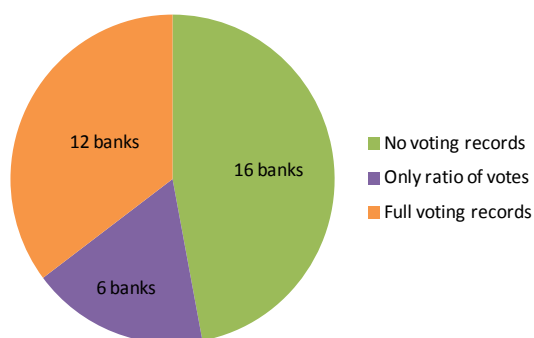
It seems that voting is a more efficient way of taking decisions, in particular as the requirements on the composition of decision-making bodies (i.e. involving members with expert knowledge) favours individualism of decision-makers. This in itself is not a disadvantage, but can significantly impede the formulation of a consensus view.

4.2.7. Releasing voting records

In distinguishing between collegial and individualistic committees it is helpful to look at information on voting records (Chart 54; Chart 55). In many countries, no information on voting records is made public (16 out of 34 countries with voting – with only one advanced economy, Australia, and 15 emerging market economies – do not publish any voting records) and in many cases where it is, it is a relatively new practice.

Reservations about excessive disclosure of insights from decision-making meetings can be explained by the desire to enable discussions “behind closed doors”, possibly encouraging free exchange of views with the aim of making the best use of expertise of committee members. In turn, reasons behind publishing voting records include strengthening accountability of decision-makers and supporting markets’ understanding of the decision-making process.

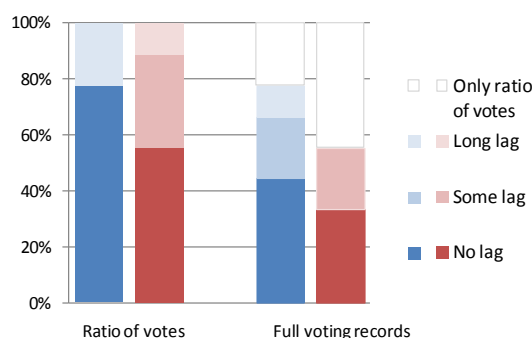
Chart 55 Disclosing information on voting records



Source: As in Charts 3 and 4.

Notes: See notes to the previous Chart. In Thailand no voting records are available, but sometimes a ratio of votes is included in press releases or in minutes. “No lag” means following the decision – e.g. in press releases, press conference. “Some lag” means a few weeks after the decision – e.g. in minutes. “Long lag” means a few months after the decision – e.g. in inflation reports, annual report.

Chart 56 Share of countries with different timing of publishing voting records in advanced and emerging market economies



Out of 34 countries where decisions are a result of voting (Table 9), 18 banks reveal, at least, a ratio of votes (9 advanced economies, and 9 emerging market economies), and 12 banks out of that group reveal full voting records (7 advanced economies, and 5 emerging market economies; Chart 56). In many countries either the ratio of votes or full voting records are published (in Iceland, Israel, Japan, Korea, Norway, Sweden, the United States – from advanced economies, and in Brazil, Chile, Colombia, Hungary, India, Moldova,

Poland, Romania and South Africa – from emerging market economies). However, in some cases, first the ratio of votes is released, and later also full voting records (in the Czech Republic and the United Kingdom).

Table 11 Publishing voting records in advanced and emerging market economies

| | Ratio of votes | | | Full voting records | | |
|-----------------------|---|---|--|---|---|--|
| | no lag (following the decision - e.g. in statement, press conference) | some lag (few weeks after the decision - e.g. in minutes) | long lag (few months after the decision - e.g. in inflation reports) | no lag (following the decision - e.g. in statement, press conference) | some lag (few weeks after the decision - e.g. in minutes) | long lag (few months after the decision - e.g. in inflation reports) |
| Czech Republic | statements | | | | minutes (since 2008) | |
| Iceland | | | annual report | | | annual report |
| Israel | | | annual report | - | - | - |
| Japan | statements | | | statements | | |
| Korea | press conference (since 2014) | | | press conference (since 2014) | | |
| Norway | statements (since 2017) | minutes (since 2017) | | - | - | - |
| Sweden | statements (since 2009) | minutes (since 2003) | | statements (since 2009) | minutes (since 2003) | |
| United Kingdom | statements (since 2015) | | | | minutes (since 1997) | |
| United States | statements | | | statements | | |
| Brazil | statements | minutes | | statements (since 2012) | minutes (since 2012) | |
| Chile | statements (since 2018) | minutes (since 2017) | | statements (since 2018) | minutes (since 2017) | |
| Colombia | statements (since 2016) | minutes (since 2016) | | - | - | - |
| Hungary | | minutes | | | minutes (since 2005) | |
| India | statements (since 2016) | | | statements (since 2017) | minutes (since 2016) | |
| Moldova | | | inflation reports (since 2013) | - | - | - |
| Poland | | website (since 2011) minutes | inflation reports (since 2001) | | website (since 2011) | inflation reports (since 2001) |
| Romania | | | | - | - | - |
| South Africa | statements (since 2014) | | | - | - | - |

Source: As in Charts 3 and 4.

Notes: If no date is indicated, it means that a given publication since the very beginning included voting records.

The most typical way of releasing voting records is to include them in press releases or minutes (this is practiced in the Czech Republic, Japan, Norway, Sweden, the United Kingdom and the United States – from advanced economies, and in Brazil, Chile, Colombia, Hungary, India, Romania and South Africa – from emerging market economies; Table 11). Other publications used for that purpose include inflation reports and annual reports (in Iceland and Israel – from advanced economies, and in Moldova – from emerging market economies). In rare instances, press conferences (Korea) and the central bank’s website (Poland) are used.

5. Applying high transparency and accountability standards

5.1. Conceptual issues

Inflation targeting is not based on following a simple rule, but it is rather described as a framework of constrained discretion (Bernanke and Mishkin, 1997). This means the strategy allows for a considerable degree of flexibility in deciding how to respond to shocks, but this discretion is constrained by a strong commitment to meet the inflation target, thereby building the central bank's credibility. Only if the commitment is convincing, and the central bank credible, do inflation expectations become better anchored (Orphanides and Williams, 2003).

Central banks' credibility should in the first place stem from meeting the inflation target, but given the fact that all inflation targeters also put some weight on output stabilisation, i.e. follow a flexible approach to IT, periods of inflation deviating from the target are inevitable. Proper communication in those cases is key to influencing expectations and anchoring them at the level of the target which should reduce the need for central bank action, and thus limit its social cost. In order to make those elements work, policy makers should not only make decisions based on a very broad set of information, but also explain how those decisions should contribute to maintaining price stability. Transparency and accountability is therefore helpful for building credibility.

The need to explain monetary policy decisions is also related to the already discussed issue of granting central banks a considerable degree of independence. Independence needs to be accompanied by high accountability standards, encompassing a periodic release of reports and regular parliamentary hearings. In the case of inflation targeting, it may also be necessary for the central bank to write an open letter explaining the reasons for any sizeable deviation of inflation from the announced target, as well as measures undertaken to bring inflation back to the target. Open letters should demonstrate a central bank's commitment to maintaining price stability.

Although a high degree of transparency seems unquestionable nowadays, it is a relatively new approach to monetary policy. Its popularity spread around the same time as IT, but greater emphasis on communication is not only attributable to inflation targeters. Having said that, from the very beginning inflation targeters occupied the top places in central

banks' transparency rankings, which is the best proof of the important role communication plays in the IT framework (Dincer and Eichengreen, 2013).

Apart from announcing the monetary policy strategy itself, a standard set of information that central banks are nowadays expected to share in order to enable assessment of their policies includes analysis of macroeconomic developments, the inflation outlook, and the reasoning behind decisions taken (Jeanneau, 2009). Inflation reports together with projections and press releases after decision-making meetings, often accompanied by press conferences, are therefore key for transparency and accountability of central banks. While it is not straightforward to verify the efficiency of different means of communication, there is quite sizable homogeneity among inflation targeters not only in what they publish, but also whom they address. The first group to mention would probably be the parliament and the government, as representatives of the public, the second would encompass professionals, such as financial market analysts, or economic journalists, and the third group would be – at least indirectly – the broader public.

The move towards more transparency has been motivated by the belief that it improves the predictability of central banks' actions. Empirical evidence offers some support for that reasoning (Ehrmann et al., 2012), but another aspect to consider is whether too much openness does not create confusion by giving the impression that central banks know more than they do or by introducing a cacophony of voices (Blinder, 2007, Lustenberger and Rossi, 2017). The latter is related to the composition of collegial decision-making bodies.

In general, the more individualistic the committees, the more insights on individual opinions are released. This may include presenting dissenting views, publishing detailed minutes, giving polemic speeches, and making voting records public. This information should help to better understand monetary policy decisions, but at the same time – as already noted – can create confusion about the dominant view. Ultimately, the emphasis on disagreements among committee members may limit the free exchange of views or render decision-makers more reluctant to reconsider their views.

5.2. Central banks' practices

5.2.1. Main central banks' publications on monetary policy

Looking at central banks, all inflation targeters announce their monetary policy strategy – most frequently as a separate document, but in some cases as a description on the website. All of them also publish annual reports (although in Mexico and Paraguay annual reports were substituted by a compilation of quarterly reports, in 2013 and 2014 respectively) and inflation reports (Chart 57). With 2 exceptions (Argentina, Israel and Uganda³³), the frequency of publishing inflation reports corresponds to the frequency of publishing forecasts, since projections – together with the assessment of the current macroeconomic environment, and the description of monetary policy – are a standard part of almost all inflation reports. Thus, regarding the share of countries publishing reports mentioned here, there are no material differences between advanced and emerging market economies.

Chart 57 Share of countries publishing different reports on monetary policy in advanced and emerging market economies

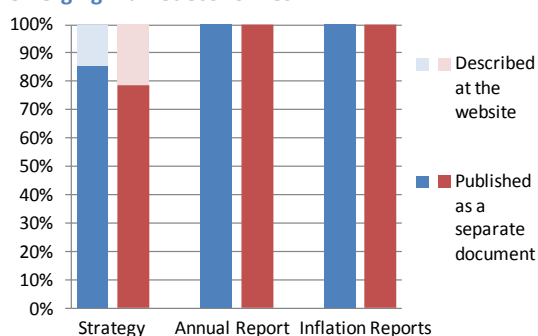
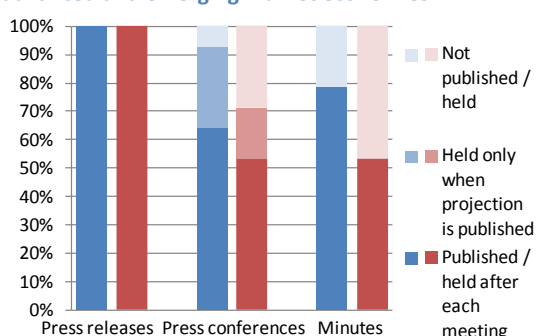


Chart 58 Share of countries using different ways of communicating monetary policy decisions in advanced and emerging market economies



Source: As in Charts 3 and 4.

5.2.2. Central banks' communication on monetary policy decisions

Press releases are nowadays the primary way in which monetary policy decisions are communicated (Chart 58; Chart 59). They inform the public about monetary policy decisions, the rationale behind the decisions and the monetary policy stance (in only 5 inflation targeters, all of which are emerging market economies, this element is rather

³³ In Argentina no projections are published. In Israel projections are owned by staff (published 4 times a year), while the inflation report is a Monetary Committee document (published 2 times a year). Bank of Uganda publishes 6 reports per year, but not every report includes a forecast.

vague, while in other cases press releases include rather explicit forward-looking monetary policy stance). Currently a standard practice is to publish a press release on the day of the meeting or – in rather rare cases – on the day following the meeting.

Press releases are used by all inflation targeters, however, this was not always the case. In Canada press releases have been published after each decision since 1996 (previously press releases were issued only when the interest rate was changed). Likewise, in Mexico press releases have been published regularly since 2003, in New Zealand since early 2006 and in Australia since late 2007. In the United Kingdom press releases have been published after each decision-making meeting only since mid-2015 (previously press releases were issued in principle only when the rate was changed, as following the decision the Committee discussed whether or not it wished to issue a press release).

Press releases are often presented during press conferences which include also a Q&A session (24 inflation targeters – 9 advanced economies, and 15 emerging market economies, hold press conferences after each decision-making meeting). Some banks have chosen to hold press conferences less frequently, i.e. only when the new inflation forecast is published (9 banks – 4 advanced economies – Canada, Israel, the United Kingdom and the United States, and 5 emerging market economies – Chile, Georgia, the Philippines, Russia and Turkey, hold press conference only when a new projection is published).

Chart 59 Share of countries with forward-looking elements included in press releases

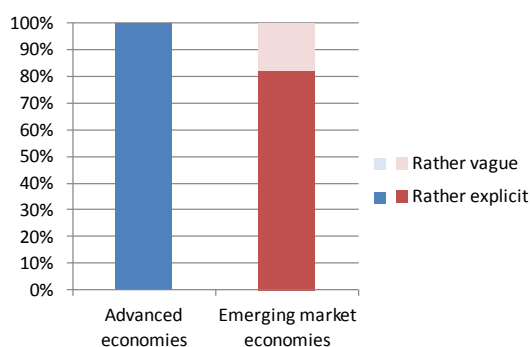
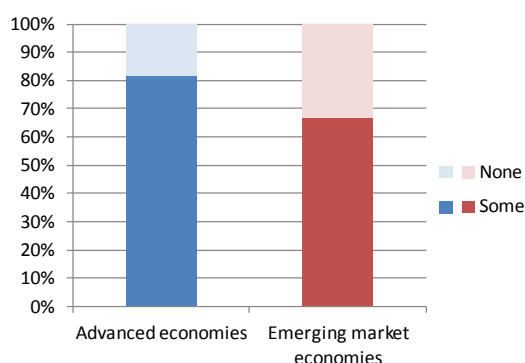


Chart 60 Share of countries publishing minutes with different approaches to revealing discrepancy of views



Source: As in Charts 3 and 4.

Similar to press releases, press conferences were not as popular in the past as they are now. Many countries started organising them around 2010 or only very recently. In

Sweden, until 2007, press conferences were held only after meetings when the level of the key policy rate was changed. In Serbia this is still the case. Australia, Armenia, Brazil, the Dominican Republic, Indonesia, Kazakhstan, Paraguay and Uganda, i.e. one advanced economy and 7 emerging market economies do not use that communication tool at all.

A slightly less commonly used tool of communication are minutes, which describe in more detail the discussion held at the monetary policy meetings (Chart 58; Chart 60). Sweden and the United Kingdom were the first inflation targeters to publish minutes, in the late 1990s, followed by a number of advanced and emerging market economies. A big group of countries started publishing minutes in mid-2000s, some joined the group around 2010 and another wave was visible around 2015. The United States and Japan also started publishing minutes quite early – in fact even before they announced their explicit inflation targets. Currently 26 inflation targeters (11 advanced economies, and 15 emerging market economies), regularly publish minutes.

The content of minutes differs between countries, as some indicate a divergence of views among decision-makers – more or less explicitly (19 out of 26 banks publishing minutes reveal at least some indication of discrepancy of views – 9 advanced economies, and 10 emerging market economies), and the rest do not. This follows from the willingness to reveal information on potential disagreement among decision-makers, with some countries more concerned about the possible disadvantages of such openness.

5.2.3. Central banks' reporting to parliaments

Moving to accountability mechanisms, in the vast majority of countries, central banks report to the parliaments – by both attending regular hearings and submitting cyclical reports.

In 31 inflation targeters (13 advanced economies, and 18 emerging market economies) representatives of monetary authorities regularly attend either plenary hearings of parliament or hearings at parliamentary commissions (Chart 61). At the same time, all advanced economy inflation targeters, and 23 emerging market economy inflation targeters, regularly submit reports to the parliament (Chart 62). The most frequently applied practice is to do it 1-2 times per year, but quite a number of banks do it 3-4 times per year.

Chart 61 Share of countries with different frequency per year of parliamentary hearings in advanced and emerging market economies

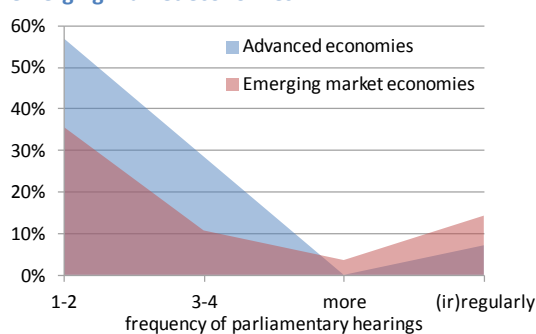
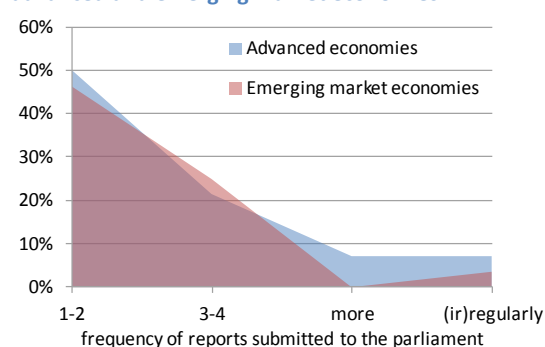


Chart 62 Share of countries with different frequency per year of submitting reports to the parliament in advanced and emerging market economies



Source: As in Charts 3 and 4.

Notes: The notion of “(ir)regularly” applies to countries where reporting to the parliament is part of the accountability mechanism, but no information could be found on its frequency (some central banks declare that they report regularly, but without specifying how often). If no information on reporting to the parliament could be found, it is assumed that it is neither required, nor practiced.

In rather rare cases inflation targeters do not declare using that form of accountability mechanism, suggesting that reporting to the parliament is not necessary. Regarding attending parliamentary hearings, this is the case in one advanced economy (Switzerland), and 10 emerging market economies (Albania, Argentina, the Dominican Republic, Ghana, India, Paraguay, the Philippines, Romania, Thailand and Uganda). Considering submitting reports to the parliament, it is not required in 2 advanced economies (Australia and Canada), and 7 emerging market economies (Armenia, Brazil, Chile, Ghana, India, Paraguay and Peru). In Ghana, if the target is not achieved, the governor may be summoned to the parliament to explain developments within the economy, but otherwise there are no regular parliamentary hearings.

5.2.4. Central banks’ open letters

While a rather standard practice among inflation targeters is to communicate the central bank’s assessment of inflation developments and corresponding policy actions, in some countries – if inflation significantly or persistently deviates from the target – a more formal explanation is required in the form of an open letter, or a similar document. Such a document should show the central bank’s commitment to the announced target (Table 12). The key elements to be included in an open letter encompass the reasons why

inflation deviated from the target, the expected inflation outlook and possible actions to be taken by the central bank in order to bring inflation back to the target.

Table 12 Publishing open letters (or similar documents) in advanced and emerging market economies

| Open letters | |
|-----------------------|--|
| Iceland | A report must be submitted to the government if inflation exceeds 4% or falls below 1%. |
| Korea | An explanation must be given through various means, e.g. the governor's press conference, if inflation deviates from the target by more than 0.5 percentage point in either direction for six consecutive months (if inflation subsequently remains more than 0.5 percentage point above or below the target, the Bank of Korea provides further explanations every three months). |
| New Zealand | An explanation must be given on occasions when the annual rate of inflation is outside the medium-term target range, or when such occasions are projected. |
| Norway | If there are significant deviations between actual price inflation and the target, the Annual Report includes a thorough assessment of that issue (particular emphasis should be placed on any deviations outside the interval of +/- 1 percentage point). |
| United Kingdom | An open letter must be submitted to the Chancellor if the inflation target is missed by more than 1 percentage point on either side. |
| Brazil | An open letter must be written if inflation breaches the target. |
| India | A report must be submitted to the government if average inflation remains above (below) the upper (lower) tolerance level of the inflation target for any three consecutive quarters. |
| Indonesia | An explanation must be submitted to the government if the inflation target is not achieved during any given year (this explanation is a basis for open explanations presented jointly by the Government and the Bank of Indonesia to the Indonesian Parliament and the public). |
| Moldova | A plan of corrective actions must be published if there is a deviation of the inflation rate exceeding the variation interval. |
| Philippines | An open letter must be submitted to the president in case the central bank fails to achieve the inflation target. |
| Serbia | A notification must be submitted to the government if the departure of inflation from the set target lasts for more than six consecutive months. |
| Thailand | An explanation must be given if headline inflation breaches the announced target (the progress of policy actions must be reported to the Minister of Finance in a timely manner). |
| Turkey | An open letter must be submitted to the government, in case of a breach or a probable breach of the inflation target. |

Source: As in Charts 3 and 4.

13 inflation targeters are required to write an open letter under certain circumstances, out of which 5 are advanced economies (Iceland, Korea, New Zealand, Norway and the United Kingdom), and 8 are emerging market economies (Brazil, India, Indonesia, Moldova, the Philippines, Serbia, Thailand and Turkey).

5.2.5. Decision-makers' background materials

Moreover, a number of central banks nowadays publish other materials from their decision-making meetings, such as presentations, staff memos or chart packs. Those additional publications should facilitate understanding monetary policy decisions, and support accountability of decision-makers. This is, however, much less common practice than publishing press releases, holding press conferences and preparing inflation reports. Currently, 23 inflation targeters (8 advanced economies, and 15 emerging market economies) decided to expand publicly available materials also to staff background reports.

Overall, looking at central banks' communication, it is clear that a lot of emphasis is put on explaining monetary policy actions, which proves how seriously accountability issues are treated. Since accountability of central banks closely relates to their independence, this is no surprise.

6. Conclusion

The conducted review shows that, regarding almost all institutional features of an IT strategy, as practiced by all the analysed central banks, there is no single way to go. This holds, for example, for formulating central banks' mandates, defining committee composition, or deciding how much insight from decision-making processes should be revealed. However, it also shows a lot of similarities among central banks' practices. This is clearly visible in choosing a floating exchange rate regime, publishing regular inflation forecasts, and putting significant emphasis on accountability mechanisms.

While analysing many important IT institutional arrangements, numerous examples of changes in central banks' practices introduced in the past 30 years were discussed. Those related in particular to defining various features of inflation targets, moving towards collective decision-making, and allowing for greater central banks' accountability by publishing more documents on monetary policy.

What was of particular interest for the review, was also the comparison between advanced and emerging market economies. Assessing the distribution of certain institutional arrangements among analysed countries within those two groups indicates that while in many instances there is hardly any difference to be noted, in some aspects the approach to IT of advanced economies differs significantly from that of emerging market economies.

Key similarities among advanced and emerging market economies include, to a great extent, formulating the central bank's mandate, choosing the exchange rate regime, selecting the targeted measure of inflation, indicating the target horizon, deciding on the size and composition of decision-making bodies, safeguarding many elements of personal independence, designing the main features of the accountability mechanism, including the use of certain communication tools (e.g. press releases, inflation reports, annual reports), and publishing inflation projections.

Some, but no major, discrepancies can be seen in the case of frequency of meetings, organisation of decision-making processes, guaranteeing financial independence, holding regular press conferences, and publishing minutes or open letters.

The most visible differences between advanced and emerging market economies relate, in turn, to such features like target type or level, releasing voting records, involvement of government representatives in taking monetary policy decisions, ownership of forecasts, and publishing projections of other variables than inflation.

The main finding is that the practices of IT central banks related to the analysed institutional features have not been homogenous – neither across time nor across countries. Thus, it would be interesting to see whether these differences have an impact on central banks' credibility, and thus monetary policy effectiveness. This is, however, beyond the scope of this review.

7. Literature

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