Post-crisis monetary policy reform: Learning the hard way

Thórarinn G. Pétursson[1]
Central Bank of Iceland

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1. Introduction

On 27 March 2001, price stability was established as the main objective of monetary policy in Iceland. A formal inflation target was adopted, specifying a target of 2.5% consumer price inflation in a joint Central Bank and Government statement. Despite a relatively promising start, the new monetary policy framework was not the success that was hoped for. Inflation and inflation expectations remained persistently above target and monetary policy was unable to contain the large macroeconomic and financial imbalances that were building up from the middle of the decade, culminating in the catastrophic financial crisis in the autumn of 2008. The crisis triggered a major revision of the monetary policy framework and its governance and decision-making structure. This paper documents these changes and recent evidence suggesting how they have led to significant improvements in monetary policy conduct and efficiency that is being reflected in greater nominal and real stability.

The remainder of the paper is organised as follows. Section 2 briefly documents the developments of inflation in Iceland since 1970, with special focus on the inflation-targeting period since 2001. Section 3 describes the monetary policy reforms introduced after the financial crisis in 2008, with a complete restructuring of the monetary policy decision-making body, greater emphasis on policy transparency and communication, and an expansion of the policy toolkit. Section 4 documents how these changes have contributed to markedly improved macroeconomic outcomes. Section 5 concludes.

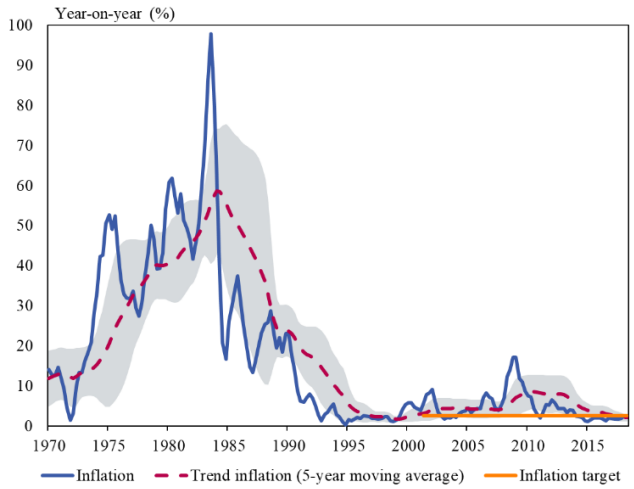
2. A brief history of inflation in Iceland

Much of Iceland's post-war economic history can be characterised as a period of chronically high and volatile inflation. Inflation averaged about 10% in the 1950s and 1960s but rose even further in the 1970s, fed by an extremely accommodative monetary policy and the two global oil price shocks (see Figure 1). Trend inflation, proxied by a 5-year (trailing) moving average

[1] Chief Economist of the Central Bank of Iceland and Director of Economics and Monetary Policy Department. This paper was prepared for the conference "The 2008 Global Financial Crisis in Retrospect", held in Reykjavík Iceland 30-31 August 2018. I would like to thank conference participants and Ásgeir Daníelsson, Thorvardur Tjörvi Ólafsson, Rannveig Sigurdardóttir, and Karen Vignisdóttir for comments. Thanks also to Jan Qvigstad and Andy Haldane for making their data on the readability of central bank publications available. All remaining errors and omissions are mine. The views expressed do not necessarily reflect those of the Central Bank of Iceland or the Bank's Monetary Policy Committee. E-mail: thgp@cb.is.

of inflation, reached 20% in 1975 and rose further to 40% at the end of the decade. A complete lack of a nominal anchor together with fiscal dominance of monetary policy meant that inflation escalated even further and reached 100% in late 1983. From then on, it gradually started to decline, with trend inflation reaching 23% by the end of the decade. A recession in the early 1990s, triggered by a sharp tightening of monetary policy and negative external shocks, pushed inflation even further down.[2] It fell below 3% in 1994 and remained in the 1-3% range until mid-1999. However, demand pressures had started to build up again in the latter half of the 1990s, with wage growth reaching almost 10% in 1997. Inflation therefore started to pick up again at the turn of the century and these imbalances ultimately led to a collapse of the exchange rate peg in 2001. The currency fell sharply and inflation reached 9% in early 2002.

Figure 1. Inflation in Iceland 1970-2018



Note: Inflation is measured as the year-on-year change in the headline consumer price index. The shaded area shows the 5-year ±1 standard deviation of inflation. Data for 1970Q1-2018Q2.

Sources: Central Bank of Iceland, Statistics Iceland, author's calculations.

With an exit from the exchange rate peg, an inflation-targeting framework was introduced in March 2001 and the early signs were promising. Inflation started to decline again as the effects of the currency depreciation died out and past imbalances were gradually unwound. Inflation reached the 2.5% inflation target in late 2002 and remained close to target until mid-2004. However, macroeconomic imbalances had started to emerge again following the privatisation of the domestic banking system and liberalisation of the mortgage lending market that fuelled a rapid credit expansion (see, for example, Einarsson et al., 2015, and Benediktsdóttir et al., 2017). Demand pressures mounted yet again and inflation overtook the 4% upper deviation limit in early 2005 and remained above it almost without interruption until the second half of 2010. Inflation reached 8% in mid-2006 and rose even further following a sharp depreciation of the currency in early 2008, reaching almost 20% when the financial crisis started in full force in late 2008. Inflation started falling again once the effects of the currency depreciation started to wane and the effects of the large contraction in economic activity began

[2] See Andersen and Gudmundsson (1998) and Pétursson (2002) for a more detailed discussion of these disinflation episodes.

to take hold. By the end of 2009, inflation had fallen to just below 9%, before reaching the inflation target in late 2010. It remained close to target until spring 2011 whereupon it picked up yet again in the wake of a generous centralised wage bargaining settlement. Inflation rose above 6% in early 2012 but gradually eased back to target in early 2014. It remained at target until the end of 2014 when it fell still further, driven by a steep decline in global oil prices. From mid-2015, it has fluctuated between 1.5% and 2% for most of the period, and it has remained within the 1-4% deviation range of the inflation target for a longer period than any time before since the start of the inflation-targeting regime.

Taken as a whole, the inflation performance over the inflation-targeting period is underwhelming. Inflation has averaged 4.8% over the whole period – almost twice the inflation target – and has been extremely volatile, with a standard deviation of 3.5 percentage points. However, recent years have seen clear improvements, with trend inflation being close to the inflation target since early 2017 and the standard deviation of inflation down to 0.7 percentage points by the end of the sample.

3. Post-crisis reforms of the monetary policy framework

3.1. Governance, decision-making, and communication

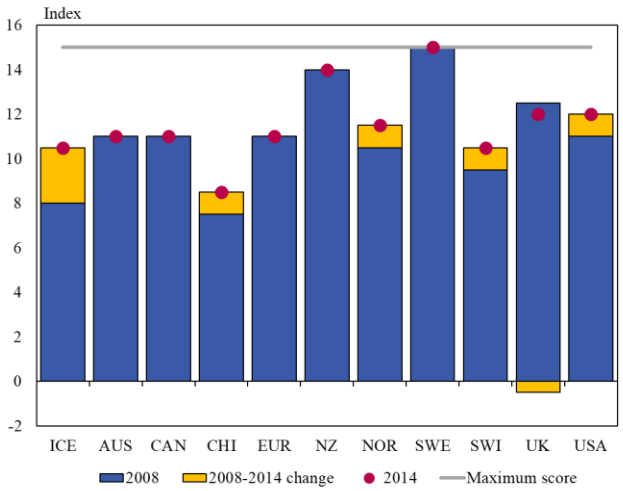
The financial crisis highlighted a number of weaknesses in the monetary policy framework and shortcomings in the conduct of overall macroeconomic and financial stability policy in Iceland. Price stability had proven to be more elusive than in other small, open advanced inflation-targeting countries (Pétursson, 2008, 2010) and real economic volatility remained high, culminating in the extreme financial crisis and the large contraction that followed. A number of significant changes to the framework were therefore implemented in early 2009. A single Governor, together with a Deputy Governor, replaced a three-member Board of Governors and a five-member Monetary Policy Committee (MPC) replaced the Board of Governors as the monetary policy decision-making body.[3] The MPC includes three internal members (the Governor, the Deputy Governor, and a senior Bank official – currently the Chief Economist) and two external members from academy appointed by the Prime Minister. Monetary policy decisions are made by a simple majority and are announced at a press conference on the decision day, followed by the publications of the minutes two weeks later. The minutes include information on individual voting although the identity of individual votes is only revealed with a lag in the Central Bank's *Annual Report* the following year (for details, see Vignisdóttir, 2016, and Central Bank of Iceland, 2015). In addition, MPC members are expected to explain their views publicly and a written report on its activities is submitted to parliament twice a year. The MPC is also required to appear in front of a parliamentary committee twice a year. This constitutes a significant change in monetary policy governance structure from the previous

[3] Significant changes were also made to the governance structure of financial stability with closer co-operation between the Central Bank and the Financial Supervisory Authority, formalised in a joint establishment of a Financial Stability Council and Systemic Risk Committee in 2014. See Forbes (2018) for an overview.

decisions-making structure. Until 2009, minutes of monetary policy meetings were not published and information on the voting and individual views of the three-person decision-making body was not available. Public speaking explaining the rationale behind monetary policy decisions was relatively rare and there was no fixed structure for parliamentary hearings.[4]

The reforms implemented in 2009 significantly enhanced the transparency of monetary policy in Iceland, as reflected in the Dincer and Eichengreen (2014) Transparency Index in Figure 2. Monetary policy transparency in Iceland lagged behind other inflation-targeting central banks in 2008, in particular the high-scoring central banks of New Zealand, Sweden and the UK. From 2009 it scores similarly high as the central banks of Australia, Canada, Japan, Norway, the UK and the US, and is the biggest gainer since 2008 among advanced economies.

Figure 2. Central bank transparency



Note: The Dincer and Eichengreen Transparency Index for the Central Bank of Iceland and ten other inflation-targeting central banks (Australia, Canada, Chile, Eurozone, New Zealand, Norway, Sweden, Switzerland, the UK, and the US).

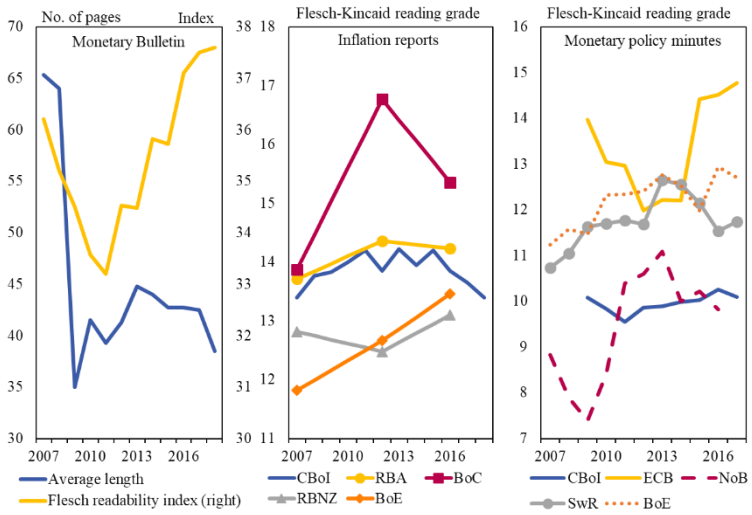
Source: Dincer and Eichengreen (2014).

This emphasis on greater monetary policy transparency can also be seen in the effort to communicate monetary policy more clearly and get the message better across. To make the analysis more focused, the Bank's *Monetary Bulletin* (the Bank's English language inflation report) has been shortened significantly from the average length of over 65 pages per year in 2007 to about 45 pages in 2013 and further to just above 38 pages this year (see the first panel of Figure 3). The shortening of the inflation report has coincided with a greater readability of the publication, as gauged by the Flesch readability index also reported in the first panel of Figure 3. This can also be seen in the second two panels of Figure 3, which report the Flesch-Kincaid reading grade score for the Bank's inflation report and the minutes from the MPC's rate-setting meetings. The report tends to score around 13-14 with a gradual decline in recent years from just above 14 to around 13½ this year, indicating that it can be expected to require between 13 and 14 years of formal education to be understood – i.e. it can be expected to be understood by the average 19-20 year old college student. The MPC's minutes are more

[4] In addition, the Central Bank only began deciding interest rates in fixed-date pre-announced meetings in 2006.

accessible, however: according to Qvigstad and Schei (2018) the Flesch-Kincaid score has been relatively stable around 10 since the minutes were first published in 2009 – thus being accessible to the average 16 year old high school student.

Figure 3. Accessibility of central banks' publications



Note: The first panel shows the yearly averages (from 2007-2018) of *Monetary Bulletin* length (main chapters, boxes and appendices) and the Flesch readability index (for main chapters). The second two panels show the Flesch-Kincaid reading grade level (measuring the number of years of education required to comprehend the text) of various inflation reports and monetary policy committee minutes. Data on inflation reports from 2007-2016 (except Iceland from 2007-2018) from Haldane (2017) (linearly interpolating between data observations for 2007, 2012, and 2016) and minutes from 2007-2017 from Qvigstad and Schei (2018). The central banks shown are the Central Bank of Iceland (CBoI), the Reserve Bank of Australia (RBA), the Bank of Canada (BoC), the Reserve Bank of New Zealand (RBNZ), the Bank of England (BoE), the European Central Bank (ECB), the Norwegian Norges Bank (NoB), and the Swedish Riksbank (SwR).

Sources: Haldane (2017), Qvigstad and Schei (2018), author's calculations.

Figure 3 also compares the accessibility of the Bank's publications with those of other central banks. As the middle panel shows, the *Monetary Bulletin* is similarly accessible as the Reserve Bank of Australia's inflation report. It appears significantly easier to understand than the Bank of Canada's inflation report but slightly less accessible than the inflation reports of the Bank of England and the Reserve Bank of New Zealand, respectively. The minutes of the Icelandic MPC, together with the minutes of Norges Bank, also seem relatively easy to understand as seen in the third panel of the figure.[5]

3.2. The policy toolkit

The global financial crisis (GFC) not only highlighted shortcomings in the policy framework in Iceland but also exposed major flaws in the international monetary and financial system. Although many of these have been identified, comprehensive global solutions appear elusive. This puts the onus on individual countries to reform their policy framework to try to tackle

[5] To give further context, *The Economist* requires just over 11 years of education to be readily understandable (Haldane, 2017), while the average Harry Potter and Tolstoy novels require roughly 8 years – one year less than the average Dickens novel. Reading the European Court of Justice's rulings requires a bit more effort, however, with a Flesch-Kincaid score of almost 20 years (Qvigstad and Schei, 2018).

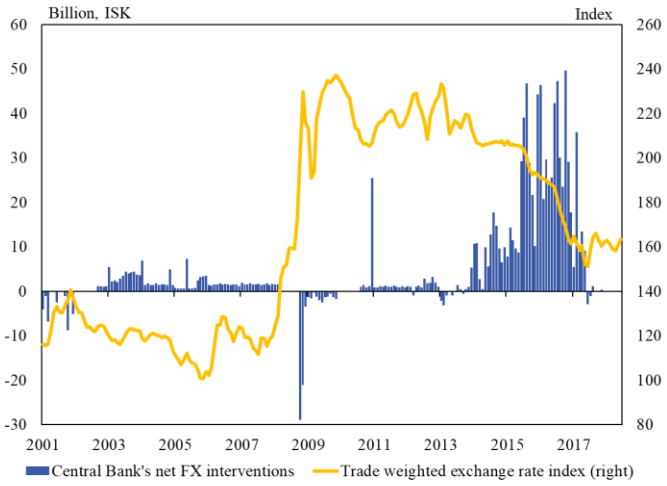
weaknesses that appeared in the GFC. The broad contours of a new monetary policy framework for Iceland were spelled out already in a report from 2010 (Central Bank of Iceland, 2010), dubbed "Inflation-Targeting Plus". The new framework emphasised a greater flexibility of the inflation target, while at the same time moving away from a freely floating exchange rate to a more managed float, by actively using sterilised foreign exchange interventions to reduce excess currency volatility and lean against possibly destabilising capital flow cycles. In addition to more active use of foreign exchange interventions, the new framework foresaw an important role for macroprudential tools to lean against financial cycles and strengthen the resilience of the macroeconomy and the financial system to potentially destabilising macro-financial dynamics. The new framework therefore saw a greater focus on financial stability in the overall stabilisation policy of the Central Bank, with important interaction between conventional monetary policy focusing on price stability and macroprudential policy focusing on financial stability and, in particular, systemic risk. The 2010 report was followed by another report in 2012, which spelled out in more detail the possible formulation of these macroprudential tools (Central Bank of Iceland, 2012). Finally, to provide greater scope for independent monetary policy and to mitigate financial stability risks from possibly destabilising capital flows, possible measures to directly affect capital flows were suggested as an additional policy tool layer.[6]

Most of the pieces of the new framework have already been put into place. The financial stability framework has been significantly strengthened and many parts of the macroprudential toolkit have already been implemented, while others remain in the development stage. Among the tools already introduced are additional layers of capital and liquidity buffers for banks (including a countercyclical capital buffer), limits on foreign currency exposure of bank balance sheets, a loan-to-value limit, and restrictions on foreign currency borrowing by unhedged domestic agents (for more detail, see Gudmundsson, 2017, and Forbes, 2018). Furthermore, the Central Bank has actively used foreign exchange interventions from 2014 to reduce short-term exchange rate fluctuations and lean against strong appreciation pressures of the króna at the same time as inflation was below the inflation target, which also created scope to build up the Bank's foreign exchange reserves (see Figure 4). These interventions have eased lately as the currency has stabilised and reserves have reached an adequate level. Some of the foreign exchange market pressures may also have been absorbed by the capital flow management measure introduced in 2016 in the form of a special unremunerated reserve requirement of 40% with a holding period of one year on capital inflows into the bond market and high-yielding deposits. This capital flow management measure is also seen as playing a role in safeguarding financial stability and supporting other macroprudential tools. Indeed, it is an open question whether it should simply be interpreted as part of the macroprudential toolkit.[7]

[6] Gudmundsson (2017) discusses these issues in the context of challenges faced by small, open economies in a financially integrated global economy.

[7] See Central Bank of Iceland (2016b, 2017a) for a description of this capital flow management measure. Rey (2013) provides empirical support for the need of capital flow management in flexible exchange rate regimes and Ghosh et al. (2017) show how capital flow measures and foreign exchange interventions can be an important addition to the toolkit in inflation-targeting countries. Although the IMF (2012) has recognised that such measures can be necessary in certain instances, the Fund has advised that the measure should be rolled back in Iceland as no inflow surge has been observed (IMF, 2017b). Edwards (2018) and Forbes (2018) have also called for the measure

Figure 4. Central Bank foreign exchange interventions



Note: Net purchases of foreign currency by the Central Bank of Iceland in Icelandic króna and the trade-weighted exchange rate of the króna January 2000 to June 2018.

Source: Central Bank of Iceland.

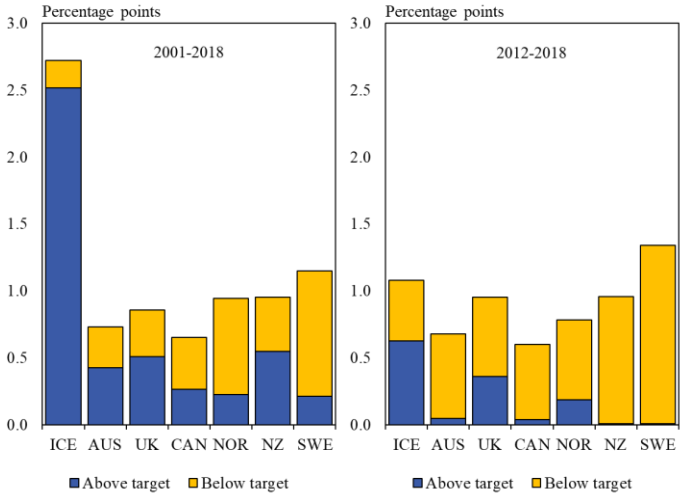
4. How have the post-crisis reforms affected economic outcomes?

4.1. Deviations of inflation from target

As the discussion in Section 2 highlights, inflation has been well above the 2.5% target for a large part of the inflation-targeting period since 2001. These large deviations can be seen clearly in the first panel of Figure 5: deviations from target have averaged nearly 3 percentage points and have been about three times as large as in the six other advanced inflation-targeting countries shown in the figure. In addition, the deviations in Iceland are mainly above-target misses, while in the other countries they are more evenly divided between over- and undershooting. As documented in Central Bank of Iceland (2017b), inflation has also been more than 1 percentage point above target for roughly 60% of the period since 2001, and such large target misses are much more common in Iceland than in the comparison countries. The difference is even greater in terms of deviations of more than 2 percentage points from target: in Iceland, inflation has diverged from the target by more than 2 percentage points in nearly 40% of the period, whereas such large deviations are extremely rare in the other countries.

to be gradually rolled back and replaced with macroprudential measures targeting potentially destabilising capital inflows.

Figure 5. Target misses in advanced inflation-targeting countries



Note: Average absolute deviation of inflation from inflation target (based on the inflation measure targeted in each country) in Iceland (ICE), Australia (AUS), the United Kingdom (UK), Canada (CAN), Norway (NOR), New Zealand (NZ), and Sweden (SWE) in the period 2001Q1-2018Q2.

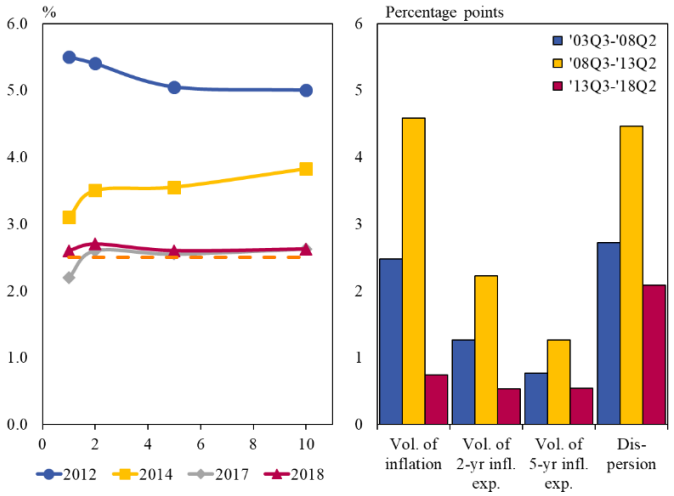
Sources: Central bank websites, OECD, Central Bank of Iceland, author's calculations.

The economy is regularly subjected to economic shocks that push inflation away from the target. Deviations from target are therefore to be expected. Too aggressive attempt to bring inflation back to target can exacerbate fluctuations in the real economy so some flexibility in bringing inflation back to target can be appropriate. Large and frequent departures from the target, such as those occurring in Iceland, however risk eroding the credibility of monetary policy, de-anchor inflation expectations, and exacerbate business cycle fluctuations. The second panel of Figure 5 shows, however, that deviations of inflation from the target have diminished significantly in Iceland since 2012. The average deviation has been reduced by more than half and the split between under- and overshooting the target has become much more balanced than before. The inflation performance of recent years has therefore become much closer to the pattern seen in other advanced inflation-targeting economies.

4.2. Inflation expectations and monetary policy credibility

The legacy of poor inflation performance and persistent overshooting of the inflation target gradually undermined the anchoring of inflation expectations. Inflation expectations have historically fluctuated widely and, like inflation, have usually been above target. While this is particularly the case for the period just after the crisis following the collapse of the currency, it also applies to the pre-crisis period, when medium- and long-term inflation expectations averaged 3-4% (using breakeven inflation rates extracted from bond market yields) and had risen to close to 5% by year-end 2011. This is also seen in survey-based measures of inflation expectations in the first panel of Figure 6. However, as inflation gradually declined towards the target and below it in late 2014, inflation expectations started falling, reaching 3.5% in 2014 and the 2.5% inflation target by the end of 2016.

Figure 6. Inflation expectations and nominal volatility



Note: The left panel gives inflation expectations 1, 2, 5, and 10 years ahead from surveys among financial market's participants in Q2 of each year. The broken horizontal line gives the 2.5% inflation target. The right panel gives the standard deviation of inflation and 2- and 5-year inflation expectations (using the breakeven inflation rate extracted from nominal and inflation-indexed bond yields), and the dispersion of survey-based 1-year inflation expectations of households and firms over three 5-year periods.

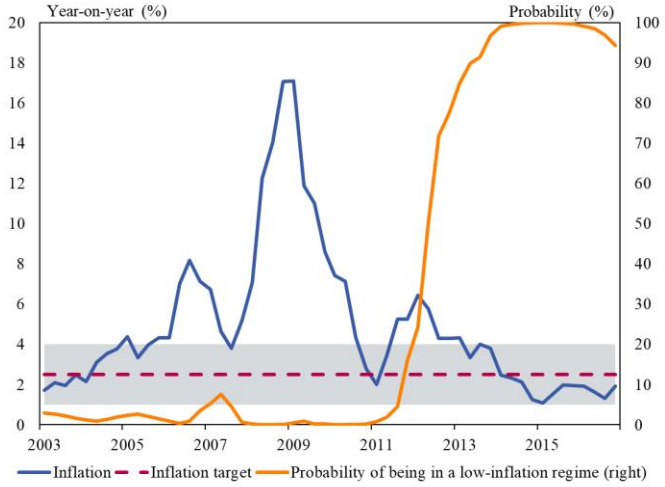
Source: Central Bank of Iceland, Gallup, Statistics Iceland, author's calculations.

As inflation and inflation expectations have fallen, fluctuations in both have also diminished (the second panel of Figure 6). The standard deviation of year-on-year headline inflation has fallen by two-thirds in the last five years from its pre-crisis average, while the volatility of 2-year inflation expectations has fallen by more than a half and the volatility of 5-year inflation expectations by a third. Greater nominal stability has also made inflation more predictable. Uncertainty about future inflation, as observed by the dispersion in survey-based inflation expectations of households and firms, increased substantially during the financial crisis, but this has fallen by more than a half and has been lower in the last five years than in the pre-crisis period.

Central Bank of Iceland (2017b) also finds that inflation surprises have a statistically significant impact on medium- and long-term inflation expectations in the pre-crisis period but that the effects have become statistically insignificant since 2012. It also reports that the inflation process has become less persistent over time. All in all, these findings suggest that the inflation target has become more credible in the last few years than at any time before. This is, indeed, confirmed by the results reported in Pétursson (2018). He estimates an open-economy, forward-looking Phillips curve allowing the average relationship between inflation and its key drivers to change over time according to a two-regime Markov switching model. His results suggest a structural break in the relationship from mid-2012. In particular, the probability of being in the low-inflation regime (anchored by the 2.5% inflation target) remains practically zero for a large part of the period (see Figure 7). The probability rises slightly in 2007 as inflation falls just under the 4% upper deviation band from a peak of more than 8% in mid-2006, but this proves short-lived and the probability falls back to zero soon after as inflation starts rising again. The credibility of the inflation target starts rising again in early 2012 and reaches 50% in 2012Q2 and more than 80% in early 2013 and more than 90% from late 2013,

where it has remained since. This suggests that the 2.5% inflation target did not become fully credible until mid-2012.

Figure 7. Credibility of the 2.5% inflation target



Note: Smoothed probability of being in a low-inflation regime based on an open-economy, forward-looking Phillips curve, estimated with a two-regime Markov switching model. The shaded area shows the 1-4% inflation-target deviation band.

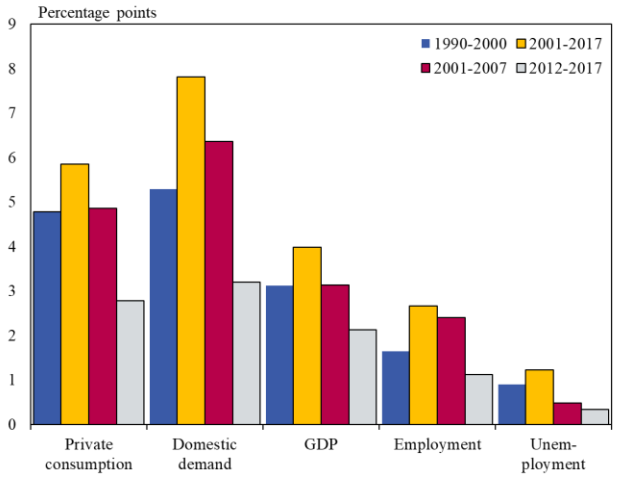
Source: Pétursson (2018).

What could explain this regime change? In Central Bank of Iceland (2017b), it is argued that this critically relates to the rate hiking cycle that started in August 2011. The Bank had been lowering rates continuously since early 2009, but in the spring of 2011 a centralised wage bargaining round resulted in a sizeable increase in wage inflation which had a marked effect on both short- and long-term inflation expectations. The Bank responded by raising rates in August that year and signalled further rate hikes, eventually ending by raising rates by 175 basis points in just over a year until November 2012 when long-term inflation expectations had started to decline again. The negative reaction to the rate-hike cycle from politicians and the population at large was enormous, but it appears that this may have finally convinced economic agents of the firm intentions of the Bank to anchor inflation at the 2.5% inflation target. A further bout of wage inflation came in the spring of 2015, pushing long-term inflation expectations again above 4%. The Bank responded by hiking rates (again to strong popular opposition), perhaps further cementing its inflation-fighting credentials before easing rates back once inflation expectations declined towards the target in late 2016.

4.3. Real economic volatility

Increased nominal stability has also contributed to greater real stability as better anchored inflation expectations have led to more stable real interest rates, thus reducing fluctuations in output, employment and the exchange rate. This can be seen from Figure 8, which shows how fluctuations in key macroeconomic variables have declined since 2012 compared to the inflation-targeting period as a whole, the pre-crisis inflation-targeting period, and the fixed-exchange rate period of the 1990s.

Figure 8. Real economic volatility



Note: The figure gives the standard deviation of annual changes in selected macroeconomic variables over five different periods.

Sources: Statistics Iceland, author's calculations.

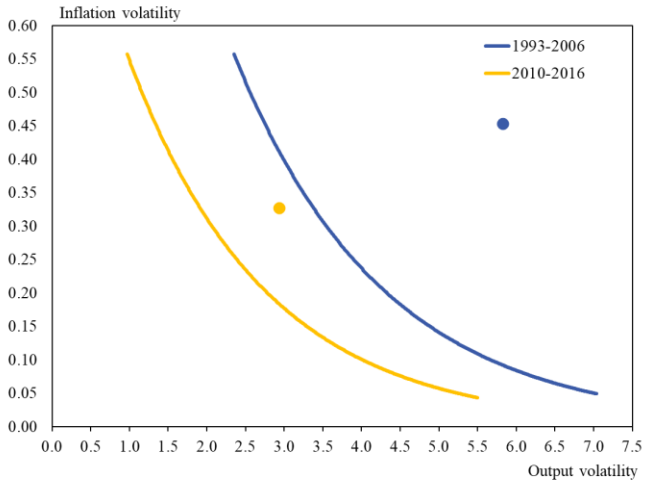
4.4. Monetary policy effectiveness

A standard way to assess the performance of monetary policy and its contribution to overall macroeconomic stability is to analyse the inflation-output variability trade-offs facing monetary policy at different times, or so-called monetary policy efficient frontiers (also called Taylor curves, cf. Taylor, 1979). The idea is that when the economy is hit by a supply shock, the monetary authority is faced with a trade-off between stabilising inflation at the cost of greater output volatility or stabilising output at the cost of larger fluctuations in inflation. Using a standard loss function that weights these two goals together allows us to construct a frontier of the smallest possible combinations of inflation and output fluctuations that can be achieved given the structure of the economy and the size of shocks it faces. Figure 9 shows this frontier for Iceland for two periods, the period until 2006 and the period since 2010, obtained using the Bank's DSGE model. As reflected in the declining nominal and real variability documented above, the variability frontier has shifted towards the origin, suggesting that monetary policy is faced with more favourable trade-offs in the last few years compared to the period before the financial crisis (see Central Bank of Iceland, 2017b, for more detail).

An optimal monetary policy would deliver actual inflation and output variability on the efficient frontier, with the exact location on the frontier depending on the policy maker's relative preferences for inflation and output variability. A sub-optimal policy would however lead to outcomes to the right of the frontier. As the figure shows, monetary policy in the first period was far from being optimal, with actual outcomes well to the right of the frontier. Monetary policy performance in the latter period has greatly improved, however. The performance point has shifted significantly towards the origin and is now much closer to the frontier than before. The analysis therefore suggests that monetary policymaking has greatly improved in the last few years. Using the approach suggested by Cecchetti et al. (2006) shows that although the variability of shocks has declined (as reflected in the inward shift of the

efficient frontier), actual macroeconomic outcomes have improved more than twice as much. Thus, improvements in monetary policy conduct and efficiency can explain more than 50% of the improvement in overall macroeconomic performance in the recent period.

Figure 9. Monetary policy frontiers



Note: The efficient frontier shows pairs of standard deviations of inflation (deviations of annualised quarterly inflation from trend, π_t) and output (annualised quarterly GDP growth, y_t) which minimises the loss function $L = \sum_{t=0}^{\infty}(\lambda\pi_t^2 + (1-\lambda)y_t^2)$ for different values of λ. The dots show pairs of actual standard deviations of inflation and output. The data is seasonally adjusted, de-trended and Kalman filtered using the Central Bank of Iceland's DSGE model.

Source: Central Bank of Iceland (2017b).

The benefits of greater nominal stability through improved monetary policy credibility and effectiveness are widespread. For example, as shown in Pétursson (2018), a firmer anchoring of long-term inflation expectations, together with favourable external conditions, played a key role in the post-2012 disinflation episode and can explain why the disinflation did not coincide with any loss of output. Greater nominal stability has also contributed to declining non-fundamental exchange rate fluctuations. As documented by Forbes et al. (2017), monetary policy shocks have historically played an unusually large role in explaining exchange rate fluctuations in Iceland compared to other advanced economies. This is consistent with the findings in Central Bank of Iceland (2017b) who find that monetary policy shocks explain more than 80% of exchange rate fluctuations in the pre-crisis period. However, the share has declined significantly in the post-crisis period, with monetary policy shocks now explaining less than 50% of exchange rate fluctuations – much closer to what is seen in other advanced economies as reported in Forbes et al. (2017).

5. Conclusions

The inflation-targeting framework introduced in Iceland in 2001 did not deliver sufficient nominal and real stability in the period prior to the financial crisis in 2008. The crisis exposed further weaknesses in the framework and triggered major revisions of it and its governance structure. The monetary policy decision-making body was completely restructured, with much

greater emphasis on policy transparency and communication. The policy toolkit has been significantly extended – so much that the new policy framework has been redubbed as "Inflation-Targeting Plus". There is compelling evidence that these reforms have led to significant improvements in policy outcomes. Inflation target misses are much smaller and rarer than before, inflation expectations are better anchored to the inflation target, volatility of inflation and inflation expectations has diminished, as has uncertainty about future inflation developments. As a result, the credibility of the 2.5% inflation target seems to have markedly improved. Greater stability of inflation and inflation expectations has reduced fluctuations in real interest rates which has contributed to reduced volatility of output, employment, and the exchange rate. Indeed, there is clear evidence that the efficiency of monetary policy has greatly improved.

However, challenges remain, and more work needs to be done.[8] For example, the governance of macroprudential policy needs to be strengthened further. Although the transparency of monetary policy has increased and the communication of policy improved, greater effort is also needed to explain monetary policy to the general public and some policy spheres, such as foreign exchange interventions, need a better formulated communication strategy. Furthermore, although a lot of work has been done on developing the macroprudential toolkit and its institutional arrangement, further work is needed, and the framework for the capital flow management tool may need revising.

Despite obvious improvement in macroeconomic outcomes, the new framework is in some respect still to be tested – in particular in the post-capital controls era. The comprehensive capital controls introduced in the midst of the financial crisis in late 2008 undoubtedly helped stabilising the currency and provided the necessary room for manoeuvre while local balance sheets were restructured right after the financial crisis (for more detail, see Central Bank of Iceland, 2016a, and IMF, 2017a). This helped stabilise prices and the real economy. The capital account liberalisation in late 2016 and early 2017 did not undermine these achievements, but it remains to be seen how durable the recent anchoring of inflation expectations will remain in a post-liberalised environment – in particular when faced with some unresolved structural issues, such as the deep-rooted conflict on income distribution that has undermined stability in the labour market for some time. Finally, although macroprudential tools offer promise, their effectiveness remains to be seen. The new toolkit is still to be tested with financial unrest and a possible political pushback when these measures become truly binding.

[8] Many of the following suggestions for improvements are highlighted in the recent review of the monetary policy framework in Iceland. See Jónsson et al. (2018) and the external reviews of Edwards (2018), Forbes (2018), and Honohan and Orphanides (2018).

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