

## COMMENT BY

**JÓN STEINSSON** Sigríður Benediktsdóttir, Gauti Eggertsson, and Eggert Þórarinsson have written a first-rate account of the causes and consequences of the collapse of the Icelandic banking system in the fall of 2008. Their account focuses on the rise and fall of the Icelandic banks, which is a remarkable story. In this comment, I try to provide some context for this story by discussing, in addition to the banking story, a number of macroeconomic developments and policies in Iceland during this period. I frame my comment with four important policy failures and four important policy successes in Iceland before and after the crisis.

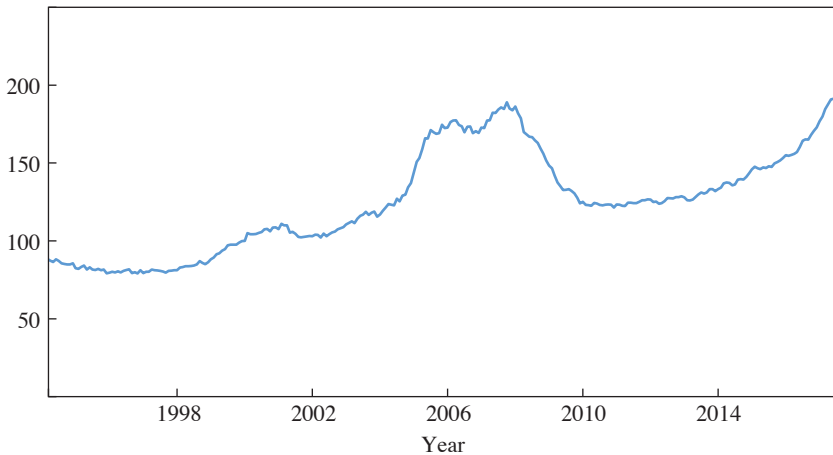
**POLICY FAILURE 1: BANKING SUPERVISION** The most important policy failure by far was the inadequacy of bank supervision before the crisis. The authors cover this well. The short version of the story is that the regulators in Iceland were some combination of completely captured and completely incompetent. Important elements of this regulatory failure are (i) massive lending to related parties, (ii) massive lending to insiders, (iii) fictional equity and stock market manipulation, and (iv) the “love letters.” If you have ever wondered what it is like to have a banking system that is effectively unregulated, read this paper carefully.

An interesting question is the extent to which the rapid rise of such poorly functioning banks was partly enabled by Iceland having a reputation for good institutions. Iceland scores well on anticorruption indexes. And it is true that it is not easy to bribe a policeman or a judge in Iceland. This may have led foreign investors to believe that banking regulation in Iceland was strong, which may have contributed to their willingness to lend huge sums of money to banks that were growing extremely rapidly but had almost no track record for the international activities in which they were then engaged. It seems unlikely that such rapid growth in banking, fueled by wholesale funding from international investors, could happen in a country with a reputation for corruption. One thing this episode should teach us is that whether you can bribe a policeman or a judge is not a sufficient statistic for measuring institutional quality.

**POLICY FAILURE 2: HOUSING POLICY** The fact that over 90 percent of the banking system in Iceland failed in the span of one week suggests that the crisis should have led to a complete macroeconomic calamity. Many macroeconomists believe the Great Depression in the United States was in large part due to banking failures. But much less than 90 percent of the U.S. banking system failed in the Great Depression. So, should the Icelandic banking collapse not have led to a macroeconomic collapse even larger than the Great Depression in the United States?

**Figure 1.** Real House Prices in Reykjavik, 1994–2017

Index (January 2000 = 100)



Sources: Registers Iceland; Statistics Iceland.

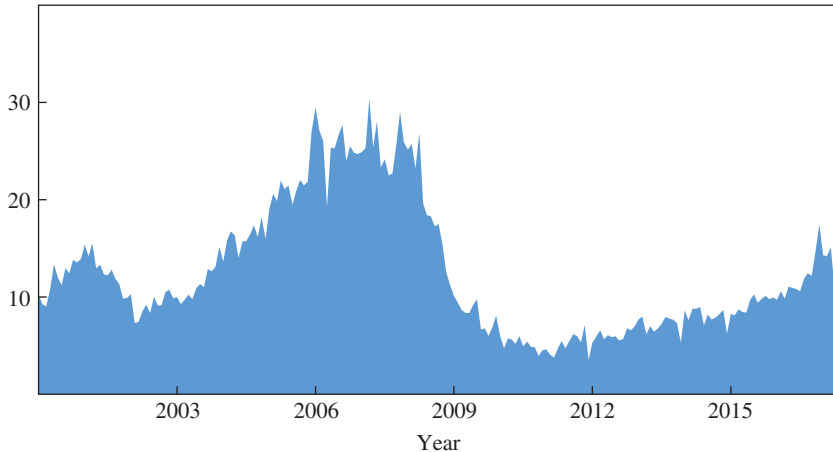
There are several important differences that explain why this is not the case. One difference is that a large majority of the assets and liabilities of the Icelandic banks were foreign. The three major banks in Iceland had grown by more than a factor of four over a few years before 2008. But almost all this growth was in foreign operations. The banks funded themselves abroad, and to a first approximation lent all the funds they raised to a small group of Icelandic tycoons who used the funds to purchase assets abroad.

When the banks collapsed, it was because of a run by foreign wholesale investors. The Icelandic authorities quickly reacted by dividing each bank into a domestic part that was well capitalized and a foreign part that was bankrupt. This insulated the domestic economy from the banking collapse to a large degree. Of course, there was quite a bit of disruption. But once the crisis had come to a head, the domestic economy was being serviced by new banks that were well capitalized.

The recession that Iceland experienced in 2008–09 was made much worse than it otherwise would have been by the collapse of a huge housing bubble that had been building up in Iceland during the boom years. My figure 1 plots real house prices in the Reykjavik area from 1994 to 2017. Beginning in 2004, prices rose by more than 50 percent over a few years. In 2008 and 2009, prices collapsed back to their pre-2004 level. The increase

**Figure 2.** Sales of Cement in Iceland, 2000–17

Thousands of tons

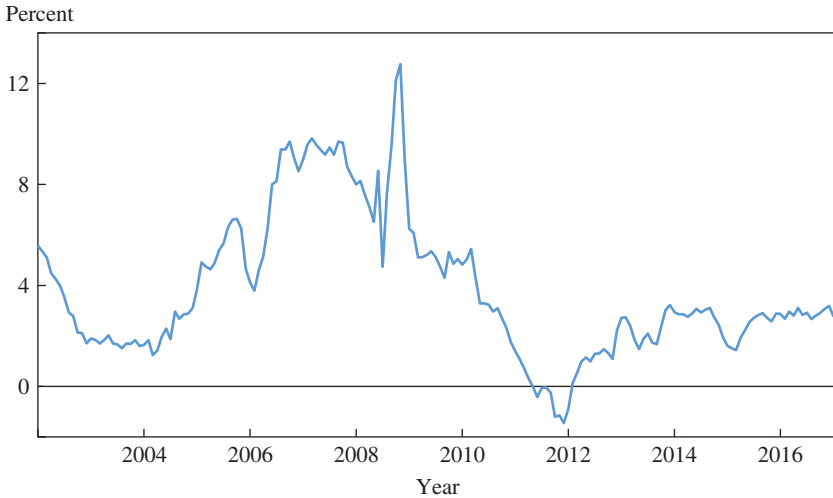


Source: Central Bank of Iceland.

in prices before 2008 led to a boom in housing construction in Iceland. My figure 2 illustrates this by plotting the sales of cement in Iceland from 2000 to 2017. These sales more than doubled from 2004 to 2007. The collapse of the housing bubble then led to a huge collapse in the construction sector in Iceland.

A very large portion of the fall in employment in Iceland between 2008 and 2009 was in construction and real estate. Overall employment fell by 11,000; and of this, 6,600 workers were in construction. (The Icelandic economy is roughly a thousand times smaller than the U.S. economy. Therefore, a fall of employment of 11,000 in Iceland is analogous to a fall of employment of 11 million in the United States.) The fall in employment in the banking sector was a mere 1,000. This is partly due to the fact that an enormous amount of restructuring had to be done in the banks after the crisis, but also because the new domestic banks had weak incentives to reduce costs since they were first owned by the government and then by the creditors of the old banks (which were not allowed to exercise full control).

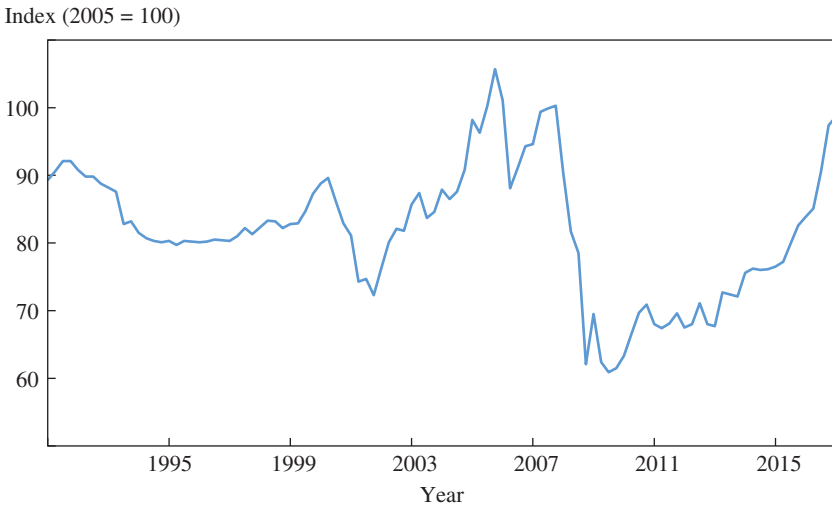
Housing policy played an important role in the Icelandic housing bubble. This is the second important policy failure in Iceland over this period. The Progressive Party's aggressive campaign promises in the 2003 parliamentary elections, which it honored once in government, contributed to getting the housing boom started. In 2004, the newly privatized commercial banks

**Figure 3.** The Central Bank of Iceland's Real Policy Interest Rate, 2002–17

Source: Central Bank of Iceland.

entered the mortgage market and offered much lower interest rates than had previously been available. The banks also offered cash-out refinancing products that had not existed in Iceland before this time. The result was a household lending boom, which likely played a pivotal role in generating the rapid run-up in house prices in Iceland at this time. The government and the Central Bank of Iceland stood by and did little to rein in this housing boom.

**POLICY FAILURE 3: MONETARY POLICY BEFORE THE CRISIS** The third policy failure has to do with the conduct of monetary policy before the crisis. Icelandic monetary policy in these years was conducted very much in accordance with the conventional wisdom of the time. The central bank adopted an inflation target in 2001. It viewed itself as having a single instrument: the short-term interest rate. There was a big boom, so the central bank raised this interest rate to very high levels. My figure 3 plots the policy rate of the Central Bank of Iceland, less break-even inflation, based on the difference in yield between nominal and real government bills over the period from 2002 to 2017. This real policy interest rate is incredibly high for a sustained period before the crisis. It is above 4 percent continuously from mid-2005 until well after the crisis, and it is above 8 percent for several years after mid-2006. The average real policy rate between June 2004 and June 2008 is an astonishing 7.4 percent.

**Figure 4.** The Króna Real Exchange Rate, 1991–2017

Source: Central Bank of Iceland.

One consequence of this high interest rate policy was a rapidly appreciating exchange rate and extremely high returns on the Icelandic króna relative to foreign currency. My figure 4 plots the real exchange rate of the króna from 1991 to 2017. From fall 2002 to fall 2007, the real exchange rate appreciated by 22 percent. The huge returns on the króna—or, conversely, the very low returns on foreign currency—led to a massive boom in foreign currency borrowing in Iceland during this period. By 2006, virtually all car loans in Iceland were issued in foreign currency, and a rapidly increasing share of mortgages were also in foreign currency. Foreign currency borrowing by the corporate sector was also endemic, even in sectors that had no revenue in foreign currency. This foreign lending boom led to a very large current account deficit, which peaked at almost 25 percent of GDP in 2006 (see my figure 7 below).

In retrospect, it is not clear to me that this type of monetary policy was the most effective way to contain the boom. The high interest rates may have encouraged capital inflows, and thereby had the perverse effect of feeding the boom as opposed to dampening it. The conventional wisdom at the time was not favorable to other policy instruments, such as foreign exchange intervention, capital controls, restrictions on currency carry trades, and lending in foreign exchange. I was then a believer in

this conventional wisdom, but over the past decade I have become more favorably inclined toward some of these other instruments. Since the crisis, the Central Bank of Iceland has revised its framework for conducting monetary policy and has substantially increased the role of foreign exchange interventions, certain forms of capital controls, and restrictions on carry trades and lending in foreign currency. I think these are steps in the right direction.

**POLICY FAILURE 4: NOT MAKING INSURED DEPOSITS SUPERPRIORITY CLAIMS**  
The fourth and final policy failure is a bit technical. An important element of the Emergency Act that was passed at the height of the crisis was a provision that reordered the priority of claims in the banks. It made deposits a priority claim relative to other bank debt, as is the case in the United States but not in most of Europe. Something that was not done, but could have been done equally easily, was to give insured deposits superpriority—that is, to order them above other deposits. In the United States, insured deposits have such superpriority.

If Iceland had done this, it would likely have avoided the whole “Icesave dispute” between Iceland, Britain, and the Netherlands. The reason is that if insured deposits had had superpriority, it would have been clear that the bankrupt old banks had enough assets to eventually pay these claims in full. Although the Icesave dispute was eventually decided in Iceland’s favor, it consumed an enormous amount of very scarce political energy in Iceland in the aftermath of the crisis, and it created a great deal of uncertainty about the country’s fiscal situation. It also fanned the flame of nationalism and populism in Iceland during this period.

Why did the Emergency Act not include a superpriority provision for insured deposits? I participated directly in the events that led to the passing of the Emergency Act. As far as I can tell, the reason why this was not done is simply that none of us thought of it. It was simply a mistake.

**POLICY SUCCESS 1: THE EMERGENCY ACT** Let us now turn to policy successes. The most important policy success in Iceland, in my view, was the Emergency Act. This law was passed right before midnight on October 6, 2008. The bill had been introduced in Alþingi only that afternoon, after a televised address to the nation by the prime minister. It had been drawn up very quickly, with little preparation.

The Emergency Act contained two main elements: (i) It reordered the priority of claims in the banks, giving deposits priority relative to other debt liabilities; and (ii) it gave the Financial Supervisory Authority wide-ranging resolution authority over the banks in the event that they failed. The law was passed in the nick of time. The resolution authority was used

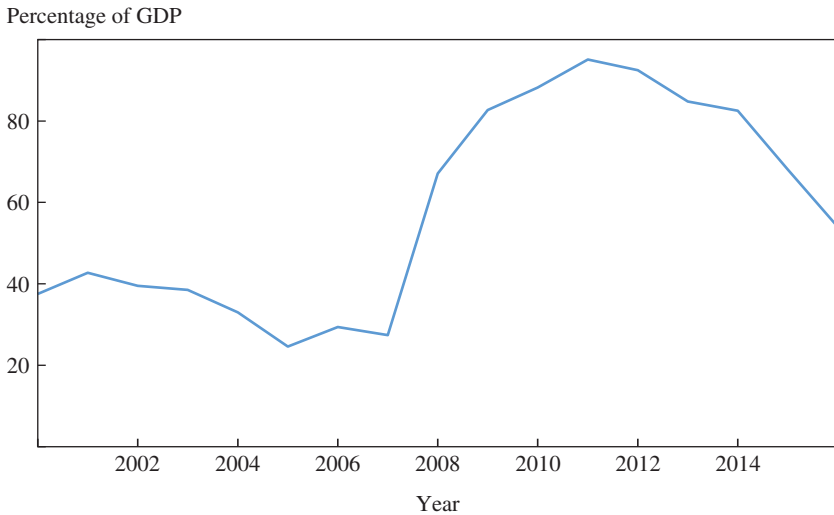
the next day to place two of the three main banks in receivership, and two days later for the third bank.

The law's resolution authority provision allowed for an orderly resolution of the banks when they failed. As mentioned above, in each case, the banks were divided up into a well-capitalized "new bank" and a bankrupt "old bank" (see the authors' figure 27). The bulk of domestic assets of the old bank were transferred to the new bank, as well as all domestic deposits. Care was taken to transfer enough assets into the new banks to make sure that they were well capitalized.

This splitting of the banks meant that the sovereign did not assume any of the liabilities of the banks. The creditors of the old banks bore all the losses. Initially, the government purchased the new banks with newly issued domestic government debt. But eventually, in the case of two of the three banks, ownership of the new bank was transferred to the old bank. That is, instead of the government purchasing the new bank, the new bank became one of the main assets in the old bank's bankruptcy proceedings. And because the losses in the banks were not nationalized, the government remained solvent and did not end up having to use much of its fiscal room for the bank restructuring.

A second important consequence of the way the bank resolution was handled was that the banks remained open for business throughout the crisis. This was crucial for minimizing disruptions to the real economy. There were never any lines at ATMs, there was no stockpiling of food, everyone got paid on time, firms continued to get working capital loans and were able to pay their bills, and the like. This was particularly impressive in light of the fact that a very large fraction of the largest Icelandic firms were technically insolvent after the crash. Many of these firms had set up investment companies (essentially hedge funds) as side businesses, and these companies incurred huge losses during the crisis. This was true of the country's main airline, shipping company, newspaper, supermarket chain, and the like. All these firms needed financial restructuring, but they all had a viable core business. The new banks were able to allow all these firms to operate normally, despite the sorry state of their balance sheets. Over the next year or so, the banks took these firms through a financial restructuring process, and in many cases a change of ownership.

I remember vividly that during our initial contacts with officials of the International Monetary Fund right before the Emergency Act was passed, the IMF staff members warned us that we needed to plan for riots, food shortages, bank runs, and the like. After all, the plan was to let all the banks in the country go bust simultaneously. I was taken aback. I even spent time

**Figure 5.** Icelandic Gross Government Debt as a Percentage of GDP, 2000–16

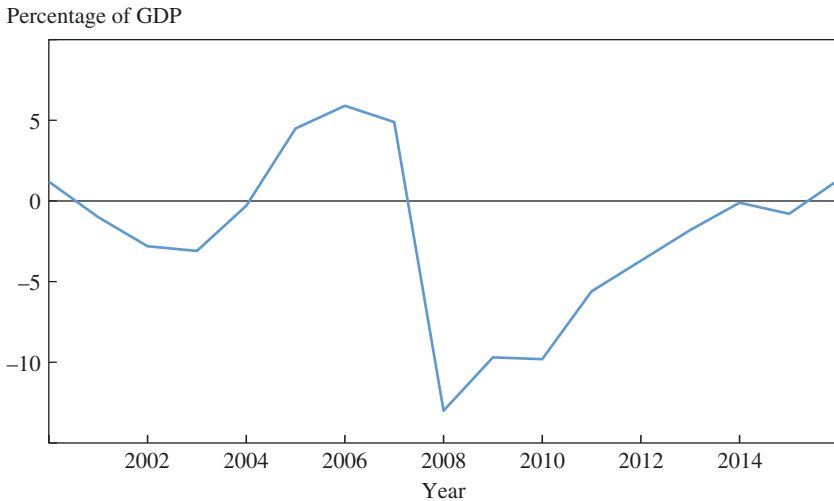
Source: Statistics Iceland.

worrying about these things. But none of this happened. The reason, I think, is that in no small part, the Emergency Act's resolution authority provision allowed for a smooth transition from the old banks to the new ones.

**POLICY SUCCESS 2: FISCAL ROOM** The second important policy success was fiscal policy before the crisis. Iceland's experience during the crisis vividly illustrates the value of fiscal room. The government came into the crisis with very little debt. My figure 5 plots gross government debt in Iceland as a percentage of GDP from 2000 to 2016. In 2007, gross government debt was only 25 percent of GDP. This allowed the government to run huge deficits after the crisis, which was important in smoothing out the crisis.

My figure 6 plots the Icelandic government's budget balance from 2000 to the present as a percentage of GDP. The government was running a surplus of roughly 5 percent of GDP in 2006 and 2007. In 2008, however, the government ran a deficit of 13 percent of GDP. The deficit remained large in 2009 and 2010, at roughly 10 percent of GDP each year. Only in 2011 did the government start to reduce the deficit substantially, and not until 2014 did it again run a surplus. From 2007 to 2011, the ratio of government debt to GDP rose by 70 percentage points. This was, of course, only possible because debt was low to begin with.



**Figure 6.** The Icelandic Government's Budget Balance as a Percentage of GDP, 2000–16

Source: Statistics Iceland.

It is hard to overemphasize the value of the government being able to run such enormous deficits for multiple years after the crisis. This allowed the government to shield the welfare system in Iceland from the draconian cuts that otherwise would have been necessary. Tax revenue, of course, collapsed at the time of the crisis. The budget deficits in the years 2009–11 were therefore mainly due to the government not cutting spending as much as tax revenues fell. This is not to say that the government was able to avoid cutting spending. Spending was cut a great deal. But the scale of spending cuts that would have been necessary to avoid large deficits in the short run would have been a great deal more painful if not for the ability to run large deficits—and likely would have exacerbated the recession by a nontrivial amount.

Eventually, the government had to get the budget under control. This was done gradually. Tax revenues did start to recover, which helped. But the government did also engage in a gradual austerity policy to eventually return to a balanced budget. Again, gradual austerity is much less painful than shock-and-awe austerity.

**POLICY SUCCESS 3: CAPITAL CONTROLS** The third policy success was capital controls. These were imposed after the crisis with strong prodding from the IMF. At the time, I opposed this policy. My view was based on the fact that Iceland had already defaulted on most of its foreign liabilities.

Foreign liabilities were therefore limited. Keeping the capital account open after the crisis would likely lead to a mass exodus of foreign investors from Iceland, and these investors might sell their Icelandic assets at fire-sale prices. This would likely benefit some savvy Icelanders, who would be on the buying side.

I also thought that it would be good to let the dust settle regarding the overhang of Icelandic assets held by foreigners. If this was not done initially, these foreign liabilities would remain an unresolved issue that would potentially lead to a long delay in returning to capital account convertibility. The previous instance when capital controls were imposed in Iceland was during the Great Depression. Then, the controls remained in place for over half a century.

I have since changed my mind about this. Now, I think imposing capital controls was crucial. The government needed to finance very large deficits. The imposition of capital controls locked a considerable amount of foreign capital in the country. It stands to reason that these funds substantially lowered the government's financing cost, and it is unlikely that the government could have done nearly as much deficit spending without capital controls.

Furthermore, without the capital controls, there could have been more general capital flight from Iceland, with Icelanders moving a substantial amount of capital out of the country. The extent to which this happened would have depended on Icelanders' confidence in the government's macroeconomic policies. It is easy to imagine a self-fulfilling crisis, where a lack of confidence in Icelandic macroeconomic policy could have led to capital flight, which in turn made sound policy too costly to implement (Calvo 1988). My current view is that the risk of this type of bad, self-fulfilling equilibrium was very real, and that imposing capital controls allowed the country to insulate itself from this outcome.

Imposing capital controls was of course an act of financial repression—a way for the Icelandic government to tax foreign investors and wealthy Icelanders. But at that time, the Icelandic government badly needed this source of revenue. Moreover, an argument can be made that capital controls were an element of an optimal fiscal response to the banking crisis. Capital controls are similar to an *ex post*, lump sum tax on capital. Such taxation is efficient as long as it does not have excessively detrimental effects on the government's reputation. Though such reputational costs are hard to estimate precisely, from today's vantage point, the reputational costs of Iceland's capital controls seem relatively small.

**POLICY SUCCESS 4: DEVALUATION** The fourth and final policy success is monetary policy during the crisis. Iceland has its own currency. It was

therefore able to allow the currency to depreciate substantially at the time of the crisis. Looking back at my figure 4, we can see that the Icelandic real exchange rate depreciated by 40 percent from the fourth quarter of 2007 to the third quarter of 2009. And the nominal exchange rate depreciated even more.

The depreciation of the exchange rate had two main benefits. First, it allowed for some inflation in Iceland, which lowered real wages “without bloodshed,” as a domestic commentator put it. This was particularly important for the public sector, because it helped the government get the budget under control.

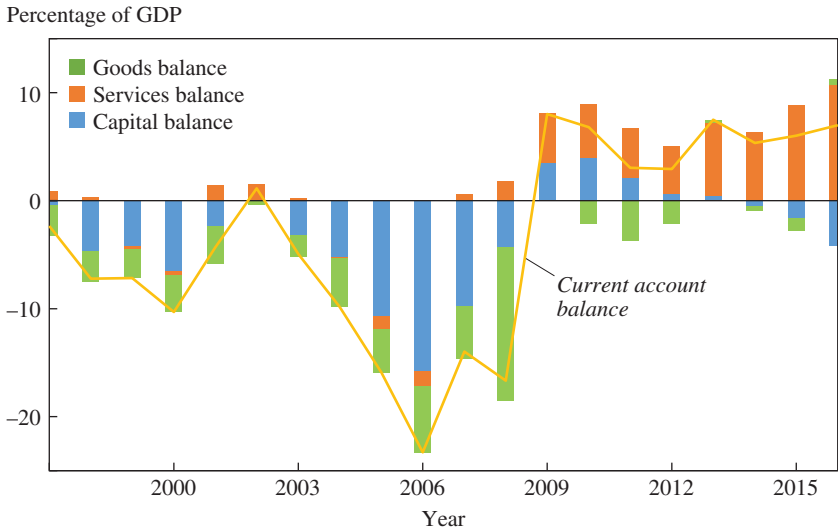
The second benefit was that the depreciation allowed for substantial expenditure switching toward Icelandic goods. My figure 7 shows the evolution of the current account balance in Iceland from 1997 to 2016, with a breakdown into the balance on goods, services, and capital income. As I discussed above, the boom years were characterized by a huge amount of net foreign borrowing. In the four years leading up to the crisis, the current account deficit averaged 17 percent of GDP. In 2009, however, the current account swung sharply upward, from a deficit of 16 percent of GDP to a surplus of 8 percent of GDP.<sup>1</sup> This large swing in the exchange rate was crucial to this large reversal.

In the short run, the expenditure switching occurred mostly on the import side. People stopped buying durable goods (and the Icelandic banks stopped servicing their debts). My figure 8, my favorite visual portrayal of the Icelandic crisis, plots monthly new car registrations in Iceland from 2000 to 2017. During the crisis, new car registrations fell to virtually zero. The number of new car registrations fell 94 percent from November 2007 to November 2008. Actually, a law was passed to allow for the reexporting of newly imported cars that were sitting at the dock when the crisis occurred. The story for other durable goods is similar.

This strong response of durable goods imports is helpful in thinking about modern economies’ ability to cope with this kind of event. My figure 9 plots GDP growth and the growth in consumer expenditures in Iceland from 2000 to 2016. The cumulative fall in consumer expenditures was roughly 20 percent in 2008 and 2009. A 20 percent fall in consumption

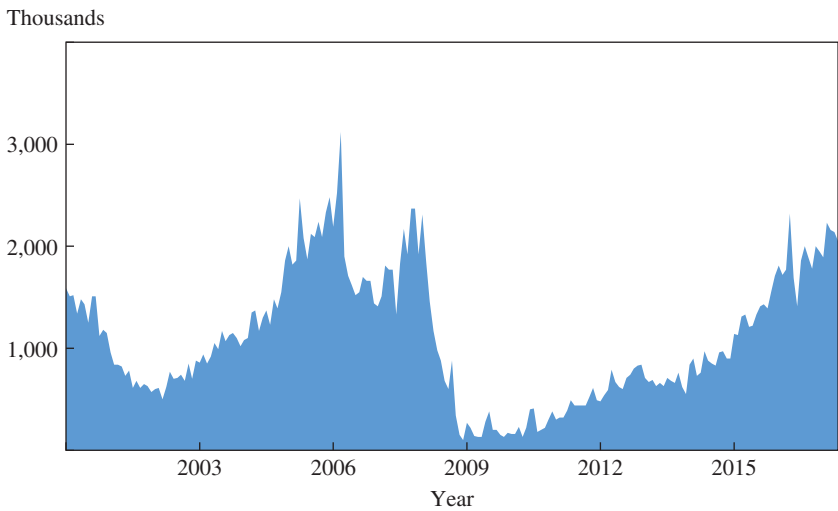
1. These numbers are corrected for the effects of the old banks on the balance of income. Some official current account calculations for Iceland indicate a current account deficit after the crisis. This is because these calculations count capital income payments from Iceland to the rest of the world relating to the old banks. These payments never occurred because these banks were bankrupt. The numbers in my figure 7, which are from the Central Bank of Iceland, do not count these payments.

**Figure 7.** The Icelandic Current Account Balance, 1997–2016



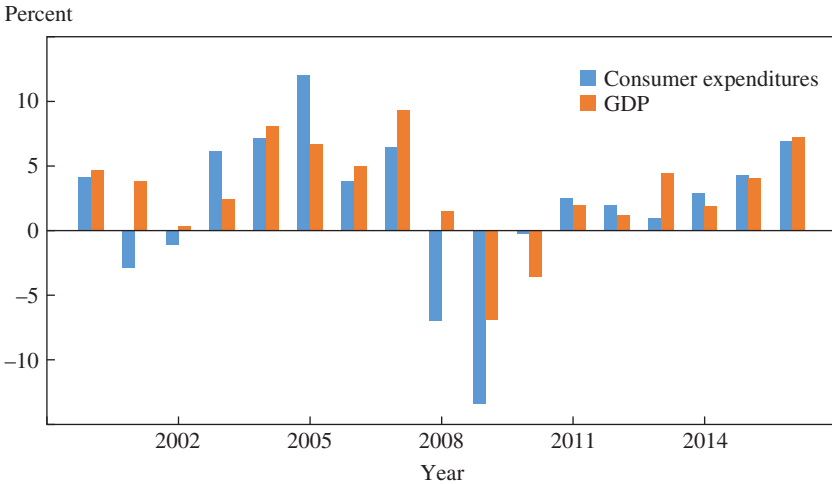
Source: Central Bank of Iceland.

**Figure 8.** New Car Registrations in Iceland, 2000–17



Source: Central Bank of Iceland.

**Figure 9.** GDP and Consumer Expenditures Growth, 2000–16



Source: Statistics Iceland.

sounds like a lot. But consumption and consumer expenditures are not the same thing. It was consumer expenditures that fell by 20 percent in Iceland, not consumption. Much of what happened was that Icelanders did not purchase new cars and washing machines for a few years, and the old ones got a bit older. However, this lull in durable goods purchasing came right after an enormous boom in the purchases of such goods, so Iceland had a pretty good stock of durable goods going into the crisis.

In the short run, exports did not react much to the exchange rate change. This is because Iceland’s traditional exports are capacity constrained. Iceland exports mainly fish and aluminum. There is a maximum allowable catch in Iceland to prevent overfishing, and fishing is hugely profitable. Icelanders therefore exhaust their maximum allowable catch every year, no matter what the exchange rate is. In the case of aluminum, Iceland is really exporting electricity. Bauxite is imported, and is smelted into aluminum in Iceland, with electricity being the main domestic input. The aluminum smelters in Iceland run at capacity no matter what the exchange rate is. In the longer run, there has, however, been a substantial response on the export side with the rise of the tourism industry. In 2016, the balance on the service account in Iceland was positive by 10 percent of GDP.

Since the crisis, there has been an intense debate about the value of exchange rate flexibility. In particular, prominent commentators have

argued that the eurozone should be disbanded. Does Iceland's experience during the crisis prove the case for flexible exchange rates? I am not sure. Being able to devalue during the crisis was obviously valuable for Iceland. However, arguably, Iceland has paid for that privilege in good times in the form of very high interest rates. The fact that Iceland has its own currency, and the fact that it chooses to devalue this currency in bad times, may have reduced the demand for Icelandic assets and thereby increased interest rates in Iceland. Luigi Bocola and Guido Lorenzoni (2017) provide a nice model of this phenomenon.

Therefore, I view the Icelandic króna, and the ability it affords Icelanders to devalue it in bad times, as a form of insurance. This insurance contract pays out handsomely in bad times. But in good times, Icelanders need to pay an insurance premium. Whether it is optimal for Iceland to have this form of insurance depends on the size of the insurance premium and the probability that bad events will occur. It is not obvious to me which way this calculation goes.

#### REFERENCES FOR THE STEINSSON COMMENT

- Bocola, Luigi, and Guido Lorenzoni. 2017. "Financial Crises and Lending of Last Resort in Open Economies." Working Paper no. 23984. Cambridge, Mass.: National Bureau of Economic Research.
- Calvo, Guillermo A. 1988. "Servicing the Public Debt: The Role of Expectations." *American Economic Review* 78, no. 4: 647–61.

**GENERAL DISCUSSION** Robin Greenwood noted that indicators like the ratio of short-term bank liabilities to short-term assets and other similar measures were setting off warning signals in Iceland during the 1990s and early 2000s, and a small industry developed to try to predict currency crises. Shortly after that, Iceland had a small currency crisis, which likely caused foreigners to make a run on the banks. This was *not* a banking crisis, but rather a problem with the currency. Greenwood wondered why a similar event did not happen during the most recent financial crisis. Events such as the currency crisis of the 1990s are the sorts of things that economists are usually able to see coming.

Nellie Liang was struck by the fact that during the financial crisis, all the banks in Iceland were treated as one bank; they were all written down, all their assets were transferred, and so on. But in a relatively large banking system, not all banks are the same. So the biggest problem in these crisis