Assessment of
Iceland's performance during the crisis

Introduction

> "In retrospect, there are some obvious questions an Icelander living through the past five years might have asked himself. For example: Why should Iceland suddenly be so seemingly essential to global finance? Or: Why do giant countries that invented modern banking suddenly need Icelandic banks to stand between their depositors and their borrowers – to decide who gets capital and who does not? And: If Icelanders have this incredible natural gift for finance, how did they keep it as well hidden for 1 100 years? At the very least, in a place where everyone knows everyone else or his sister, you might have thought that the moment Stefan Alfsson [one of Icelander] walked into Landsbanki ten people would have said, 'Stefan, you're a fisherman!' But they didn't. To a shocking degree, they still [after the crisis] don't. 'If I went back to banking,' says the Icelandic cod fisherman, now wearing an entirely straight face, 'I would be a private-banking guy.'" (Lewis, 2011).

This thought from the Lewis book describes perfectly the main problem of Iceland's economy before the crisis: the country of fisherman that started to be the country of financiers could not complain about its fate in the time of the global financial crisis of 2008. The argument that it was exogenous shock could not be used to blame anybody else except themselves – the people that thought that their knowledge of finances is exceptional and they could grow only to that knowledge indefinitely. The value added decomposition of real GDP growth rate shows that in the period from 1998 till 2008 the contribution of trading and services was 3.8% per year. At the same time the contribution of industry into GDP growth rate was only 1.44% (the agriculture sector contributed about zero per year in that period). In this work, it will be shown that Iceland economy experienced the Minsky moment[1] in the time of financial global crisis of 2008 due to unlimited foreign funded boom that was domestically driven. That Minsky moment cleaned actually Iceland economy from overheating and gives it additional possibility to develop.

[1] A Minsky moment is the part of credit or business cycle. After that point, the growth part of cycle is ceased to exist and the economy started to fall (the negative slope part of the cycle). That moment occurs when the long prosperity period transformed into the speculation on the infinitely growing possibilities of financial assets using borrowing moneys.

Chapter 1. How did crisis affect the economy?

As it could be seen on Fig 1.1, Iceland's real GDP was growing averagely on 21.3[2] bln. kr.[3] each year from 1970. It was equal to 7.75% growth rate of real GDP in 1970; however, in 2013, it was already only 1.77% growth rate of real GDP. What is more interesting, Iceland's GDP was about the estimated trend from the 1970 till 1987 and from 2010 till 2013 (the last available point of data in used source[4]). Between these two periods, it is possible to distinguish two periods: stagnation from 1988 till 1995 and the period of recover from 1996 till 2008. In the time of recover, the trend had almost two times higher growth value per year – 39.9 bln. kr. (it was even higher in the time of above trend values from 2003 till 2008 and could even be perceived as bubble).

Source: United Nations Statistics (http://unstats.un.org/unsd/snaama/); author's calculations

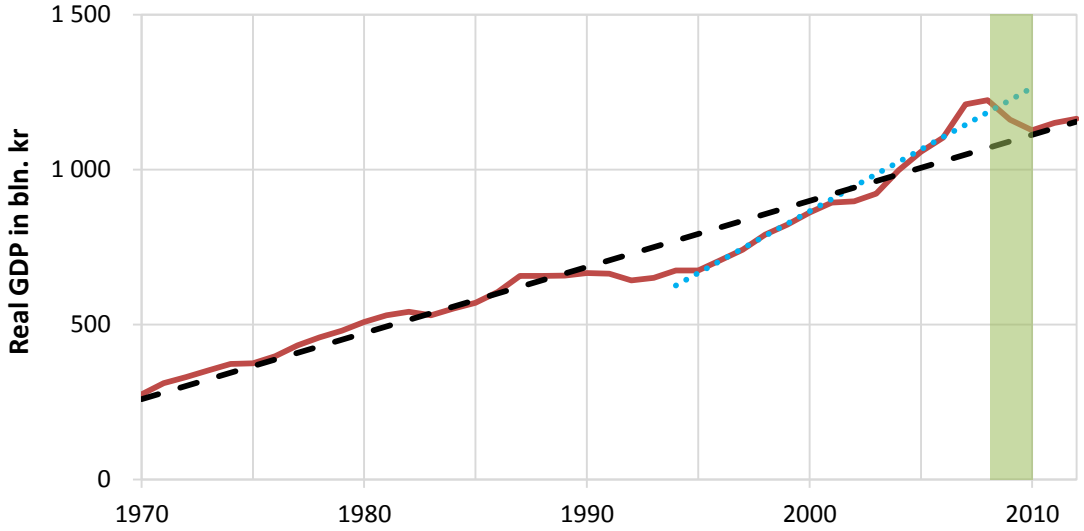

Fig. 1.1 Real GDP of Iceland and trends

The decomposition of real GDP growth rate by expenditures (Table 1.2) shows that main drivers of growth in 1996-2008 were consumption and investments which were financed on global market (as it will be shown in this paper later), mostly in Great Britain, London. In the time of global financial crisis of 2008, the inflow of foreign financing stopped and the Iceland's economy started to molder: consumption caused 3.08% decrease in real GDP each year through 2008-10 and investments - 5.35%. Only the fall of Icelandic krona relatively to the USA dollar and euro (and following improvement of net exports) supported real GDP from bigger fall.

[2] The trend of Iceland's GDP could be described by next equation: Iceland's GDP = 21.3 bln. kr * Year - 41.72 bln. kr. The equation was estimated using ordinary least squares method in Excel.
[3] Kr – Icelandic krona
[4] The used source for GDP data is United Nations Statistics Division (http://unstats.un.org/unsd/snaama/).

Table 1.1

Real GDP growth rate decomposition by expenditures

Year	Consumption	Government Expenditures	Investments	Net export	Real GDP growth rate
1988-1995	-0.07%	0.32%	-0.48%	0.53%	0.31%
1996-2007	2.80%	1.27%	2.25%	-1.32%	5.01%
2008-2010	-3.08%	-0.01%	-5.35%	6.14%	-2.31%
2011-2013	1.63%	0.47%	0.68%	-0.53%	2.25%

Source: United Nations Statistics Division (http://unstats.un.org/unsd/snaama/).

The Solow's decomposition of real GDP growth rate also shows that capital plays huge impact on Iceland's growth from 1996 till 2007: capital contribution explained one third of real GDP growth rate only through direct influence. However, the capital contribution in real GDP growth rate through 2008-10 was not very important – 0.27% positive contribution. This was caused by steps which were made by Iceland politics, which will be discussed more detailed in Chapter 3. Second reason was the limited capital outflow in that period and delayed influence on real GDP figures: the capital outflow caused 1.35% fall of real GDP growth rate in 2011-2013.

Table 1.2

Solow's decomposition of real GDP growth rate[5]

Year	Labor	Capital	Total Factor Productivity	GDP growth
1990-1995	0.37%	0.76%	-0.72%	0.41%
1996-2007	1.10%	1.68%	2.33%	5.11%
2008-2010	-2.12%	0.27%	-0.57%	-2.42%
2011-2013	0.99%	-1.35%	2.75%	1.79%

Source: Confidence Board (https://www.conference-board.org)

The issue of capital inflow that pushed real GDP value about trend from 2003 till 2007 could be seen in more detail on Fig 1.2. Net international investment position showed moderately low growth rate in comparing with foreign liabilities growth that was reached in that period only due to high valuation of foreign assets. But as it was seen in the time of global financial crisis of 2008, the value of Iceland's foreign assets was swollen. On their peak in 2009Q3, the Iceland's net international investment position was deeply in negative zone – more liabilities than assets on 11.37 bln. kr. Such huge negative position is very risky: nominal GDP was only 1 585 bln. kr. (as of 2009 end), and the ratio of net international investment position to nominal GDP was equal to 717%. For comparison, the highest level of that ratio for European Union countries was only 112% as of 2009Q3; that figures was related to Hungary which has also a lot of problem in the time of financial global crisis of 2008 and afterwards.

[5] Any difference in the averages growth rate is caused by differences in the database; however, it is not so behemoth to create issue for that analysis.

Source: Central Bank of Iceland (http://cb.is/statistics)

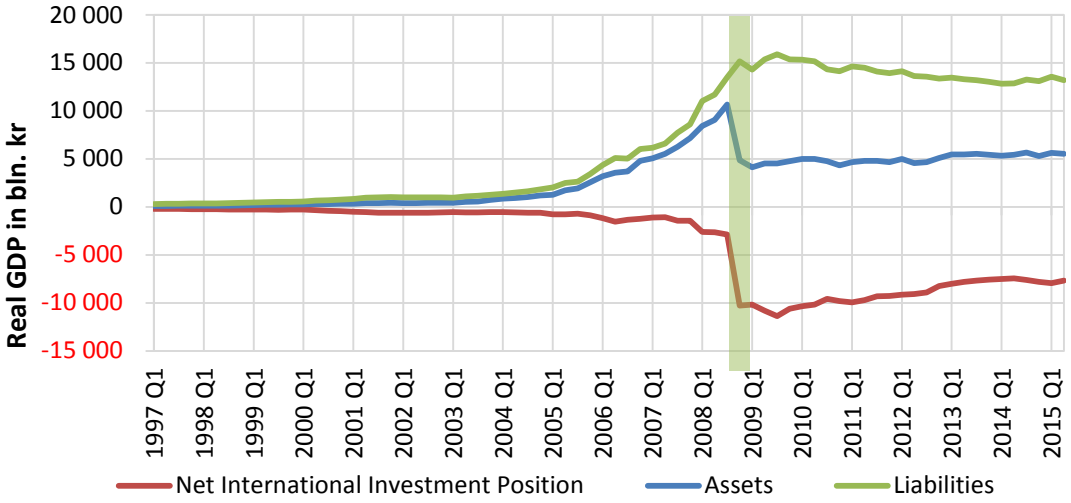

Fig. 1.2 Net International Investment Position of Iceland

Net international investment positions fell so sharply due to mammoth drop in foreign assets value: its value fell from 10.65 bln. kr. in 2008Q3 to 4.87 bln. kr. in 2008Q4. In general, foreign assets and liabilities should not be too volatile; however, the crisis disclosed all the issues of bad investments. As it could be seen on Fig 1.2, the foreign liabilities behavior was in crisis mostly stable unlike foreign assets that fell sharply and caused the falling of net international investment position. Such situation was consequences of bad investment strategy of the main Iceland's banks: Glitnir, Landsbanki and Kaupthing. In general, the strategy was standard for that time: take moderately "cheap" money from European customers and put them in risky households' credits that also can be used for pumping equities values (Fig. 1.3) or even US subordinated bonds with high interest rate.

Source: Central Bank of Iceland (http://cb.is/statistics)

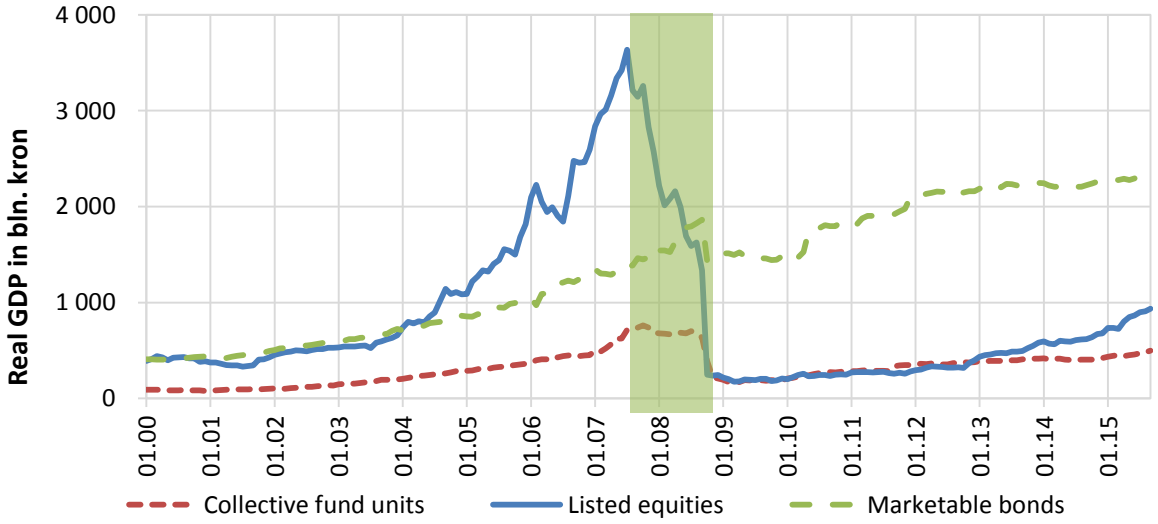

Fig. 1.3 The financial markets valuations

On Fig 1.3 is presented the dynamics on the securities markets. As it could be seen, the huge rise of equity market (four largest Iceland's banks constituted about 60% of equity index) from 2003 till 2007 was not more than "bubble" that evaporated quickly after starting of economic problems. Such sharp decline was possible due to absence of connections between equity market value and real economy: nominal GDP was about two times lower from the Iceland's equity market peak. In fact, foreign currency was part of the local money supply in the time of "bubble" formation (foreign funded boom, domestically driven). In the end, the "bubble" evaporation has huge consequences not only on banks (that caused that "bubble") but also on households. According to some estimates (Boyes, 2009), average Icelander was 300% wealthier in 2006 than in 2003 (and it is possible to assume that till 2007 it was even wealthier). At the same time, more than 50 thousand of Icelanders lost their savings in the crisis (from about 200 thousands of wage-earners, and near 300 thousands of habitants) and near 85% of banking system collapsed. The crash of banking system caused interventions from the government that has not enough possibilities to avoid crisis: the debt of banking system was higher than Iceland's nominal GDP in more than six times. In fact it was "self-fulfilling prophecy". As was written by Danielsson in VOX article (2008):

> "In this crisis, the strength of a bank's balance sheet is of little consequence. What matters is the explicit or implicit guarantee provided by the state to the banks to back up their assets and provide liquidity. Therefore, the size of the state relative to the size of the banks becomes the crucial factor. If the banks become too big to save, their failure becomes a self-fulfilling prophecy."

Source: Central Bank of Iceland (http://cb.is/statistics)

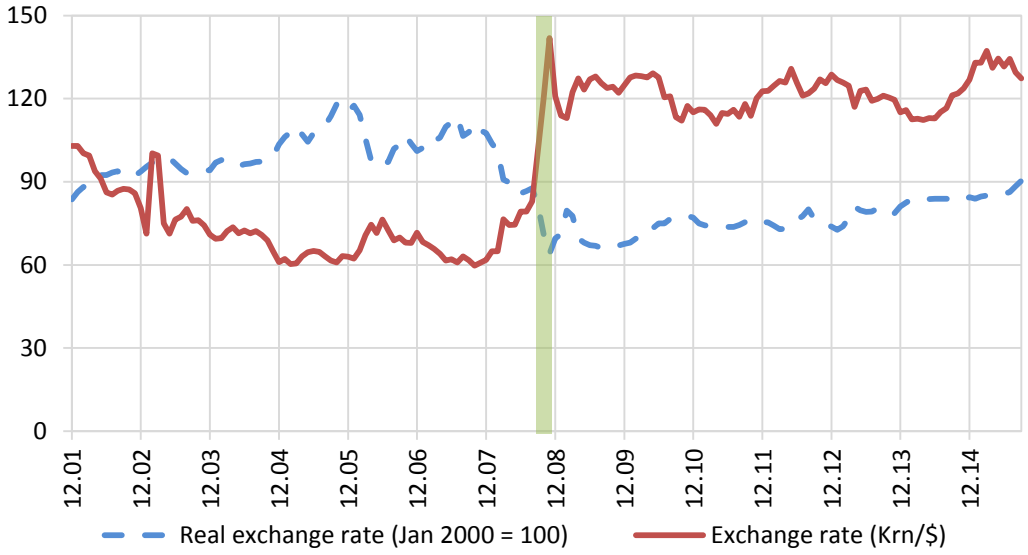

Fig. 1.4 Real and nominal exchange rates of Iceland's Krona

It is not possible to say that government could not do anything, because it did a lot to support the falling economy in fact (more detail information on government steps is presented in Chapter 3); however, Iceland's government could do nothing to safe the banking system and "too big to save" banks. From the macroeconomic perspectives, the main step of the government was the capital controls that were accompanied by the Icelandic krona depreciation. As it could be seen from Fig 1.4, the depreciation of Iceland's krona was higher than real exchange rates change. That action of government helped in supporting of Iceland's economy through lowering import and returning net export share of GDP into positive zone. There was only one year with positive net exports share in GDP from 1998 till 2008; after 2008, it was seen only positive shares of net exports in GDP (according to decomposition by expenditures).

Source: Central Bank of Iceland (http://cb.is/statistics)

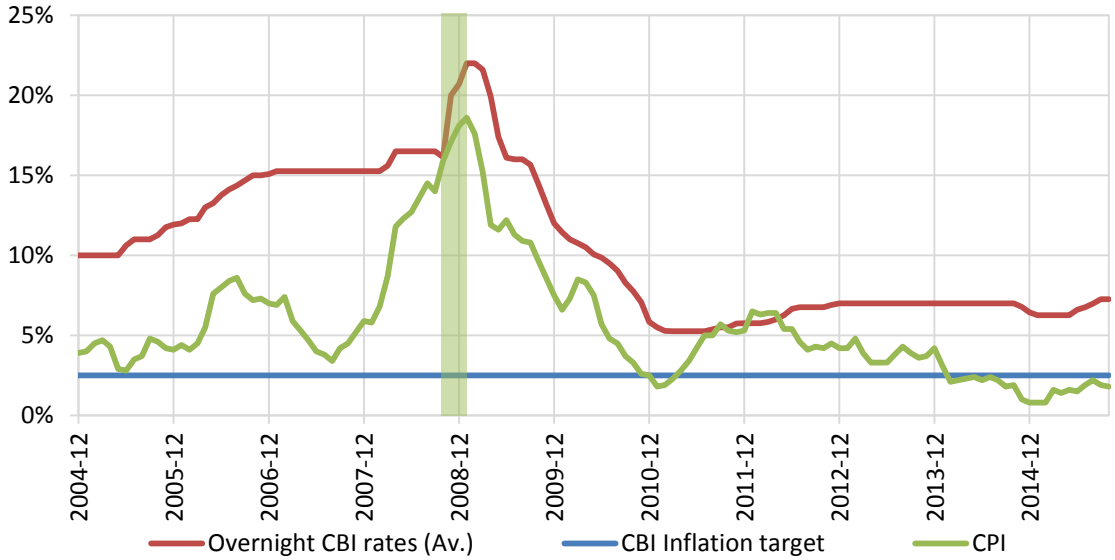

Fig. 1.5 Consumer price index in Iceland and overnight rate of Central Bank

Additional step to support economy was done by Central bank of Iceland which increased central bank interest rate from 12% to 18%. Actually, as it could be seen on Fig 1.5, central bank overnight (one day) interest rate was even higher and reached 22% as of January 2009. Additional important fact that could be seen on Fig 1.5 is that central bank overnight rate was all the time higher than consumer price index, or in other words inflation, but that did not stop the economy from growing with very high temps. It is understandable because Central Bank of Iceland could influence only on domestic currency; however, foreign currency was huge part of Iceland economy (as it was mentioned before) and Central Bank of Iceland could do nothing to stop economy from overheating till 2008 when the economy growing was stopped by exogenous shock.

Chapter 2. Accumulation of imbalances

If only the causes of financial global crisis influence on Iceland is investigated than the banking sector collapse will be identified as the main issue that caused crisis in Iceland. Actually, the ruining of banking crisis was only the event that caused unwinding of "bubble" and accumulated imbalances. The banking crisis is the direct influence of financial global crisis of 2008 and caused the follows obvious consequences:

- havoc of the import and export sectors: 25% fall of imports due to fall in consumer spending (Economist, 2010);
- interruption of international bank transfers;
- setting of capital controls;
- multiple exchange rate system is operating (Bloomberg, 2008): offshore exchange rate that was higher about 20% than onshore;
- bankruptcy of banks (that caused the government refinancing of industry) and also real sector company and households that deepen the problem of banking industry.

Source: Danielsson (2008) and author assumptions

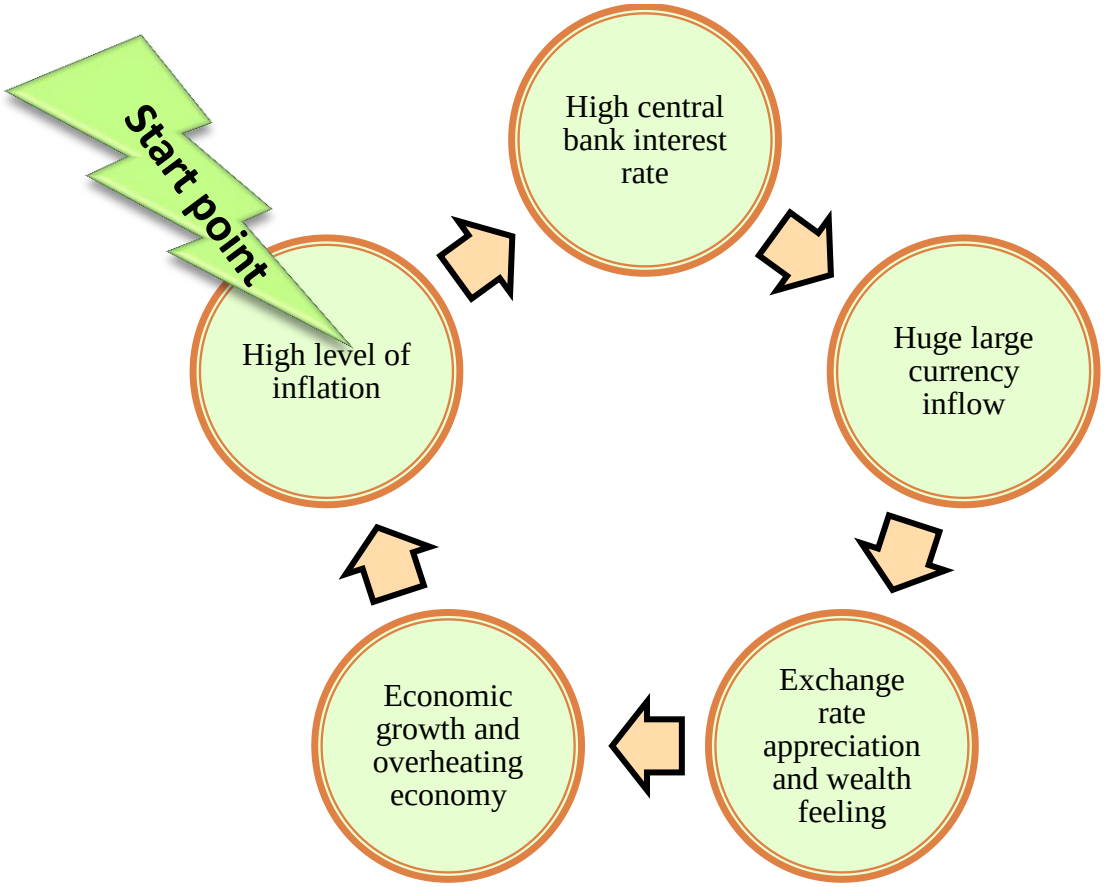

Fig. 2.1 Schema of imbalances formation

However, the main causes of Iceland's crisis that created the imbalances in economy are other; the process of its formation could be described as on Fig. 2.1. The start point of imbalances formation in Iceland economy was the high level of inflation. At the same time, the tight monetary policy that is provided be Central Bank of Iceland could not stop the economy from overheating due to huge gap between outside and inside interest rate. This gap caused creation of additional sector of economy that was tied on foreign currency (high foreign currency inflow). For foreign investors, it was nice trade operation (sometimes is known as carry-trade): for example, take the credit with 3% interest rate and put the money on the deposit with 10% interest rate. Finally, the spillover through economy was formed and was waiting for the event that could break it. That event was the global financial crisis of 2008 that crushed Iceland's banking sector.

From the macroeconomic theory the imbalances formation should be presented through IS-LM diagram for understanding policy mix of Iceland government before the global financial crisis (Fig. 2.2) and in the time of the crisis (Fig. 2.3), and through AS-AD diagram (Fig. 2.4) for understanding the issue of economy overheating without limits.

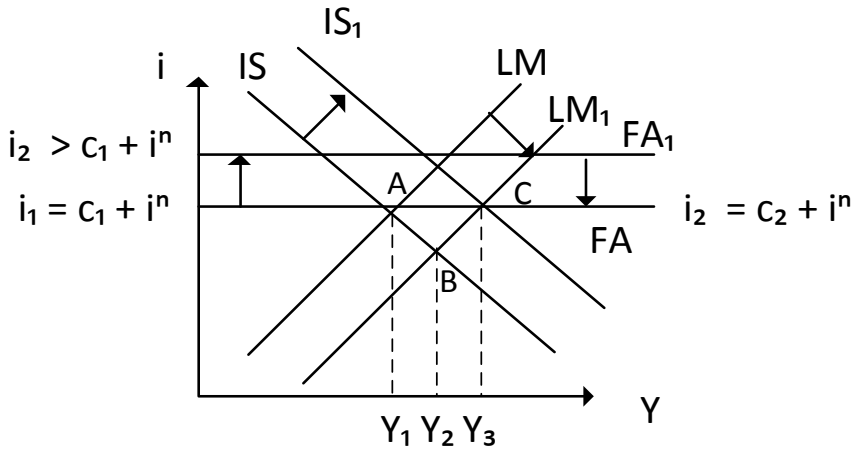

Fig. 2.2 Iceland IS-LM diagram for pre-crisis year

The Iceland economy relied strongly on foreign capital inflow. In classical IS-LM diagram with float exchange rate and perfect capital mobility it is supposed that, in equilibrium state, interest rates in both markets, domestic and foreign, are equal. However, on practice it is not possible because of premium for risk in different countries. Therefore, on Fig. 2.2 the initial equilibrium state is found where domestic rate, i_1, is higher than foreign interest rate, i^n, on some constant, c_1. Fig 2.2 is processed in the next order: due to rising of domestic interest rate, c_1 does not satisfy already the balance (or sometimes c_1 is missed by investors); foreign capital flows into Iceland, exchange rate appreciated, and money supply increases; increase in

money supply shifts LM-curve down to point B that lowers interest rate spread due to riskiness and increases output; decrease of interest rate and exchange rate, growth of import make balance of payment zero; IS-curve shifts right because new investment, consumption and government expenditure growth is higher than decrease of net export; new equilibrium, point C, shows more output, higher domestic interest rate, and higher risk premium due to changing in expectations of foreign investors after domestic rate increasing. And so for infinity; sometimes even it is not necessary to have exchange rate appreciation for monetary supply increasing – it will be enough if foreign currency is perceived as money supply.

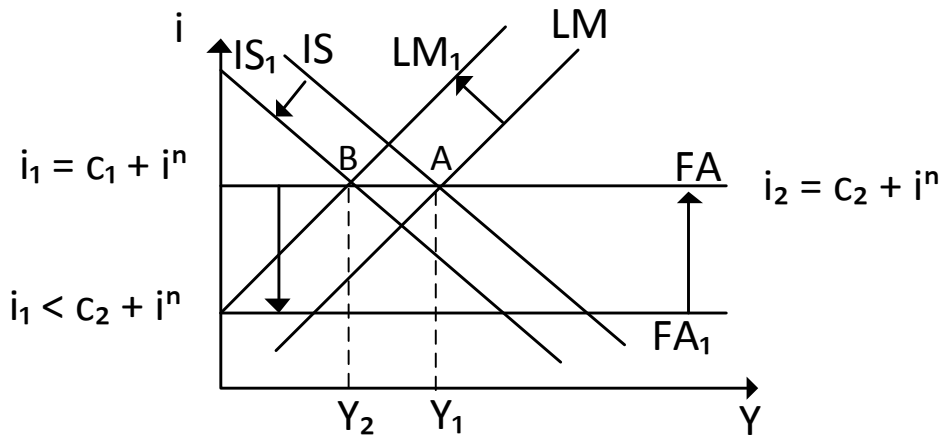

Fig. 2.3 Iceland IS-LM diagram for crisis year

However, in the time of the global financial crisis was observed another situation, which is shown on Fig. 2.3: c_1 grew to c_2 due to the global financial crisis and changing of expected rates by foreign investors; the capital inflow disappeared, exchange rate depreciated, FA curve is moving down; the central bank took steps to monetary tightening and money supply fall from inside and outside sources; decreasing in money supply shift LM-curve to the left to point B that increases interest rate and decreases output; increasing of interest rate, and growth of exchange rate made the Iceland economy still not attractive for foreign investments: FA curve find balance also in the point B not due to change in additional change of investors' expectations but due to higher domestic rate; IS curve shifts left to point B because the drop in consumption is followed by drop in investment and, in some way, government expenditures; new equilibrium, point B, shows lower (in nominal prices) output and higher interest rate that is, in fact, the same as before crisis after premium for risk and capital controls is taken into account.

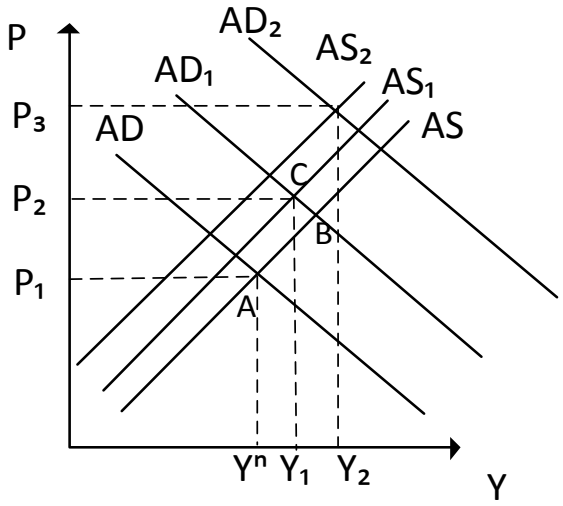

Fig. 2.4 AS-AD diagram for overheated economy

Finally, AS-AD diagram from Fig. 2.4 shows how dangerous could be unlimited short term growth in the time when long-term (or even middle-term) potential is not catching up with that growth. Each year output is growing (Fig. 2.2) and AD-curve shifts right (for example, from point A to point B). The shift of AD-curve influences price levels and price expectations which begin to grow, however, with the lower rate than output is growing: AS-curve move from the point B to point C. Finally, there is new equilibrium (point C) with higher price level and output. Permanent reiterations of such moves create the positive output gap without natural level changing. In some future point that gap must be closed through higher inflation, recession or both.

Chapter 3. The policy response

Despite the fact that actual Iceland's real GDP is lower than in 2008 (Fig. 1.1), government has done nice work (of course, due to the pressure from IMF) to support the real GDP figures after the crisis: the real GDP is moving according to the trend from 1970. Additionally, the negative net international investment position is lowering gradually and the Iceland government ended the IMF "rescue" program on October 09, 2015, after repaying the last $332 million. Also, the Iceland economic stance gives the reasons to rethink the politics reaction in time of the crisis if we compare Iceland and Ireland situations. According to Economist (2010) it is possible to make next conclusions after comparing the dynamics of economies of these two countries:

> "Iceland's recuperation seems to offer two big lessons for Ireland and other troubled euro-zone countries. The first is that the extra cost to a country of not standing by its banks can be surprisingly small… A second lesson is that the benefits to a small country of being part of a big currency union are not all they were once cracked up to be…"

The steps that were taken by Iceland government and Central Bank of Iceland and gave such results were as follows:

I. Introduction of capital controls (IMF, 2009):
   a. daily currency auctions for imports of certain necessities;
   b. requiring exporters to deposit all foreign currency with domestic banks;
   c. restricting all currency flows related to capital-account transactions with exception of foreign direct investments and real estate transactions;
   d. limiting of lending to and borrowing from non-residents in an amount not exceeding 10 mln. kr. with duration higher than year;
   e. forbidding of new investments in securities and other financial instruments in foreign currencies;
   f. preventing foreign investors from exporting assets higher than 50 000 kr. for two years (39% tax or prolongation with lower haircut).

II. Stand-By Arrangement with IMF that was approved on November 19, 2008 in the amount of SDR[6] 560 mln. ($2.1 bln.) with the goals of foreign exchange rate and financial sector stabilization with the follows conditions (IMF, 2009):
   a. raising of the policy interest rate to 18% (from 12%);

[6] Special Draw Rights – the special currency of IMF.

b. a capital injection into the three new banks, made using tradable government bonds issued on market terms, to raise the capital adequacy ratio to at least 10 percentage;
c. an experienced banking supervisor to provide an assessment (to be published) of the regulatory framework and supervisory practice, including the framework of rules on liquidity management, connected lending, large exposures, cross-ownership, and the "fit and proper" status of owners and managers, and propose needed changes;
d. develop a strategy for asset recoveries;
e. mandatory review of business plans of the new banks;
f. improving of the medium-term fiscal framework;
g. international audit of the old and new banks.

III. Increase of personal income tax on 1 percentage point.

IV. The deposits of Icesave (internet system, mostly deposits from Dutch & British consumers) were not fully covered by Iceland deposit insurance system and possibility of its return through deposit insurance system is questionable (or politically motivated). Those deposits also were not covered by Dutch and British deposit insurance systems.

It is understandable that all the steps mentioned above were taken by the government only due to the conditions from IMF and absence of other ways to find the sources of foreign currency. It was the price that Iceland government and Icelanders have paid by reason of the absence of government policy steps in the pre-crisis times. The security market and credit bubble should be stopped earlier and then the huge fall of Iceland's economy would not be seen, but the huge growth of economy also would not be seen before crisis. But, in the end, the situation is not so bad for Icelanders and theirs government: the real GDP is growing according to long-term trend, the debt burden is gradually lowering, inflation is near zero-level, foreign currency is not already the main part of the economy, the IMF loan was repaid in advance.

Conclusions

> "When you borrow a lot of money to create a false prosperity, you import the future into the present. It isn't the actual future so much as some grotesque silicone version of it. Leverage buys you a glimpse of a prosperity you haven't really earned. The striking thing about the future the Icelandic male briefly imported was how much it resembled the past that he celebrates. I'm betting now they've seen their false future the Icelandic female will have a great deal more to say about the actual one." (Lewis, 2011).

It was the main issue of Icelanders from 2003 till 2008 that they took the future as determined and explained the current goodness from the perspective of future potential; however, they forgot that the potential had been already utilized for the goodness of the current moment. As for me, it was the best occasion for Icelanders that the global financial crisis caused the Minsky moment and cleaned their economy. The other possibility could be even more harmless because nobody sees the future problems. According to thoughts of IMF in 2006 (IMF, 2011): the international organization that in two years starts the program for rescuing of Iceland's economy, the future was too bright for Iceland economy:

> "Fortunately, in Iceland's case, and as found by the 2006 Article IV mission, hedging behavior and generally sound balance sheets and asset-liability management made the financial system relatively robust to the recent shocks."

Even if IMF did not foresee the future than it is impossible to complain Icelanders - how "fishermen" could predict the future problem of economy and could stop the "bubble" formation. But in this case who is the culprit? I think that the next imbalances accumulation of Iceland economy is very possible in the near future if Icelanders will not understand that you should not sell your future for current prosperity.

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