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A Tale of Three Countries: Recovery after Banking Crises

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A tale of three countries: recovery after banking crises

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A tale of three countries: recovery after banking crises

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Abstract

Iceland, Ireland and Latvia experienced similar developments before the crisis, such as sharp increases in banks' balance sheets and the expansion of the construction sector. However the impact of the crisis was different: Latvia was hit harder than any other country in the world. Ireland also suffered heavily, while Iceland came out from the crisis with the smallest fall in employment, despite the greatest shock to the financial system.

There were marked differences in policy mix: currency collapse in Iceland but not in Latvia, letting banks fail in Iceland but not in Ireland, and the introduction of strict capital controls only in Iceland. The speed of fiscal consolidation was fastest in Latvia and slowest in Ireland.

Economic recovery has started in all three countries and there are several encouraging signals. The programme targets in terms of fiscal adjustment, structural reforms and financial reform are on track in all three countries. Iceland seems to have the right policy mix.

Internal devaluation in Ireland and Latvia through wage cuts did not work, because private-sector wages hardly changed. The productivity increase was significant in Ireland and moderate in Latvia, yet was the result of a greater fall in employment than the fall in output, with harmful social consequences. The experience with the collapse of the gigantic Icelandic banking system suggests that letting banks fail when they had a faulty business model is the right choice. There is a strong case for a European banking federation.

Keywords: banking crisis; banking sector restructuring; economic recovery; currency devaluation; internal devaluation; capital controls; fiscal adjustment

JEL classification: F31, F32, J30, O40

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Három kis ország története: talpraállítás bankválság után

Darvas Zsolt

Összefoglaló

Izlandot, Írországot és Lettországot számos rokon vonás jellemezte a globális válság előtt, mint például a bankok mérlegfőösszegeinek nagymértékű növekedése és az építőipar túlhevülése. A válság hatása azonban eltérő volt: Lettország a világ legsúlyosabban érintett országa lett, Írországnak is komolyak voltak a veszteségei, Izland szenvedte el a három ország közül a legkisebb csökkenést a foglalkoztatásban, bár a bankrendszer itt érte a legnagyobb sokk.

A válságkezelési stratégiákban jelentős különbségek voltak: valutaleértékelődés Izlandon, de nem Lettországon, bankcsődök Izlandon, de nem Írországon, és tőkekorlátozások bevezetése csak Izlandon. A költségvetési kiigazítás sebessége Lettországon volt a leggyorsabb és Írországon a leglassabb.

A gazdasági kilábalás megkezdődött mindhárom országban és számos kedvező folyamat indult meg. Az IMF/EU finanszírozási programok célkitűzései mindhárom fő területen, azaz a költségvetési kiigazítás, a strukturális reformok és a pénzügyi rendszer reformja területein jól haladnak mindhárom országban.

A belső leértékelés a bérek csökkenésén keresztül Írországon és Lettországon nem sikerült, mivel a magánszektor bérei alig változtak. A termelékenység növekedése jelentős volt Írországon és mérsékelt Lettországon, azonban ez a foglalkoztatásnak a termelésnél nagyobb mértékű visszaesése miatt következett be, súlyos szociális következményekkel járva.

A gigantikus izlandi bankrendszer összeomlása során szerzett tapasztalatok azt mutatják, hogy helyes döntés a bankok csődbe engedése, amikor azok elhibázott üzleti stratégiát folytattak korábban. Komoly érvek szólnak a bankszektori európai szintű kezelése mellett.

Tárgyszavak: bankválság, bankrendszer átstrukturálás, gazdasági talpraállítás, valuta leértékelés, belső leértékelés, tőkekorlátozások, költségvetési kiigazítás

JEL kódok: F31, F32, J30, O40

1. INTRODUCTION

Three small, open European economies –Iceland, Ireland and Latvia with populations of 0.3, 4.4 and 2.3 million respectively—got into serious trouble during the global financial crisis. Behind their problems were rapid credit growth and expansion of other banking activities in the years leading up to the crisis (Table 1), largely financed by international borrowing. This led to sharp increases in gross (Iceland and Ireland) and net (Iceland and Latvia) foreign liabilities (Tables 2 and 3)¹. Credit booms fuelled property-price booms and a rapid increase in the contribution of the construction sector to output – above 10 percent in all three countries. While savings-investment imbalances in the years of high growth were largely of private origin, public spending kept up with the revenue over-performance that was the consequence of buoyant economic activity. During the crisis, property prices collapsed, construction activity contracted and public revenues fell, especially those related to the previously booming sectors. All three countries had to turn to the International Monetary Fund and their European partners for help.

There were also common elements to crisis management in the three countries. Fiscal austerity programmes, structural reforms, the fostering of private debt restructuring and strengthening of the banking system were central to their economic adjustment programmes.

However, partly due to differences in institutional set up, there were marked differences in policy responses, in terms of, for example, exchange rate policy, the adoption of capital controls and the handling of the banking crisis. There were also marked differences in economic outcomes.

The purpose of this Policy Contribution is to compare the policy responses in, and the adjustments made by, the three countries. Based on this comparison, we draw lessons for exchange rate policy, internal devaluation, capital controls, banking sector restructuring and fiscal consolidation. By selecting similar countries that responded differently, this paper conducts a kind of controlled experiment, even though we cannot always isolate the impacts of individual elements of the policy mix.

The next section discusses the key differences in policy responses, followed by an assessment of economic outcomes. The final section concludes and compares the results with other perspectives expressed in the literature.

¹ Note that the sharp deterioration of Icelandic net international investment position after the crisis (Table 2) is largely related to defaulted banks. Benediktsdottir, Danielsson and Gylfi Zoega (2011) conclude that without banks, the international investment position of Iceland has improved. Table 3 shows that three-quarters of gross external debt is the liability of defaulted banks. According to Lane (2011b), the significant deterioration of Irish net external liabilities during the past three years is most likely related to the internationally-leveraged structure of the financial portfolios of domestic Irish residents.

Table 1

Assets of the banking system (% GDP)

	2000	2004	2007	2010
	Credit to the private sector			
Iceland	97	165	349	n.a.
Ireland	105	134	200	213
Latvia	19	51	89	104
	Total assets			
Iceland (with inter-inst.)	385	542	1035	n.a.
Iceland (w.o. inter-inst.)	236	285	426	n.a.
Ireland (total)	n.a.	484	706	759
Ireland (w.o. international banks)	n.a.	230	367	476
Latvia	n.a.	106	145	169

Source: Credit to the private sector is from the IMF IFS; total assets are from Central Bank of Iceland, Central Bank of Ireland and Central Bank of Latvia.

Note: Ireland's figures for total assets include the Irish operations of international banks. The Central Bank of Iceland reports assets both with and without inter-institutional transactions. Total liabilities reported are equal total assets without inter-institutional transactions. The increase in the credit/GDP ratio from 2007 to 2010 in Ireland and Latvia is primarily due to the fall in GDP.

Table 2

International investment position (% GDP)

		2000	2004	2007	2010
Iceland	foreign assets	45	125	514	266
	foreign liabilities	112	192	625	895
	net foreign assets	-67	-66	-112	-629
Ireland	foreign assets	643	857	1,195	1,691
	foreign liabilities	650	875	1,215	1,782
	net foreign assets	-8	-18	-19	-91
Latvia	foreign assets	50	65	81	117
	foreign liabilities	80	118	155	197
	net foreign assets	-30	-52	-75	-80

Source: central banks of the three countries (foreign assets and liabilities) and Eurostat (GDP at current prices).

Note: see Table 3 below and Benediktsdottir, Danielsson and Gylfi Zoega (2011) for the interpretation of Icelandic net foreign assets position change during the past three years, and Lane (2011b) for an assessment of the Irish case.

Table 3

Gross external debt of Iceland (% GDP)

	2000Q 4	2004Q 4	2007Q 4	2008Q 3	2008Q 4	2011Q2
Monetary authorities	2	0	0	6	20	18
General government	24	23	19	42	36	33
Deposit money banks (DMBs)	51	131	455	685	46	11
Other sectors	27	19	46	61	806	751
DMBs undergoing winding-up proceedings	739	696
Others	27	19	46	61	67	55
Direct investment	1	6	48	72	90	93
Total external debt	107	179	568	866	998	906

Source: Central Bank of Iceland (external debt) and Eurostat (GDP at current prices).

2. DIFFERENCES IN INSTITUTIONAL SET UP AND POLICY RESPONSE

2.1 EXCHANGE RATE REGIME AND DEVELOPMENTS

There was a broad consensus at the outbreak of the crisis that real exchange rates in all three countries should be depreciated to help economic recovery – which has indeed happened during the past three years, but through different means and to different degrees.

The differences are partly related to exchange rate regimes and partly to policy choices. Ireland has been a member of the euro area since 1999, and therefore adjustment through the nominal exchange rate against the euro was not an option. Latvia has had a fixed exchange rate with the euro since 2004, and Latvian policymakers chose not to exercise the option to devalue². Both Ireland and Latvia decided to embark on a so called ‘internal devaluation’, ie efforts to cut wages and prices. Iceland has a floating exchange rate. When markets started to panic and withdrew external lending, given the size of the country’s obligations (Table 2), there was no choice but to let the currency depreciate. The Icelandic krona depreciated by about 50 percent in nominal terms – depreciation would have been sharper without capital controls (see section 2.3 below).

² Even though Ireland has the euro and the Latvian lats is fixed to the euro, the nominal effective exchange rates of these two countries do change somewhat when the exchange rate of the euro against other currencies changes, because some of the trade of these countries go outside the euro area. But these changes are largely exogenous, because asymmetric shocks in Ireland and Latvia have limited, if any, impact on the euro’s exchange rates. Note that Latvia had a peg against the SDR (IMF Special Drawing Rights) until 2004 and in this period the nominal effective exchange rate was more variable, as indicated by Figure 1.

Nevertheless the unit labour-cost (ULC) based real effective exchange rate (REER) has depreciated in all three countries. The ULC-REER can be decomposed as:

$$reer(ulc) = \frac{neer \cdot ulc}{ulc^{(foreign)}} = \frac{neer \cdot \left(\frac{empl \cdot hours \cdot wage}{production} \right)}{ulc^{(foreign)}} = \frac{neer \cdot wage}{ulc^{(foreign)} \cdot \left(\frac{production}{empl \cdot hours} \right)} = \frac{neer \cdot wage}{ulc^{(foreign)} \cdot productivity}$$

, where $reer(ulc)$ is the labour-cost based real effective exchange rate, $neer$ is the nominal effective exchange rate (an increase indicates appreciation), ulc is the domestic unit labour cost, $ulc^{(foreign)}$ is the foreign unit labour cost, $empl$ is the number of people employed, $hours$ is the average hours worked per employee, $wage$ is the nominal hourly wage (or more precisely: hourly labour cost, which is also effected by, eg changes in social security contributions paid by the employer), $production$ is real output (GDP), and $productivity$ is production divided by labour input, which is the product of number of people employed and their average hours worked.

Table 4 presents this decomposition for the changes in the real exchange rate from the real exchange rate peak to 2011Q3. It should be noted that the adjustment may continue in the future and therefore the table reports the developments during the past three years. For example, as Figure 1 indicates, ULC-based REER is still clearly moving downwards in Ireland, is moving somewhat upwards in Iceland, and has flattened out in Latvia.

In Iceland the main driving force of real depreciation was the significant fall in the nominal exchange rate (45 percent in the period shown in Table 4). Productivity and trading partners' ULC have hardly changed. While the depreciation-induced wage inflation³ (24 percent) eroded some of gain from the fall of the nominal exchange rate, the krona is still weaker by 31 percent relative to its pre-crisis level in real effective terms. It is also much weaker than it was in 2001, when Iceland had its previous currency crisis (see the top-left panel of Figure 1).

By contrast, in Ireland and Latvia the nominal effective exchange rate has hardly changed and real depreciation had different drivers.

In Ireland the main reason was productivity improvement (by 12 percent from 2008Q2 to 2011Q3), which is almost equal the real depreciation (13 percent). During the last three years, hourly wages did not change much, though there was a modest 4 percent wage decline from the peak in wages in 2009Q2 to the trough in 2011Q1 (see the second panel in the fourth row of

³ Most likely in all three countries there was a change in skill composition of employed labour during the crisis: probably more unskilled jobs were lost than skilled jobs. If this is the case, the average wage tends to increase due to this compositional change.

Figure 1)⁴ The 13 percent real depreciation has restored the real effective exchange rate level of late 2004.

However, it should be also highlighted that the Irish tradable sector was competitive even before the crisis and ULC increases characterised mostly the non-tradable sector (Darvas, Pisani-Ferry and Sapir, 2011; Darvas, Gouardo, Pisani-Ferry and Sapir, 2011). For example, manufacturing ULC was on a continuous downward trend (similarly to Germany) in the decade prior to the crisis and has declined even further during the crisis.

In Latvia, the main driver of adjustment was a fall in nominal hourly wages (10 percent). The real exchange rate adjustment was helped by an increase in foreign ULC (5 percent) and a moderate productivity improvement (6 percent). As a result, the Latvian ULC-based REER is 19 percent lower in 2011Q3 compared to its peak in 2008Q2, but this adjustment has only restored the early 2007 value of this index and is still 30 percent higher than in 2000Q1⁵.

However, the public and private sector distinction is crucial for Latvia. Table 5 shows, using annual data, that from 2008 to 2010 hourly labour costs declined by 7 percent for the whole economy. But this decline primarily came from the public sector: the decline was 26 percent in public administration, 22 percent in education and 16 percent in health and social work. In contrast, hourly labour costs have declined by only two percent in manufacturing and the decline (if any) in various private sector activities was also minor. Furthermore, the recent minor declines in hourly labour costs in private sector activities have not even compensated for one year of increase before: the change in hourly labour costs from 2007 to 2010 (second data column in Table 5) is in the range of 10-20 percent for most private sector activities. Therefore, while the public sector in Latvia was able to significantly reduce nominal wages, the internal devaluation, ie nominal wage and price falls, hardly worked in the private sector. However, due to a greater fall in labour input than output (Tables 7 and 8), productivity has improved in both industry and manufacturing. According to calculations by the Bank of Latvia, the manufacturing ULC-based REER in 2011Q2 was 2 percent below the level of 2000Q1, yet above the level of 2002.

⁴ From 2009Q2 to 2011Q2, average hourly labour costs fell by 5.1 percent in the public sector and 3.1 percent in the private sector. Additionally, in public sector a 7.5 percent pension levy was imposed in 2010.

⁵ It should be noted that we use the REER published by Eurostat, which is calculated against 36 trading partners, not including Russia. Russia's share in Latvia's export was 13 percent in 2007 (Russia's share is much lower for Iceland, 1.4 percent, and Ireland, 0.4 percent). According to calculations by the Bank of Latvia, the REER that includes Russia as well among trading partners depreciated somewhat more than the Eurostat indicator.

Table 4

Decomposition of the change in the unit labour cost based real effective exchange rate index (from peak* to 2011Q3)

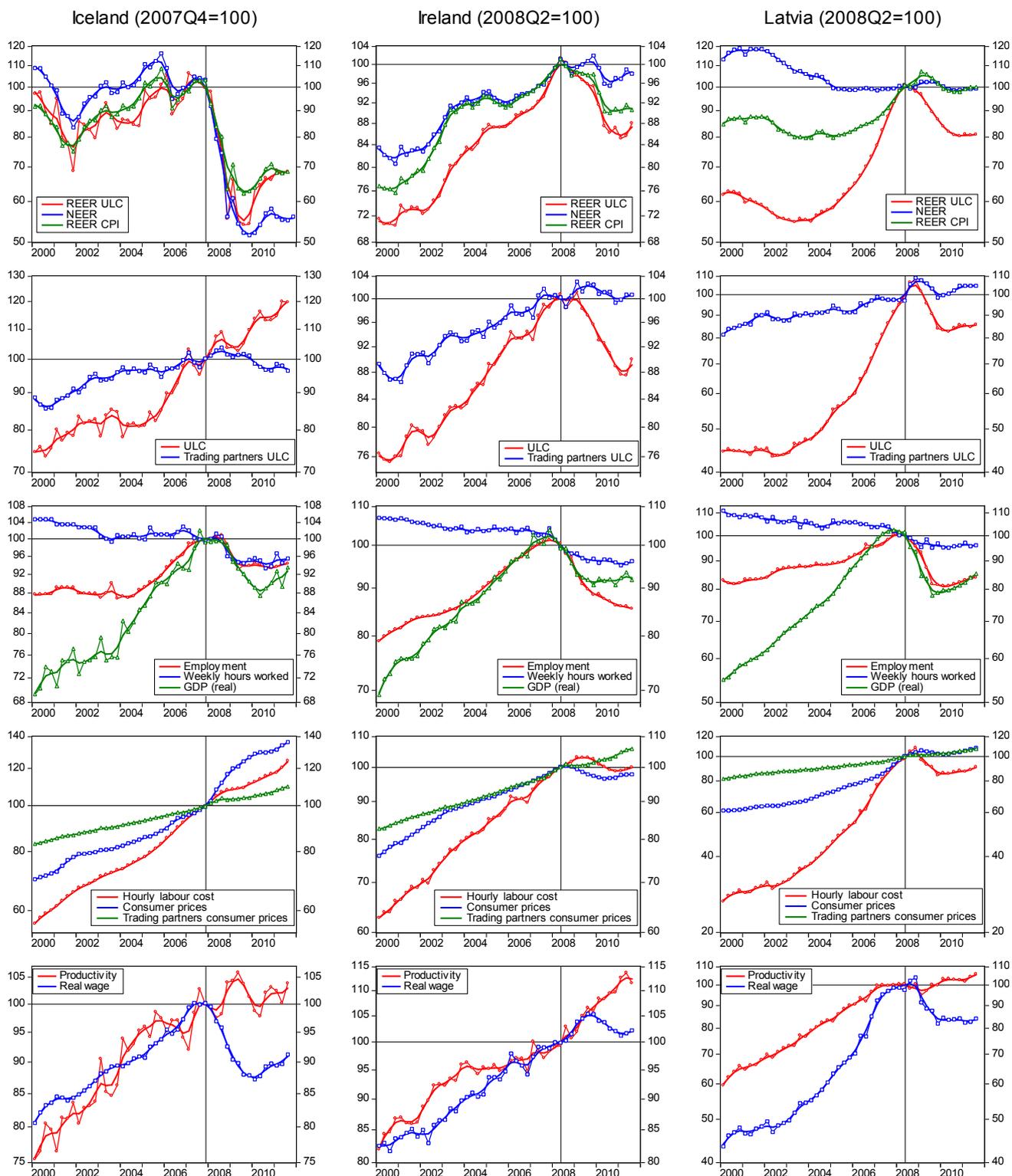
		Iceland (2007Q 4 = 100)	Ireland (2008Q 2 = 100)	Latvia (2008Q 2 = 100)
(1)=(2)*(4)/(3)	REER ULC	69	87	81
(2)	NEER	55	98	99
(3)	Trading partners' ULC	97	101	105
(4)=(5)/(9)	ULC	120	89	86
(5)=(6)*(7)*(8)	Total labour cost	111	82	73
(6)	Employment	94	86	84
(7)	Hours worked per employee	95	96	96
(8)	Hourly wages	124	100	90
(9)	GDP (real)	93	92	85
Memorandum items				
(10)=(9)/((6)*(7))	Productivity	103	112	106
(11)	Consumer prices	136	98	108
(12)=(8)/(11)	Real wages	91	102	84
(13)	Trading partners' consumer prices	110	106	107
(14)=(2)*(11)/(13)	REER CPI	68	91	100

Notes. * The peak in Icelandic ULC-based REER was in 2007Q2 (see Figure 1), but it has hardly changed till 2007Q4 and most adjustment occurred after 2007Q4. Therefore, the table tracks the adjustments since then. In order to get rid of very short term noise in the data, the entries shown in the table were calculated in the basis of Hodrick-Prescott filtered series with smoothing parameter 1, a very low parameter. Note that the standard smoothing parameter for quarterly data is 1600. Figure 1 shows both the original and this Hodrick-Prescott filtered series, which suggests that the filter well captures the main tendencies and also the turning points.

Source: Author's calculation using data detailed in the note to Figure 1.

Figure 1

Real effective exchange rate indices and their main components, 2000Q1-2011Q3



Source: Author's calculation using data from Eurostat and the central statistical offices of the three countries.

Note: For Ireland and Latvia we use the Eurostat indicator for real and nominal effective exchange rate, which is calculated against 36 trading partners. REER- ULC from Eurostat is available only up to 2010Q4. Values for 2011Q1-Q3 are our estimates. For Iceland we use the real effective exchange rate published by the Central Bank of Iceland but the nominal effective exchange rate (NEER) is not available from official sources. Therefore, we used the NEER calculated by Darvas (2011), which may

not be consistent with the REER of the Central Bank of Iceland. However, the bias from this inconsistency could be quite small, since trading partners ULC –line (3) of Table 4– looks reasonable and it was derived from the REER, NEER and domestic ULC. For each variable two lines are shown: the seasonally adjusted data (we used Census X12 for seasonal adjustment) is indicated with a thin line with symbols, and the Hodrick-Prescott filtered values are shown with the same colour thick line without symbols. For Hodrick-Prescott filtering we used the smoothing parameter 1, a very low parameter, to filter out high frequency noise only. Note that the standard smoothing parameter for quarterly data is 1600. The comparison of the original and this Hodrick-Prescott filtered series suggests that the filter well captures the main tendencies and also the turning points.

Table 5

Latvia: percent change in hourly labour costs by kind of activity

	change from 2008 to 2010	change from 2007 to 2010
TOTAL	-7	14
Agriculture, Forestry and Fishing (A)	1	20
Mining and quarrying (B)	-1	22
Manufacturing (C)	-2	19
Electricity, gas, steam and air conditioning supply (D)	1	5
Construction (F)	-5	14
Wholesale and retail trade; repair of motor vehicles and motorcycles (G)	-6	17
Accommodation and food service activities (I)	-3	22
Information and communication (J)	-2	25
Financial and insurance activities (K)	-7	11
Real estate activities (L)	-3	16
Professional, scientific and technical activities (M)	3	25
Public administration and defence; compulsory social security (O)	-26	-14
Education (P)	-22	-2
Human health and social work activities (Q)	-16	1

Source: Central Statistical Office of Latvia

2.2 BANK RESCUE AND BANK LOSSES

The second main difference between the countries is their capacity to save banks and the consequent distribution of bank losses.

In Iceland, where credit to the private sector reached 3.5 times Icelandic GDP (Table 1), the combined balance sheet of banks reached an even greater number, and banks heavily borrowed from the wholesale market⁶, the government did not have the means to save the banks (Buitter and Sibert, 2008; Benediktsdottir, Danielsson and Zoega, 2011). Therefore, there was no choice but to let the banks default when global money markets froze after the collapse of Lehman Brothers in September 2008. Banks also suffered heavily from their domestic lending. In addition to the recession and the collapse in housing prices, the depreciating currency and the consequent accelerating inflation also led to deteriorating bank balance sheets. In mid-2008 more than 70 percent of total corporate loans were denominated in foreign currencies and most lending to households was indexed to the consumer price index. Borrowers, therefore, found it more difficult to service their debts. In addition, the Icelandic Supreme Court declared illegal foreign-exchange-indexed loans (ie loans paid out and collected in Icelandic krónur, but indexed to foreign currencies), thereby increasing the burden on banks⁷.

Domestic deposits in Iceland (by both residents and non-residents) were fully guaranteed, but the issue of the depositors of Icesave, which operated as a branch of Landsbanki (one of the three former major Icelandic banks) in the UK and the Netherlands, is still unsettled. Foreign creditors of Icelandic banks faced a €47 billion loss (source: Benediktsdottir, Danielsson and Zoega, 2011, citing the Financial Services Authority of Iceland report). This loss is 3.1 times greater than 2007 Icelandic GDP and 5.4 times 2009 Icelandic GDP. The Central Bank of Iceland also suffered losses, since it provided massive liquidity support to banks, which, by mid-2008, reached about one-third of GDP (source: liquidity support is from Figure 3 of Benediktsdottir, Danielsson and Zoega, 2011; GDP is from Eurostat). Consequently, the Central Bank of Iceland needed significant recapitalisation from the government. Bank-related losses increased the public debt ratio by about 20 percentage points of GDP⁸. Parallel to the

⁶ For example, according to the aggregate balance sheet of the credit system published by the Central Bank of Iceland, gross foreign borrowing exceeded lending to the domestic non-financial sectors in 2006 and 2007.

⁷ The first ruling of the Supreme Court in June 2010 applied to motor vehicle loans to households, which were later extended by the Icelandic Parliament to mortgage loans for residents (December 2010), and by the Supreme Court to corporate loans (June 2011). These loans were converted into domestic currency loans, whereby the outstanding principles of the loans were reduced considerably, and the interest rates were also recalculated (retroactively as well) using the lowest non-indexed interest rate published by the Central Bank of Iceland.

⁸ According to the table on page 13 of IMF (2011b), bank restructuring debt amounts to 16.2 percentage point out of the 92.6 percent of GDP public debt of Iceland in 2010. According to Benediktsdottir, Danielsson and Zoega

collapse of banks, the banking system was restructured to manage domestic credit and to keep the payments system functioning (Box 1).

Box 1.

Bank restructuring in Iceland

In a matter of few weeks after the collapse of Lehman Brothers in September 2008, wholesale funding disappeared and the three major Icelandic banks, Glitnir, Kaupthing and Landsbanki, could not continue their operations. They were put into receivership and their boards replaced by resolution committees. Each of the failed banks was divided into two: a new and an old bank. New state-owned banks were established, and these banks took over the domestic activities of the three old banks, while international businesses remained with the failed old banks for winding up. The division itself was a complicated affair, involving protracted negotiations over the 'fair value' of the defaulted banks' assets as they were transferred to the new, post-crisis banks. In the end, creditors of the old banks placed capital in the new banks, thus ensuring their stake in any potential upside from an economic recovery. All three new banks have been recapitalised with strong capital ratios – in excess of 16 percent of all assets – and are 90 percent funded with deposits. Most of smaller savings banks were also restructured. During the whole process, all deposits in Iceland (both of residents and non-residents) were guaranteed in full.

Source: Central Bank of Iceland.

In Ireland, the balance sheet of Irish-owned banks was 3.7 times GDP in 2007, yet with international financial centres the ratio was 7.1 times GDP (Table 1). The Irish government guaranteed most liabilities of Irish-owned banks. In September 2008, the total liabilities of the credit institutions resident in Ireland were €1,446 billion, of which €787 billion was the liability of domestic banks (source: Central Bank of Ireland). According to Davy Research (2009), the liability of Irish-owned banks was €575 billion, of which the guarantee covered €440 billion. Taxpayers' money was used to cover bank losses above bank capital (which was wiped out) and subordinated bank bondholders (whose loss is estimated to be about 10 percent of Irish GDP in the form of retiring €25 billion subordinated debt for new debt or equity of €10 billion). According to FitzGerald and Kearney (2011), of the €148 billion of gross public debt at end-2010, €46.3 billion (30 percent of GDP) was due to government intervention in the banking system, which increased to €60 billion (about 40 percent of GDP) by mid-2011⁹. The

(2011) 12 percent of GDP was used to recapitalize banks and 11 percent of GDP to recapitalise the central bank. These numbers do not include the contingent impact of compensating the British and Dutch depositors of Icesave, but Danielsson and Zoega (2011) argue that the actual cost may not be more than 2% of GDP, since most of the costs will be covered by the recovery from the assets of Landsbanki, the bank that operated Icesave.

⁹ These numbers do not include the operations of the National Asset management Agency (NAMA).

initial decision for not restructuring banks' senior debt was made entirely by the Irish authorities. But later, when the problems with the blanket guarantee became clearer and the issue emerged in political debates, the pressure from European institutions, most prominently the European Central Bank, but also from governments including countries outside the euro area (UK, US), prohibited a change in the policy. The European Central Bank feared disruption of bank-funding markets throughout the euro area¹⁰.

At the same time, the Eurosystem (lending from the European Central Bank and from the Central Bank of Ireland via the Exceptional Liquidity Assistance¹¹), provided ample liquidity. This support is given at a very low interest rate of about one percent per year – well below the previous funding cost of banks, thereby amounting to significant support for Irish banks. The amount of Eurosystem lending has fluctuated between €78 billion and €138 billion since October 2008, the June 2011 figure amounting to €100 billion. Therefore, this massive low-interest rate lending was (and still is) a significant support to Irish banks.

In Latvia about two thirds of the banking system was owned by foreign banks (mostly Scandinavian banks), which assumed banking losses and supported their Latvian subsidiaries, thereby making the lender-of-last-resort role of the Latvian central bank less relevant. The Swedish central bank offered a euro/lats swap to Latvia and the ECB agreed with the Swedish central bank a Swedish krona/euro swap. Thereby ECB support could have been channelled indirectly to Latvia. The major domestically-owned Parex Bank was nationalised. According to the ECB's data on consolidated banking statistics, the loss incurred by foreign banks was about 5.7 percent of GDP and the loss of domestic banks about 3.6 percent of GDP by 2010 – a large amount, but well below the banking sector losses in the two other case-study countries. IMF (2011c, Table 4, page 35) calculated that bank support boosted the public debt/GDP ratio by about 7 percentage points of GDP by 2010.

2.3 CAPITAL CONTROLS

The third major difference was the introduction of capital controls in Iceland but not in the other two countries. Due to fear of further capital outflows and additional depreciation of the Icelandic krona, in late 2008 strict capital controls were introduced in Iceland. This has locked in non-resident deposits and government paper holdings in Iceland and locked out Icelandic krona assets held outside the country, in addition to prohibiting transfers across the border by both residents and non-residents. IMF (2011b, page 14) estimates offshore krona holdings at

¹⁰ O'Rourke (2011) and Brennan (2010) argue that the IMF advocated that the Irish government not pay back all of unguaranteed senior debt owned by Irish banks, but the EU and the ECB insisted upon the opposite. See Lane (2011a) for arguments against and in favour of restructuring of senior bank debt.

¹¹ See Buitier, Michels and Rahbari (2011).

30 percent of GDP and reports a high spread between onshore and offshore exchange rates, indicating that the capital controls are effective (Figure 6 of IMF 2011b, page 15).

Viterbo (2011) assessed the legality of Iceland’s capital controls in light of international agreements. While under the IMF Articles, countries retain the right to impose capital controls, the EEA (European Economic Area) Agreement guarantees the free movement of payments and capital among the European Free Trade Association (EFTA) states and European Union countries. The Icelandic controls were not deemed illegal under EEA regulations, because they were triggered by exceptional economic circumstances. But to remain legal, the restrictions would have to be lifted once the crisis was over, but this seems to be a major challenge (Gylfason, 2011; IMF, 2011b).

2.4 FISCAL CONSOLIDATION

Fiscal consolidation, ie policy induced changes in government revenues and expenditures, was central to the adjustment programme of all three countries. As table 6 shows, Latvia’s adjustment was the most radical in 2009, while Ireland’s adjustment was the least ambitious in 2010. However, cumulatively the adjustment is broadly similar in the three countries.

Table 6

Annual fiscal adjustment (% GDP)

	2009	2010	2011	2012	2013	2014
Iceland	5.1	6.4	2.5	na	na	na
Expenditure Reductions	3.2	3.6	1.7	na	na	na
Revenue Enhancement	1.9	2.8	0.8	na	na	na
Ireland	5.0	2.6	3.7	2.2	1.8	1.6
Expenditure Reductions	na	na	2.8	1.3	1.2	1.0
Revenue Enhancement	na	na	1.0	0.9	0.6	0.6
Latvia	9.4	3.3	2.2	0.9	na	na
Expenditure Reductions	8.2	1.9	0.6	0.4	na	na
Revenue Enhancement	1.3	1.4	1.6	0.5	na	na

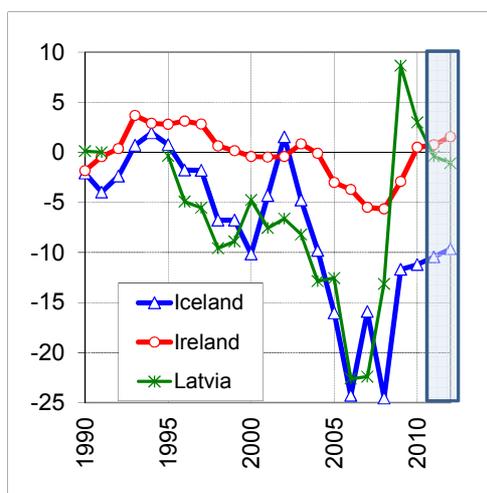
Sources: Ireland – Table 2 on page 135 of OECD (2011a), Iceland – Table 2.3 on page 73 of OECD (2011b), Latvia - IMF Latvia Team Calculations.

3. DIFFERENT ECONOMIC OUTCOMES

Economic outcomes in the three countries were shaped by their pre-crisis vulnerabilities. All three went through massive credit booms (the speediest in Iceland) and an increasing share of construction in output (reaching the highest level in Iceland). Both Latvia and Iceland had unusually large current account deficits – over 20 percent of GDP (Figure 2). Ireland’s deficit was more moderate – about 5 percent of GDP. As a consequence, the net international investment positions of Iceland and Latvia deteriorated significantly before the crisis, while in Ireland the deterioration was modest (Table 2). Since private capital inflows stopped abruptly in Iceland and Latvia after September 2008, the current account balance had to improve accordingly. The required improvements in external accounts had knock-on effects on all components of demand, employment and public finance.

Figure 2

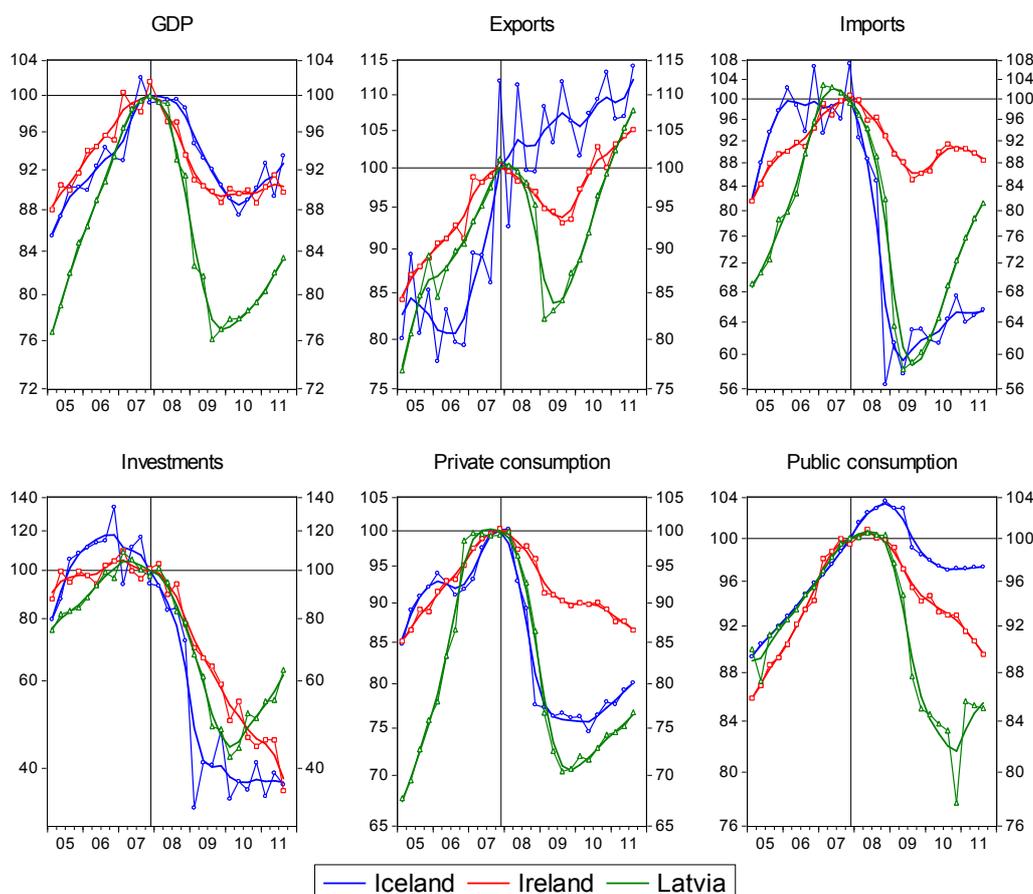
Current account (% GDP), 1990-2012



Source: European Commission (2011b).

Note: the shaded 2011-2012 values are forecasts.

Quarterly GDP and its main components (2007Q4=100, constant prices, seasonally adjusted), 2005Q1-2011Q3



Source: Author's calculation using the data from Eurostat.

Note: For each variable two lines are shown: the seasonally adjusted data is indicated with a thin line with symbols, and the Hodrick-Prescott filtered values are shown with the same colour thick line without symbols. For Hodrick-Prescott filtering we used the smoothing parameter 1, a very low parameter, to filter out high frequency noise only. Note that the standard smoothing parameter for quarterly data is 1600. The comparison of the original and this Hodrick-Prescott filtered series suggests that the filter well captures the main tendencies and also the turning points.

- In all three countries economic hardship started several quarters before the collapse of Lehman Brothers in September 2008; therefore, we normalise quarterly GDP figures as 2007 Q4 = 100 in Figure 3. From peak to trough, Latvian GDP collapsed by 25 percent, which is about twice as much as in Iceland and Ireland, even though in all three countries output fell back to its early 2005 level. Among the 184 countries included in IMF (2011d), Latvia suffered from the greatest fall in output in 2009 (18 percent), and also during the three years from 2007 to 2010 (22 percent). Ireland (fifth place) and Iceland (seventh place) are also among the worst performers in the ranking of cumulative output loss from 2007 to 2010, with drops in output of ten and nine percent, respectively.

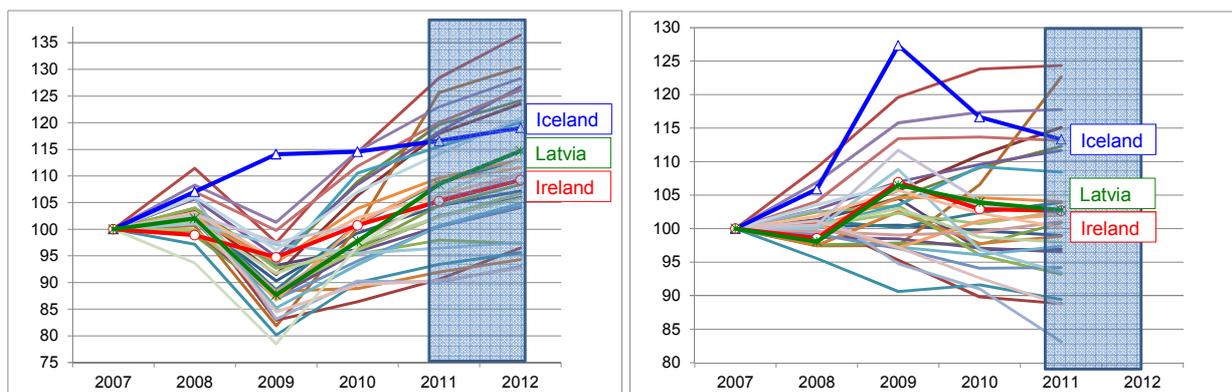
- In Iceland the massive current account adjustment was to a great extent fostered by export growth. Among the 34 countries for which Eurostat publishes constant price data on exports of goods and services, Iceland was the only country where there was a growth in 2009 compared to 2008 (Figure 4). It is not clear cut if the large exchange rate depreciation had a positive impact on exports in Iceland, because about one-half of exports are concentrated in aluminium and marine products, and the growth of aluminium exports was likely the result of the new capacities built in the years before the crisis (see Appendix). However, the exports of services (comprising 35 percent of total Icelandic exports of goods and services) picked-up in 2009, a year after the real exchange rate depreciation. These exports may have been positively affected by the depreciation. Also, the higher costs of imports have likely encouraged import substitution. More generally, the highly increased revenues from export activities likely dampened the impact of the crisis.
- Exports also started to recover in Ireland and Latvia in 2010, a trend forecast to continue by the European Commission (2011b). However, Ireland and Latvia are only in the mid-field compared to the performance of other countries (Panel A of Figure 4). But, export volumes also depend on foreign demand, which contracted by about 8 percent more for Latvia than for the other two countries¹². To correct for different developments in import markets, Panel B of Figure 4 shows the ratio of export volumes of the country under consideration to import volumes of trading partners. The performances of Ireland and Latvia are almost identical in this regard and they are in the mid-field, while Iceland is still among the best performers, though its advantage is declining.
- There was a similar collapse in investment in all three countries and so far investment has started to recover only in Latvia.
- Private consumption went into free fall in both Iceland and Latvia. The adjustment in Ireland was smaller, but it is still on-going, while in Iceland and Latvia private consumption growth has resumed.
- Public consumption adjusted the most in Latvia (a 20 percent drop); less so in Ireland and, in particular, in Iceland. This partly reflects the different speeds of fiscal consolidation in the three countries (Table 6).
- Imports declined by about 40 percent in Iceland and Latvia, in line with the fall in investment and private consumption, while the Irish import decline (14 percent) was similar to the EU average.

¹² This is largely due to the higher share of Estonia, Lithuania, Russia and Ukraine (four countries that witnessed massive import contraction) in Latvian exports.

**Exports of goods and services in 34 countries
(at constant prices, 2007=100), 2007-2012**

A. Export volume

**B. Export volume divided by
foreign import volume**



Source: Author's calculation using data from European Commission (2011b), OECD, and national sources (for China, Hong Kong, Singapore, Thailand, Ukraine).

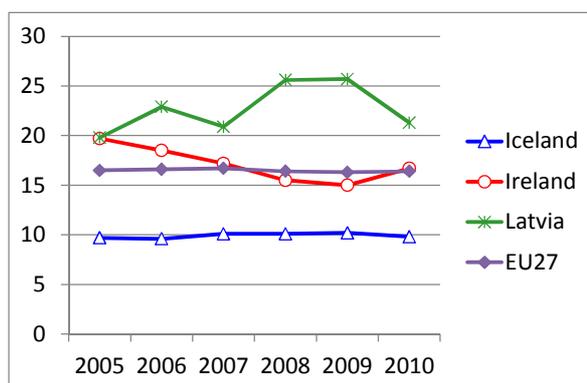
Note: The shaded 2011-2012 values are forecasts. Panel A shows the development of exports of goods and services in 34 countries for which the Eurostat publishes these data: the 27 EU countries plus Iceland, Norway, Switzerland, Croatia, Turkey, United States and Japan. Panel B shows the ratio of export volume to foreign import volume. Foreign import volume is the weighted averages (using country-specific weights derived from 2007 export data) of imports of goods and services of 47 countries, the 34 countries listed so far plus Australia, Brazil, Canada, China, Hong Kong, Israel, Korea, Macedonia (Former Yugoslav Republic), Mexico, Russia, Singapore, Thailand and Ukraine. On average, these 47 countries comprise 89 percent of exports, while for Iceland, Ireland and Latvia the coverage is 94-95 percent.

These developments in output and demand translated into very different social impacts.

- Iceland experienced a modest (5 percent) drop in employment from 2007 to 2010 (Table 7), while job losses were much more dramatic in Latvia (17 percent) and Ireland (13 percent). The number of jobs in Latvia fell below the level of early 2000 – though there has been a slight recovery in employment since early 2010 (see the third panel in the third row of Figure 1).
- Poverty was already high in Latvia and has increased, while Iceland was not impacted in this regard, and in Ireland a gradual improvement up to 2009 reversed somewhat in 2010 (Figure 5).

Figure 5

At risk of poverty rate (% of population) 2005-2010



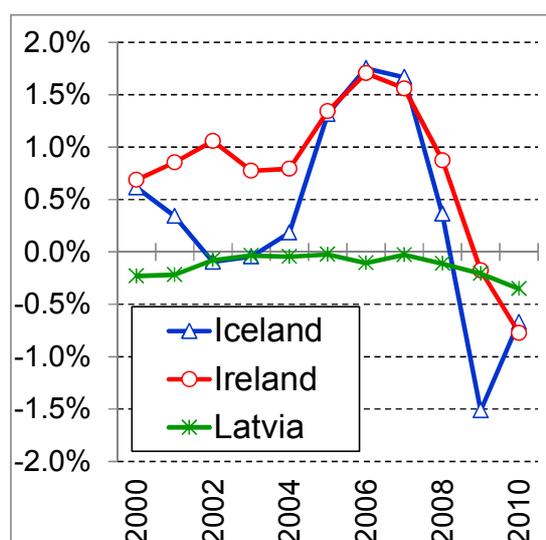
Source: Eurostat (all data but the 2010 data for Ireland, which was chained to Eurostat data using data from the Irish Central Statistics Office).

Note: The rate assesses whether disposable net income (both from employment, investment and social transfers) falls below the poverty threshold. The threshold is set at 60 percent of the national median income per equivalent adult.

The different employment impacts are not the consequence of shortening work time – in all three countries the average hours worked per week declined by 4-5 percent (Table 4 and Figure 1). Also, the difference is not the consequence of emigration, since Iceland experienced the largest net emigration (as a percent of population) in 2008 and 2009 (Figure 6), even though official data on migration may not be reliable. But in any case, emigration cannot explain the employment impact when the level of unemployment has reached such a high level as in Ireland and Latvia.

Figure 6

Net immigration (% of population), 2000-2010



Source: population data is from Eurostat, migration data is from the central statistical offices of the three countries. Note that migration data could be unreliable.

The differences in employment response could be related to policies, the sectoral composition of production, and the shift in sectoral composition.

Table 7 shows that the major differences are

- a. Industrial employment, which remained broadly stable in Iceland, but which fell by almost 20 percent in the other two countries;
- b. Public employment, which fell by 10 percent in Latvia, but has even slightly increased in the other two countries;
- c. Construction employment, which fell by 33 percent in Iceland and about 50 percent in the other two countries – yet the share of construction employment in total employment was the smallest in Iceland in 2007 and was still the smallest in 2010;
- d. Agriculture and fishing employment, which fell less in Iceland (though the share of this sector in total employment is small).

Therefore, employment in industry, which is the most tradable sector, was protected in Iceland, but almost every fifth job was lost in Ireland and Latvia.

Table 7

Change in employment from 2007 to 2010

	2007 to 2010 percent change			Share in total employment (percent)					
	Iceland	Ireland	Latvia	Iceland		Ireland		Latvia	
				2007	2010	2007	2010	2007	2010
Agriculture and fishing	-8	-23	-21	5.9	5.8	5.5	4.9	9.7	9.2
Construction	-33	-54	-50	9.0	6.3	13.4	7.1	11.3	6.7
Finance and real estate	-3	-5	-3	14.9	15.2	13.6	14.9	9.8	11.5
Industry	-1	-19	-18	11.7	12.2	14.0	13.0	16.5	16.3
Public Administration	2	5	-11	34.3	36.9	27.0	32.5	23.3	24.7
Trade, Tourism, Transport	-8	-9	-10	24.3	23.5	26.5	27.6	29.3	31.6
Total	-5	-13	-17	100.0	100.0	100.0	100.0	100.0	100.0

Note: The peak of Icelandic construction employment was in 2008, which was followed by a 40 percent fall by 2010.

Source: European Commission (2011b).

Table 8

Shifts among the branches of economic activity from 2007 to 2010

	Gross value added			Share in output (percent)					
	(percent change in real output from 2007 to 2010)			Iceland		Ireland		Latvia	
	Iceland	Ireland	Latvia	2007	2010	2007	2010	2007	2010
A. Agriculture, forestry and fishing	-4	2	9	5.3	6.6	1.4	1.0	3.5	4.5
Fishing and aquaculture	-6			4.2	5.5				
Other	9			1.0	1.1				
B&C&D&E. Industry	18	13	-8	14.2	19.1	23.7	25.9	15.0	18.7
C. Manufacturing	19		-12	9.9	13.8	21.6	23.8	11.7	13.4
Manufacture of basic metals	123			1.7	2.8				
Other manufacturing	0			8.2	11.0				
B&D&E. Other industry	14		8	4.3	5.3	2.1	2.1	3.3	5.3
F. Construction	-59	-58	-50	11.4	4.1	9.6	5.5	10.4	5.9
G&H&I&J. Trade; repair; Transport; Tourism; Information	-7	-12	-18	21.9	20.7			33.0	34.3
K. Financial and insurance activities	-40	-12	-16	6.6	7.8			5.4	3.7
L. Real estate activities	-13		2	11.0	11.0			8.2	8.3
M&N&R&S. Other services	-14		-26	9.2	9.9			9.3	9.8
O-Q. Public administration; social security; education; health	-1	-4	-15	20.3	20.7			15.2	14.8
All sectors (gross value added)	-11	-8	-17	100	100	100	100	100	100
All sectors (GDP)	-9	-10	-21						

Source: central statistical office of the three countries.

Note: empty cells indicate non-available data. For Ireland, data for the branches K and L are not available separately, but only their aggregate. The peak of Irish construction output as a share of total output was 10.6 percent in 2006.

Looking at the shifts in economic activity (Table 8), the share of industry in total output has increased in all three countries, but while in Iceland and Ireland real industrial output has also increased, in Latvia real industrial output fell, though by a lesser magnitude (by 8 percent) than total output (17 percent).

Comparison of Tables 7 and 8 allows productivity developments to be inferred. Of particular importance, industrial productivity has increased in all three countries – most rapidly in Ireland by 39 percent, followed by Iceland (19 percent) and Latvia (12 percent).

The differences between Iceland and Latvia in terms of output and employment are likely explained by real exchange rate developments, since both countries had to adjust massively their net external financing. The prompt and significant nominal and real exchange rate adjustment increased the revenue of exporting companies (even if the debt servicing burden went up for those with foreign currency loans), while in Latvia the ULC-based real exchange rate depreciation was delayed, gradual and smaller in magnitude. It also seems reasonable to assume that the Irish output fall was less dramatic than in Latvia because of the smaller external adjustment need.

However, what is less clear is why Irish employment contracted much more than in Iceland given the broadly similar GDP developments and the fall in the share of construction in GDP.

Construction employment fell more in Ireland than in Iceland, but this is just one and not the most important part of the difference, since Irish industrial employment was also dropped massively. Perhaps the major real exchange rate adjustment helped the Icelandic economy to shift from the non-tradable to the tradable sector faster, improving growth prospects, and this mitigated the employment impact, despite the broadly similar output development to date.

But it is also possible that corporate restructuring was delayed in Iceland. Several companies became insolvent due to sharp currency depreciation, because – as we have said earlier – most corporate loans were indexed to foreign currencies. But most of these companies were not closed down but passed into bank ownership – banks have become holding companies of a sort. Banks may have delayed the proper restructuring of these companies so far. Unfortunately we have no information about the speed of corporate restructuring in Ireland, but if this has been much slower in Iceland, it could explain some of the differences in employment developments.

What about public finances?

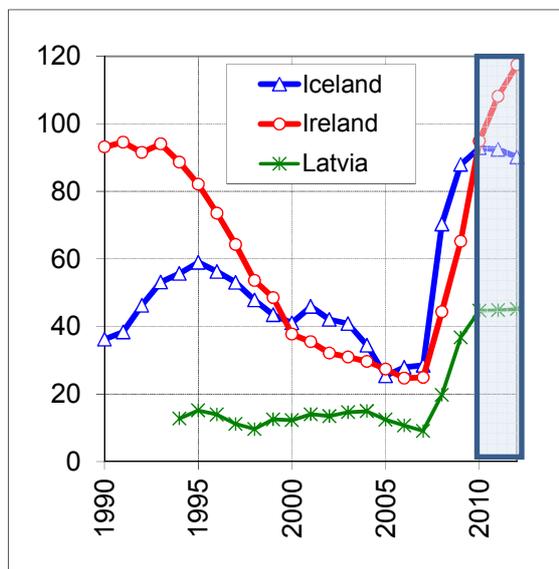
- Before the crisis, gross government debt was below 30 percent of GDP in all three countries, but started to balloon quickly (Figure 7). In addition to the fall in output and the large budget deficits, support to the banking sector has also contributed to the increase in public debt¹³. As said in section 2.2, bank support boosted Irish public debt by about 40 percent of GDP, Icelandic public debt by about 20 percent and Latvian public debt by about 7 percent. Since Iceland and Latvia gained better control over the budget deficit than Ireland – partly due to the difference in bank support – European Commission (2011b) forecasts stabilisation of the debt ratio in the two countries, but in Ireland a further 20 percentage points of GDP increase is expected till 2012 (Figure 7).
- The credit default swap (CDS) spread on the sovereign rose above 1000 basis points in Latvia and Iceland in late 2008 and early 2009, while staying at a level of about 250 basis points in Ireland (Figure 8). This situation has reversed since then, but Irish CDS spreads have also declined substantially since summer 2011 – despite the on-going euro-area sovereign debt and banking crisis.
- On 9 June 2011, for the first time since the crisis, the Icelandic and Latvian governments successfully issued bonds on the international bond markets (see details in Reuters, 2011). This is especially remarkable for Iceland, a country that still maintains strict capital controls and let its banks default on their foreign liabilities. Also, both Iceland and Latvia could borrow in domestic currency from the start of the official assistance programme in late 2008 (IMF 2011b and 2011c). In contrast, the Irish government has stopped borrowing from markets since the start of its assistance

¹³ Bank support is part of the reported budget deficit, yet it is important to highlight its impact separately.

programme in late November 2010 (IMF 2011a), though small-scale retail and commercial paper selling has continued.

Figure 7

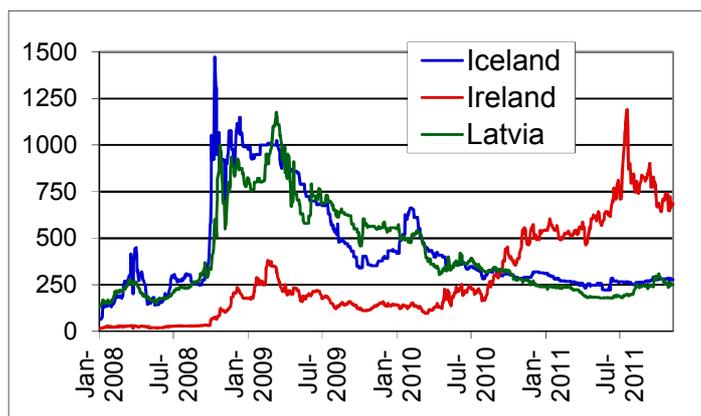
General government gross debt (% GDP), 1990-2012



Source: European Commission (2011b).
Note: the shaded 2011-2012 values are forecasts.

Figure 8

5-year credit default swap (CDS) spread on sovereigns, 2 January 2008 – 24 November, in basis points



Source: Datastream.

4. CONCLUSIONS

Iceland, Ireland and Latvia experienced similar developments before the crisis, in particular rapid increases in banks' balance sheets and the expansion of the construction sector. But the crisis hit the countries differently:

- Latvia was the world's hardest-hit country in terms of GDP decline. Employment also suffered massively (-17 percent) – more than in any other country for which Eurostat publishes data; the current level of employment is just slightly above the level in 2000. The already high level of poverty has increased further.
- Ireland was the world's fifth hardest hit country in terms of GDP decline from 2007 to 2010 (10 percent) and employment has also fallen significantly (-13 percent).
- Iceland, the world's seventh hardest hit country in terms of GDP decline (-9 percent), came out from the crisis with the smallest drop in employment (-5 percent) among the three countries, despite the greatest shock to its financial system.

In exiting the crisis, there are several encouraging signals for all three countries:

- First, recovery has started in all three countries – with the fastest pace in Latvia – though it has not yet brought many new jobs.
- Exports are growing in all three countries, with again the fastest pace in Latvia, where exports suffered the most during the first phase of the crisis.
- The total-economy ULC-based real effective exchange rate has depreciated significantly in all three countries.
- The various fiscal, structural and banking sector targets of the official financing programmes are on track in all three countries.
- It was a great success that both Iceland and Latvia could tap the international bond market in June 2011 and five-year CDS spreads on government bonds have declined to about 200-300 basis points in both countries.
- It is also a success that Irish CDS spreads have declined from the peak of over 1000 basis point in June 2011 to about 600-700 basis points in November 2011, despite the intensifying euro-area sovereign debt and banking crisis during the same period. Also, sizeable injection of private capital into the Bank of Ireland signals increasing confidence in the country (European Commission, 2011a).

Even though there were common elements in the policy mix, such as fiscal austerity, structural reforms, private-debt restructuring and banking-system support, the diverse crisis

responses are partly the consequence of differences in policy responses. The main country-specific elements were:

- In Iceland there was no choice but to let banks default and the currency depreciate. In addition, strict capital controls were introduced to limit capital outflows and dampen the collapse of the exchange rate. Delay in corporate restructuring may have also damped the employment impact.
- In Ireland banks were not allowed to default, but the government assumed most of the bank losses – beyond wiping out bank capital and the involvement of subordinated bank bondholders, which suffered losses of about 10 percent of GDP.
- In Latvia the exchange rate peg to the euro was kept. Since about 60 percent of bank assets belonged to subsidiaries of foreign banks, a significant share of bank losses was assumed by the parent banks. Fiscal austerity was the most radical in Latvia.

Isolating the impact of each element of the policy mix on the response to the crisis and the speed of recovery is not possible. Yet several lessons can be drawn:

- The Icelandic example in the aftermath of the collapse of the exchange rate shows that the fears among Latvian policymakers of a similar collapse were not well justified. Iceland had much higher gross and also net foreign liabilities than Latvia and the shock in Iceland was really enormous – much higher than what Latvia would have suffered with exchange-rate devaluation. The banking sector suffered meltdown in Iceland and foreign lenders to banks suffered massive losses. Yet the crisis impact was much more benign in Iceland than Latvia¹⁴. Internal devaluation, a path that Ireland had to choose and Latvia decided to choose, has not really worked through wage reductions. Public sector wages were cut drastically in Latvia (26 percent fall), which is less relevant for competitiveness, but private sector wages have hardly fallen. In Ireland nominal wages fell somewhat, but their contribution to the drop in unit labour costs was also very small. At the same time unemployment skyrocketed in both countries, which was not just related to layoffs of public sector and construction workers. It would have been much better to adjust through lower wages than through lay-offs.
- Productivity improvements, which were impressive in Ireland (12 percent increase during the past three years) and moderate in Latvia (6 percent increase), accompanied

¹⁴ See Darvas (2009) for an assessment of various arguments in favour and against devaluation, in which paper I suggested a speedy euro entry (enhanced by changes in the EU Treaty or at least by a proper interpretation of current Treaty provisions for euro-area entry) at a devalued exchange rate, supported by appropriate resolution to manage the debt overhang. Unfortunately, there were no policy intentions to change or at least to properly interpret the EU Treaty. Yet the Icelandic experience suggests that Latvia would have likely been better off with devaluation even without the option of a speedy entry into the euro area. Therefore, in this important respect I disagree with the conclusion of Åslund and Dombrovskis (2011), even though I agree that other elements of the adjustment programme was well designed and its implementation was a heroic achievement.

the strategy of internal devaluation. However, in both countries productivity improved because of a significant drop in output and an even more significant drop in employment. While any productivity improvement helps the survival of the corporate sector, the social impact of unemployment is very alarming.

- Total economy productivity increased marginally (by 3 percent) in Iceland, but the tradable sector has strengthened and industrial productivity improved very fast – faster than in Latvia but less rapidly than in Ireland.
- The negative impacts of capital controls in the cases of Iceland are not really visible. While Arnason and Danielson (2011) rightly argue that capital controls have negative consequences, such as transfer of new powers to the government enabling it to implement industrial policy (by deciding who can change Icelandic krona to foreign currencies), signalling wrong prices (since the on-shore exchange rate is not a market rate), and significantly limiting currency exchange for ordinary citizens, Iceland is doing well and the fall in its CDS spread and the success of its international bond issues suggests that trust has returned. Yet, a major challenge lies ahead to lift capital controls (Gylfason, 2011; IMF, 2011b).
- The experience with the collapse of the gigantic Icelandic banking system suggests that letting banks fail when they had a faulty business model can be the right choice. While socialising bank losses in Ireland was initially an Irish decision, later, when the Irish government wanted to change course, European institutions barred it primarily in the name of financial stability in the euro area and beyond. At the same time, politicians in countries where banks are heavily exposed to Ireland were afraid of bank losses and their implications for their own countries – and thereby argued against involving the creditors of Irish banks. Little is known about what would have happened to financial stability outside Ireland in the event of letting Irish banks default, but one thing is clear: other countries have benefited from the Irish socialisation of a large share of bank losses, which has significantly contributed to the explosion of Irish public debt. The very high level of interconnectedness of European banks and potential cross-country spillovers of national bank resolution practices strongly call for an EU-wide bank resolution regime (Posen and Véron, 2009; and Véron, 2011). Yet EU-wide resolution could work if regulation and supervision are also centralised, and an EU-wide deposit guarantee would also make the financial system more resilient. There is a strong case for a ‘banking federation’.
- The fulfilment of programme targets in terms of fiscal adjustment and structural reforms suggests that, whenever the programme is well designed and there is political will, public support and sufficiently effective institutions, very large adjustments are possible. If the adjustment experiences of the three countries could be a lesson for other

countries, such as the Mediterranean countries of the euro area, should be the subject of a different study.

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6. APPENDIX: COMPOSITION OF ICELAND'S EXPORT

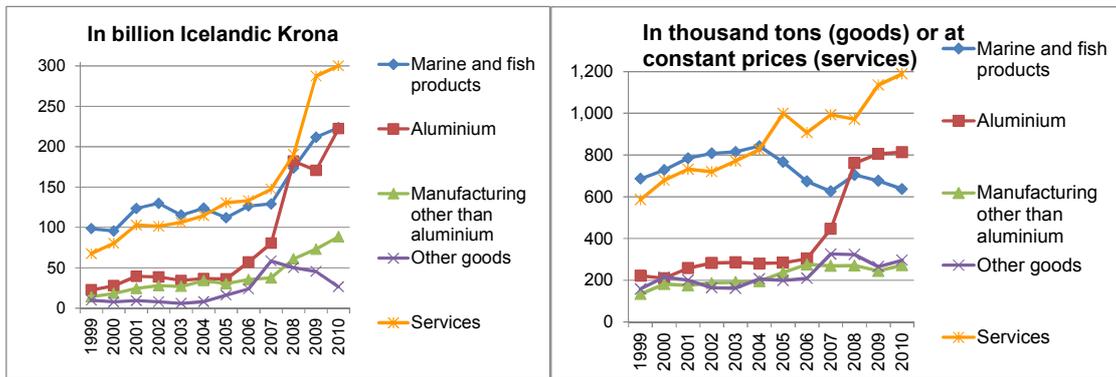
Iceland's export is highly concentrated in two major industries: aluminium and marine/other fish products. In 2010 export goods belonging to these two major product categories comprised 52 percent of Iceland's total exports of goods and services (Panel A of Figure 9). The share of services was 35 percent (of which about one-half is related to transportation and one-quarter to tourism), the share of non-aluminium manufacturing goods was 10 percent and the share of all other goods was 3 percent.

Unfortunately, volume index is not available for product categories, but only for the aggregate of goods and services. Figure 10 shows that export volumes increased rapidly around the time of the significant depreciation (which started in late 2007 and accelerated in early 2008). While the speedy increase in the volume of services that started in 2009 is likely related to the depreciation, such an impact is not clear-cut for the export of goods. Unfortunately, the volume index is not available for export good categories only, but their weight is available (Panel B of Figure 9). Weight is a rather imprecise measure of volume when the composition is changing.¹⁵ But keeping in mind this imprecision, Panel B of Figure 9 suggests that there was a strong expansion of aluminium exports in 2007 and especially in 2008. Most likely the main reason behind this was not the free-fall of the exchange rate, but the new capacities that were built in the years before. However, the weight of other goods exported was broadly stable at a time when global trade declined significantly, a development in which the exchange rate may have had a role. And the revenue from all export activities has increased significantly after the fall of the exchange rate, thereby helping the survival of the sectors producing for exports.

¹⁵ This is apparent from the comparison of the current price and weight developments of the exports of other goods after 2007. A seeming anomaly is the fall of current price exports (Panel A of figure 8) when the weight is broadly stable (Panel B). Export of aircrafts (along with some other product categories) is responsible for this seeming anomaly. In 2009 aircrafts accounted for 55 percent of the value of exports of other goods, but only 0.5 percent of their weight. By 2010, the weight of exported aircrafts declined by 25 percent (causing negligible impact on the total weight of exported other goods), but it has reduced by 38 percent the Iceland krona value of exports.

Figure 9

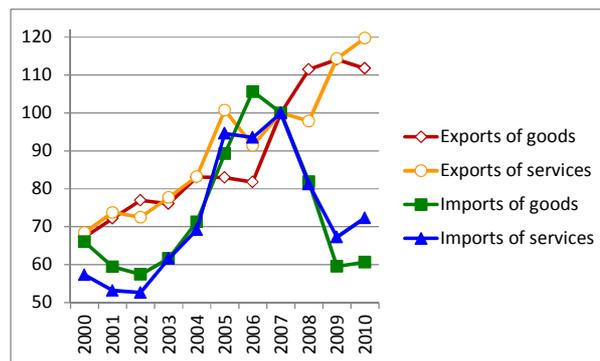
Composition of Icelandic exports, 2000-2010



Source: Statistics Iceland.

Figure 10

Volume of Icelandic exports and imports (2007=100), 2000-2010



Source: Statistics Iceland.

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