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THE ICELAND AND IRELAND BANKING CRISES: Lessons for the Future

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ABSTRACT
The economic collapses of Iceland and Ireland after 2008 are the most severe in the developed world in recent history. This paper assesses five key differences in the causes of and responses to each country's crisis. On the causal side, we look at (1) the role that deposit insurance served in artificially increasing risk-adjusted returns and (2) the subsequent increase in loanable funds that bred large and unsustainable financial sectors. On the response side we look at (1) the speed, transparency, and effectiveness of the nationalization of each country's financial sector; (2) the decision whether to bail out key financial institutions or to allow them to fail; and (3) the differences in exchange-rate structures that created different recovery paths. We conclude by drawing policy conclusions for countries with large, unstable banking sectors, notably the United States.

JEL codes: E00, E32

KEYWORDS
Iceland, Ireland, fiscal policy, monetary policy, central bank, deposit insurance, bailout

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The Icelandic and Irish Banking Crises: Lessons for the Future

1 Introduction

In the fall of 2008, the Icelandic banking system collapsed, giving rise to a general economic recession and currency crisis. The size of the banking system and the severity of the events rendered both the Icelandic government and its central bank unable to save the insolvent financial system. The dire situation was mirrored 1,000 miles to the southeast, as Ireland entered into a similar banking crisis. Without a concerted effort to bail out its banking system, the Irish financial system would be brought to its knees like its Nordic neighbor's. The sentiment of the time was captured in a common joke: "What's the difference between Ireland and Iceland? One letter and six months." If no bailout was forthcoming, the presumption was that the Irish tempest would turn into the Icelandic disaster. Bailouts did come in time to save the Irish banks, but not the leading banks of Iceland. Whether this saved Ireland from a worse fate is another question.

Consider the following statistics from 2007 at the peak of the boom to 2011:

	Iceland		Ireland	
	2007	**2011**	**2007**	**2011**
GNI (PPP, $US bn.)	11.0	9.0	171.8	150.1
GNI per capita (PPP, $US)	35,320	28,270	39,440	33,540
GNI (real growth rate)	1.8%	2.4%	5.3%	1.0%
Unemployment	2.0%	6.0%	5.0%	14.3%
Inflation	4.9%	5.4%	4.9%	−1.0%
Public debt/GDP	25.5%	130.1%	21.1%	107.0%
Exports	$4.6 bn.	$5.3 bn.	$124.8 bn.	$124.3 bn.
Imports	$5.8 bn.	$4.5 bn.	$90.3 bn.	$71.3 bn.
Net exports (% GDP)	−10.6%	10.0%	8.9%	19.1%
Exchange rate	63.39 ISK/$	117.7 ISK/$	0.735 €/$	0.711 €/$

Table 1: Iceland and Ireland - Output over the recession
Source: World Bank

Irish real output has stabilized faster, its exchange rate has remained stable, and its public debt level have been kept lower, although its unemployment rate remains high and the country has recently experienced deflation. Icelandic real GDP is rebounding after lagging for several years, and quickly turning into growth. Unemployment in Iceland remains low by European standards, and its trade balance has significantly improved as the country returns to being a net creditor.

In this paper we focus on five key differences in the causes of and responses to each country's crisis. We conclude that each country did some things well and some things poorly over the past four years. In particular we contrast two key areas that bred financial instability leading up to the crisis: (1) the funding sources of each country—equity versus real estate loans—and the effects that the liquidity freeze of 2008 had on these funding sources, and (2) the insurance plans employed to safeguard depositors. We then turn our attention to three policy responses in the aftermath of 2008: (1) the speed, transparency, and completeness of the nationalization of some financial assets; (2) the decision whether to allow the banking sector to

fail or to bail it out; and finally, (3) the differences in exchange rate structures—flexible in the case of Iceland versus fixed within the European Monetary Union for Ireland.

These five differences are crucial to understanding why some aspects of the crisis have gone right in each country, while other aspects have gone so wrong. Together they aid in providing a road map to follow as we trudge through the uncharted waters of the financial crisis. We conclude by pointing out some similarities to the American financial system, and their implications.

2 Icelandic Bank Funding

One key difference in the causes of each country's boom is the primary funding source of the banking sector. Iceland's banks had long relied on a domestic deposit base to fund their credit expansion, but later started seeking foreign retail funding sources. The country was also able to endogenously enhance its credit issuing capabilities by investing in inflation-sensitive assets: purchasing external assets in the form of equity in other businesses to finance external growth.

By not only holding assets in the form of loans but also taking a position in the equity of companies, the Icelandic banks realized significant returns on their assets during the early half of the decade 2000 until 2007. This enabled them to increase their liabilities commensurately, primarily by increasing the money supply (i.e., increasing bank liabilities) without endangering their solvency or liquidity. In 2004 and 2005, these risky equity growth avenues grew by 57.5 percent and 24.7 percent (Report of the Special Investigation Commission 2010: chap. 21). Internal growth via expanding on these previously undertaken activities comprised the bulk of the banking system's growth from 2006 to the crash, mainly by decreasing the quality of the loans made to these operations (Flannery 2009: Annex 3).

The market liberalizations of the late 1990s and early years of the first decade of the 21st century opened the Icelandic financial sector to the well-established world of global finance. As do most other developed banking systems, Iceland's banks used the domestic deposit base to extend credit to domestic residents. High nominal interest rates spurred on in part by high levels of inflation, coupled with a comprehensive deposit insurance scheme offered by the Central Bank of Iceland, incentivized banks to push into foreign markets to obtain lower-cost funding. In particular, online retail branches were set up in several European countries—notably Britain and the Netherlands—to attract foreign customers. While these retail deposit accounts offered foreigners the chance to capitalize on Icelandic interest rates in their own domestic currency, the less risk-averse investors could invest directly in Icelandic krona via "Glacier Bonds"—krona-denominated bonds that were marketed to foreigners directly in a bid to attract foreign capital. Issuances of Glacier Bonds commenced in August 2005, and reached their peak in spring 2007 with $6.3 billion of these bonds outstanding, equivalent to almost 40 percent of the country's GDP (Bagus and Howden 2011: 63).

Clients of the foreign branches were insured under the Icelandic deposit insurance plan, thus mitigating risk from the now evidently risky venture and enticing a steady flow of foreign retail deposits into the country. Icelandic banks used these foreign-denominated funds in two ways. First, the funds were lent directly to the Icelandic public at relatively low interest rates to finance consumption activity. Foreign-denominated mortgages to take advantage of lower international interest rates became common, with around 80 percent of all foreign-currency household lending made in low-interest Swiss franc– and Japanese yen–denominated mortgages (Buiter and Sibert 2008: 16).[1] In addition, some of these foreign funds were converted to

[1] Iceland's Housing Financing Fund, a state-operated facilitator of mortgage lending, also relaxed borrowing criteria in 2003. The maximum loan-to-value ratio was increased to 90 percent, and the maximum loan amount doubled,

Icelandic krona to fund domestic asset purchases.

The conversion of this foreign funding served an important purpose. The fresh demand created for Icelandic krona supported the exchange rate, mitigating any depreciation caused by the credit expansion (Report of the Special Investigation Commission 2010: chap. 21: 30). As a consequence, Icelandic banks initially faced relatively little exchange rate risk due to reduced volatility in the currency. While this strategy reduced risk for Icelandic banks during the boom, it proved to be the country's undoing when liquidity dried up. As foreigners started requesting their deposits back, Icelandic banks, lacking sufficient foreign exchange reserves to meet these demands, exchanged krona for foreign currency. This started a spiral in which depreciating pressure on the krona fueled increased krona sales to meet foreign redemption demands.

The Icelandic banking sector thus exposed itself to a twofold danger.

First, its liquidity, and eventually solvency, was reliant on stock prices. As a sizable portion of the banking system's balance sheet was held in stock (Flannery 2009), any stock market decline would hamper the banks' ability to meet redemption requests. This situation was largely ignored during the booms, as buoyant stock prices kept Icelandic banks well capitalized and liquid relative to the banks of some larger, more stable countries, such as Germany and the United States (figures 1 and 2). Another common funding practice in Iceland was for two banks to swap their debt securities with each other to use as collateral in the Central Bank of Iceland's funding facilities (Hreinsson et al. 2009: 44; Jännäri 2009: 18).[2]

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from 9.7 million kronur in 2004 to 18 million by 2006. Financing interest rates fell to 4.15 percent, their lowest level, for one year from November 2004 (Report of the Special Investigation Commission 2010: chap. 21: 25–26).

[2] Indeed, the Central Bank of Iceland was not the only institution to accept these swaps as collateral: the Eurosystem did as well (Hreinsson et al. 2009: 44; Sibert 2010). Flannery (2009: 101) notes that such collateral amounted to no more than a "love letter."

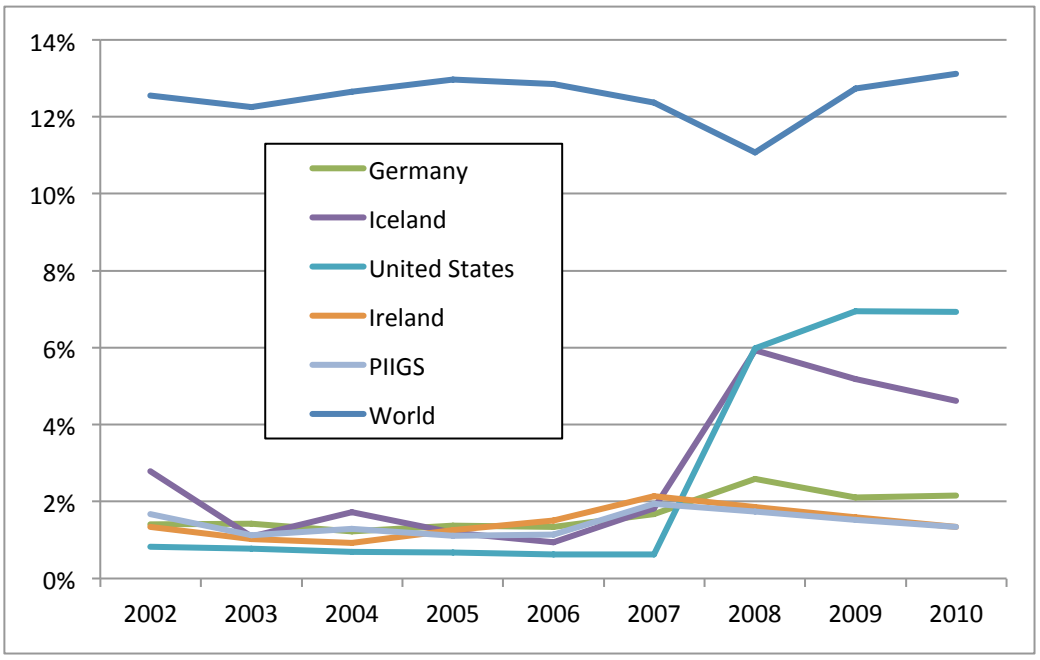

Figure 1: Bank Liquid Reserves to Bank Assets Ratio (%)

Source: World Bank

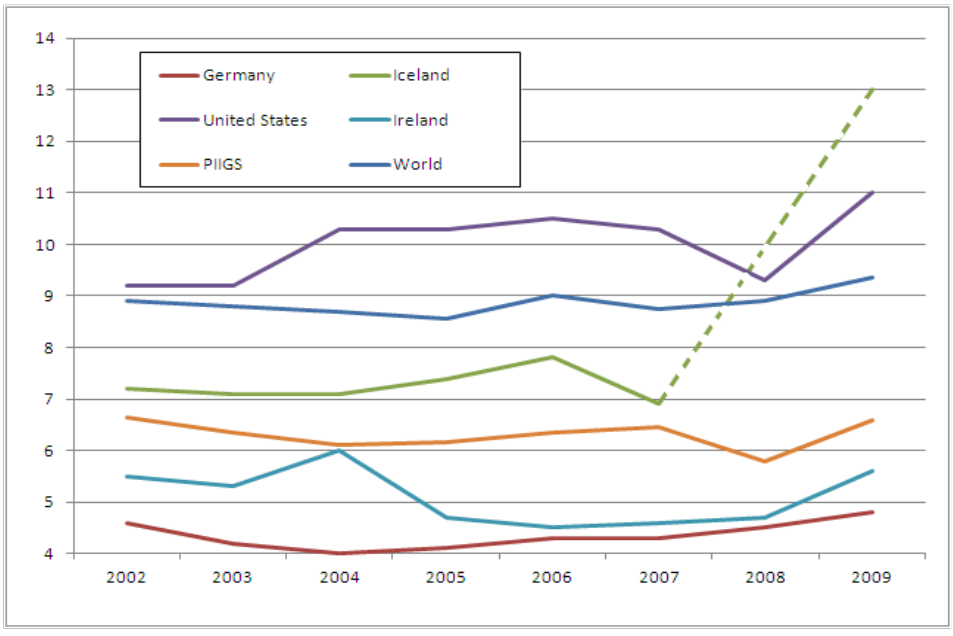

Figure 2: Bank Capital to Assets Ratio (%)

Source: World Bank

If Iceland's financial situation seemed to be no weaker than that of its peers, the aftermath of the credit crunch told a different story. While other banking sectors started shifting to more liquid assets as the crisis approached, Icelandic banks were caught. Lacking sufficient assets to cover their increasingly requested liabilities, it was only the default and writing off of large numbers of assets that increased these banks' liquidity and capital ratios. Thus, in contrast to their peers, Icelandic banks only appeared more liquid and better capitalized as the bust progressed due to the fact that their assets were mostly written off, and eventually a cash infusion by the International Monetary Fund (IMF) and fellow Nordic countries brought in fresh liquid assets.[3]

The second aspect of the danger facing the Icelandic banking system was that by the end of the boom a growing portion of funding came from foreigners via foreign-denominated accounts. This left banks exposed to exchange rate risk. As long as foreign depositors continued channeling funds into the Icelandic banks to exchange into krona, there was appreciating pressure on the krona. The collapse of Lehman Brothers in 2008 with its accompanying heightened awareness of international risk induced a flight for safety that included a withdrawal from the Icelandic banks' foreign branches and subsidiaries. As a consequence, these banks were required to liquidate their domestic assets in order to sell krona for foreign funding. The Central Bank of Iceland lacked sufficient foreign exchange reserves to sell to defend the currency—by 2007 the banking sector held 14 times the central bank's foreign reserves as foreign short-term liabilities (Gylfason 2008). In this way a general run on foreign branches of Icelandic banks put in motion a currency crisis that endangered the banking system's solvency.

[3] Note that in figure 2, the dashed line between 2007 and 2009 represents the fact that the Icelandic banking system collapsed, effectively erasing all capital. As liabilities were written off and the foreign loans from Denmark, Norway, and the IMF started flowing into the country, the liquidity and capital positions of the banking system increased commensurately. It is important to keep in mind, however, that this positive appearance could only occur after the collapse of the banking system erased many of its liabilities.

3 Irish Bank Funding

Ireland's funding sources were conventional by comparison to those of its Icelandic neighbor. Traditionally the country's banks used the domestic deposit base to finance mortgage and commercial lending (Ó Gráda 2008). The asset side of the banking system's balance sheet, despite ballooning in size, remained largely consistent in composition during the boom. Funds were used to finance Irish consumption and investment expenditures. The key difference during the boom was the source of this funding, and its amount.

Lenders are primarily concerned with three aspects of their investment: 1) the probability of repayment (the default risk), 2) the nominal interest rate earned, and 3) the relevant loss of purchasing power over the holding period of the asset. Accession to the eurozone altered each of these factors, adjusting the funding sources for Irish banks and the consequent availability of credit.

An asset's default risk comes from two sources: 1) explicitly there is the chance that lenders will not get their principle returned, and 2) implicitly there is the loss on the investment through a depreciation of the exchange rate (if the investor is a foreigner) or through a loss of purchasing power (if the investor is domestic). Upon Ireland's accession to the eurozone, European investors had their fears relieved that an adverse exchange rate movement would reduce their payoff. The risk premium on Irish (among other European countries') bonds was reduced, increasing the demand for foreign purchases. As the European Central Bank (ECB) was largely modeled after the inflation-fighting German Bundesbank, investors previously wary of inflationary policies through the national banks could rest assured that a more prudently managed ECB would keep inflationary pressures at bay.[4]

[4] Indeed, increasingly accommodative ECB policies as the crisis progressed would commonly draw the ire of

An increase in real interest rates for foreign borrowers of Irish debt resulted as a consequence of this reduced risk premium. Compare the nominal interest, inflation, and real interest rates in Germany and Ireland, as seen in table 1:

	Germany			Ireland		
	10-year government bond	Inflation	Real interest rates	10-year government bond	Inflation	Real interest rates
2000	5.3	1.4	3.86	5.5	5.3	0.21
2001	4.8	1.9	2.9	5.0	4.0	1.01
2002	4.8	1.4	3.38	5.0	4.7	0.31
2003	4.1	1.0	3.07	4.1	4.0	0.13
2004	4.0	1.8	2.24	4.1	2.3	1.78
2005	3.4	1.9	1.45	3.3	2.2	1.13
2006	3.8	1.8	1.96	3.7	2.7	1.04
2007	4.0	2.3	1.72	4.0	2.9	1.14

Table 2: Interest and Inflation Rates
Source: Eurostat

A German can earn the nominal interest rate by investing in a German *bund* or an Irish bond. Nominal interest rates in Germany were lower than in Ireland, if mostly due to the fact that price inflation was also lower (a condition that in equilibrium would yield equal real interest rates, which the data show was almost the case by 2005). Yet the German investor with no exchange rate risk was now free to lend money to the Irish borrower at the Irish interest rate, and was himself concerned only with the domestic German rate of inflation. In other words, a German would have expected to earn almost 0.25 percent more interest by investing in Ireland in 2002 than by keeping his money in Germany.

With exchange rate risk removed from the profit calculus of other European investors,

German Bundesbankers. Particularly troublesome for the Bundesbankers, and perhaps an omen of things to come, was the ECB's 2010 launch of the "Securities Market Programme," which allowed it to purchase, as a support measure, corporate and government securities and was aimed specifically at alleviating funding pressure on Irish banks. For a brief glimpse at the reaction of German central bankers, see Crawford and Blackstone (2010).

Ireland's financial system witnessed a large influx of credit. Some of this funding influx was a positive development, in response to increasingly encouraging fundamentals—a low corporate tax policy attracted foreign investment, and an educated and English-speaking workforce provided an ample pool of employees to fuel these businesses (Powell 2003; Evans 2011). By 2007, 8.1 percent of Ireland's GDP flowed in through foreign direct investment, placing it behind only Austria and Spain as a recipient country (Eurostat). As in Iceland, however, much of this incoming credit was directed at unproductive sources, as will be seen later. In contrast to Iceland, this influx of credit did not pose a significant problem, since these liabilities were in the same denomination as the assets they financed.

As a consequence, Ireland saw a relatively quick inflow of funding—some sustainable and some questionable. The sustainable flow—those funds entering the country to take advantage of the positive changes to the tax, regulatory, and demographic structure of the country—largely fueled employment growth. These funds were also largely secure—Ireland's tax structure and employment base combination was so much more conducive to domiciling foreign subsidiaries than that of continental European countries that there was little fear that the funding that accompanied these companies would swiftly shift to greener pastures. Those funds that came in due to a short-term imbalance in real interest rates within the eurozone during its early years were less reliable. As they represented funds invested solely in a quest to seek out the highest risk-adjusted return, Ireland's competitive advantage in securing these funds disappeared as the eurozone matured. As real interest rates normalized with the rest of Europe, the flow of funds into Ireland slowed. A slowing of funding would not have instigated a credit crunch of the magnitude witnessed in 2008. Since the funding was used for nonproductive activities—in the sense that it funded spending in non-income-generating activities, such as housing

construction—the ability of borrowers to repay was hampered as credit continued flowing into the country. In the initial stages of the boom this was not problematic as the country started from a low level of indebtedness. As borrowing continued, foreign investors were increasingly less likely to be repaid in full.

Thus, not only did the flow of funds into Ireland slow as its maturity in the eurozone harmonized its real interest rates with those of its peers, but in risk-adjusted terms it increasingly became an unattractive bet for foreigners. The vulnerability that pressured Ireland at the time was a banking sector with large overexposure to the domestic construction sector on its asset side, and to continued interbank euro-borrowing on its liability side (Kelly 2009). This vulnerability became especially apparent in 2008 as housing projects that were previously generating income for their constructors went unsold, and the ability to repay debt was hampered.

4 Culmination of a Credit-Fueled Binge

The assets that the Irish banking system purchased consisted mostly of consumer and commercial loans directed toward the real estate sector. As loans are booked on a bank's balance sheet, they eventually put the brakes on the bank's ability to expand credit. The reason is that these assets are of a fixed nominal value. Once a mortgage is sold to a borrower, its value is counted as an asset and it continually declines in value over its maturity as the borrower pays it off. As a result there can be no endogenous creation of credit within such a banking system from this funding source, since its value to the bank continually declines over time. Thus, banks are constrained in expanding credit by their precautionary reserve demands, or by the reserve requirement set by their regulator.

Note that this constraint did not apply in Iceland—banks purchased assets that were inflation-sensitive, thus allowing them to create credit endogenously each time they expanded their balance sheets. Higher asset prices automatically allowed greater liabilities to be issued without endangering the bank's liquidity or solvency. One of the results was that ample credit allowed Icelandic nonfinancial corporate debt to reach levels higher than those of other developed economies, as can be seen in table 2.

Iceland	308
Ireland	207
Eurozone	91
UK	85
USA	77

Table 3: Corporate Debt (% of GDP)
Source: Caruanna and Chopra (2008); Rhodes and Stelter (2011)

Although both countries witnessed significant increases in the size of their financial systems, the Icelandic system's ability to endogenously inflate itself helps to explain in part how its banking system ballooned to such a great extent. Deposit banking assets eventually grew to be 1,100 percent of the Icelandic economy (Buiter and Sibert 2008: 4), compared to 800 percent of GDP in Ireland (O'Callaghan 2011) and no more than 100 percent in the United States.

5 Offsetting Risk and Guarantees

Though each country was able to issue credit beyond what other comparable financial systems could issue, that does not explain why investors would lend money in the first place. The fragility of each country's banking sector is now apparent, but surely investors were just as capable of appreciating this before 2008.

5.1 The Reduction in Inflation Risk in Ireland

As investors from other European countries comprised the bulk of Irish banks' lenders, there was no extraordinary reason why they would consider Ireland to offer above-average risk-adjusted returns in the long run. The conversion of the Irish pound to the euro was made at an undervalued rate, thus contributing to inflationary pressures in Ireland in the early years of the European Monetary Union (EMU) (Lane 2011: 26). The natural harmonization process upon accession to the eurozone meant that Irish inflation was structurally higher than that of core European countries (primarily Germany) for a considerable period (figure 3). Due to strong foreign participation in its economy, inflationary pressure was greatly influenced by the value of the euro. During the depreciation from 1999 to 2002, Ireland experienced a positive shock and an inflow of investment, especially from the United States, increased the inflation differential in Ireland relative to the rest of the eurozone (Honohan and Lane 2003). Especially from 2000 to 2005, Irish inflation outpaced that of the rest of the eurozone by 2 to 3 percent per year. Though this leveled off as inflation rates converged in the middle of the first decade of the 21st century, Irish inflation still averaged about 0.5 percent higher than that of Germany. The presence of inflation is significant as it reduces the real cost of borrowing money and thus lowers the cost of issuing debt. If we also consider that lowered borrowing costs increased Irish citizens' propensity to borrow and consequently to spend these borrowed funds domestically in Ireland, the post-accession boom fueled rates of inflation above those of the European core.[5] Indeed, in the aftermath of Ireland's crisis the current governor of the Central Bank of Ireland, Patrick

[5] The use of these borrowed funds for domestic expenditure is more apparent if we track the growth of imports over time. Although Ireland has for some time recorded a trade surplus, in part due to foreign companies being attracted to the relatively low tax rate and well-educated labor pool, this surplus steadily declined after the country's accession to the monetary union. As recently as 2002 the country's trade surplus was 17 percent of GDP, and it steadily declined to less than 9 percent by 2007 (World dataBank). This decline in the trade surplus in part demonstrates an increase in consumption expenditure, especially in the form of imports.

Honohan, estimated that real interest rates averaged *negative* 1 percent from 1998 to 2007, which largely explains why long-lived assets (such as residential property) became so attractive (Honohan 2009: 6).

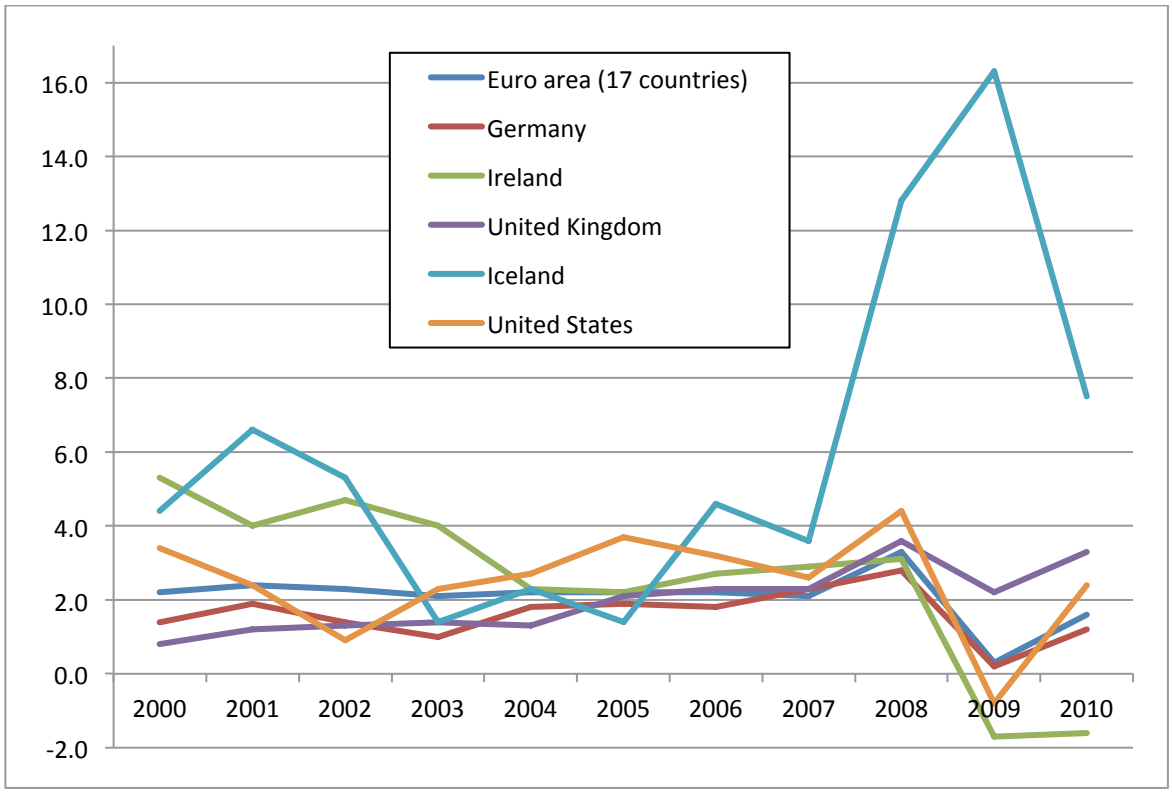

Figure 3: Consumer Price Inflation
Source: Eurostat

While this inflation premium explains why lending to the Irish was such a profitable business, it does not explain the final reduction of total risk from doing so. Accession to the eurozone removed the risk of depreciation of Irish assets. The irrevocable nature of the currency union is especially important to note in this regard. Since entry into the current union was made irrevocable, there is no threat that a country could leave in the future when it deems it necessary (for example, when a budget crisis necessitated higher rates of inflation to pay down the national

debt). While the concretization of the eurozone had the beneficial effect of assuaging investors' fears, it had the negative effect of removing an important cost and signal concerning the sustainability of cross-border transactions.

Exchange rate volatility serves the beneficial purpose of keeping investors aware of cross-border investment risks, and tempers cross-border credit flows accordingly. Core European investors could seize on the real interest rate differential available by investing in Ireland with no fear that the country could one day exit the monetary union should the unsustainability of its boom be exposed. In effect, investors were able to get a free lunch—high risk-adjusted returns by the core's standards, with no risk that a future currency depreciation would diminish profits.

5.2 Icelandic Exchange Rate Stabilization

With an independent central bank and an autonomous monetary policy, Iceland was in no position to offer foreign investors such beneficial terms as Ireland did. Through a stroke of fortune, the large quantity of krona purchases by Icelandic banks kept the currency strong and stable, thus reducing investors' fears that they would suffer an adverse exchange rate shock. Indeed, *The Economist*'s Big Max Index on February 1, 2007, ranked the krona as the most over-valued currency in the world. Yet this state of affairs in Iceland was sustained by a tenuous foundation, and was secured by an accommodative but ultimately deficient insurance plan.

First, we may note that the strength of the krona rested on a Ponzi scheme of sorts. The krona's strength was largely driven by Icelandic banks making purchases using their foreign funding sources. The sustainability of the krona's ascent required that more foreign deposit inflows entered the country each period than outflows left it. Provided that foreigners were willing to lend Icelandic banks more money than they requested, the banks would have a net

positive cash flow with which to convert to krona. As a consequence, exchange rate risk was reduced and the fragility of this situation increased with each increase in foreign liabilities held by the Icelandic financial system. If foreign investors started to withdraw more funding each month than they deposited or lent, as started in late 2007 and accelerated in late 2008, Icelandic banks would find themselves in a downward spiral of selling domestic assets in ever more desperate attempts to cover their foreign losses with a dwindling supply of domestic assets.

Second, the Icelandic banking system covered its depositors' accounts with an inclusive insurance plan. This plan had three important features: 1) it was managed by the Central Bank of Iceland, 2) deposits were guaranteed up to an unlimited amount, and 3) both domestic- and foreign-denominated deposits were covered. Each of these facets reduced risk for depositors and enticed funding inflows in search of above-average risk-adjusted returns.

In the absence of a deposit insurance plan, depositors monitor banks to ensure that their lending practices are sufficiently prudent. This enforcement mechanism arises as depositors entrust their cash holdings to a bank, and its liquidity affects their ability to withdraw in a timely manner (and the bank's solvency affects their ability to withdraw their money at all). Most deposit insurance plans have a legal maximum insurable amount for two reasons. First, this limits the obligation that the insurer will have to pay out in the event of insolvency, thus reducing the insurance premium. Second, large depositors act as a secondary monitoring mechanism on the banks, as they will risk a disruption of service or a loss of funds should the bank become illiquid or insolvent. By insuring deposits to an unlimited amount, the Central Bank of Iceland exposed itself to limitless liability, and also removed one set of monitors from the banking sector.

Deposit insurers also mitigate their losses by insuring deposits made in only the domestic

currency. This is because insuring foreign-denominated deposits implies that foreign exchange reserves will need to be made available to settle claims. The denomination of deposits insured is important, as it tempers what type of depositor will use the banking system, and also defines the insurer's risk.

By offering foreign-denominated deposit insurance, there was an ambiguity as to who was liable for Icelandic banks operating in foreign countries. One of the largest banks in Iceland, Landsbanki, operated an online retail bank, Icesave, in the United Kingdom as a branch of its parent and not as a legally independent subsidiary. As a consequence, deposit insurance for Icesave was the responsibility of the Central Bank of Iceland (CBI) (Danielsson and Zoega 2011). Depositors, for their part, would not be aware of the risk because as far as they were concerned, the CBI had their deposits insured. Regulators in the United Kingdom were uninterested in the subsidiary's operations since it was presumed to be held accountable by the Icelandic authorities.

When these foreign-operating branches, like Landsbanki, came under pressure in late 2008, it was soon clear that the Central Bank of Iceland had access to insufficient foreign funds to honor foreign-denominated liabilities. Governments in the United Kingdom, the Isle of Man, and the Netherlands unilaterally enacted legislation to include these branches in their own deposits plans, under the pretext of protecting their own citizens from the Icelandic collapse. The Icelandic "Depositors' and Investors' Guarantee Fund," which administered deposit insurance, had only about €100 million of equity in late 2008, far from the €3.9 billion held in insured deposits with foreign branches of Icelandic banks, as required by EU minimum deposit insurance rules (Benediktsdottir et al. 2011). Foreign entities—governments, financial regulators, and depositors—assumed that deposits in an Icelandic bank would be insured under their insurance

plan, and allocated their funds accordingly. When it came time to exercise the deposit fund, its underfunded state caused not only financial volatility and losses, but legal repercussions that still reverberate today.[6]

Finally, we note that generally these insurance plans are a part of the government. In the United States the Federal Deposit Insurance Corporation operates under the Treasury as an independent agency. An explicit link to the government has some advantages over an insurance plan managed by a central bank. The first advantage comes in the form of the limitation that the budget constraint imposes on the Treasury. Governments generally have large, though binding, budget constraints. Funding must ultimately be provided through taxes, making taxpayers aware of the expenses that the government incurs. Central banks, because of their role as monopoly suppliers of money, face no explicit budget constraint. They can unilaterally increase their assets to fund such insurance claims by issuing liabilities in the form of nonredeemable currency. In this way, central banks face no explicit pressure to minimize the losses of their operations.

The insurer of deposits is tasked with regulating the financial system, or at least the deposit-taking part of it. Confronted by a real budget constraint, governments face the costly possibility that if they have to pay out a claim they will have to divert resources from elsewhere. A central bank faces no such threat. If a claim is made, it can issue currency to paper over the loss. In this sense, we can expect a deposit insurance plan in the hands of a government to take its role as regulator of the financial system more seriously than a central bank would.

The Central Bank of Iceland had little incentive to monitor its banking system. Notably, a central bank can only honor its deposits provided that they are denominated in a currency under

[6] In August 2009 Iceland's parliament approved a bill now known as the "Icesave Bill" that would pay the United Kingdom and the Netherlands $5 billion to cover losses. In its first referendum since 1944, the country voted 93 percent in favor of rejecting the Icesave Bill on March 6, 2010 (with 5 percent of ballots miscast). A second referendum on April 9, 2011, had the same result (though by a slimmer margin of 60 to 40 percent in favor of rejecting the bill). The UK and the Netherlands are still seeking legal redress.

its control, in this case krona. By late 2008, the CBI had only 3 percent of the foreign reserves necessary to honor all the foreign-denominated liabilities of the banking system (Bagus and Howden 2011: 101).

Each country, Iceland and Ireland, enabled credit expansion through unique guarantees to the relevant investors. In Ireland this occurred as accession to the eurozone removed exchange rate risk for foreign European investors, thus making Irish investments attractive at superior risk-adjusted returns. This was outside the control of the Irish authorities, and largely an unavoidable defect of the common currency. In contrast, Iceland's debilitating guarantee was domestically created. By offering to safeguard depositors regardless of currency or amount of deposit, no depositors were left to aid in monitoring the financial system. Overseas expansion was made possible through the foreign-denominated deposit guarantee, a point that is essential to understanding why Iceland's boom was able to generate such levels of credit for a small nation. As most of the credit was foreign-sourced it became impossible for the CBI or the Icelandic government to bail out the financial sector, as its debts were denominated in a currency outside the country's control.

6 The Completeness of the Financial Sector's Nationalization

The comparison between Iceland's and Ireland's crisis responses typically centers on the idea that Ireland bailed out its banking sector, while Iceland allowed its to default. Although this is true in some ways, it understates the role of the Icelandic government in saving its own banks.

6.1 The Nationalization of the Irish Financial Sector

Faced with the real possibility of having its banking system collapse, in September 2008 the Irish

Ministry of Finance guaranteed all senior bondholders and extended to an unlimited amount its deposit insurance guarantee. The latter policy had the beneficial effect of generating additional capital, which flowed from other troubled European countries to the perceived safety of the Irish banking system. It also created a contingent liability for the Irish government of about 200 percent of GDP (Connor et al. 2010: 5). Any short-term relief in the form of capital inflow under the guarantee was short-lived, as the Irish situation worsened. Political tensions grew because Ireland's European neighbors were unhappy about its unilateral guarantee, which pushed them to follow suit with their own deposit guarantees in an attempt to stifle deposit outflows.

By December of that year, the Irish government had spent €5.5 billion to take controlling stakes in the country's three main banks—Allied Irish Bank (AIB), Bank of Ireland (BoI), and Anglo Irish Bank. In an emergency legislative session, Anglo Irish Bank was nationalized in January 2009, with AIB and BoI each receiving €3.5 billion bailouts to recapitalize them.

Although these costs of nationalizing Ireland's three main banks seem fairly insignificant—barely €3,000 per person—a more extensive if controversial measure was the government's purchase of their bad assets. The National Asset Management Agency (NAMA) was created in late 2009 to take on nonperforming property development loans in exchange for government bonds. In effect, taxpayer money was handed to the banking system in exchange for bad bets made on property speculation during the boom. The asset transfer to NAMA had the advantage of being highly transparent, but at substantial upfront costs to the taxpayer.[7]

NAMA purchased loans estimated to be worth €72 billion for €30 billion, making payment partly in cash, and partly by issuing government bonds. This amounted to nearly €7,000

[7] Besides guaranteeing existing senior bondholders, NAMA also guaranteed some types of subordinated debt, thus alleviating some of the losses to unsecured bondholders. While this measure was undertaken to stabilize the banking system, it also ultimately raised the taxpayer cost of resolving the banking crisis (Honohan 2010; Lane 2011). While Irish law has historically treated senior bondholders *pari passu* with depositors, Philip Lane (2011) notes that there could be room to break this link and subordinate bondholders to mitigate future losses.

in additional public debt per Irish citizen. It was soon apparent that the Irish government could not afford to finance a deficit during the crisis and support NAMA simultaneously, and in response Irish bond prices began deteriorating in 2010. By November 2010, the Irish government was obliged by the EU and the IMF to accept a €67 billion bailout, with another €150 billion being provided by the ECB to meet the liquidity needs of the banking system. Including this additional ECB liquidity directed to the banking sector, the Irish government increased its indebtedness by nearly €25,000 per citizen. These bank bailouts alone amounted to over 14 percent of Ireland's GDP in 2009, and 32 percent of GDP in 2010 (Kinsella and Lyons 2011). Despite these efforts, by April 2011 all six of the major Irish banks had been reduced to junk bond status.[8] Additionally, while these emergency measures eased the apparent problem of bank loan losses to property developers, it did little to solve the two more pressing issues: a heavy reliance on other European wholesale funding, and the prospect of further real estate losses necessitating additional bailouts in the future (Kelly 2010).

6.2 The Liquidation of the Icelandic Financial Sector

The size of the Icelandic banking system, and more importantly the extent of its foreign-denominated liabilities, exceeded the ability of the government or Central Bank to bail it out. The big three Icelandic banks—Kaupthing, Glitnir, and Landsbanki—dominated the Icelandic banking sector, holding almost 80 percent of its banking assets. More strikingly, these assets amounted to 1,100 percent of Icelandic GDP in 2007 (Buiter and Sibert 2008). By comparison, the U.S. banking sector's total assets in 2007 were less than the size of the whole economy and were spread over a much less concentrated banking industry.

[8] By the time the nationalizations were complete the total cost of the bank bailout was 50 to 60 percent of 2010 GDP (O'Callaghan 2011).

In the initial stages of the crisis of 2008 the Icelandic government did attempt to nationalize the financial system in an attempt to save it. Most notable was the September 29 announcement that Glitnir, the third largest of the banks, was to become effectively nationalized via a €600 million purchase of its assets by the government. This, and subsequent attempts to nationalize the banks, failed to materialize and the country's Financial Supervisory Authority (FME) took over the banks to place them into receivership. The scope of the debts incurred was beyond the ability of the government to secure, and their denomination in foreign currency made the CBI unable to guarantee the debts. By October 8, all three of the large Icelandic banks had been similarly placed into receivership. While the Icelandic banking system defaulted, the sovereign of Iceland remained solvent, though with steadily increasing debt levels.

Placing the banks into receivership has oftentimes been misconstrued as allowing them to fail. In fact, the FME ring-fenced the domestic operations of these banks.[9] "New" (*nýi* in Icelandic) banks were formed to provide for the continued banking operations of "Icelandic families and businesses" (Financial Supervisory Authority 2008). Effectively, emergency legislation passed on October 7 by the Icelandic parliament gave deposits and deposit insurance priority over other claims to banks. Domestic assets and liabilities were transferred to the new banks. Deposits in foreign branches were given priority status over the assets held in the old banks. Bondholders of the banks—both foreign and domestic—were left with claims to the assets that would remain in the old banks, second in line after deposits and deposit insurance. In this way much of the banking debt was "repudiated," though it is clear that depositors (especially domestic depositors) were given priority (Baldursson 2011). Also note that the debt was not

[9] Icelandic authorities ring-fenced the banks using a modification of the good bank–bad bank model employed in Sweden in 1992. Instead of just isolating toxic from clean assets, however, they opted to split the banks along geographic lines in an effort to protect Iceland from international default (Danielsson 2011a). Unfortunately few assets of suitable quality existed for either the good or the bad bank, effectively rendering the new, albeit smaller banks in trouble and the government on the hook for domestic deposit insurance payouts.

repudiated in the sense that the market would determine the value of the old banks' assets, which would then determine what haircut claimants would take.

The Icelandic government lent these three new banks €7.96 billion in a bid to recapitalize them, pushing the public debt to more than 70 percent of the country's 2008 gross national income. While Icelandic public finances are not currently on a sustainable trajectory (Danielsson 2011b), it is important to note that the reasoning is different than in Ireland. While funding the "new" banks was certainly costly, it was incurred as a one-time expense in 2009 that pushed the public debt level to 88 percent of GDP. This effective nationalization of the "new" banking industry has managed to reach some level of sustainability, but has also had its costs. Notably, Iceland today has what some may call a "dysfunctional" banking system, more interested in recovering its assets than in providing core banking activities (Danielsson 2011a). While this has reduced the risk of a sovereign default by ensuring banks put solvency issues at the forefront, it has limited banks' abilities to fund investment activities essential to growth. Banks are also reluctant to write down loan values, and thus expose themselves to balance sheet losses, preferring instead to roll them over to delay the fact.

As a consequence of this one-time payment to the banking system, Iceland's public deficit is not swelling today due to payments to sustain its banking sector—the cost has already been incurred. In Ireland this is decidedly not the case. Additional public sector payments to sustain its zombie banking system—one which is insolvent but sustained by government transfers—have become the norm. Iceland continues to run a public deficit, but not to sustain its banking sector. Instead, strained government finances are the result of decreases in tax revenue from the crisis coupled with an increased drain on its services due to plush unemployment insurance payments, and other transfer schemes. While it could get its deficit under control today

by cutting other discretionary spending, Ireland cannot do the same until it allows its banking sector to fail because continual transfers have become necessary to its continued functioning.[10]

	Iceland		Ireland	
	Public Debt	Deficit/Surplus	Public Debt	Deficit/Surplus
2005	26.0	4.9	27.2	1.7
2006	27.9	6.3	24.5	2.9
2007	28.5	5.4	24.8	0.1
2008	70.3	−13.5	44.2	−7.3
2009	87.9	−10.0	65.1	−14.0
2010	93.1	−10.1	92.5	−31.2
2011	98.8	−4.4	108.2	−13.1

Table 4: Public Debt and Deficits (% GDP)
Source: Eurostat

Iceland chose to run deficits during its crisis not in response to its failed banking sector, but to keep its social welfare programs funded. While bank-sustaining programs are difficult to exit in an attempt to get its public finances on a sustainable path, a clear advantage arises with respect to Ireland's deficits. Any attempt to get its public finances back on track today would be well advised, but would be an admission from Dublin that the billions spent over the past four years have been in vain, and that allowing the banking sector to enter insolvency earlier would have obtained the same result without incurring debt.

At the same time it is also important to note that the current unsustainable path of Iceland's public finances is only possible through the $2.1 billion IMF-supported program enacted in 2008. The ability of the government to continue running large deficits has allowed the country to set itself on a path that must be corrected before insolvency fears reemerge. While Icelandic Prime Minister Jóhanna Sigurðardóttir sees the program as essential to securing

[10] While Ireland is commonly cited as an exemplar of austerity, the reality is markedly different (Kinsella 2012).

"credibility in the eyes of the world" (Sigurðardóttir 2011), at some point the country will have to make budget cuts lest it have a repeat of the past four years. If such a scenario materializes, the more credible path would have been to enact cuts earlier while they are still relatively feasible, rather than allowing the system to grow dependent on deficit spending.

7 Internal or External Depreciations?

Perhaps the greatest distinction between the two countries' crises is found in their exchange rate regimes. Iceland, with an independent currency, depreciated quickly as banks sold off domestic assets to fund their foreign liabilities. Ireland succumbed to an exchange rate determined in large part by the eurozone's economic strength, as well as by policies enacted in Frankfurt by the ECB.

7.1 Was Iceland's Ability to Depreciate Beneficial?

In response to increased foreign claims on Icelandic banks, the sale of domestic assets depreciated the krona. Throughout 2008 the currency lost about half of its value against both the U.S. dollar and the euro. While this sharp depreciation hampered banks as they attempted to meet their foreign claims, it did have the beneficial effect of allowing export-oriented industries to quickly regain international competitiveness. A trade deficit of 30 percent of GDP at the end of 2006 began to reverse in response to increased affordability of domestically sourced Icelandic goods. Entrepreneurs eager to put their newly competitively priced currency to good use came up with creative solutions to profit from the collapse. HEKLA, a 74-year-old car importer in Iceland, constructed a database to clear the excess supply of cars for sale. Buyers from the Faroe Islands, Norway, Denmark, Sweden, and Germany rushed to purchase these cars, and allowed

the island to become an exporter of automobiles for the first time in its history (Bagus and Howden 2011: 107). While the rest of Europe suffered steep declines in tourism during the crisis, Olof Yrr Atladottir, the general director for the Icelandic Tourism Board, reported an increase in visitors to Iceland attributable to the krona's devaluation (Melander 2009). Despite having a sharp reduction in domestic demand for its flights, Icelandair noted a compensating increase in international demand because of a weaker krona (Icelandair Group 2009: 10).

The depreciation in the krona has benefited Iceland, but only with a lag. The reason is not in the effectiveness of the depreciation to stimulate exports, but rather in the lack of domestic productive capacity to produce goods to export (Bagus and Howden 2011: 112). In one sense, by saving the defunct banks in the form of their "new" versions with government money, parts of an unsustainable banking model have been sustained artificially, and resources have not been able to redirect to sustainable paths.

The depreciation of the krona did have the beneficial effect of allowing some debtors an easier avenue to repay their debts. This was important, since it was apparent that not all creditors would be made whole in the wake of the collapse. The banking sectors' domestic depositors were covered through deposit insurance, which itself could only be honored through an inflationary central bank policy. In what would be one of the more controversial policies of the crisis, depositors for foreign-domiciled Icelandic bank branches were not covered by the insurance plan, exposing them to losses. The depreciation in the krona that allowed the Icelandic government to save its domestic depositors also made it unable to save its foreign depositors, since their deposits were denominated in foreign currencies. As the crisis progressed it became increasingly costly for these debts to be honored. Though politically unpopular in foreign lands, by defaulting on these foreign debts Iceland made unambiguous the state of its emergency, and

the direness of its crisis. It would be up to foreign governments to save their depositors, not Icelandic regulators.

Small open economies like that of Iceland are susceptible to real shocks. Throughout Iceland's history, volatility has typically come from the fishing industry, which provides the traditional backbone of the economy. The fishing industry can export to help the island in its recovery, but its output has been slow to respond to its price advantage due to a relative lack of labor. This is partly because it is time-consuming for workers to learn skills for a new job. Given that the seafood industry directly and indirectly accounts for 26 percent of Iceland's GDP, and up to 8 percent of its labor force (Sigfusson and Arnason 2011), inhibiting this key sector from growing will prolong the crisis. Also note that in terms of exports per laborer the seafood industry is overrepresented: a relatively small increase in fishermen would translate to a potentially large increase in exports.

Allowing for the recovery of the fishing sector was one way that Icelanders could stop relying on their now-failed banking industry and return to sustainability. The krona depreciation only allowed for half of this shift to be made, however. For exports to be stimulated either the currency must depreciate or the domestic selling price must fall. Unfortunately in most circumstances and all but the shortest of short runs, these criteria are in conflict with each other. As the central bank can only increase the money supply in an attempt to depreciate a currency, this same action puts upward pressure on the domestic price level. Although a short-term depreciation may result, if prices are quick to compensate then little or no relief will be forthcoming.[11] In the long run the only effective policy to promote exports is increasing international competiveness—typically by having domestic prices fall relative to foreign prices.

[11] Indeed in the short run a depreciation will likely worsen the trade deficit. Since much trade is pre-contracted at some pre-depreciation price, the cost to import goods at these old prices will increase while the net proceeds of exports will decrease.

Some relevant prices in the country have fallen over the past four years. In particular, securities' prices have collapsed as the general Icelandic stock index fell 93 percent, and housing prices have fallen throughout the country. These price declines, though painful in a financial sense, have sent entrepreneurs a necessary signal as to relative costs and profits in the economy in an attempt to attract their attention to the necessary restructuring. Instead of relying on financial profits from investment portfolios, Icelanders have worked to sustain real income-generating businesses. The fall in stock prices has also increased the cost of capital, which, although making some business ventures unprofitable, allows this unprofitability to be easily seen. When equity prices soared during the boom, the cost of capital in Iceland fell below what was necessary given the supply of real savings to sustain investment projects. As prices have fallen international competiveness has been regained, and signaled to investors in the form of higher profits. This has been particularly noticeable in the case of exported goods not subject to the same domestic Icelandic deflationary pressures.

	2006	**2007**	**2008**	**2009**	**2010**	**2011**
Germany	−1.2	−3.8	3.6	−1.2	1.4	n.a.
Ireland	14.2	1.7	−12.4	−18.6	−10.5	−16.7
Euro area	6.6	4.5	4.3	−2.3	−0.6	1.2
Iceland	16.8	9.4	6.2	−9.7	−3.0	4.6
USA	11.5	−2.0	−13.8	−18.9	2.3	−4.8

Table 5: House Prices (%, year-on-year)
Source: Eurostat experimental house price index, S&P/Case-Shiller national index, Statistics Iceland, Ireland Central Statistics Office

Iceland's ability to inflate some of its debt away solved one apparent problem but may exacerbate a larger one. The swift devaluation allowed the CBI to honor some of its pledges

made to domestic residents. It did nothing to help those who had their debts denominated in a foreign currency, nor did it aid exporters as much as might at first blush be assumed. In the long run exporters will not benefit from the depreciation as prices adjust upward. In addition, the inflationary policy has not been as beneficial in the short run, as it has stopped resources from being reallocated to better uses. As the financial sector had some of its debts inflated away, losses were not as great as would otherwise have been the case. While this had the immediate effect of softening the blow, it hindered the exit of workers from this area to more sustainable sectors. As a result, export sectors—such as the seafood industry—that can generate capital through exports have not been able to expand as quickly as would otherwise be the case. We would also be remiss if we did not point out that while the flexibility that allowed for devaluation of the krona did provide some immediate relief in 2008, it was also a major factor in the crisis's origins (Árnason 2011). The currency crisis preceded the banking and general economic crisis, and the ability of the financial sector to attract foreign funds while still maintaining the flexible rate allowed the country to over-indebt itself.

7.2 The Euro as Ireland's Quasi Gold Standard

By being locked into the eurozone, Ireland sacrificed one important policy tool. Lacking an independent central bank, the country could not inflate its obligations away. This has come to be seen as a major detriment to Ireland as it tries to regain its footing, though there are important caveats to remember.

First, in a bid to regain international competitiveness the relevant price is the real exchange rate. Decreasing the cost for others to import your goods is a function of your domestic selling price and the nominal exchange rate. The price level must deflate if the nominal exchange

rate is insufficiently flexible to depreciate. The Irish price level has declined for two consecutive years, and has been outpaced by those of its continental European neighbors, as can be seen in table 5. As a consequence, despite having the same nominal exchange rate as other eurozone members, Ireland has been able to regain competitiveness through a depreciating real exchange rate.[12] Indeed, the Irish recovery has been led through export-based growth, with most of the decline in output being in the sectors of the economy fueling domestic consumption.

	Iceland	**Ireland**	**Eurozone**
2005	1.4	2.2	2.2
2006	4.6	2.7	2.2
2007	3.6	2.9	2.1
2008	12.8	3.1	3.3
2009	16.3	−1.7	0.3
2010	7.5	−1.6	1.6
2011	4.2	1.2	2.7

Table 6: Irish and eurozone Inflation
Source: Eurostat

Second, the problem in the boom was not one of all prices inflating to the same degree. As credit was injected into the economy asymmetric affects resulted, leading to erroneous price signals sent to investors. As an example, cheap credit engendered a housing boom, leading property prices to rise faster than other prices. As a consequence, many Irish resources were directed to the real estate market, at the expense of other productive activities. At the peak of the boom, 13 percent of Irish employment was in the construction industry, and it produced 24 percent of the Irish gross national product, as opposed to an average of 12 percent for the rest of

[12] Martin Berka et al. (2012) find that the real exchange rate is sufficiently flexible to allow equilibration within the Eurozone. In this case Ireland is an example of a country regaining competitiveness not through a depreciating nominal exchange rate, but through a falling domestic price level.

Western Europe (Kinsella 2012). The false price signals sent to entrepreneurs needed to be corrected: housing prices needed to fall relative to other prices. A depreciation in the nominal exchange rate would have resulted in an equivalent decline in all prices. As a consequence it is not guaranteed that the relative price maladjustments will be rectified by such a policy. What is necessary at some point in time is an alteration of the domestic constellation of prices.

In Ireland domestic disinflation and more recently deflation have guided prices back to their correct relative levels, allowing entrepreneurs to regain focus on the profitable areas of the economy. As an example, the housing market has declined in value by approximately 50 percent across the country since 2007 (Ireland Central Statistics Office). The general consumer price index excluding real estate, by comparison, has remained more or less steady, increasing by 2.4 percent since 2007 (ibid.). While Ireland's other peripheral European neighbors—Greece, Italy, Portugal, and Spain—have had more trouble reaching the bottom of their busts, the common reason provided is that they cannot regain competitiveness with the currently strong euro. This neglects the importance of domestic price deflation (or at least disinflation) and begs the question why this has not occurred. One significant reason can be found in the relative size of each country's public sector, as shown in table 6. Despite running large public deficits, Ireland's public sector is smaller than that of most of its comparable peripheral eurozone counterparts.

	Tax burden	Public expenditure
Greece	35.1	46.8
Iceland	40.1	57.8
Ireland	30.8	42.0
Italy	43.1	48.8
Portugal	37.7	46.1
Spain	33.9	41.1

Table 7: Government Size (% of GDP)
Source: The Heritage Foundation

The public sector typically experiences more rigid labor costs than its private alternatives. Public unions, especially in Europe's south, enjoy engrained positions due to their numbers and potential to sway politics. While austerity measures aimed at reducing public sector expenditures were implemented in Ireland without too much public sector backlash, these measures have been much more difficult to implement in Southern Europe. As a consequence, important prices such as wages fell more quickly in Ireland than in other European countries, allowing it to regain competitiveness while remaining in the eurozone.

Third, while a currency depreciation will aid exporters to some degree, it has two significant drawbacks. The first of these is that an expansion of the money supply is necessary to depreciate a currency, and such a policy places upward pressure on prices (as was the case in Iceland). The result is potentially nil, as the two effects may counter each other. The second drawback is a consequence of the first—any depreciation of the currency aids one group while harming another. In this case, exporters *may* be aided, while domestic consumers and producers will see their costs increase, and their real savings dwindle, so that a decline in savings through an inflationary policy will hinder recovery.

The preceding discussion is not to imply that price deflation has been costless or easy in Ireland. It is rather a question of when the costs will be incurred. Although prices were quick to

adjust downwards, there was a short-run decrease in output until this happened. While this could have been somewhat mitigated by an inflationary policy, as in Iceland, it would have prohibited important price adjustments from taking place (specifically adjustments to the relative price structure). Deflation has allowed relative prices to realign themselves in a bid to better signal to entrepreneurs the avenues of investment more conducive to growth. Thus, even though Ireland was locked into a currency union and unable to unilaterally allow its currency to adjust to regain competitiveness, it was able to make the necessary price adjustments domestically.[13]

Not only do these adjusting prices allow entrepreneurs to better see what avenues of investment are more valued, they also allow important costs to readjust. The decline in housing prices has reverberated backward to adjust downward input costs, including labor costs for construction laborers. While declining incomes for these workers may seem like a negative result, it allows workers to realize where they are most valued.

8 Two Types of IMF Bailouts

Though both countries eventually succumbed to IMF-led bailouts, important differences in their implementations abound. Though Ireland's bailout by the ECB and IMF came with some high costs, capital controls aimed at inhibiting the international flow of funds were absent. As a result, trade flows continued largely as usual, with exports increasing due to its increased competitiveness through price deflation.

[13] Indeed, in many ways Ireland has taken a "wait and see" approach to resolving its banking crisis. While taking actions to maintain the status quo have in many ways prolonged the adjustment period, especially as compared to Iceland's swift insolvency-induced resolution, it has had the advantage of allowing the European Union to sort out its other crises first. Ireland's slow response is rational in the sense that the longer the status quo lasts the more pressing an eventual resolution becomes. Since Ireland lacks the funds to continue bailing out its banking system, it becomes increasingly necessary that other European countries and organizations contribute if a banking sector collapse is to be avoided. While the long-run recovery in Ireland depends on its banking system returning to a sustainable size, negative effects would spread to other countries. Thus, Ireland is now in an advantageous position vis-à-vis its neighbors to receive further bailouts, lest previous efforts directed at salvaging its banking system be wasted and negative contagion effects spread throughout the Eurozone.

8.1 Icelandic Capital Controls

Iceland became the first developed country in over 30 years to request aid from the IMF (Gylfason 2011). When accepting emergency loans, the IMF imposed strict capital controls as part of the package (International Monetary Fund 2010; Yeyati 2011). The aim of the controls was to 1) limit foreign currency outflows, 2) try to stop the exchange rate from depreciating further, and 3) keep foreign exchange available for vital transactions. While the controls were originally temporary in nature, they persist to this day with no plans to commence phasing them out until 2015 at the earliest.[14]

These controls resulted in some unintended consequences, and in many ways differed from the conventional or more modern use of capital controls. In particular, as part of the IMF's standby agreement of November 2008, residents and nonresidents were obliged to report all foreign exchange transactions to the Central Bank of Iceland. Residents were forced to surrender all foreign exchange to the central bank within two weeks of obtaining it by depositing the proceeds in a domestic bank. Divestments of foreign direct investments in Iceland were not permitted. Finally, only financial products denominated in krona were to be allowed under the controls.

Some have called a return to such harsh capital controls draconian, and their use marks a strict departure from how the IMF has more recently implemented emergency relief (Arnason and Danielsson 2011). While capital controls are increasingly seen as a way to prevent too much foreign investment from overheating an economy, these controls have marked a shift backward to controlling all transactions, even those that would potentially benefit the economy. By placing blanket controls over the whole economy, currency flows that would have been beneficial (for

[14] Indeed, as Willem Buiter and Vilhjálmur Egilsson (2011) make clear, without a clear exit strategy at initiation, the IMF was all but committing itself to extending the controls indefinitely. Furthermore, the Fund has "always been much more concerned about enforcement, leakages and tightening than lifting the controls" (ibid.).

example, purchasing imports necessary for the sustainability of a small, isolated island nation) have been placed in the same category as those deemed troublesome (for example, carry traders liquidating krona holdings and depreciating the currency further).

These controls have inhibited the Icelandic recovery by removing several options from citizens trying to recover lost economic activity. Entrepreneurs must seek rarely granted permission from the Central Bank to procure foreign funds to invest abroad. Icelandic citizens are discouraged from traveling, as funding for this is also subject to Central Bank authorization. Finally, emigration from the country is limited, as individuals have no guarantee that they can take their financial capital with them. Domestically the controls could also be placing downward pressure on the krona, thus harming sectors reliant on imports (such as the food industry). Since Icelandic exporters have limited confidence in their future ability to access their earnings, they do not bring home all their foreign earnings. This has the effect of keeping the currency weaker than would otherwise be the case (Gylfason 2011).

These capital controls aimed at keeping the recovering economy from overheating may, in fact, be reducing the value of the krona. Unable to easily get krona out of the country or exchange them for a different currency, foreign investors find themselves with limited options for any currency held in Iceland. Much of it is today being funneled into real estate—thus propagating a new bubble in the housing sector (Valdimarsson 2012). International investors wary of channeling their savings into the current outlets, and lacking investment opportunities in avenues they deem sustainable, are at a loss for options. Thus investing in a real asset like real estate, even if it creates a new bubble, is less risky than remaining invested in Icelandic financial assets that might lose value if the recession renews itself. At the same time, the controls facilitate the government's efforts to finance its deficit by mitigating the need to reimburse investor

redemptions. Unfortunately this has the effect of reducing pressure on the government to rein in the deficit (Gylfason 2011).

More detrimental to the economy, perhaps, is the fact that the controls reduce foreign trust in the economy. By blocking divestments on projects funded by incoming foreign direct investment (FDI), the CBI has created a clear disincentive for foreigners to invest in Iceland. Coupled with this is the fact that Iceland has the highest number of restrictions on foreign direct investment of all member countries of the Organisation for Economic Co-operation and Development (Kalinova et al. 2010), contributing to a collapse in domestic investment.[15] As a result a risk premium has been added to loans and investments within the country, amounting to some potentially profitable projects being rejected only because of the risk that their investors will not be able to access their funds in the future. As this undermines not only the short-term recovery, but also the long-term sustainability of the economy, the controls are in direct conflict with their stated goal of aiding recovery.

As a member of the European Economic Area (EEA), it is questionable whether Iceland's controls are legal in light of existing treaties (Viterbo 2010). Article 40 of the EEA treaty states that no discrimination can be made on grounds of "nationality, residence, or place where the capital is invested." By disallowing the flow of capital due to its location within the country, current Icelandic trade policy is in direct conflict with this treaty.

Ragnar Arnason and Jon Danielsson (2011) estimate the deadweight loss of these controls to be 1 percent of Icelandic GDP per year. Such a drain on a crisis-stricken economy is large, and delays full recovery. Additionally, the controls delay one important price adjustment from occurring. Although a depreciation of the krona by itself is not a panacea for the

[15] Icelandic investment had declined to 10 percent of GDP by 2010, compared to a decline to only 17 percent in the EU (Danielsson 2011b).

economy—relative price adjustments must also occur—it is true that the krona was artificially overvalued leading up to the crisis. As a consequence there was a clear disadvantage for domestic Icelandic exporters, and an incentive for consumers to import more than was sustainable. The capital controls have the effect of partially propping up the currency, making this currency adjustment more difficult to obtain. It is also difficult to ascertain whether the controls have any meaningful effect today. The exchange rate has already fallen by more than half over the past four years. Much capital had already left the country before the controls were established, and there may be little incentive for divestments to occur now. In fact, given the partially recovered state of the Icelandic economy, it is more likely that the controls are inhibiting capital inflows by removing an exit option from investments than keeping existing investments within the country. In this way, the need for foreign currency to fund existing debts is impaired by the capital controls, in direct contradiction to their stated goals.

8.2 Ireland's Maintained Trade and Financial Flows

Despite also being the recipient of funding through the IMF, Ireland was not subject to capital controls.[16] The reasons are twofold. First, since Ireland is part of the eurozone, there was no possibility of managing its exchange rate by such a policy. Second, since Ireland is part of the European Union, barriers to trade would have conflicted with existing EU treaties. Consequently, the country has not been impaired by such policies, and capital flows have aided Ireland's return to normalcy—unlike that of its northern neighbor.

The ability of EU and eurozone membership to stymie capital controls has not been without its own drawbacks. Ireland's participation in the European Union does come with

[16] The total bailout package from the EU-IMF deal in 2010 amounted to €85 billion (54 percent of 2010 Irish GDP). However, this entire amount is not foreign-sourced. Ireland's sovereign wealth fund (the National Pension Reserve Fund) contributed €17.5 billion.

restrictions and costs. The Common Agricultural Policy redirects many resources from their optimal use in order to maintain rural agriculture in continental Europe (Ó Caithnia and Howden forthcoming). As the country further conforms to the policy, Ireland's agricultural industry is expected to decline in importance (Agri Vision 2015 Committee 2004: 6). This is troublesome, as agriculture is a key export industry, contributing about 7 percent of Ireland's total economy but comprising 10 percent of the country's total exports and 7.7 percent of its employment (Teagasc—Agriculture and Food Development Authority).

The distinction in the treatment of two countries making use of an IMF emergency loan is stark. Ireland was spared the curtailment of foreign direct investment in light of the fact that capital could still flow freely into, and more importantly out of, the country. Investors could make liberal use of the country's unemployed citizens and lower wages without fear that they would not be able to exit with their funds if the project failed to meet their expectations. Potential investors in Iceland were not given this same assurance. With few options to get funding out of Iceland, and with all options subject to approval by the CBI, investors became hesitant to pursue Icelandic investments.

The results are evident in Ireland's trade balance. Net exports have increased from less than 10 percent of GDP to almost 20 percent since the crisis began. While domestic demand for Irish goods has been falling, foreigners willing to take advantage of its newfound competitiveness have taken up the slack, and exports now lead the recovery. Foreign direct investment has also remained strong. In fact, FDI reached 11.9 and 8.6 percent of GDP in 2009 and 2010, higher than it had been since the early years of the first decade in the 21st century (Eurostat).

9 Discussion and Conclusion

This comparison has shed light on several key differences between Iceland's and Ireland's financial collapses. Some points provide advice on how best to react to similar ordeals. Others point to *ex ante* imbalances that prove potentially destabilizing to a country's financial system.

The funding source for banks, as well as the composition of their asset holdings, creates a linchpin in explaining the source of a credit-induced boom. For Iceland this came mainly in the form of cheap foreign-denominated funding that was then converted to krona. This conversion appreciated the krona, thus allowing for further foreign borrowing with reduced exchange rate risk. In part, the funding was spent to buy inflation-sensitive assets, such as share equity that increased in value with the boom. The net effect was that banks endogenously created credit by buying assets that capitalized their balance sheets automatically as credit was created. Irish funding came from other eurozone savers. As the riskiness of cross-border investments decreased upon adoption of the common currency, investors took advantage of Ireland's high risk-adjusted returns.

Regardless of the funding source, fragile banking sectors reliant on low interest rates and liquid credit markets resulted. The disappearance of liquid markets in 2008 only exposed the tenuous and unsustainable situations for what they were.

In implementing policies to ease the effects of these two crises, two aspects stand out. The first is the role of the countries' currencies in returning them to competitiveness. Ireland was unable to depreciate its currency, but the domestic price level was able to fall, thus compensating by depreciating the real value of its euro and lowering export costs. This policy did not aid creditors, but it also did not harm them. In Iceland the quick depreciation of the krona served to give the country a quick cost-based advantage. This was important as the krona had been greatly

overvalued less than a year before. While across-the-board cost decreases from depreciation did little to rectify the price maladjustments that the boom bred, they did serve to allow countries with overvalued currencies to get back on their feet quickly. In this way, Ireland suffered in the short run through an output decline, but by allowing the array of relative prices to adjust, entrepreneurs are now able to see the areas of the economy most conducive to growth. Iceland must still go through this process of allowing its relative prices to adjust, which will inhibit it from securing full recovery.

Ireland's use of the euro, despite being to the country's apparent detriment by removing any monetary policy option, protected Ireland from some worse fates. In particular it made the country immune to calls for capital controls. When Iceland received its standby agreement from the IMF as part of its 2008 aid package, it included controls aimed at reducing the outflow of foreign reserves. This had the unintended consequence of also limiting the amount of incoming foreign exchange that foreign investors were willing to risk in Iceland. Ireland enjoys a high degree of foreign investment today, as creditors are not worried about accessing their funds in the future. No such assurance can be offered in Iceland, and the capital controls are now slated to stay in effect until 2015.

Iceland and Ireland provide two case studies for challenges facing an economy facing a modern banking crisis. Other countries, notably the United States, have banking situations that feature similar weaknesses, including 1) poorly collateralized loans, 2) a reliance on continued credit expansion to roll over short-term funding, and 3) an exposure to real estate loans. There are three lessons to take from these two countries.

First, any losses in the banking sector are only the previous mistakes and malinvestments made visible. Covering up losses via bank bailouts does little to fix these mistakes that were

made in the past, and may delay recovery moving forward. The collapse of the banking system only exposed an insolvent system for what it was. Papering over losses through additional debt, as happened in Ireland, cannot rectify this problem. *The Icelandic approach of allowing the default of unambiguously insolvent institutions allows losses to be realized sooner, and thus a strong foundation for recovery can be laid and built upon*.

Second, currency depreciation allows some types of adjustments to be made, but others can only be achieved by domestic price adjustments. In Ireland this happened quickly, allowing entrepreneurs to receive signals concerning how to reallocate resources to escape the recession. Iceland's swift depreciation increased the country's international competitiveness, but may now inhibit relative prices from realigning quickly to sustain the recovery. As the financial system always was in a position of insolvency and the bust merely exposed it, some costs must be incurred—the only question is whether it will be felt sooner or later. Iceland's approach muted the output decline, but at the cost of inhibiting the constellation of relative prices from quickly realigning in a sustainable manner. This will jeopardize future growth, something that Ireland is increasingly well-positioned to take advantage of. *By not inflating its problem away and thus allowing for price deflation, Ireland has realigned relative prices to a more sustainable array that allows entrepreneurs to easily see what areas of the economy are profitable*.

Finally, some policies aimed at controlling capital flows have detrimental results. In Iceland's case, IMF-imposed capital controls have cost the country 1 percent of GDP for three years, and are estimated to stay in effect for another three years. While stopping the outflow of foreign reserves, the controls have also limited inflows. For countries trying to reintegrate themselves into the global economy and re-access credit markets, such a policy is less than desirable. While the lack of capital controls in Ireland could have resulted in an outflow of

capital, the evidence suggests that just the opposite happened. Taking advantage of lower costs and unused resources, capital has flowed into Ireland in recent years. The Icelandic approach has discouraged foreign entrepreneurs from investing domestically due to uncertainty about whether they will be able to access their capital in the future. *In this way, Ireland's continued commitment to open markets and trade has shifted the weight of recovery away from only domestic producers, and has allowed foreigners to participate in the recovery*.

When the tale of these two crises is told, the conclusion is typically that one set of policies was more beneficial than the other. In this paper we have shown that the truth lies somewhere in the middle. Icelanders have benefitted by evading a debt overhang through an undue bank bailout that has shielded entrepreneurs and investors from losses. The Irish commitment to open capital flows and willingness to reduce domestic prices to regain competitiveness has allowed prices to return to levels necessary for entrepreneurs to use as signals to invest. Countries facing similar crises—be they currency, banking, or general economic crises—would be well-advised to heed these two lessons when drafting recovery plans of their own.

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