Ireland's Financial Crisis: A Comparative Context[1]

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Abstract

This paper aims to place the Irish financial crisis of 2007/08 to date in comparative context. By drawing on international experience, some stylised facts on the potential longer-term economic consequences are drawn. Although the future performance of both the Irish economy and the domestic financial system remain uncertain, understanding the path to recovery of macro-financial aggregates and of banks' profitability during previous crises may help to inform current policy decisions. Notwithstanding country-specific differences, this paper, therefore, examines four episodes of systemic crises in advanced economies where property market adjustments played a significant role in their propagation. The sample includes the Nordic (i.e., Sweden, Finland and Norway) crisis in the early-1990s and the Japanese crisis (1997-2001) to help benchmark Irish developments up to summer 2012.

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1. Introduction

Since 2008, Ireland has experienced a severe financial crisis characterised by a systemic banking crisis and a significant economic adjustment. As has been well documented, Ireland had a protracted property and credit boom which contributed to unsustainable domestic imbalances prior to the crisis. Furthermore, the economic adjustment coincided with, and was exacerbated by, the global financial crisis, which began in 2007. The scale of the Irish State's outlay, in terms of recapitalisation and other policy measures (e.g., National Asset Management Agency, Government guarantee on liabilities) to deal with the severe problems faced by the banking sector, created significant actual and contingent fiscal liabilities and transformed banking sector risk into sovereign risk. Against the background of heightening tensions in European sovereign debt markets, these risks intensified from late-summer 2010, resulting in Ireland applying for external assistance in November 2010. Under the EU/IMF Programme, Ireland is adhering to a timeline of targeted measures promoting banking stabilisation, fiscal consolidation and structural reform.

Although the Irish crisis has not yet been resolved, Laeven and Valencia (2012) estimate that based on data up to 2011, it now ranks as one of the most expensive banking crises in an advanced economy since the 1970s. This conclusion is based on cumulative output losses, gross fiscal costs and increases in government debt from a sample of 147 systemic banking crises over the period 1970 to 2011. The Irish case is found to be the only country currently experiencing a systemic crisis that features in the top ten across all of the aforementioned three metrics over the sample period. As of July 2012, the State had injected €63 billion of capital into the Irish banking system.

The future performance of both the Irish economy and the domestic financial system remain uncertain at present. Understanding the path to recovery of key macro-financial aggregates and banks' profitability during previous international crises, however, may help to inform policy decisions. This paper, therefore, delves deeper than Laeven and Valencia (2008, 2010 and 2012), which compares episodes of systemic crises, and other important papers on both the short-run [e.g., Reinhart and Rogoff (2009)] and the long-run [e.g., Reinhart and Reinhart (2010)] adjustment of an economy following financial crises. Specifically, this paper compares the Irish crisis with four systemic crises in advanced economies and looks at the various recovery scenarios of some 'headline' macroeconomic and financial variables to determine if appropriate parallels can be drawn to the Irish crisis and its longer-term consequences. The strong linkages between the real economy and the financial system imply that full recovery in both areas will be required to ensure that any future upturn in the Irish economy will be sustainable.

In terms of specific variables, the paper examines the following indicators;

- Real GDP,
- The unemployment rate,
- Current account developments,
- Real asset prices (i.e., house prices, capital values and equity prices),
- Bank profitability and asset quality,
- Credit and deleveraging (i.e., Private-Sector Credit/GDP ratio).

Although there is some discussion of policy measures employed in other crises, it is not the focus of this paper.

Given the origins of the Irish crisis, this paper focuses on episodes of systemic distress in developed economies where property market adjustments played a key role in the propagation of the crisis. The sample includes the Nordic (i.e., Sweden, Finland and Norway)

crisis in the early-1990s and the Japanese crisis (1997-2001)[3].

It may be that a property-related shock has different characteristics than those associated with changes in other risk factors like interest rates, unemployment, and oil prices. Developments in the property market have played a key role in a number of crisis episodes throughout history. As noted in Herring and Wachter (1999), although banking crises can occur without real-estate cycles and vice versa, there is a high incidence of both being strongly correlated across both advanced and emerging markets, even accounting for institutional factors. The authors also note that the evolution of a property-related crisis depends on the scale of the inter-linkages between the financial system and the real economy. In Ireland, these inter-linkages are quite acute given the prevalence of bank debt as a key source of financing for the resident private sector. Claessens *et al*., (2008) also find that economic slowdowns or recessions associated with house price adjustments and credit contractions generally result in relatively higher output losses than other types of recessions.

Although there are common features in certain types of crisis, the evolution of macro and balance-sheet variables during and after a crisis may be influenced by a number of country-specific factors, such as the initial macroeconomic conditions, the fiscal policy stance, currency regime, and the domestic policy response to the crisis in addition to developments in the external environment. This fact is also taken into account when drawing conclusions.

The paper proceeds as follows; Section two provides a rationale for the choice of international benchmark; Section three addresses the timing and extent of adjustment in macroeconomic aggregates while Section four looks at banks' profitability and credit. The final section draws some tentative conclusions for the Irish case.

2. International Benchmarks

There have been a number of different types of economic and financial stress periods in both advanced and emerging market economies over the last century, namely currency crises, financial crises, sovereign debt crises, twin crises (i.e., banking and currency), triple crises (i.e., containing all three), stock market crashes, and the failure of large financial players (e.g. Long-Term Capital Management).

In order to improve our understanding of the Irish situation, it is useful to focus on crises that have similar features. However, this aim is complicated somewhat by some differences in the Irish crisis characteristics. Although Ireland has experienced a very traditional banking crisis, in that, it was preceded by a credit and asset price boom, it also occurred in the context of a significant global shock[4]. Also, given its membership of the European Monetary Union (EMU), Ireland did not suffer a currency crisis, experiencing instead an internal devaluation. As previously noted, the scale of state support required to deal with the systemic banking crisis, combined with the severe correction in the real economy, eroded confidence in the Irish sovereign. This latter fact differentiates Ireland from the majority of that group of crisis episodes in advanced economies where property played a key role in the propagation of the crisis. In recent decades, many of the severe financial crises that were accompanied by a sovereign crisis were limited to emerging market economies (e.g., Mexico, 1982 and Argentina, 2001). Closer to home, as the European sovereign debt crisis that currently affects a number of advanced economies has yet to be resolved, these cases are not the focus of this paper.

According to Reinhart and Reinhart (2010), as compared to previous stress episodes, the current global crisis was exacerbated by the marked decline in financial intermediation and a synchronised contraction in economic output. These features made the current crisis much more severe than recent crises such as the Nordic and Japanese crises and those in emerging markets. It is only comparable to pre-

3 This paper follows the dating of above episodes of financial crises in Laeven and Valencia (2010 and 2012). Appendix 1 provides a comparison with other authors.

4 Much has been written about the current crisis and its origins in the US sub-prime market. As this is not the focus of this paper, the interested reader is directed to Brunnermeier (2009), Shin (2010) and Gorton (2009).

World War II crises (e.g. the Great Depression during the 1930s[5] and the post World War I hyper inflationary period in Germany) in its scope and magnitude. Laeven and Valencia (2012) also note that the current global crisis contains the highest frequency of stress episodes based on data from 1970 to 2011 and has, thus far, mostly impacted advanced economies. This development may have significant implications for the Irish recovery given its status as a small open economy. The literature suggests that recessions which involve a synchronised contraction of output across a number of countries may be more severe compared with slowdowns that affect only one country or region (IMF, 2009). According to the research, these recessions can lead to slower recovery in GDP, with less growth coming from external demand.

Notwithstanding the difficulties in finding an appropriate historical benchmark for the Irish situation, it is intended to look at past financial crises in advanced economies that experienced both severe property price declines and were characterised by a systemic banking crisis.

The literature [i.e., Reinhart and Rogoff (2009), Reinhart and Reinhart (2010)] identifies five systemic crises in advanced economies since World War II. The countries identified are the Nordic (i.e., Sweden, Finland and Norway) crisis in the early-1990s, the Japanese crisis (1997-2001) and the Spanish crisis (1977). This paper discusses the first four countries identified because, similar to Ireland, they are advanced open economies which, prior to their crises, had strong economic activity which, in large part, was driven by an asset and credit boom. We do not include the Spanish crisis (1977)[6] given the differing origins of the crisis.

In carrying out our study, we have benefitted from the fact that much work has been done on constructing and updating databases of episodes of systemic banking crises[7]. The recent global financial crisis has added a number of systemic banking crisis episodes featuring advanced economies to the list. According to Laeven and Valencia, (2012), the Irish crisis up to 2011 meets the criteria for a systemic banking crisis[8].

The literature also identifies other episodes, such as the Savings and Loan (S and L) crisis in the United States (1980s), the Small Banks' Crisis in the United Kingdom (1990s) and the case of Thailand during the Asian crisis (late-1990s) where property market corrections played a key role in the propagation of these crises [e.g., Logan (2000), ECB (2008) and Herring and Wachter (1999)]. These crises are, however, excluded from our analysis for a number of reasons. Thailand is a developing economy and is therefore not a useful comparator. The UK case is not considered systemic by the literature, while the US S and L crisis is considered borderline systemic. Moreover, data at state-level are required to provide a true picture of the impact of the S and L crisis on macroeconomic and banking sector aggregates.

3. Macroeconomic Indicators

This section begins the comparison of the Irish crisis with the Nordic and Japanese crises. Boxes 1 and 2 contain further details on the evolution of both crises, including policy responses. The focus is on key macroeconomic variables such as GDP, unemployment, current account dynamics and

5 See IMF (2009) for a brief comparison of the recent global financial crisis with the Great Depression of the 1930s. Factors such as the pivotal role of the United States, the incidence of pre-crisis credit booms, high levels of leverage and dislocation in bank funding which characterised both crises are discussed. Key differences between both episodes relate to the scale and type of policy response, initial macroeconomic conditions and the type of international monetary policy system.

6 We do not include the Spanish crisis of the late-1970s primarily due to lack of data and given the slightly differing origins of the crisis. Our sample focuses on crises where property market adjustments played a significant role. The Spanish financial crisis was caused by macroeconomic factors such as the oil price shock, a weak regulatory system and inadequate risk management by banks (see Ingves *et al*, 2009) which coincided with political uncertainty following the death of General Franco in 1975.

7 Laeven and Valencia (2010 and 2012) have expanded the work of Laeven and Valencia (2008), Honohan and Laeven (2005) and Caprio *et al*, (2005) to present a database of systemic banking crises over the period 1970 to 2011.

8 The authors regard a banking crisis to be systemic if two conditions are fulfilled, namely signs of marked financial distress (losses, liquidations and/or bank runs) and the introduction of policy intervention measures to deal with significant losses. With regard to the latter criterion, at least three of the following six measures have been implemented; liquidity support, at least 3 per cent of GDP can be attributed to bank restructuring costs, nationalisations, guarantees, asset purchases greater than 5 per cent of GDP and deposit freezes.

Table 1: Real GDP

	Finland	Norway	Sweden	Japan	Ireland
Crisis Period	**1991-1993**	**1987-1993**	**1991-1993**	**1992-2001**	**2008-ongoing**
Cumulative fall in real GDP (%)	-10.4	-0.1	-3.8	-2.2	-8.3
	(1990-1993)	(1987-1988)	(1990-1993)	(1998-1999)	(2008-2010)

Sources: Sandal (2004), IMF World Economic Outlook, April 2012 and Central Statistics Office.

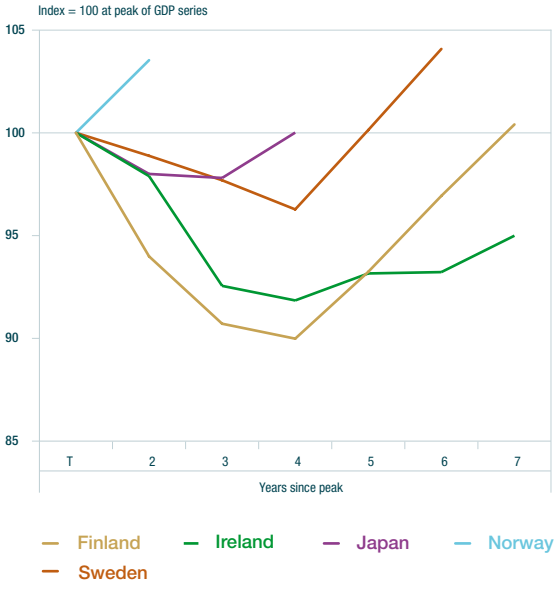
asset prices. In terms of the dating of the Irish financial crisis the start year is considered to be 2008[9], when the economy officially went into recession[10]. This crisis start date also accords with Laeven and Valencia (2012).

3.1. Output, Unemployment and External Position

In terms of *real GDP*, Table 1 shows that the cumulative fall in GDP in Ireland exceeds the recorded declines in all countries listed with the exception of Finland, over the respective crisis periods. The crisis period as illustrated in Chart 1 is from the peak year of GDP which occurred in Finland (1990), Norway (1991), Sweden (1990), Japan (1997) and Ireland (2007). Although the crisis period in Finland spans four years, much of the decline in real GDP occurred in the first two years when economic growth declined cumulatively by 10 per cent (Chart 1). In Japan, real GDP declined by 2.2 per cent between 1998 and 1999 before recording positive values. By contrast, Norway experienced a very shallow adjustment with output remaining static rather than declining. Among the four countries Finland also took the longest at six years for real GDP levels to recover fully to pre-crisis peaks (Chart 1). The collapse of Finland's main export partner, the Soviet Union, had a significant impact on GDP. As noted in Box 1, which looks at the Nordic episode, output losses and fiscal costs arising from the crisis are estimated to be relatively higher in Finland compared with Sweden or Norway.

Irish real GDP peaked in 2007 and currently remains below pre-crisis peaks. Forecasts from the Central Bank of Ireland, as published in the Q3 2012 Quarterly Bulletin, have been used to extend the series to 2013, and forms the basis for the Irish series shown in Chart 1. As can be seen from that chart, the recovery in the level of real GDP in Ireland has been slower than in any of the countries in the sample we examine. Moreover, the medium-term forecasts for Irish GDP suggest that it may be another two to three years before real GDP returns to 2007 peak levels.

Chart 1: Time to Recovery (Real GDP Levels)



Sources: IMF World Economic Outlook (WEO) April 2012 edition, Central Statistics Office (CSO) and Central Bank of Ireland calculations.

Note: T=year of peak real GDP levels. Irish data covers the period 2007 to 2013. Forecasts for 2012 and 2013 are from the Central Bank of Ireland Quarterly Bulletin Q3 2012.
Dates of peak: Ireland: 2007, Finland: 1990, Sweden: 1990, Japan: 1997, Norway: 1991. For Ireland, Finland and Sweden, the peak was the year preceding the start date of the crisis. For Norway, time T is the start date of the crisis as real GDP levels continue to rise from 1988.

9 The Irish property market peaked in 2007. However, 2007 is not chosen as the start year as real GDP increased by 5.4 per cent and the unemployment rate averaged 4.5 per cent (almost full employment).

10 In September 2008, data from the Central Statistics Office showed that the Irish economy had contracted for two consecutive quarters which meets the technical definition of a recession.

Box 1: Overview of the Nordic Financial Crisis

In the early 1990s Sweden, Finland and Norway experienced severe economic and financial crises. This box provides a brief overview of the evolution of the Nordic crisis and the respective policy measures.

The literature on the Nordic crisis of the 1990s is extensive. The following section draws heavily on Sandal in Moe *et al*, (2004) in addition to other cited references below. Although the propagation and trigger for each episode differs across the three countries, there are common features. In each instance, financial deregulation, pent-up credit demand and strong economic activity led to an asset and credit boom, and a leveraged private sector prior to the onset of the crisis. Much of the borrowing was for property-related purposes and therefore credit risk was concentrated in real estate. The fixed exchange rate regime also played a role as many borrowers circumvented high domestic interest rates by borrowing in foreign currency. Moreover, poor risk management, inadequate supervision and lax fiscal policy contributed to the build-up of vulnerabilities.

A number of external shocks and the subsequent contraction in economic activity led to a significant adjustment in the domestic property market, which in turn led to significant loan losses for the banks in each country. In terms of specific external shocks, Norway was heavily dependent on oil exports and therefore the oil price shock in 1986 had significant repercussions, while in Finland loss of exports from a major trading partner, namely the Soviet Union in 1991 severely impacted the economy. Nyberg and Vihriälä (1993) estimates that the loss of the Soviet export market incurred a negative demand shock of about 2.5 per cent of GDP with knock-on implications for the heavily indebted private sector. A rise in German interest rates impacted all three countries while Sweden and Finland also suffered a currency crisis in 1992 as a result of the exchange rate mechanism (ERM) crisis. Subsequent depreciations led to higher levels of bankruptcies and losses on foreign currency lending. As the banking crisis became systemic, authorities employed swift remedial policy measures.

Both Finland and Sweden implemented blanket guarantees for depositors. As part of the Norwegian banking sector remained sound, it was decided that a guarantee would create perverse incentives for these institutions (Bank for International Settlements, 2004). The guarantees were maintained for six years in Finland and four years in Sweden. Asset management companies were created in Sweden and Finland while all three countries created separate bank restructuring agencies. Across the three episodes, there were recapitalisations and public take-overs with shareholder burden sharing. Only in Norway, however, were there liquidations of banks. In all three cases, the literature regards the response of the authorities to be swift and transparent; this fact was instrumental in the recovery process.

In addition to prompt resolution policy and regulatory reform, recovery in each case was facilitated by macroeconomic policies and exchange-rate developments. According to the BIS (2004), macroeconomic conditions began to improve in 1993 and as the Norwegian Krone started to float in 1992, money market interest rates fell. In Sweden the crisis was also resolved relatively quickly with the change in the exchange-rate regime playing an important role. Once the pegged exchange rate was abandoned following the ERM crisis, the Swedish Krona depreciated sharply and the depreciation continued for a number of years leading to competiveness gains. According to Johung (2009), this development implied that exports became the main driver of growth in the Swedish economy. As a share of GDP, exports doubled between 1992 and 2008. McKinsey (2010) also highlights that the real decline in the Markka had positive implications for the export sector in Finland.

Box 1: Overview of the Nordic Financial Crisis

According to Laeven and Valencia (2012), output losses as a percentage of GDP range from 5.1 per cent in Norway to 30.6 per cent in Sweden and 69.6 per cent in Finland[1]. There are a number of methods of calculating fiscal costs of banking crises. Honohan and Klingebiel (2003) use expert or official assessment to estimate the net present value of the costs as a percentage of GDP[2]. The authors estimate fiscal costs are highest in Finland at 11 per cent of GDP, while in Norway and Sweden the corresponding figures were respectively 8 and 4 per cent[3]. Sandal in Moe *et al*., (2004) highlights that bank intermediation was relatively higher in Finland and so the banking crisis was deeper, which might explain higher gross fiscal costs. Net fiscal costs take into account the value of income recouped by the State, while gross fiscal costs measure total fiscal outlay. Sandal calculates both gross and net fiscal costs and shows that Norway managed to recoup more of the costs than Finland. Further, Norway has the lowest net fiscal cost among the three countries.

1 The authors calculate output losses as the cumulative sum of the difference between actual and trend real GDP for the period [T, T+3], expressed as a percentage of trend real GDP where T is the starting year of the crisis. Trend real GDP is computed by applying an HP filter (λ=100) to the log of the real GDP series over [T-20, T-1]. Data are sourced from the Autumn 2011 IMF World Economic Outlook.

2 Recapitalisations costs, any bailout costs for deposits and bank creditors and any debt relief scheme for borrowers are included in the fiscal cost calculations.

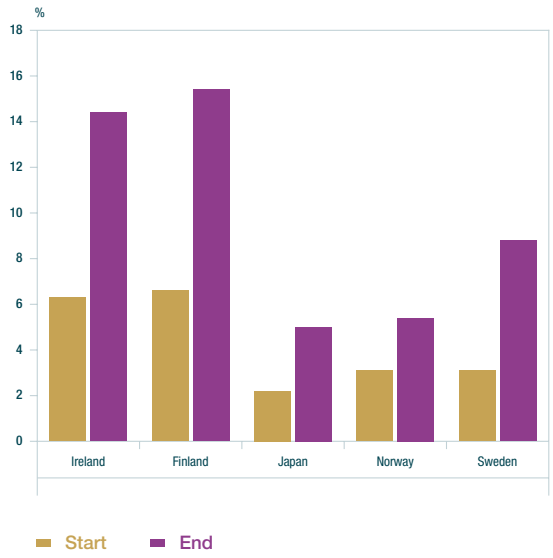
3 It should be noted that Honohan and Klingebiel use different start and end dates for the individual episodes compared with Laeven and Valencia. These are as follows; Finland (1991-1994), Sweden ((1991-1994) and Norway (1987-1993).

A significant economic adjustment in the Irish economy has led to the rapid unwinding of domestic imbalances[11]. These imbalances grew over a number of years as economic demand became reliant on a credit-fuelled property bubble. Prior to the crisis, employment, government revenue, and investment were driven to a significant degree by cyclical sectors such as the construction sector (McGuire and Smyth, 2005). Consistent with international experience, the Irish property market began to contract prior to the onset of the crisis in the domestic real economy. Specifically, the housing market began to lose momentum in Q3 2007[12], while the commercial property market started to adjust in late-2007. This rebalancing and adjustment of the domestic economy in 2007 coincided with a negative global shock. The global crisis began to affect domestic economic growth in 2007/08 as growth in Ireland's trading partners weakened and there was deterioration in consumer confidence.

11 A more extensive treatment of the causes and origins of the Irish crisis has been addressed in a number of inquiry-related reports such as Honohan (2010) and Regling and Watson (2010).

12 There are a number of different sources for Irish house prices. Given the different methodologies and coverage among the indices, these data sets display different dates for the housing market peak. The Central Statisitics Office residential house price index indicates that nominal house price across all national properties peaked in September 2007.

Chart 2: Unemployment Rate



Sources: IMF World Economic Outlook April 2012 edition, the Irish data is sourced from the CSO and the forecast from the Central Bank of Ireland Quarterly Bulletin Q3 2012.

Note: Start and end dates:
Ireland 2008-2013, Finland 1991-1995, Japan 1992-2001, Norway 1987-1994 and Sweden 1991-1995.

With respect to *unemployment*, there appears to be similarities between Finland and Ireland (Chart 2). Although the other three countries all experienced increases in the rate of unemployment during the respective crisis periods, their experience is surpassed by the Finnish case, where the unemployment rate peaked at 16.6 per cent in 1994. Furthermore, the rate of Finnish unemployment declined very gradually after the peak remaining above 10 per cent for the following five years and currently remains above the initial 6 per cent (based on the IMF World Economic Outlook April 2012).

Between 2000 and 2007, the Irish labour market experienced almost full employment with the unemployment rate remaining stable at an average of 4 per cent. From 2008 there has been an increase in the unemployment rate, to its current level, just below 15 per cent[13]. Drawing on the Finnish experience, it is clear that unemployment may remain elevated for some time in Ireland. This finding is further corroborated by other studies of macroeconomic developments preceding and following systemic crises. Reinhart and Reinhart (2010), examine if unemployment rates ever return to pre-crisis levels in a sample which includes both emerging and advanced economies that experienced systemic crises. The authors find that by 2009, unemployment rates in the majority of crisis countries (i.e., 10 out of 15 advanced and emerging economies) remain above pre-crisis rate. Although the unemployment rates are found to reduce somewhat over the period under study, the rates remain elevated.

Domestic macroeconomic imbalances also spilled over into *external imbalances* in Ireland. Despite entering EMU with a broadly balanced current account, by about 2007, Ireland was running a significant current account deficit of approximately 5 per cent of GDP. Much of the Irish deficit could be attributed to a loss of competitiveness relative to its trading partners[14] and based on data in Milesi-Ferretti *et al* (2010), a decline in public savings.

Between late-2008 and 2010, the current account moved from a deficit of 5.7 per cent of GDP in 2008 to being broadly balanced in 2010 and moving into surplus in 2011 (Chart 3). Latest forecasts from the Central Bank of Ireland are for the surplus to grow in 2012 and 2013.

13 Please see Conefrey (2011) for a discussion of the evolution of Irish unemployment during the recession.

14 See Cassidy and O'Brien (2005 and 2007) for further details.

Chart 3: Current Account Balance

Sources: CSO, Central Bank of Ireland Quarterly Bulletin Q3 2012 IMF WEO April 2012 edition.

Note: Start and end dates:
Finland 1991-1995, Japan 1992-2001, Norway 1987-1993, Sweden 1991-1995 and Ireland 2008-2013

Finland and Sweden also saw an improvement in their current account balance by the end of the crisis. In both cases, export growth, prompted by positive exchange-rate developments and combined with an improvement in external demand, was noted as a key factor in restoring economic recovery (see Box 1).

Export growth has been an important ameliorating factor in the Irish economic performance thus far in the crisis. However, while there has been some recovery in Ireland's competitiveness position, the uncertainty surrounding external demand at the current juncture implies that export growth remains subject to downside risks. The scale of the global recession and the synchronised contraction in output across a number of advanced economies may be a key differentiating factor between the resolution of the Irish episode and the Nordic example. As noted in IMF (2009), export growth plays a smaller role in recessions that are synchronised across countries, leading to slower recovery.

3.2. Asset Prices

The following sub-section looks at developments in asset prices over the respective crisis period in our sample of five countries. Based on data availability, the focus is on house prices, equity prices and, to a lesser extent, commercial property prices.

Real house prices began to decline in Ireland in late-2007 and have declined by approximately 47 per cent since their peak. Table 2 benchmarks this real decline against international experience using OECD data[15].

The peak in house prices is found to pre-date the beginning of each respective crisis start date, highlighting that property markets usually adjust in advance of economic contraction.

Persistent deflationary pressures in Japan are evident from Table 2 as real house prices continue to remain below pre-crisis peaks. With regard to the Nordic sample, Norwegian real house prices took longest to reach the trough of the series at seven years. However, although Finnish real house prices only declined peak-to-trough for four years, Chart 4 shows that it took 22 years for prices to return to pre-crisis peaks.

Table 2: Real House Prices

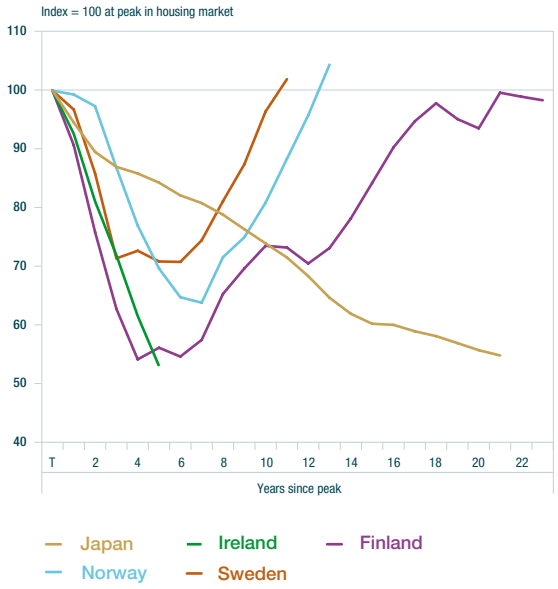
	Ireland	Japan	Finland	Norway	Sweden
Total % fall peak to trough	-46.92	-45.12	-45.79	-36.13	-29.18
No. of years (peak to trough)	ongoing	ongoing	4	7	6

Source: OECD data based on national sources.

Note: An average for the year was constructed using quarterly data. Real house price peaks 2007 for Ireland, 1991 for Japan, 1989 for Finland, 1986 for Norway and 1990 for Sweden.

15 The OECD data are based on national sources and are available up to Q2 2012.

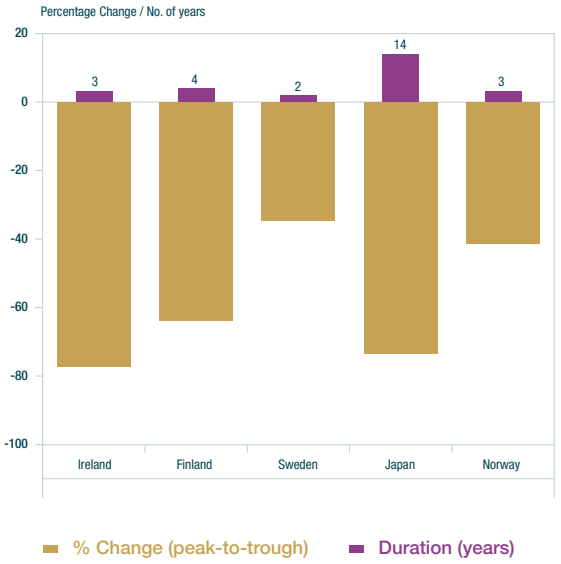
Chart 4: House Price Declines from Peak - Real House Prices



Source: OECD House Price Index.

Note: An average for the year was constructed using quarterly OECD data. Peaks in the housing market occurred at different times. In this Chart the peak for Japan is 1991, Ireland 2007, Finland 1989, Norway 1986 and Sweden 1990.

Chart 5: Real Equity Prices (Peak-to-Trough)



Source: Thomson Reuters Datastream.

Note: Data refers to ISEQ, OMX Helsinki, OMX Stockholm 30, TOPIX and OSLO OBX. Equity price indices are deflated using national consumer price index. Base year is 1990. Annual data are based on end-December figures in each year. Last observation is 2011. Peak-to-trough dates are as follows; Ireland 2006-2008, Finland 1988-1991, Sweden 1989-1990, Japan 1989-2002, Norway 1989-1992.

Although the literature focuses on real developments, there is much interest in *nominal house prices* especially for scenario analysis. Based on the latest available data, nominal house prices continue to decline in both Ireland and Japan. The time to recovery for nominal house prices (i.e., to reach pre-crisis peaks) using the Nordic sample varies from seven years (Sweden and Norway) to 13 years for Finland. Irish house prices peaked in 2007 and are currently in their fifth year of contraction.

Some studies find that nominal house prices tend to overcorrect following a period of significant adjustment. Using data from Sweden, Finland and the United Kingdom following their respective property crashes in the 1990s, Kennedy and McQuinn (2011), show that nominal house prices can remain below fundamental levels for a number of years. Across the three countries the authors find that house prices were 20 per cent below fundamental levels on average, over the period 1992 to 2000.

According to Reinhart and Rogoff (2009), the housing cycle is much longer in duration than the cycle in equity markets. Chart 5 compares the peak-to-trough performance of the major *equity indices*, in real terms, in our sample around the crisis periods. Ireland exceeds the experience of the other five episodes in terms of peak-to-trough declines. The majority of this decline was driven by the large initial weight of financial stocks in the Irish index prior to the crisis and occurred over the period 2006 through 2008. A brief rally in 2009, however, was followed by subsequent small declines in 2010 and 2011 as sentiment turned increasingly negative towards the Irish banks. As can be seen, Japanese equity prices also recorded a significant peak-to-trough real decline, although the time to reach this trough was more gradual lasting 14 years. As with house prices, the national stock market appears to adjust in advance of the official start date of the crisis.

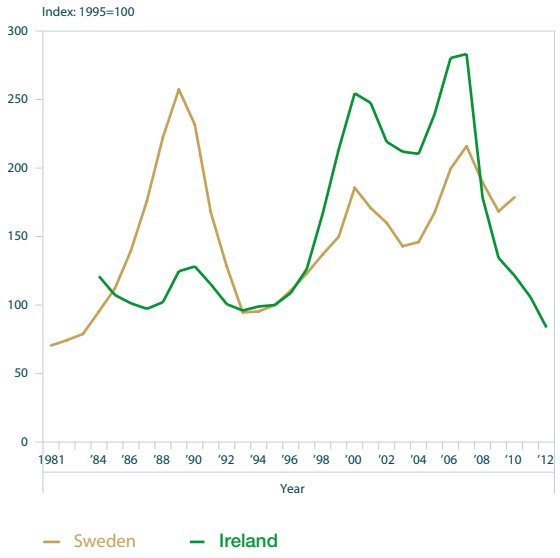
Table 3: Real Commerical Property Prices - Office Market (Sweden and Ireland)

	% Fall (peak-to-trough)	No. of Years	Dates
Sweden	-63.2	5	1989-1993
Ireland	-70.5	ongoing	2007-Q2 2012

Sources: SCS/IPD, Thomson Reuters Datastream, Riksbank and Newsec.

Note: Data for Sweden are an average of real prices of offices located in city centres in Stockholm, Goteborg and Malmo. Data are sourced from the Riksbank's Financial Stability Report 2010. Irish data are deflated using the Consumer Price Index. Irish data cover the period 1984 to 2012 with Q2 2012 data used for 2012 observation.

Chart 6: Real Commercial Property Prices - Office Market (Sweden and Ireland)



Sources: SCS/IPD, Thomson Reuters Datastream and Riksbank.

Note: Data for Sweden are an average of real prices of offices located in city centres in Stockholm, Goteborg and Malmo. Data are sourced from the Riksbank's Financial Stability Report 2010. Swedish data covers the period 1981-2010 with 2010 Q3 data used for 2010. Irish data covers the period 1984-2012 with 2012 Q2 data used for the 2012 observation.

Developments in the *commercial property* market played a pivotal role in the Irish crisis. Between 2003 and 2006, the Irish commercial property market experienced a significant boom with annual appreciation rates in capital values significantly outstripping European counterparts by 2006 (Woods, 2007). Capital values contracted significantly from late-2007 and the scale of potential losses on the commercial book and resultant impact on solvency prompted the creation of the National Asset Management Agency in late-2009. Section 3 further discusses the impact on the banking sector from property-related losses.

The data on international commercial property prices, however, are not as widely available as house prices. Therefore, this paper is confined to comparing developments in real capital values in the office market in Ireland and Sweden[16].

The latest data for Q2 2012 show that Irish real commercial property prices in the office sector continue to decline and are estimated to be circa 71 per cent below their peak in 2007 (Table 3). By comparison, Swedish real office capital values declined peak-to-trough by 63.2 per cent over five years during the crisis. Chart 6 also shows that average capital values for the office market in Sweden are found to remain below the peak achieved in 1989, based on data available up to Q3 2010, (i.e., 20 years).

16 See Herring and Wachter (1999) and ECB (2008) for a discussion of developments in Swedish commercial property during the crisis.

Box 2: Overview of Japan's Crisis

The Japanese banking crisis spanned the period 1997 to 2001 with recovery being affected by the Asian financial crisis in 1997 and the subsequent IT bubble collapse in 2000. After 2003, a recovery was ultimately possible only when financial and corporate sector problems at the heart of the crisis were addressed, allowing a resumption of policy stimulus and a favourable external environment to reinvigorate private demand. At the peak of the crisis between 1997 and 2001 Japan's output loss was estimated to be 45 per cent[1]. This box provides an overview of, and the policy lessons from, Japan's lost decade drawing on a number of sources.

From the mid 1980s, Japan's economy experienced above-trend economic growth and near zero inflation. During this time there was also a decline in the country risk premium and a marked upward adjustment in growth expectations which boosted asset prices and fuelled rapid credit expansion. This was aided by financial liberalisation and the 1985 devaluation of the yen against the US dollar which had stimulated export performance resulting in increased foreign capital flows leading to a marked rise in speculation in the real estate sector. As financial institutions in Japan were heavily exposed to the real estate industry, declining real estate prices in 1990 created a significant amount of non-performing loans. The banking sector, being the dominant supplier of credit to the corporate sector in Japan, thus declined in capacity to extend new loans after the crisis which had an effect of decreasing business investment by the corporate sector. This resulted in an economic contraction which further undermined the asset quality of banks, thus trapping the financial sector and the real economy in a vicious circle that has dragged the economy into a recession.

Before the crisis, Japan's banking system was formed around a 'main bank' system. The main bank was delegated by other lenders to act as a quasi-insider monitor of the borrowing firm and as a mediator when borrowers fall into stress. Therefore, the effectiveness of the main bank system began to suffer when the main banks themselves came under stress. Japan's response was initially delayed due to weak accounting practices and regulatory forbearance, this masked the non-performing loans for many years and limited remedial action by both the government and the banks themselves. It was not until the 1997 Asian Crisis, when the external environment deteriorated unexpectedly, that these mounting losses on failed real estate loans lead to a wave of large scale failures in the financial sector. The financial crisis was to lead to the 1998 banking law reform which created a financial supervisory agency to oversee the rehabilitation of the financial sector and to improve supervision.

The main lessons as outlined by Hoshi and Kashyap (2010) that can be gained from the Japanese experience included:-

(A) The possibility that banks will refuse equity injections due to potential reputational risk. Banks feared applying for funds would be admitting to larger future losses than had been previously disclosed. In the case of Japan, the problem was initially solved by all major banks asking for the same amount of public funds which turned out to be too small to resolve the capital shortage for most banks.

(B) The need to make rescue packages large enough to restore confidence. Between 1992 and 2005, Japanese banks wrote off 96 trillion yen (circa 19 per cent of GDP), in addition to the creation of various asset management companies and bank recapitalisation schemes.

1 Taken from Laeven and Valencia (2010). *'Resolution of Banking Crises: The Good, the Bad, and the Ugly,'* IMF Working Paper and Hoshi and Kashyap (2010).

Output Loss is calculated as the cumulative difference between actual and trend real GDP, expressed as a percentage of trend real GDP for the period [T, T+3] where T is the starting year of the crisis. Trend real GDP is computed by applying an HP filter (λ=100) to the GDP series over [T-20, T-1].

Box 2: Overview of Japan's Crisis

(C) There are limits to asset purchase programmes in fixing solvency problems. Solvency issues need to be addressed in addition to the purchase of troubled assets.

(D) The importance of tying assistance to credible inspection programs. The initial bank recapitalisation of 1998 did not include inspections, in part, to induce the banks to accept public capital without an associated stigma.

(E) The importance of restructuring troubled loans. In the case of Japan, this was delayed as land prices were still falling and according to Hoshi and Kashyap (2010) the asset management companies presumably did not want to realise capital losses. It was not until the early 2000s that an attempt was made to restructure the loans and rehabilitate the underlying borrowers, thus addressing the sources of the bad loan problem.

(F) There is a need to put in place a resolution mechanism. In the case of Japan, nationalisation was used on two banks following the 1998 passing of the 'Financial Revitalisation Act'.

(G) The dangers of politically directed lending. In the case of Japan the nature of the non-performing loan problem changed in the early 2000s, and the loans to small and medium enterprises (SMEs), which the government required the recapitalised banks to increase, became the central problem rather than real estate loans.

Japan increased fiscal policy during the 1990s to include increased investment in public works, an expansion of credit guarantees for SME lending, employment support and temporary decreases in income and consumption tax. Monetary policy was also eased with a shift to a zero interest rate policy and quantitative easing introduced. The banking reform and restructuring can be classified into four main areas[2] namely asset management companies, recapitalisation programs, resolution mechanisms of failed banks and the Takenaka plan of 2002: a plan to end the non-performing loans problem at major Japanese banks through a reformed regulatory inspection processes.

In addition to introducing measures to restore the banking sector, macroeconomic developments also aided recovery in Japan. Export expansion to large and growing economies especially China and the US, contributed to the macroeconomic recovery in the mid-2000s.

2 A more detailed discussion of these policy responses can be found in Hoshi, T. and A.K. Kashyap (2010), '*Will the U.S. Bank Recapitalization Succeed? Eight Lessons From Japan'*. Journal of Financial Economics, Vol 97, pp.398-417.

The Takenaka plan sought to have banks make more rigorous evaluation of assets using discounted expected cash flows or market prices of non-performing loans, to check cross-bank consistency in classifying loans to large debtors, to publish the discrepancy between the banks self-evaluations and the FSA's evaluations, to be prepared to inject public funds if necessary, to prohibit banks from declaring unrealistically large deferred tax assets and to impose business improvement orders for banks that substantially underachieved the realised plans.

In summary, the international experience indicates that although GDP can recover within a number of years, unemployment can remain elevated for some time. In the Irish case, the recovery in the level of real GDP is slower than in any of the countries we examined. Looking at potential drivers of recovery, export growth and exchange-rate developments were found to be pivotal in reviving economic recovery among our sample, indicating an important role for external macroeconomic developments in addition to currency arrangements. With respect to real house prices, the data show that it can take a significant number of years (i.e., 22 years for Finland) before pre-crisis levels are regained if ever (Japan) although the start of the period of adjustment pre-dates the economic downturn. Up to 2010, Swedish office values remained below pre-crisis peaks.

4. Banking Sector Developments

4.1. Asset Quality and Profitability

Following the overview of macro economic developments, this section focuses on the impact on the banking sector during the respective crisis episodes. In Table 4, the scale of the individual banking crises in terms of the impact on asset quality, profitability and credit developments is compared across the sample. This table extends the work of Sandal (2004)[17] on the three Nordic countries to include Japan and Ireland. With the exception of non-performing loans (NPL), Norway appears to have been the least affected by the banking crisis, while Finland was most adversely affected among the Nordic countries. In Section 2, it was shown that macroeconomic developments were also relatively more negative during the crisis in Finland.

There are a number of reasons why the impact of the Norwegian banking crisis was much less severe than the Swedish or Finnish crisis. Drees and Pazarbaşioğlu (1995) highlight the fact that the corporate sector in the latter two countries had borrowed heavily in foreign currency prior to the crises and the subsequent depreciations of all three currencies between 1986 and 1992 severely impacted these borrowers. Timing differences were also important as the banking crises in Sweden and Finland occurred during a severe economic downturn, while in Norway the banking crisis became systemic when there were already emerging signs of recovery in the real economy (Sandal, 2004).

Table 4: Comparison of Systemic Banking Crises

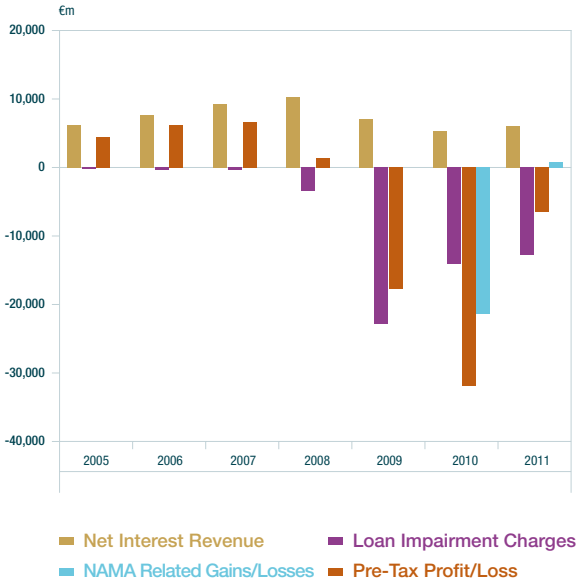
	Finland	Norway	Sweden	Japan[1]	Ireland
Crisis Period	**1991-1993**	**1987-1993**	**1991-1993**	**1992-2001**	**2008-ongoing**
Peak Year of Crisis (acc. To bank profitability)	1992	1991	1992	1998	2010
Loan Loss in Peak year (% of GDP)	4.4	2.8	3.8	2.7	9 *23 (incl. NAMA)*
Peak Non-performing loans (as % of total loans)	13	16.4	13	35	25.4 *(as at 2012Q1)*
Cumulative fall in bank lending (%)	-33.5 *(1991-1995)*	-4.9 *(1990-1991)*	-26.4 *(1990-1995)*	-26.1 *(1992-2001)*	-8.5 *(2009-2011)*
Number of years before bank lending was back to pre-crisis level	9	4	10	ongoing (data availability up to 2008)	ongoing
Number of years from crisis peak to profitable bank sector	4	2	2	5	ongoing

Sources: Sandal in Moe, Solheim and Vale (2004) for majority of data on Sweden, Finland and Norway.

- Data on NPL for Norway, Sweden, Finland and Japan taken from Laeven and Valencia (2012). Cross-country NPL data may differ due to differing accounting regimes.
- [1]Hoshi and Kashyap (2010).
- Bank lending data from Japan is based on OECD consolidated banking data.
- Loan losses for Ireland in 2010 are based on total loan impairment charges across the six covered institutions from the published annual accounts of the Irish banks. These figures may slightly overstate the extent of the loan losses as some of these impairment charges may be written back to the bank if valuations improve. Consistent write-off data were not available.
- Peak NPL data for Ireland are based on outstanding level of impaired loans for six covered institutions from Central Bank of Ireland internal Supervisory data. The peak year for the ratio was found to be Q1 2012 which is also the latest available observation for the series.
- The Irish cumulative fall in Bank lending is based on the six covered institutions. This data removes the effects of NAMA etc on bank lending.

17 Sandal uses a different dating system for the respective episodes within the Nordic crisis than is used in this paper which is based on Laeven and Valencia (2010).

Chart 7: Evolution of Income Statement for Irish Banks (2005-2011)



Sources: Published Accounts and Fitch Ratings.

Note: NAMA loans were recorded as 'held for sale' by banks until transfer. As there was a discount to carrying value at transfer, the loss upon transfer is recorded in profit/loss on other income thereby reducing operating profit/loss. These losses are not included in loan impairment charges. Information on the impact of NAMA is taken from the notes to the annual accounts for the participating institutions.

While there are some difficulties in comparing NPL data across countries, the broad trends show that Japan experienced significant erosion of credit quality, recording the highest peak non-performing loan ratio in the sample. In Japan, the heavy exposure to real estate led to significant losses when real estate prices adjusted. Public disclosure of NPLs was almost non-existent prior to the mid-1990s, thereby limiting market discipline. A paper by the Bank for International Settlements (2004) also highlights that the NPL problem persisted throughout the crisis due to a slow policy response and banks were heavily under-provisioned in the early-1990s (See Box 2). As at Q1 2012, Irish NPL as a percentage of total loans reached 25.4 per cent, surpassing the Nordic experience. As noted in Box 1, swift and transparent policy response in the Nordic case facilitated an early resolution of the crisis.

Table 4 shows that the scale of the loan losses experienced by the Irish banking sector exceeds that of the other systemic crisis episodes. The choice of 2010 as peak year for Ireland was based on pre-tax profit/loss figures for the main domestic banks and matches the approach for the other countries. Loan losses as a percentage of GDP are highest for Ireland using 2010 data and are almost double those of Finland. In terms of understanding the adjustment, total assets of the Irish banking sector (circa €447 billion)[18] were almost three times nominal GDP (€156.5 billion) in 2010.

Loan losses as proxied by total loan impairment charges were actually highest in 2009 (Chart 7). However, this was due to the fact that credit losses arising from the transfer of assets to NAMA are not recorded in loan impairments. These assets were classified as 'held for sale' by banks prior to transfer. As there was a haircut imposed by NAMA upon purchase, Irish banks recorded a loss on the carrying amount which reduced operating profit/loss. This transfer of assets to NAMA meant that the participating institutions were forced to crystallise credit losses at an earlier stage than perhaps otherwise would have been the case. As noted from other crises, loss recognition is one of the key actions needed to resolve banking crises. Chart 7 shows that the NAMA-related losses (including impairments) booked by the participating institutions totalled €21.4 billion in 2010.

Irish banks entered the crisis with a concentrated exposure to property-related lending funded by short-term wholesale funding. Supervisory shortcomings combined with poor internal credit risk management further increased the vulnerability to credit risk (see Honohan, 2009). The extent of the credit risk raised solvency concerns, which adversely affected the funding position of the Irish banks during the crisis[19].

18 See Aggregated Banking Data: Covered institutions under consolidated banking data on the Central Bank of Ireland website. www.centralbank.ie.

19 See McQuinn and Woods (2012) for an analysis of corporate deposit flows of Irish banks from 2009 to 2010.

The deterioration in the financial position of borrowers as a result of the economic recession combined with a sharp fall in collateral values led to a significant increase in loan losses and decline in profitability for Irish banks (Chart 7). Furthermore Irish banks had relied heavily on net interest income for earnings prior to the crisis; interest income on lending was driven by volume rather than margin. As transactions in the mortgage and commercial property market contracted from 2007, banks lost a key source of income. Higher funding costs also served to compress margins

International experience shows that it can take as long as four or five years for banks to return to profitability following systemic crises. The Irish banks posted pre-tax losses over the three-year period 2009 through 2011. It is likely that earnings will remain under pressure for Irish banks in the short-term. The Central Bank of Ireland's Macro-Financial Review (2012) highlights that income/earnings risk remains acute for the Irish banks due to higher funding costs, the need to actively manage impaired assets and to re-orientate business models following deleveraging and the re-balancing of the drivers of the domestic economy.

4.2. Credit and Deleveraging

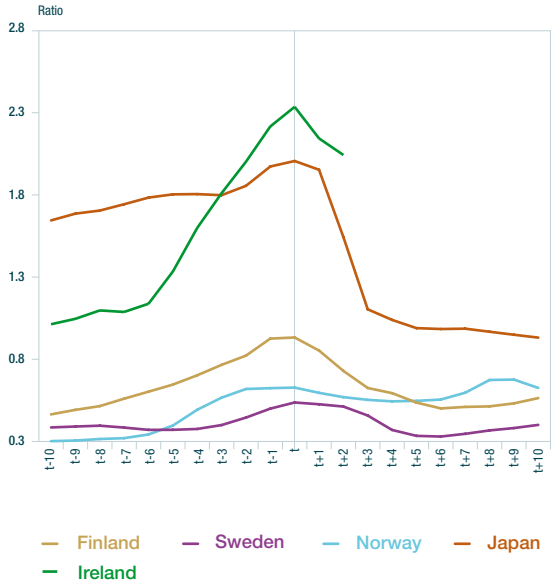
From Table 4, it can be seen that all four of the comparison countries experienced significant declines in lending during the banking crisis. Also, using the Nordic data, the table shows that credit growth can remain muted for a period of four years to 10 years before recovering fully. As with asset prices, Japanese credit growth still has not recovered. Using the adjusted growth rate for lending to the Irish private sector, the cumulative decline in Irish lending was just 8.5 per cent over the three-year period to end-2011 (This figure removes the effect of NAMA on Bank lending). More recent data confirms that credit continues to decline.

In our sample, only Sweden, Finland and Ireland experienced a pre-crisis credit boom (Laeven and Valencia, 2012). Table 4 shows the subsequent marked contraction in credit across both Sweden and Finland. There have been a number of studies that investigated the importance of demand and supply effects on credit in these countries during the crises. From a policy perspective, it is important to understand if this contraction in credit is due to a decline in demand or can be attributed to a curtailment in supply as a result of heightened bank risk (i.e., 'credit crunch'). The latter effect may benefit from policy intervention.

Englund (1999) finds evidence that weak credit demand may help to explain the muted credit developments in Sweden rather than a credit crunch during the crisis. With regard to Finland, Pazarbaşioğlu (1997) also argues that the decline in bank lending in Finland during the crisis was mainly due to a decline in credit demand as many borrowers were heavily indebted. Although some evidence was found that banks reduced credit supply by raising non-price terms on loans in certain periods during the crisis (e.g., 1994) in response to declining credit quality, Pazarbaşioğlu concludes that up to 1995, there was generally no credit rationing in the Finnish market. Another study on Finland also concludes that the asset-quality concerns rather than solvency contributed significantly to the slowdown in lending in 1991 and 1992 (Vihriälä, 1997). Collateral issues were to the fore rather than a credit crunch.

A number of papers focus on the ratio of private-sector credit to gross domestic product (PSC/GDP) to investigate the scale of deleveraging following a crisis. One such example is McKinsey (2010), which also covers the Nordic (Sweden and Finland only) and Japanese crises. The study categorises the various episodes of deleveraging based on common features. The period of deleveraging following the crises in Sweden and Finland are classified by McKinsey as falling into the "Belt Tightening" archetype, whereby the stock of credit grows much more slowly than GDP or the total outstanding credit declines. In the median case across all episodes in this category, credit growth slows to 2 per cent per annum down from 21 per cent year-on-year growth in the period prior to the crisis. In these episodes deleveraging usually begins about two years into the crisis and while GDP recovers relatively quickly, muted credit growth in the later period leads to further deleveraging.

Chart 8: Private-Sector Credit and Gross Domestic Product Ratio



Sources: World Bank Financial Structures Database, CSO and IMF.

Japan is found to be an example of where only the domestic economy does not delever as the reduction in private-sector gearing was offset by the increase in public debt to GDP ratio. McKinsey (2010) finds that the period of deleveraging lasts about six/seven years on average: a similar result is found in Reinhart and Reinhart (2010).

Chart 8 and Table 5 look at the Irish PSC/GDP ratio relative to the four countries in the sample. The significant increase in the Irish ratio prior to peak is evident. The Irish ratio has only fallen by 9.6 per cent from peak in 2009, having increased by 143 per cent in the preceding decade (These figures are inflated due to the International Financial Services Centre). The scale of the increase in the ratio is much greater than the experience in the other four countries. If international experience is a guide it is likely that this ratio may continue to decline for a number of years. The research indicates that although economic output may recover relatively quickly following a severe banking crisis, credit growth may remain weak for some time in Ireland.

Given that many Irish small and medium sized enterprises may not have access to alternative sources of external financing[20], full economic recovery may depend on the resumption of normal intermediation activities by the domestic banking sector. This is especially important for credit-worthy firms who may be pivotal in restoring aggregate demand and reducing unemployment.

Recent work on the behaviour of Irish households shows that Irish households are currently engaging in debt consolidation [Cussen and Phelan (2010)]. The Irish private sector was heavily indebted by international comparison prior to the crisis and it will take some time for the excess leverage to be reduced. Therefore, the combination of debt consolidation and lower income levels imply that aggregate credit demand from households may be weak in Ireland at present.

Our analysis of banking sector developments during systemic crises indicate that profitability may not return for up to four or five years due to significant erosion in credit quality and loss of income. Early loss recognition and swift policy responses are considered instrumental in crisis resolution. International experience indicates that credit growth can

Table 5: Private-Sector Credit to GDP Ratio

	Ireland	Finland	Sweden	Norway	Japan
% increase trough to peak	143.0	100.6	39.4	111.5	22.0
% decrease peak to trough	9.6	-44.9	-37.8	-13.5	-53.6
No. of years peak to trough	ongoing	7	5	5	ongoing (up to 2009)

Sources: World Bank Financial Structures Database, CSO and IMF.

20 See Lawless et al., 2012 for a discussion of SMEs in Ireland.

remain weak for a number of years even after output begins to recover, especially in countries that experienced pre-crisis credit booms (i.e., Sweden and Finland). From a policy perspective disentangling demand and supply effects is important for discussing future measures.

5. Conclusion

The overall aim of this paper was to provide a comparative and historical context to the Irish financial crisis for a policy analysis perspective. Four episodes of financial stress were chosen that experienced a systemic banking crisis and where adjustment in the domestic property market played a key role. The sample consisted of four advanced economies (i.e. the three Nordic countries in the early-1990s and the Japanese crisis 1997-2001)

In terms of macroeconomic aggregates, the international experience indicates that although GDP can recover within a number of years, unemployment can remain elevated for some time. Our study shows that the recovery in the level of real GDP in Ireland has been slower than in any of the countries in the sample we have examined. Moreover, medium-term forecasts for Irish GDP suggest that it may be another two to three years before real GDP returns to 2007 peak levels. This also suggests that the unemployment rate will remain elevated for some time. Past episodes of systemic distress indicate that Irish real property prices, both residential and commercial, may take a significant number of years (ranging from 11 years to 22 years) to recover fully, although the start of the period of adjustment pre-dates the economic downturn in all cases.

Turning to the banking sector, all four crisis countries experienced similar patterns of loan losses with credit institutions taking from between two to five years to return to profitability. The clear lesson from international experience indicates that early loss recognition and swift policy responses are considered instrumental. International experience also highlights that credit growth remains subdued in the years following a crisis, even as the economy begins to recover.

Clearly the relative scale of the Irish banking crisis, effectiveness of the policy responses and developments in the external macroeconomic environment will all play a role in the evolution and eventual resolution of the crisis. These factors, notwithstanding, past experience provides a useful guide for scenario analysis and in understanding certain paths to recovery for near-term forecasting.

Appendix 1

Timeline of Financial Crisis				
	Year	Bordo and Eichengreen 2002	Reinhart and Reinhart 2010	Laeven and Valencia 2010 and 2012
Finland	1989	Peak		
	1991	Banking Crisis	Financial Crisis Date	Start Date of Crisis
		Currency Crisis		
	1993	Trough		Systemic (Feb, 1993) Currency Crisis
		Currency Crisis		
	1995			End Date of Crisis
Japan	1990	Peak		
	1992	Banking Crisis	Financial Crisis Date	
	1996	Peak		
	1997	Banking Crisis		Start Date of Crisis
		Currency Crisis		Systemic (Nov, 1997)
	1998	Banking Crisis		
		Currency Crisis		
	2001			End Date of Crisis
Norway	1986	Peak		
		Currency Crisis		
	1987	Banking Crisis		
	1990	Trough		
	1991		Financial Crisis Date	Start Date of Crisis
				Systemic (Oct, 1991)
	1993			End Date of Crisis
Sweden	1986	Peak		
	1989	Trough		
		Banking Crisis		
	1991	Banking Crisis	Financial Crisis Date	Start Date of Crisis
	1992	Currency Crisis		Systemic (Sept, 1991)
	1993	Trough		Currency Crisis
	1995			End Date of Crisis

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