

The Impact of the Financial Turmoil on Households: A Cross Country Comparison

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Abstract

The financial crisis has had a significant impact on both the wealth and economic behaviour of Irish households. This paper compares the impact of the financial crisis on Irish households with 23 other European countries. Both the financial and total wealth lost in recent years are compared across the sample of countries. It is found that Irish households in particular have lost a significant proportion of net worth compared with other countries due to the substantial decline in house prices in recent years. The reaction of Irish households has not been unusual in the face of the deteriorating economic environment. Most countries' households increased their savings rates in recent years. Households in those countries that increased saving the most, such as Irish households, did so to reduce high debt levels. It is found that Irish households have decreased their debt levels more than any other country since 2008.

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1 Introduction

The economic environment in Ireland and Europe has undergone unprecedented change in recent years. The financial crisis which began in mid-2007 and intensified during September 2008 resulted in widespread stock market volatility and a recession unprecedented in the post-World War II era (IMF, 2009). Following years of rapid house price appreciation, house prices began to decline in recent years in a number of European countries, most notably Ireland, Spain, the United Kingdom (UK), France and Denmark. From late 2010 onwards, a number of European countries experienced problems accessing funding in the sovereign debt markets. Greece, Ireland and Portugal all entered EU/IMF programmes during May 2010, November 2010 and May 2011, respectively. As a consequence of the recession, financial and sovereign debt crises and the EU/IMF programmes, many countries' governments introduced austerity budgets in recent years, adversely impacting household finances. The implications of these developments for households in Ireland and Europe have been a considerable loss in housing and financial wealth, as well as greater economic uncertainty.

Cussen and Phelan (2010) found that the financial crisis and subsequent recession had a significant impact on Irish households' net worth and on their economic behaviour. This paper provides an update on the impact of the continuing difficult economic environment on Irish households. Moreover, the impact of Irish households' wealth and altered economic behaviour is contrasted with that of 23 other European countries¹. The paper contrasts the impact of stock market volatility and, in some countries, declining house prices on the net worth of households across the countries in the sample. It is analysed how households in the sample countries responded to the change in their economic circumstances, particularly

in terms of their savings behaviour and debt reduction.

Quarterly Financial Accounts for Ireland are used to analyse the financial position and behaviour of Irish households². The analysis is facilitated by two new data sources which became available during 2011. In October 2011, the Central Statistics Office (CSO) published for the first time institutional sector accounts for all sectors in Ireland from Q1 2002 onwards.³ In addition, the ECB's Statistical Data Warehouse (SDW)⁴, now stores quarterly financial accounts for all EU countries⁵.

2 The Impact of the Crisis on Households' Wealth

The latest recession has had a significant impact on household sector wealth in most European countries. The impact has been heterogeneous, however, as households' holdings of asset types can vary considerably by country. This section analyses household net financial wealth (financial assets less liabilities) and net worth (financial and non-financial assets less liabilities) to analyse the impact of the crisis. Using three different time periods: a pre-financial crisis household position (2004); the financial crisis (2007); and the current experience using the latest quarter data (Q3 2011); it is evident that some countries have been more significantly impacted than others. The household sector's stocks of financial assets are influenced by two factors; valuation changes and transactions. This section primarily deals with the impact of the crisis on household wealth, while Sections 3 and 4 focus on households' portfolio shift in response to the crisis.

¹ The countries in our sample are: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovenia, Slovakia, Spain, Sweden, Switzerland and the UK.

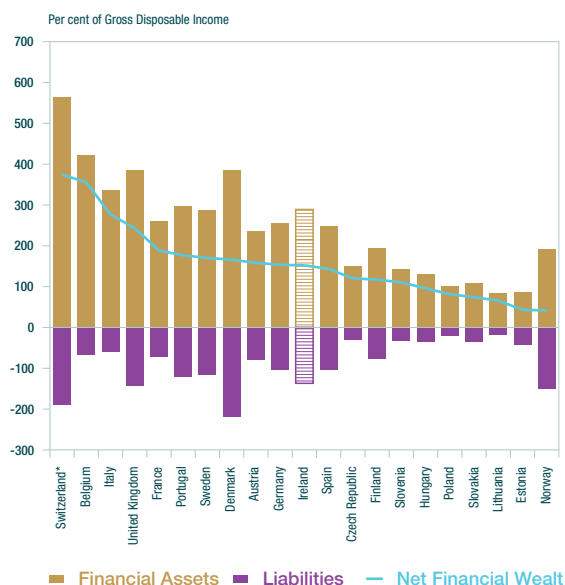
² In financial accounts and in this article the household sector includes non-profit institutions serving households.

³ <http://www.cso.ie/en/releasesandpublications/nationalaccounts>.

⁴ <http://sdw.ecb.europa.eu>.

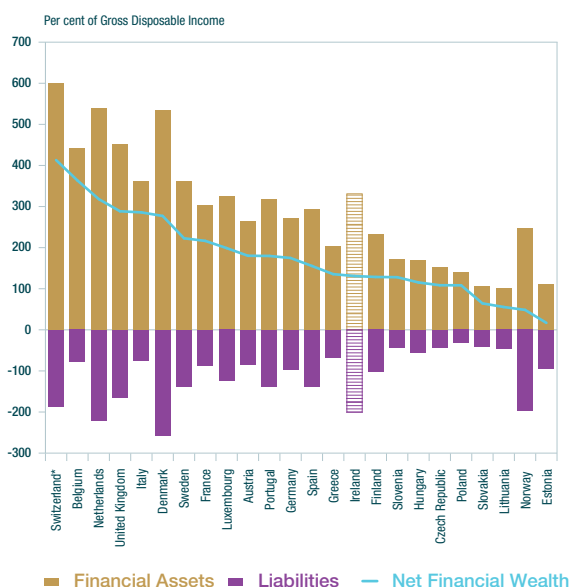
⁵ Complete quarterly financial accounts are not available for all countries from this source. Where quarterly financial accounts are not available the dataset is supplemented with accounts published on national central banks' or national statistics institutes' websites, or data published on Eurostat's website.

Chart 1: Financial Assets, Liabilities and Net Financial Wealth of Households as a Four-Sum Moving Average of Disposable Income, Q2 2004



Sources: ECB, Eurostat, National data for Austria, Germany, Ireland and Norway. Q2 2004 analysis is based on 21 countries in the data set. Q2 2004 data not available for the Netherlands, Luxembourg and Greece. *Indicates annual data used.

Chart 2: Financial Assets, Liabilities and Net Financial Wealth of Households as a Four-Sum Moving Average of Disposable Income, Q2 2007



Sources: ECB, Eurostat, National data for Austria, Germany, Greece, Netherlands, Ireland and Norway.

*Indicates annual data used.

2.1 Household Net Financial Wealth: A Cross Country Comparison

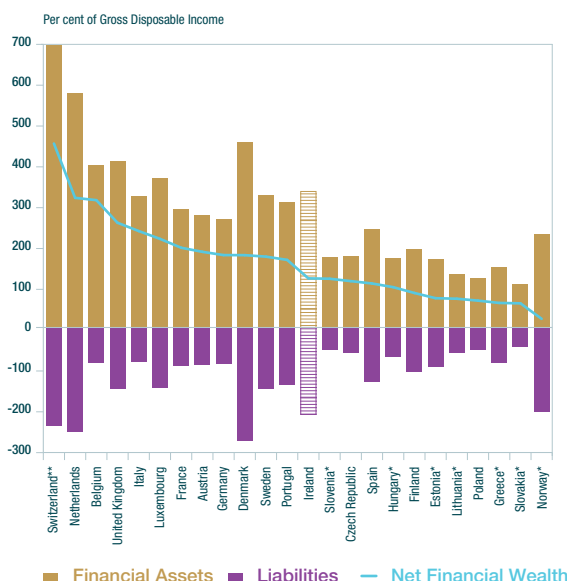
An examination of the change in balance sheet positions of households in the sample of countries shows that the average net financial wealth as a proportion of disposable income increased by almost 17 percentage points between Q2 2004 to Q2 2007, but fell by 19 percentage points between Q2 2007 and Q3 2011. Prior to the financial crisis, Swiss households had the highest net financial wealth as a proportion of disposable income at end-Q2 2004, while Norway had the lowest, as depicted in Chart 1. Irish households had the eleventh highest net financial wealth out of the countries in the sample. Between Q2 2004 and Q2 2007 (the period just before the financial crisis began) Irish households increased their financial assets as a percentage of disposable income by 42 percentage points, while their liabilities increased by 63 percentage points. The rapid increase in liabilities over the period was largely driven by investment in housing assets in Ireland. This resulted in a decline of Irish households' net financial wealth as a

percentage of disposable income of 21 percentage points over the period, giving it a lower ranking of fifteenth place out of 24 countries by Q2 2007. From Q2 2004 to Q2 2007, six countries experienced higher growth in financial assets as a proportion of disposable income compared to Ireland. No other country experienced as large an increase in household liabilities as Ireland during this period. Households in two countries did not increase their liabilities between Q2 2004 and Q2 2007; Switzerland and Germany, which showed a reduction as a proportion of disposable income by 4 and 7 percentage points, respectively. Households in Switzerland continued to have the highest net financial wealth as a proportion of disposable income in Q2 2007.

By Q3 2011, the world had experienced a long and costly recession associated with the financial crisis. As depicted in Chart 4, most countries' households' net financial wealth continued to be at a lower level in Q3 2011 than Q2 2007. Comparing Charts 2 and 3, it is evident that households in Estonia, Switzerland,

6 Annual 2010 figures used for Gross Disposable Income for Estonia, Greece, Hungary, Lithuania, Norway, Slovakia and Slovenia. The 2010 figures for financial assets and liabilities were used as a proxy for 2011 Swiss data, as 2011 data are unavailable. Annual 2009 figures are used for Gross Disposable Income for Luxembourg and Switzerland.

Chart 3: Financial Assets, Liabilities and Net Financial Wealth of Households as a Four-Sum Moving Average of Disposable Income, Q3 2011

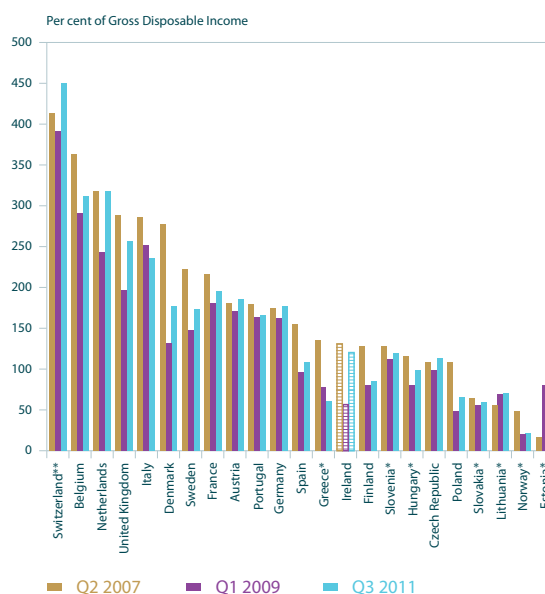


Sources: ECB, Eurostat, National data for Austria, Germany, Greece, Netherlands, Ireland and Norway. Annual 2010 data used for Switzerland. **Indicates 2009 data used for disposable income. *Indicates 2010 data used for disposable income only.

Luxembourg, Lithuania, Austria, Czech Republic and Germany have seen an improvement in net financial wealth by Q3 2011⁶. Between Q2 2007 and Q3 2011, Ireland's net financial wealth as a proportion of disposable income fell by 11 percentage points, to 120 per cent of disposable income. This was composed of an increase in total financial assets by 2 percentage points, while liabilities grew by 13 percentage points. At end-Q3 2011, Irish households' net financial wealth as a percentage of disposable income was the thirteenth highest in the sample of countries, overtaking households in Spain and Greece since Q2 2007.

From an analysis of the 24 countries between Q2 2004 and Q3 2011, 18 countries' net financial wealth peaked prior to the crisis, and reached a trough as the financial crisis led to increased stock market volatility during 2009⁷. Household net financial wealth peaked over the period for each country between Q4 2006 (Ireland) and Q2 2008 (Austria, Czech Republic and Hungary). The trough in net financial

Chart 4: Household Net Financial Wealth at Q2 2007, Q1 2009 and Q3 2011



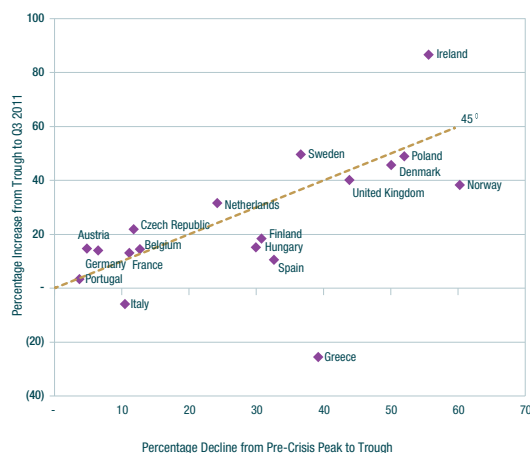
Sources: ECB, Eurostat, National data used for Austria, Germany, Greece, Netherlands, Ireland and Norway. Data not available for Luxembourg. Annual 2010 data used for Switzerland for Q3 2011 figure.

**Indicates 2009 data used for disposable income for Q3 2011 figure. *Indicates 2010 data used for disposable income only for Q3 2011 figure.

wealth occurred over a shorter time frame, between Q4 2008 (Austria, Belgium, Norway and Sweden) and Q2 2009 (the Netherlands). Thirteen countries experienced a trough in household net financial wealth in Q1 2009.

In Q3 2011, net financial wealth in 14 countries remained below their respective peaks, however, other countries such as Germany, France, Austria and the Czech Republic had net financial wealth in Q3 2011 that exceeded their previous peak levels. The net financial wealth of Italy and Greece have continued to decline and were at their lowest levels in Q3 2011 since their previous troughs.

⁷ Estonia, Lithuania, Slovenia, Slovakia, Luxembourg and Switzerland showed no obvious peak or trough in their net financial wealth from Q1 2004 to Q3 2011.

Chart 5: Decline in Net Financial Wealth from Peak to Trough and Recovery from Trough to Q3 2011

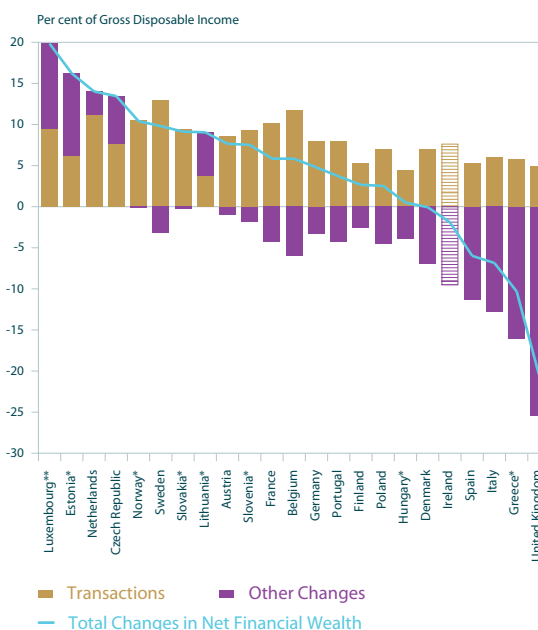
Sources: ECB, National data for Austria, Germany, Greece, Ireland, Netherlands and Norway.
Data unavailable for Switzerland.

Chart 5 compares the percentage decline in each country's net financial wealth from peak to trough against the percentage change from trough to the latest quarter for which data are available. The data show that the greater the percentage decline in net financial wealth from peak to trough, the greater the recovery. Irish households had the second largest percentage decrease in net financial wealth of 56 per cent from peak to trough levels, but the greatest percentage increase in net financial wealth of 86 per cent from the trough period to Q3 2011. This is a result of increased saving and deleveraging by households, and will be examined in a later section. In contrast to the Irish experience, households in Portugal had the smallest decrease in net financial wealth of 5 per cent from peak to trough levels, followed by the third lowest gain in net financial wealth after the trough in Q1 2009 of just 3 per cent. Households in Greece behaved differently to most other countries as, despite a fall in net financial wealth of 39 per cent from peak to trough in Q1 2009, this had not rebounded by Q3 2011 – instead, net financial wealth decreased by a further 26 per cent.

While Sections 3 and 4 examine changes to household balance sheets due to savings and deleveraging, this section examines changes in wealth due to valuation effects. As depicted in Chart 6, valuation changes had a significant impact on changes in household net financial wealth between Q2 2007 and Q3 2011.

Valuation changes can be due to changes in the value of assets, or exchange-rate movements.

For most countries, households' holdings of financial assets fluctuated in value between Q1 2008 and Q3 2011, depicted in Charts 7, 8 and 9. The bulk of the negative revaluations occurred during the early part of the financial crisis: Q1 2008 – Q4 2008, except for Estonia, Norway, Lithuania and Slovakia. As outlined further in Box 1, households' main financial assets are: 'currency and deposits'; 'shares and other equity'; and 'insurance technical reserves'. The value of households' 'currency and deposits' are usually impacted only by exchange-rate changes, therefore, analysis is focussed on 'shares and other equity' and 'insurance technical reserves'.

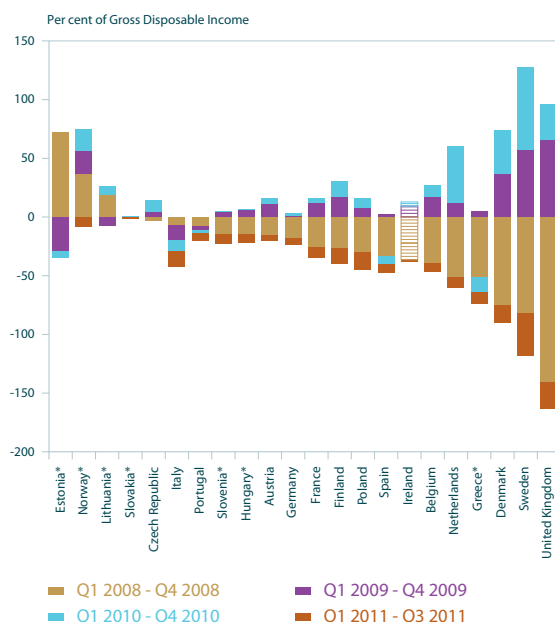
Chart 6: The Relative Contributions of Transactions and Revaluations to Changes in Net Financial Wealth, Q2 2007-Q3 2011

Sources: ECB, Eurostat, National data for Austria, Germany, Greece, Netherlands, Ireland and Norway.

**Indicates 2009 data used for disposable income for 2010 and 2011 figures.

*Indicates 2010 data used for disposable income only for 2011 figures.

Chart 7: Changes in the Value of Financial Assets



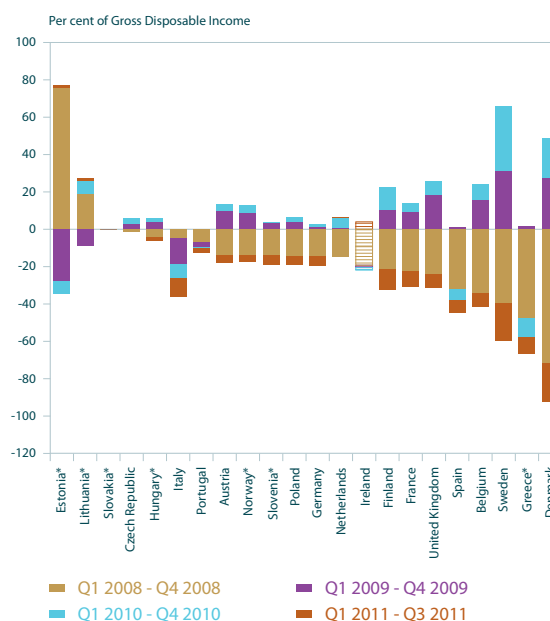
Sources: ECB, Eurostat, Central Statistics Office Ireland, National data for Austria, Germany, Greece, Ireland, Netherlands and Norway. Data not available for Luxembourg and Switzerland.

*Indicates 2010 data used for disposable income in 2011 only.

The value of 'shares and other equity' has been extremely volatile since the beginning of the financial crisis, as illustrated in Chart 8. From Q1 2008 to Q4 2008, the total change in the stock of 'shares and other equity' can be decomposed into valuation changes (accounting for 84 per cent of total change) and transactions (accounting for 16 per cent). A similar ratio was seen for 'shares and other equity' in the second period, Q1 2009 – Q4 2009, of 71 per cent and 29 per cent, respectively.

Households' holdings of 'insurance technical reserves' ('ITRs') experienced large negative valuation changes in some countries during the first period, Q1 2008 – Q4 2008, followed by an increase in value in most subsequent quarters. Chart 9 highlights the valuation changes for 'ITRs' in recent years. The UK, Netherlands, Sweden, Norway and Ireland recorded the largest negative valuation

Chart 8: Changes in the Value of Shares and Other Equity



Sources: ECB, Eurostat, Central Statistics Office Ireland, National data for Austria, Germany, Greece, Ireland, Netherlands and Norway. Data not available for Switzerland and Luxembourg.

*Indicates 2010 data used for disposable income in 2011 only.

changes for 'ITRs' over the four periods highlighted. However, during the second period, Q1 2009 – Q4 2009, the value of households' 'ITRs' in Ireland and the UK recovered by 55 and 42 per cent, respectively. There were notable increases during the same period, with households' holdings of 'ITRs' in Norway, Sweden and the Netherlands recovering by 70, 68 and 13 per cent, respectively.

2.2 Household Net Worth: A Cross Country Comparison

As a large proportion of household wealth is concentrated in housing assets, it is instructive to include data on housing, where possible, in an examination of overall net worth⁸. Housing assets data, however, are only available for 14 of the sample European countries.⁹

⁸ Household net worth is analysed by looking at the aggregate categories on the balance sheet: financial assets, financial liabilities and housing assets. It is calculated as household assets (financial and housing assets) less their liabilities. See Cussen, Kelly and Phelan (2008) for an explanation of the determinants of household net worth.

⁹ Estimates of housing assets are calculated for Ireland based on the size and value of the housing stock. Figures for the household sector's non-financial assets for France, Germany, Italy and the UK are available on the OECD's website in Economic Outlook Annex Table 58, 'Household Wealth and Indebtedness'. For all other countries, the data was made available to us by economists working in the Danish Central Bank.

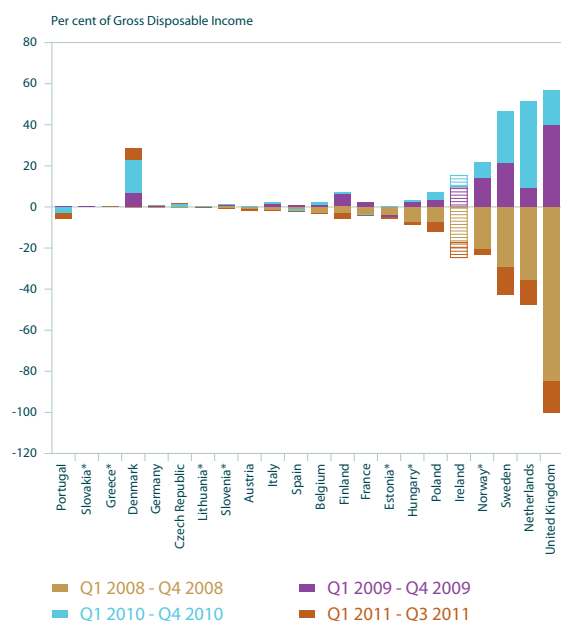
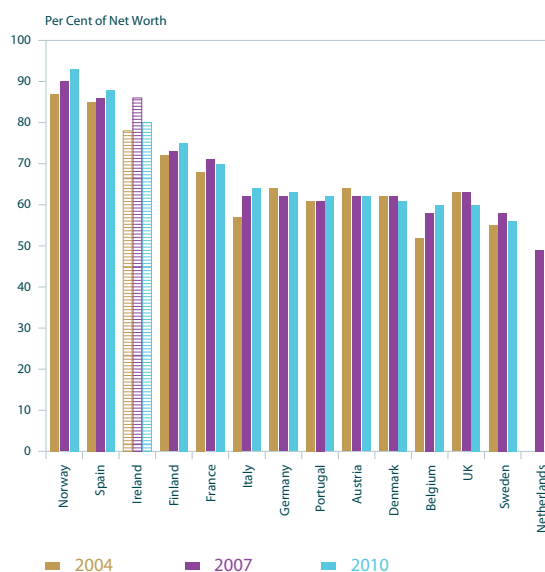
Chart 9: Change in the Value of Insurance Technical Reserves**Chart 10: Housing Assets as a Percentage of Household Net Worth**

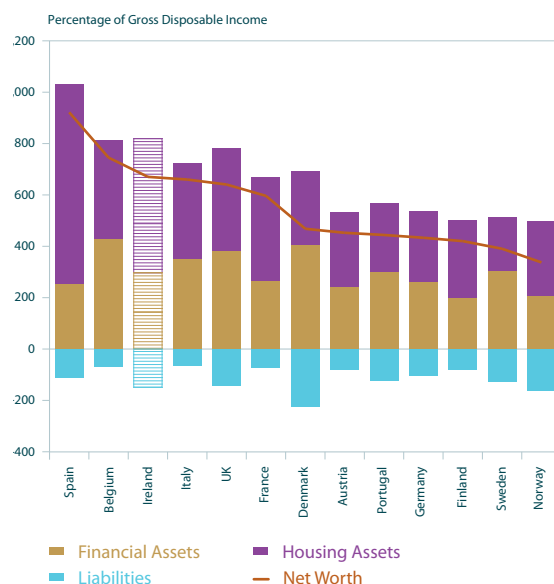
Chart 10 contrasts the proportion of household net worth that is attributable to housing assets for these 14 countries in 2004 (a pre-crisis year), 2007 (beginning of the financial crisis) and 2010 (latest annual data). Housing assets form a substantial proportion of households' overall net worth in most of these countries, particularly Norway, Spain, Ireland and Finland. This means that for such countries, changes to the value of housing assets have a major impact on overall household net worth. In turn, changes to the levels of household net worth influence spending and saving decisions – this is examined in detail in Section 3.

Housing assets as a percentage of net worth in Ireland, scaled for disposable income, increased from 78 per cent in 2004 to 86 per cent in 2007, as depicted in Chart 10. The effect of the downturn in property prices is evident by the fall in housing assets as a percentage of net worth by 2010 to 80 per cent. The impact of this decline on net worth is seen in Charts 11¹⁰, 12 and 13.

In 2004, Irish households had a net worth of 670 per cent of disposable income and were ranked third highest out of the 13 countries in the sample. House prices increased nationally in Ireland by 30 per cent from Q1 2004 to Q4 2006, using the permanent tsb/ESRI Index. The CSO's Residential Property Price Index shows that Ireland reached its peak national price for all residential properties in September 2007. The impact of increased house prices, as well as an increase in the acquisition of housing assets, increased Irish household net worth as a proportion of disposable income by 53 percentage points between 2004 and 2007, to reach 723 per cent of disposable income. By the end of 2007, Ireland retained its third place out of the 14 countries in terms of net worth, largely as a result of substantial housing assets. Spain and Belgium continued to have higher household net worth of the 14 countries covered. From 2004 to 2007, Irish households' holdings of housing assets increased by 98 percentage points, financial assets by 11 percentage points and liabilities by 57 percentage points. The increase in

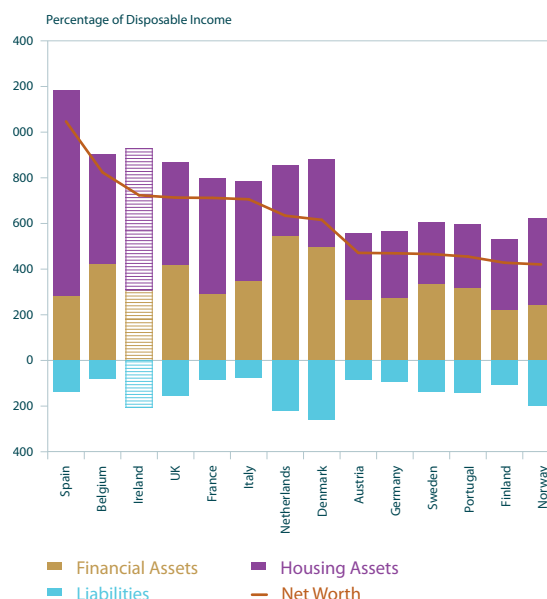
¹⁰ A complete dataset was not available for the Netherlands for 2004. The Netherlands is excluded from Chart 11.

Chart 11: Household Net Worth, 2004



Sources: ECB, Eurostat, National data for Austria, Germany, Ireland and Norway. Data unavailable for Czech Republic, Estonia, Hungary, Lithuania, Luxembourg, Poland, Slovenia, Slovakia and Switzerland.

Chart 12: Household Net Worth, 2007



Sources: ECB, Eurostat, National data for Austria, Germany, Ireland and Norway. Data unavailable for Czech Republic, Estonia, Hungary, Lithuania, Luxembourg, Poland, Slovenia, Slovakia and Switzerland.

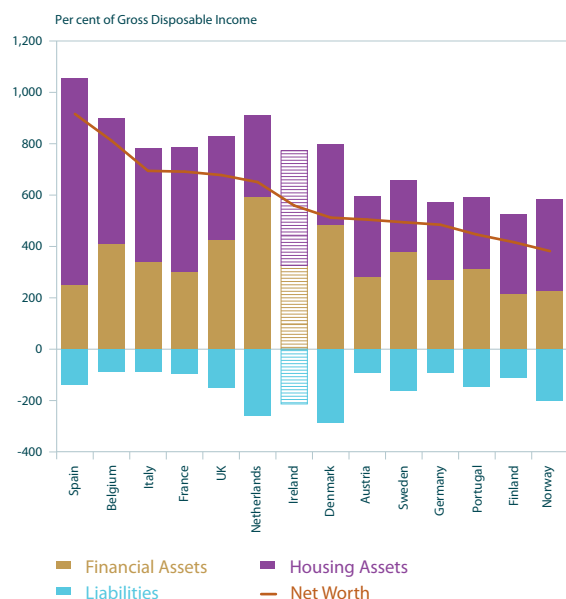
housing assets in all countries in the sample, with the exception of Austria and Germany, were also accompanied by a rise in debt levels. From 2004 to 2007, households' net worth as a proportion of disposable income had increased by 125 percentage points in Spain, while the UK had increased by 72 percentage points. Such a pattern of increasing debt levels and rising holdings of housing assets was also seen in the US and Japan prior to the bursting of their asset bubbles (Koo, 2009).

The net worth of Irish households as a percentage of disposable income fell by 164 percentage points between 2007 and 2010, largely as a result of the 174 percentage point reduction in the stock of housing assets as a proportion of disposable income. At end-2010, Irish net worth stood at 559 per cent of disposable income. This decline exceeded the gain in net worth prior to the recession and was the largest decline in net worth among the 14 countries, from 2007 to 2010. By end-2010, Irish household net worth ranked seventh out of the 14 countries in the sample – a lower position than in 2004 and 2007. Households in all 14 countries in the sample experienced an increase in net worth between 2004 and 2007. Only Austria, Sweden, Netherlands and Germany experienced an

increase in their net worth as a proportion of disposable income from 2007 to 2010, with their housing assets as a proportion of disposable income also increasing.

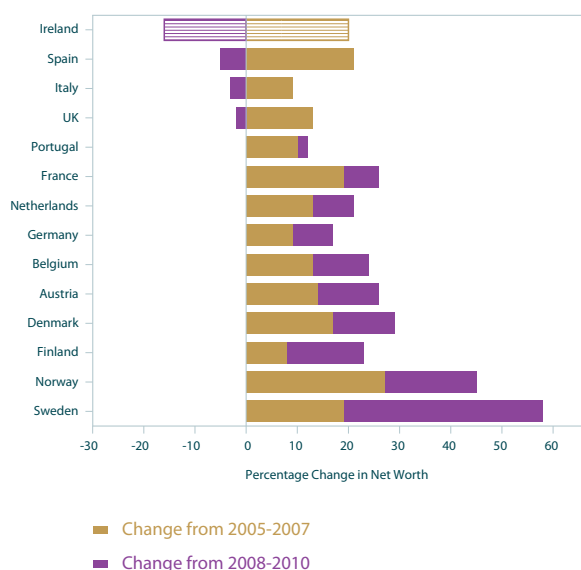
In comparing household net worth as a proportion of disposable income, it is important to take account of cross country divergence. Compared to the other 13 countries in the sample, Irish households had the largest percentage change in disposable income from 2004 to 2007. Irish disposable income increased by 29 per cent over this period, but suffered the second largest reduction among the 14 countries from 2007 to 2010, falling by 7 per cent. The UK had a greater fall in disposable income from 2007 to 2010 compared to Ireland, of 10 per cent. The Netherlands had a decline in disposable income of 1 per cent while all other countries in the sample, with the exception of Italy, had an increase in disposable income from 2007 to 2010. It is worth noting that, all other things being equal, declines in households' disposable income are accompanied by an increase in households' debt burden. It is not possible however, to fully understand the impact of declining income levels without information on the effects of falling disposable income among different income groups.

Chart 13: Household Net Worth, 2010



Sources: ECB, Eurostat, National data for Austria, Germany, Ireland and Norway. Data unavailable for Czech Republic, Estonia, Hungary, Lithuania, Luxembourg, Poland, Slovenia, Slovakia and Switzerland.

Chart 14: Change in Net Worth from 2005 to 2007 and from 2008 to 2010



Sources: ECB, Eurostat, National data for Austria, Germany, Ireland and Norway. Data unavailable for Czech Republic, Estonia, Hungary, Lithuania, Luxembourg, Poland, Slovenia, Slovakia and Switzerland.

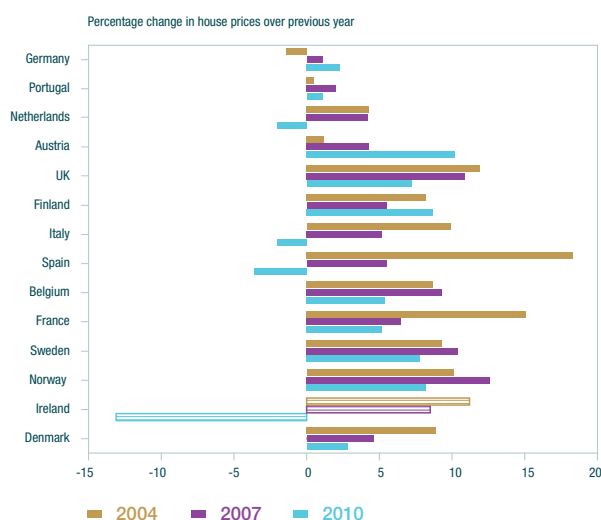
The effect of the global downturn across the 14 countries is illustrated in Chart 14 below, which shows the change in household net worth during two time periods: 2005 to 2007 and 2008 to 2010. Norway and Spain recorded higher increases in net worth as a proportion of disposable income, compared with Ireland, despite larger increases in house prices in Ireland, from 2005 to 2007. Increases in overall net worth which are driven by house price increases heighten the vulnerability of households' balance sheet positions to any decline in housing values. Irish households increased their liabilities as a proportion of disposable income during this period by 32 percentage points, largely reflecting the purchase of housing assets. Only Norway had a greater increase in financial liabilities (37 percentage points) among the 14 countries, between 2005 and 2007.

As a result of the large falls in house prices many households now own properties that are worth less than the outstanding related mortgage (Duffy, 2009). Recent estimates have shown that approximately 31 per cent of mortgaged properties, or 47 per cent of the

value of outstanding mortgage loans, were in negative equity at the end of 2010 (Kennedy and McIndoe-Calder, 2011). By the end of December 2011, 9 per cent of private residential mortgage accounts were in arrears of over 90 days (Central Bank of Ireland, 2012). Savings habits of households are shown to react to changes in net worth. This is examined later in Section 3.

Given that changes in the value of housing assets have been shown to impact on household net worth, it is useful to examine house price developments across the sample of 14 countries. In 2004, all countries except Germany experienced positive changes in house prices. Spain had the highest increase in house prices in 2004 of 18 per cent, followed by France, which had an increase of 15 per cent. Ireland had the fourth highest increase in house prices of 11 per cent. The greatest increase in nominal annual house price changes in the dataset occurred in 2006, when house price increases of greater or equal to 10 per cent were seen in Denmark, Ireland, Norway, Sweden, France, Belgium and Spain. The extent to which house prices increased

Chart 15: Annual House Prices Percentage Changes in 2004, 2007 and 2010



Sources: Nominal annual price changes from OECD property price index, indexed house price changes for Portugal (2005 = 100) and Austria (2000 = 100) from BIS Property Price Statistics.

varied by country is highlighted in Chart 15. According to the OECD, in 2007, Irish house prices increased by almost 9 per cent, which was 6 percentage points lower compared to 2006.

The overheating of the property markets in Ireland and Spain and the subsequent collapse in property prices, impacted negatively on household net worth in these countries. Reinhart and Rogoff (2009) in their examination of the bust phase in housing price cycles accompanied by banking crises, noted that the aftermath of severe financial crises is associated with real house price declines of 35 per cent over six years from peak. Bordo and Jeanne (2002) found that from twenty booms in property prices, eleven were followed by busts, such that one in two property booms end in a crash. This is in line with what happened in Ireland. According to the OECD, Irish house prices fell by 18 per cent in 2009 and by 13 per cent in 2010, the largest reductions in house prices for both years out of the 14 countries in the sample. In 2009, the year in which most sizeable house price decreases occurred, other countries such as Denmark, UK, Spain and France experienced substantial falls in house prices of 12, 8, 8 and 7 per cent, respectively.

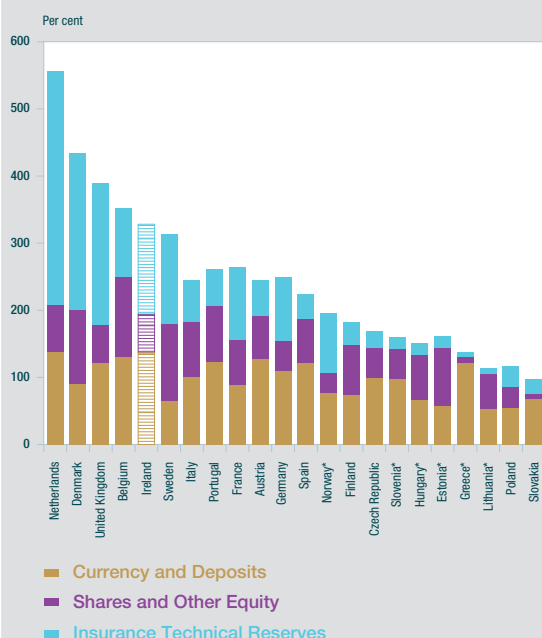
BOX 1: Households' Portfolio of Financial Assets: A Cross Country Comparison

There is substantial variation in the portfolio composition of financial assets of households across the sample of 24 countries. This allocation difference can be due to a range of factors, such as cross country variation in risk aversion, property ownership rates, wealth levels, age structure and tax systems (Borgy et al., 2011). Cross country differences in types and levels of financial assets held by households can be seen in Chart 16, which shows the stock of the main financial instruments¹¹ as a percentage of the four-sum moving average of quarterly gross disposable income of households. The countries are ranked by total financial assets as a percentage of gross disposable income.

At end-Q3 2011, households in the Netherlands held by far the largest amount of financial assets as a percentage of gross disposable income, at 574 per cent. Irish households ranked fifth at 333 per cent, which included the second largest amount in 'currency and deposits' as a percentage of gross disposable income. Irish holdings of this asset type as a percentage of the total portfolio of financial assets was 41 per cent, almost equal to the average for the sample of countries. Greek households had the highest percentage holdings of 'currency and deposits', accounting for 82 per cent of the portfolio in Q3 2011, followed by Slovakia with 64 per cent. Sweden and Denmark had the lowest proportions, with both holding 20 per cent of the household portfolio in this instrument category.

BOX 1: Households' Portfolio of Financial Assets: A Cross Country Comparison

Chart 16: Household Financial Assets as a Percentage of Four-Sum Moving Average of Gross Disposable Income, Q3 2011



Sources: ECB, Eurostat, Central Statistics Office Ireland, National data for Austria, Germany, Greece, Ireland, Netherlands and Norway. Data not available for Switzerland and Luxembourg. *Indicates 2010 data used for disposable income only.

Across the sample of countries 'insurance technical reserves' (ITRs) are the second largest asset type in the household portfolio, after 'currency and deposits', when measured as a percentage of the total portfolio and as a percentage of gross disposable income. ITRs include life assurance policies and pension funds. It is expected that there is considerable cross country variation in the asset composition of this instrument, as there is significant variation in the structure of public and private pension systems, and the tax treatment of pensions and other financial assets among the sample of countries (OECD, 2011). The Netherlands ranks the highest in terms of household holdings of ITRs, with these assets amounting to 347 per cent of gross disposable income at end-Q3 2011. Ireland ranks fourth with 134 per cent. ITRs account for 40 per cent of the Irish household portfolio in Q3 2011, which is well above the average of 26 per cent for the sample of countries.

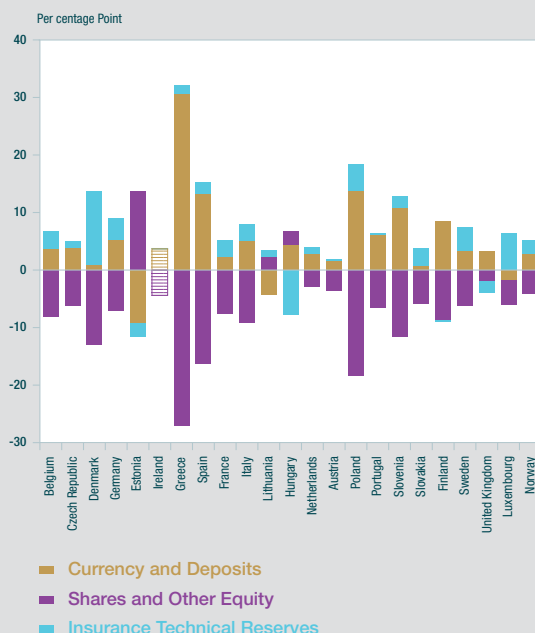
Belgium, Sweden and Denmark each hold over 24 percentage points more in 'shares and other equity' as a proportion of disposable income than any other country, amounting to over 100 per cent of average gross disposable income in each of these countries. This instrument, on average, accounted for 25 per cent of the household portfolio across the sample of countries. Irish households hold a below-average amount of 'shares and other equity', at 17 per cent of the portfolio.

Chart 17 depicts the change in the percentage of total financial assets accounted for by the major financial instruments from the start of the crisis in Q3 2007, to Q3 2011. With the exception of Estonia, Lithuania and Hungary, all countries saw a reduction in 'shares and other equity' as a percentage of the household portfolio. The most substantial changes occurred in Greece where 'currency and deposits' increased from 51 per cent to 82 per cent and 'shares and other equity' decreased from 33 per cent to 6 per cent of the portfolio over the period. 'Currency and deposits' increased as a percentage of the portfolio in all countries with the exception of Estonia, Lithuania and Luxembourg. The trends observed match the overall global pattern for all sectors detailed in the Allianz Global Wealth Report (2011) which shows that bank deposits have increased their share of global financial assets over the past decade, as security-focussed rather than return-orientated investment strategies have become the global trend in response to the uncertainty generated by the crisis.

11 Across the sample of countries 'currency and deposits', 'shares and other equity' and 'insurance technical reserves' are the main asset types with no other financial instrument accounting for more than 10 per cent of the portfolio – this is with the exception of Italy where securities account for 18 per cent of the asset portfolio.

BOX 1: Households' Portfolio of Financial Assets: A Cross Country Comparison

Chart 17: Percentage Point change in Household Financial Balance Sheet Portfolio, Q3 2007 – Q3 2011



Sources: ECB, Eurostat, National data for Austria, Germany, Greece, Ireland, Netherlands and Norway. Data not available for Switzerland.

Changes in the overall portfolio composition, as depicted in Chart 17, can be driven directly through acquiring and disposing of assets (transactions), or indirectly through valuation changes. It is important to decompose the overall change into these two components, particularly in a volatile environment, so that changing trends in household investment behaviour in relation to risk aversion and liquidity preferences can be analysed. While Section 2 looked at the impact of the crisis on asset values, Section 3 analyses the impact of the crisis on household savings rates, including precautionary savings and risk aversion.

BOX 2: Household Savings

Household savings can be derived from the real side of the economy i.e. the non-financial accounts perspective or alternatively, from analysing the uses of household savings i.e. a financial accounts perspective.

Savings from a Non-Financial Accounts Perspective:

$$\text{Savings} = \text{Disposable income} - \text{Consumption}$$

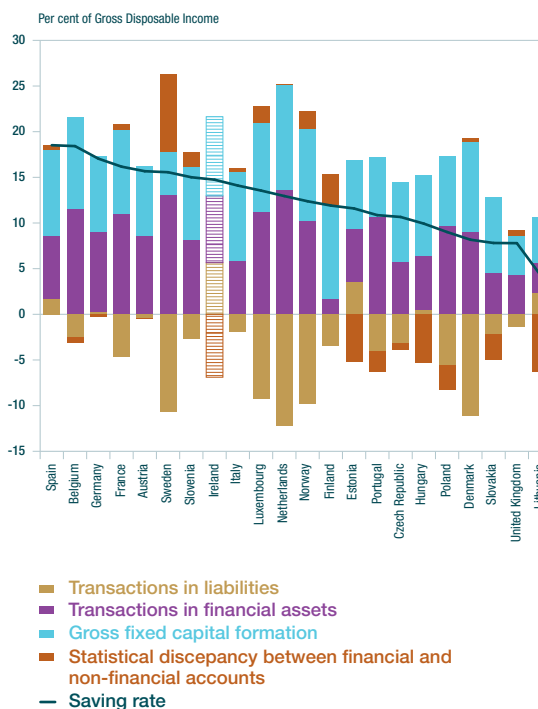
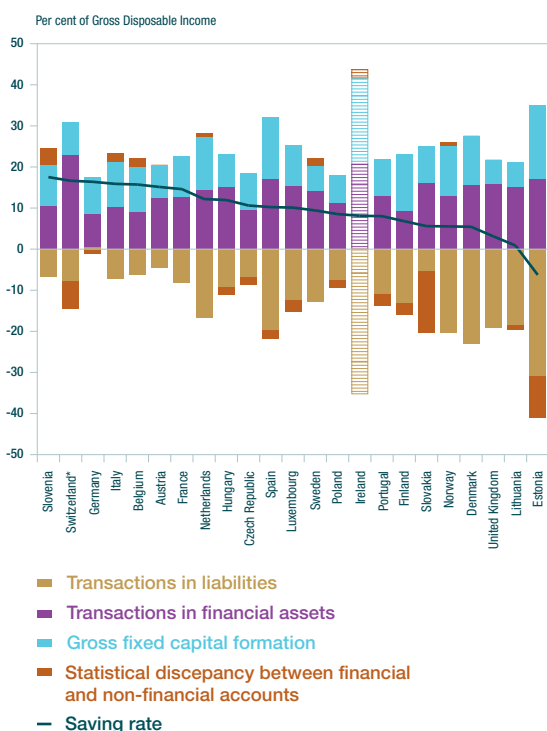
Savings from a Financial Accounts Perspective:

$$\text{Savings} = \text{Transactions in financial assets} + \text{Acquisition of non-financial assets (gross fixed capital formation)} - \text{Transactions in liabilities}$$

$$\text{Savings: Non-Financial Accounts} = \text{Savings: Financial Accounts} + \text{Statistical Discrepancy}$$

The household savings ratio is calculated by dividing savings by disposable income:

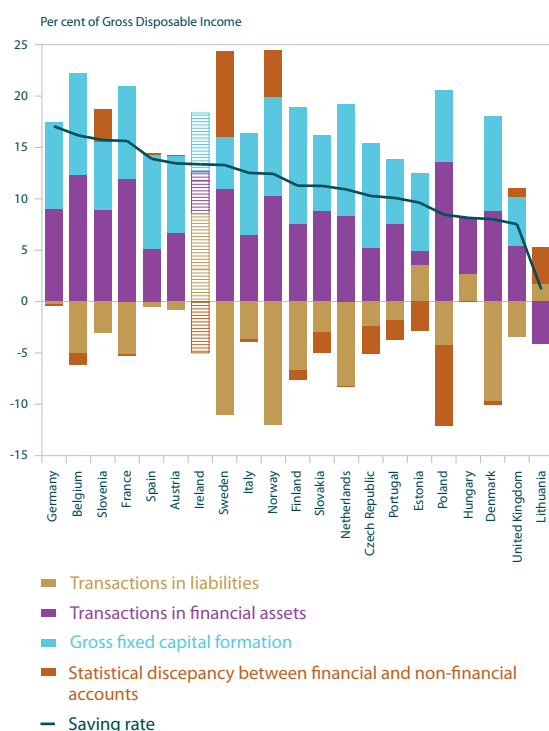
$$\text{Savings Ratio} = \text{Savings} \div \text{Disposable Income}$$

Chart 18: Household Saving Rates, 2006 and 2010**Chart 20: Decomposition of Household Savings Rate from a Financial Accounts Perspective, 2009****Chart 19: Decomposition of Household Savings Rate from a Financial Accounts Perspective, 2006**

3 Increased Household Savings – Precautionary or Debt Reduction

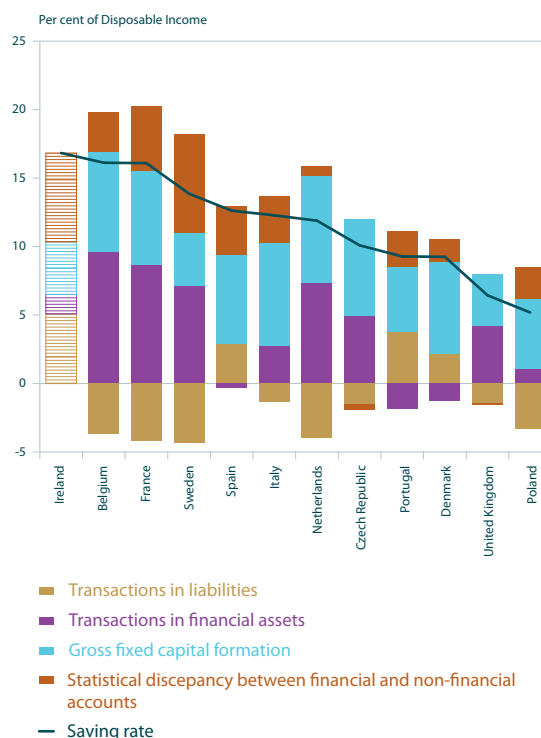
Increased savings rates have significant consequences for the economic outlook, given the importance of household spending as a component of aggregate demand. In a macroeconomic downturn or during a period of economic uncertainty, increased household savings would generally be expected, due to increased precautionary savings and/or debt reduction. There are a number of papers which look at households' precautionary savings behaviour during times of economic uncertainty [see Leland (1968), Deaton (1991), Carroll (1992)]. In addition, following a financial crisis, Roxburgh et al. (2010) find that debt reduction usually occurs either through net loan repayments or defaults/write-downs. If households reduce debt through net loan repayments, this will lead to higher household savings, as outlined in Box 2. This section compares how savings rates across the sample of 24 countries have been impacted by the crisis. Moreover, the paper examines

Chart 21: Decomposition of Household Savings Rate from a Financial Accounts Perspective, 2010



Sources: ECB, Eurostat, National data used for Austria, Netherlands, Germany, Ireland and Norway. Data unavailable for Greece and Switzerland.

Chart 22: Decomposition of Household Savings Rate from a Financial Accounts Perspective, Q1-Q3 2011



Sources: ECB, Eurostat, National data used for Austria, Germany, Netherlands, Ireland and Norway. Data unavailable for Greece and Switzerland.

whether the increased savings have been used by households to increase liquid financial assets as a precautionary measure or to reduce debt levels.

Household savings rates vary considerably across the sample of countries, as depicted in Chart 18. Part of the reason for this heterogeneity is that country specific factors can make cross country comparisons of savings rates difficult. Harvey (2004) outlines factors such as the relative importance of State versus private pension schemes, and State funding of health and education costs which can contribute to different savings ratios across countries. While long-term household savings rates may be a function of country-specific factors, fluctuations in short-term trends provide information about household expectations for future economic developments.

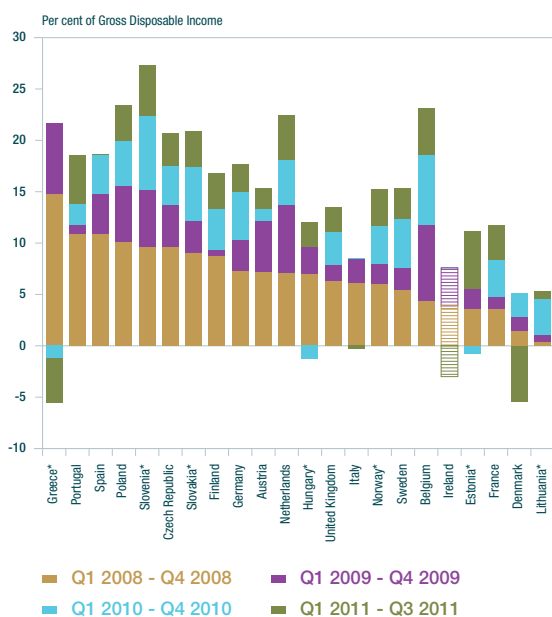
Chart 18 reveals that Slovenia had the highest savings rate in 2006, closely followed by Switzerland, Germany, Italy, Belgium and Austria. Ireland had a savings rate of 8 per cent of gross disposable income in 2006, lower than the

EU average of 11 per cent. For 2010, the Irish savings rate stood at 13 per cent, a 5 percentage point increase on the 2006 rate. This represented the fourth highest percentage point increase in the savings rate over the period, after Estonia, Norway and Slovakia. Between 2006 and 2010 most countries increased their savings rates, with some exceptions such as Hungary, Italy, Slovenia and Austria.

Household savings can be looked at from two different perspectives as outlined in Box 2. The traditional calculation of savings is derived as gross disposable income minus consumption. An alternative can be derived by examining how household savings are used i.e. by adding households' investments in financial and non-financial assets and subtracting liabilities incurred. While technically both approaches should yield the same result, in practice there is usually a difference due to the statistical discrepancy between the real side and financial side of the household account.

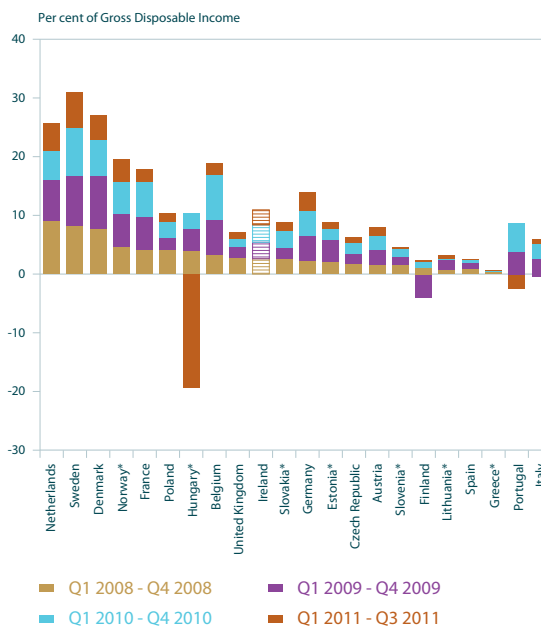
The motivation for the increase in households' savings rates can be assessed using the

Chart 23: Household Transactions in Currency and Deposits as a Percentage of Average Gross Disposable Income



Sources: ECB, Eurostat, National data used for Austria, Germany, Greece, Ireland, Netherlands and Norway. Data not available for Switzerland and Luxembourg. *Indicates 2010 data used for disposable income only.

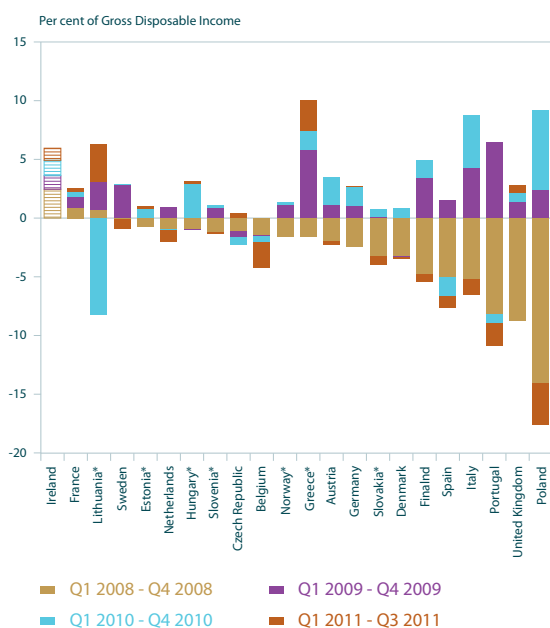
Chart 25: Household Transactions in Insurance Technical Reserves, as a Percentage of Average Gross Disposable Income.



Sources: ECB, Eurostat, National data used for Austria, Germany, Greece, Ireland, Netherlands and Norway. Data not available for Switzerland and Luxembourg.

*Indicates 2010 data used for disposable income only.

Chart 24: Household Transactions in Shares and Other Equity as a Percentage of Average Gross Disposable Income



Sources: ECB, Eurostat, National data used for Austria, Germany, Greece, Ireland, Netherlands and Norway. Data not available for Switzerland and Luxembourg.

*Indicates 2010 data used for disposable income only.

financial accounts perspective outlined above in Box 2. Chart 19 decomposes household savings rates into financial assets transactions, acquisition of non-financial assets, and liabilities transactions for Q1 to Q4 2006. The chart reveals that during 2006, Irish households invested a greater proportion of their disposable income in financial and non-financial assets than any other country in the sample, followed by Estonia, Spain and Switzerland. Irish households had the fifteenth largest savings rate over the period, as their substantial investment in assets was largely offset by sizeable liabilities transactions.

Charts 20, 21 and 22 depict the decomposition of households' savings behaviour during 2009, 2010 and Q1 2011 to Q3 2011¹². Irish household savings rates ranked as the eighth highest, the seventh highest and overall highest for each period, respectively. The charts reveal that the increase in the Irish savings rate is largely due to net loan repayments. Irish households continued to invest in financial and non-financial assets over the periods, but to a much lesser extent than in

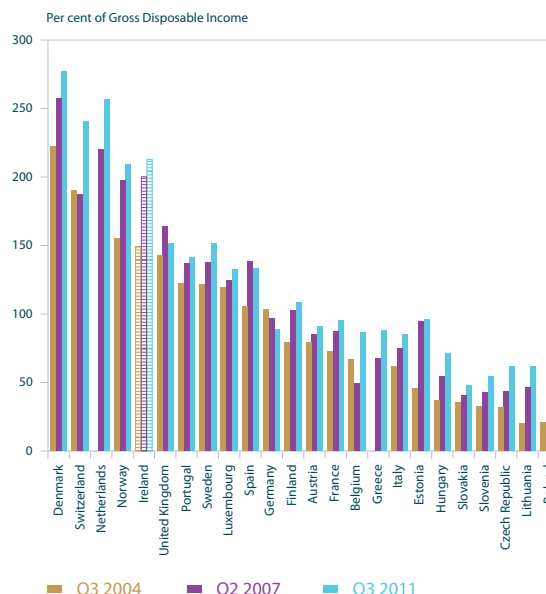
¹² Data for 2011 is not yet available for a number of countries.

2006. The biggest increases in savings rates between 2009 and 2010 were experienced by Slovakia, Slovenia and Norway. The charts show that many countries reduced their liabilities transactions substantially from 2009 onwards, and this was largely responsible for the increased savings rates across many countries. Households in these countries continued to invest in financial and non-financial assets from 2009 onwards, but at a much reduced rate compared to 2006.

The household sector's portfolio of financial assets can be broken down by type of asset, to analyse the extent of movement into more liquid and/or less risky assets during the financial turmoil. Household transactions as a percentage of average gross disposable income are shown for 'currency and deposits', 'shares and other equity' and 'ITRs' in Charts 23, 24 and 25 for different time periods following the onset of the financial crisis. Charts 23 and 24 show a general trend towards greater investment in 'currency and deposits' and away from 'shares and other equity', particularly during 2008, reflecting greater risk aversion by households during the height of the financial crisis. Households in four countries – Denmark, Greece, Ireland, and to a much lesser extent, Italy – disinvested holdings of 'currency and deposits' during 2011, while households in Spain invested an amount equal to just 0.1 per cent of their disposable income in deposits over the same period. Reductions in 'currency and deposits' in recent quarters may reflect concerns about the stability of the banking sector, as well as the use of financial assets to repay debt. Banks in Greece and Italy were negatively impacted by the sovereign debt crisis due to their substantial home bias in sovereign bond holdings (Blundell-Wignall and Slovik, 2011). The banking sectors in Ireland, Spain and Denmark have been significantly impacted by the financial crisis. McQuinn and Woods (2012) find in their analysis of the Irish deposit market that any deterioration in the financial soundness of a deposit-taking entity will have implications for its deposit-gathering capacity.

It can be seen from Chart 24 that 19 of the 22 countries' household sectors in the sample disinvested in 'shares and other equity' in the early period of the crisis. The chart

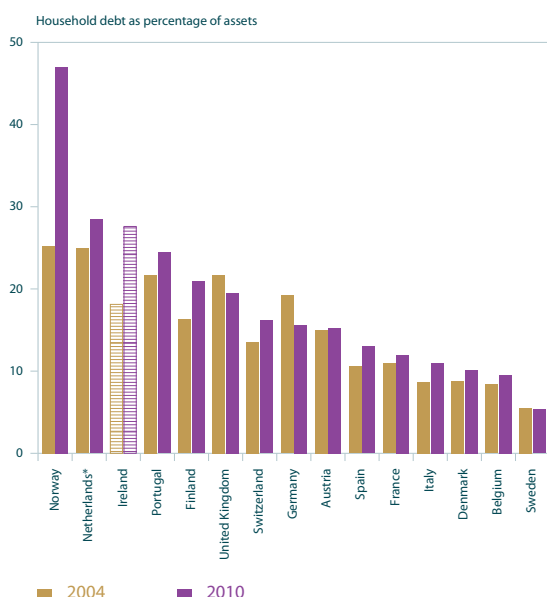
Chart 26: Household Debt



Sources: ECB, Eurostat, National data used for Austria, Germany, Greece, Netherlands, Ireland, Switzerland and Norway. Q3 2004 data not available for the Netherlands and Greece.

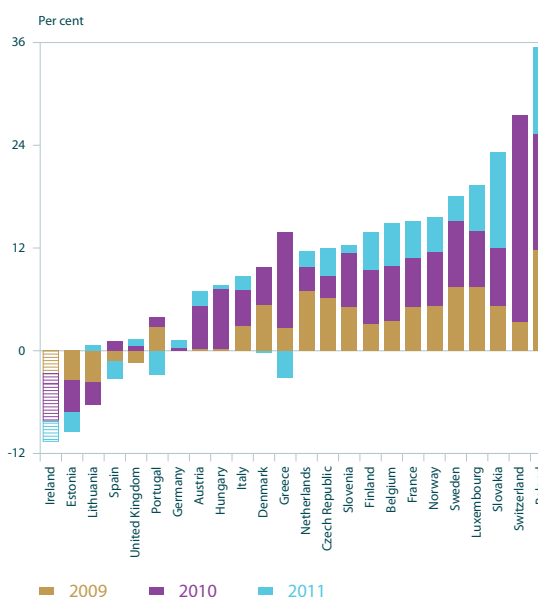
indicates that there has been some recovery in household investment in 'shares and other equity' during 2009, as the financial markets began to recover. Household acquisitions of 'shares and other equity' have, however, been relatively small during 2010 and 2011, which may indicate a continued preference by households for less risky assets.

Chart 25 shows the transactions in 'ITRs'. It can be seen that Denmark, the Netherlands and the UK – the countries with the largest stock of assets in pension funds as a proportion of disposable income – continued to be amongst the biggest investors in 'ITRs' from 2008 onwards, albeit at a much reduced rate relative to pre-crisis years. While Irish households have also shown reduced transactions in this financial asset since the crisis, the reduction has been less pronounced. The most substantial change in this instrument has been in Hungary. This is as a result of a policy change which effectively nationalised a sizable portion of private pension funds held by households, transferring these assets to the government sector balance sheet (The Economist, 2010). A similar transfer of private pension fund assets to the State in response to a government deficit also occurred in Portugal and can also be seen in the chart

Chart 27: Household Debt as a Proportion of Total Assets

Sources: ECB, Eurostat, National data used for Austria, Germany, Greece, Ireland, Switzerland, Netherlands and Norway. Data not available for Czech Republic, Estonia, Hungary, Lithuania, Luxembourg, Poland, Slovenia and Slovakia.

*Indicates 2005 data is used for 2004 figure.

Chart 28: Percentage Change in Household Liabilities

Sources: ECB, Eurostat, National data used for Austria, Germany, Greece, Netherlands, Ireland, Norway and Switzerland. Data not available for Switzerland for 2011.

(European Commission, 2011). This highlights an issue raised in Ahearne and Wolff (2012) that the dynamics of the household balance sheet cannot be considered in isolation from the balance sheet of the rest of the economy, in particular the government sector.

In this section it was found that households in the sample of countries reallocated the assets within their portfolio as a result of the financial crisis and increased uncertainty, investing more in 'currency and deposits' and less in 'shares and other equity', particularly during 2008. This indicates a preference for lower risk, more liquid assets. It was also found, however, that the countries which increased savings the most between 2006 and 2010 did so in order to reduce debt levels. Section 4 further examines household indebtedness and debt reduction in the countries in our sample.

4 Household debt and deleveraging

Access to credit allows households to smooth their consumption levels over time and facilitates investment. Very high household debt, however, can impede economic growth and can make households more susceptible

to distress from increasing interest rates and declining incomes. Cecchetti et al. (2011) find that over the past three decades there has been a steady rise in non-financial sector indebtedness in advanced economies. Across a group of advanced economies, household sector indebtedness rose by 56 percentage points of GDP, with real household debt tripling between 1995 and 2010 – far in excess of the debt accumulation in other sectors of the economy. Cecchetti et al. (2011) also found that, though imprecisely measured, the level at which households' debt-to-GDP ratio becomes a drag on economic growth is 85 per cent and above. Irish households' debt-to-GDP ratio is currently 123 per cent. Roxburgh et al. (2010) argue however, that it is not clear what the "right" level of household indebtedness is. It may vary across countries and over time, depending on economic developments, demographic shifts, land availability and housing preferences. This section looks at Irish household debt levels and deleveraging behaviour in the context of the sample of 24 European countries. Household indebtedness is examined through a number of different metrics to highlight heterogeneous factors across countries.

Households' indebtedness, measured by total household debt as a percentage of disposable income, increased substantially in most European countries in the years preceding the financial crisis. Germany was the only European country not to experience an increase in household debt, as its households' disposable income increased faster than its debt over the period. Using US country-level data, Mian and Sufi (2010) find that household leverage was an important factor in explaining overall macroeconomic fluctuations, in particular during the recent recession. They find that the recession started earlier and was more severe in areas with prior high household leverage growth. Chart 26 ranks Q3 2004 household debt as a proportion of disposable income for all the countries in our sample. The chart shows that in Q3 2004, Irish households had a debt ratio of 149 per cent, making them the fourth most indebted in the sample; after Denmark, Switzerland and Norway.¹³

In the years preceding the financial crisis, Irish household debt as a percentage of disposable income had increased by more than any other country in the sample. The surge in Irish household debt in the years preceding the crisis largely reflected the rapid appreciation in house prices and housing stock prior to 2006, and historically low interest rates. By Q2 2007, Irish households' leverage ratio stood at 200 per cent. Chart 26 also shows that by Q3 2011, Irish debt as a proportion of disposable income had exceeded that of Norway.

Housing ownership rates vary considerably across Europe. In Ireland, 75 per cent of households are owner occupiers (CSO, 2011). This compares to 58 per cent in France and 83 per cent in Spain (Borgy et al., 2011). This can lead to significant heterogeneity in debt to disposable income ratios across Europe. Moreover, Glick and Lansing (2010) find that countries which exhibited the largest increases in household leverage between 1997 and 2007 also tended to experience the fastest rise in house prices over the same period. They find that at their peak, house prices rose the most in Ireland (172 per cent), UK (146 per cent),

Spain (118 per cent), France and Sweden (108 cent), followed by Denmark (89 per cent), the Netherlands (75 per cent), and Italy (61 per cent)¹⁴. Net indebtedness, which takes account of asset holdings by households, may provide a better representation of the real level of household debt. Chart 27¹⁵ provides this information for the countries for which housing assets data were available. When this measure of indebtedness is used, Norwegian households ranked as the most indebted during 2004, followed by households in the Netherlands. Due to their high level of housing and pension assets, Danish households ranked twelfth most indebted using this measure. Irish households were ranked third most indebted in 2010. The significant increase in Irish household indebtedness using this measure is due in part to increased household debt from 2004 to 2008, as well as the decline in Irish housing assets experienced from mid-2007 onwards.

In the case of Ireland, households have been reducing their debt since Q1 2009. This trend however is masked in Charts 26 and 27, as both household disposable income and total assets were also declining. In order to assess the extent to which debt reduction has occurred since the crisis began, Chart 28 depicts the percentage change in the outstanding level of household debt from 2009 onwards. The chart disaggregates the percentage change by year so as to identify the period when debt reduction began. Household debt can be reduced when repayments exceed the incurrence of new debt or through debt write-downs or write-offs. The chart reveals that Irish and Estonian households began to reduce their debt from 2009 onwards and have so far experienced the highest percentage reduction in household debt in the sample of countries used. The UK reduced their household debt during 2009 only, while debt reduction also occurred in Lithuania and Spain in at least one of the time periods covered. Household debt reduction only began during 2011 in Portugal, Greece and to a much lesser extent, in Denmark.

¹³ Q3 2004 data are unavailable for the Netherlands.

¹⁴ Austria, Belgium and Portugal were omitted from this analysis due to lack of data.

¹⁵ Total assets are equal to financial assets plus housing assets. Housing assets data are not currently available for all countries. In addition, there is no standard methodology for calculating housing assets.

The chart reveals that Polish and Slovakian household indebtedness increased the most over the three years. As depicted in Chart 26 however, these households were still among the least highly leveraged in Q3 2011. Marer (2010) found that nearly 40 per cent of Polish households' debt was foreign-currency denominated in 2008, making their debt levels particularly sensitive to exchange-rate movements.

The data show that Irish households are the fourth and third most indebted in the sample of countries when debt is measured as a proportion of disposable income and total assets, respectively. Irish households however, recorded a greater percentage reduction in debt than any other country in our sample since 2009. It is likely that Irish households will continue to reduce debt levels over the coming years. Roxburgh et al. (2010) found that, on average, deleveraging begins two years after the start of a financial crisis and lasts for six to seven years. They found that real GDP declined in the first two or three years of deleveraging but then rebounded in the next four to five years while deleveraging continued.

5 Conclusion

The changing economic environment in Europe has had a significant impact on households' wealth and economic behaviour. This paper finds that the stock market turmoil during late 2008 and 2009 resulted in a considerable decline in households' net financial wealth. At end-Q3 2011, most countries in the dataset, with the exception of Estonia, Switzerland, Luxembourg, Lithuania, Austria, Czech Republic and Germany continued to have lower levels of net financial wealth as a percentage of disposable income than before the crisis. This paper also finds that, for countries for which housing assets data are available, Irish households suffered the highest decline in net worth as a proportion of disposable income, followed by Spain, Denmark, Norway, the UK and France, from 2007 to 2010. Prior to the financial crisis Irish households were the third wealthiest in our sample of 14 countries when measured as a proportion of disposable income. By 2010, they had fallen to the seventh wealthiest.

The reaction of the Irish household sector in the face of deteriorating economic circumstances has not been unusual. Most countries altered their asset portfolio in response to the financial crisis to invest in assets which were more liquid and relatively less risky. In addition, like Irish households, most countries have increased their savings rates in recent years in response to economic uncertainty. The countries which increased their savings rates the most from 2006 to 2010 - Estonia, Norway, Slovakia and Ireland - did so in order to reduce indebtedness. As Irish households' disposable income has fallen considerably since 2008, Irish households' ratio of total liabilities to disposable income has only declined slightly. This paper finds, however, that Irish households have reduced their liabilities more than any other country since 2008, followed by Estonia and Lithuania.

The paper uses financial accounts data to look at wealth, debt and savings on aggregate across a sample of European countries. It is not possible, however to decompose financial accounts data by household types, for example, by income decile, age group, etc. The Central Bank intends to undertake a survey of household wealth in Ireland at end-2013, which will allow this type of analysis.

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