

The Debt Crisis in Ireland & The Financial, Economics and Investment Dataset of the Society of Actuaries in Ireland

Colm Fitzgerald

Dublin City University / Paragon Research Ltd

Society of Actuaries in Ireland

November 21st 2011

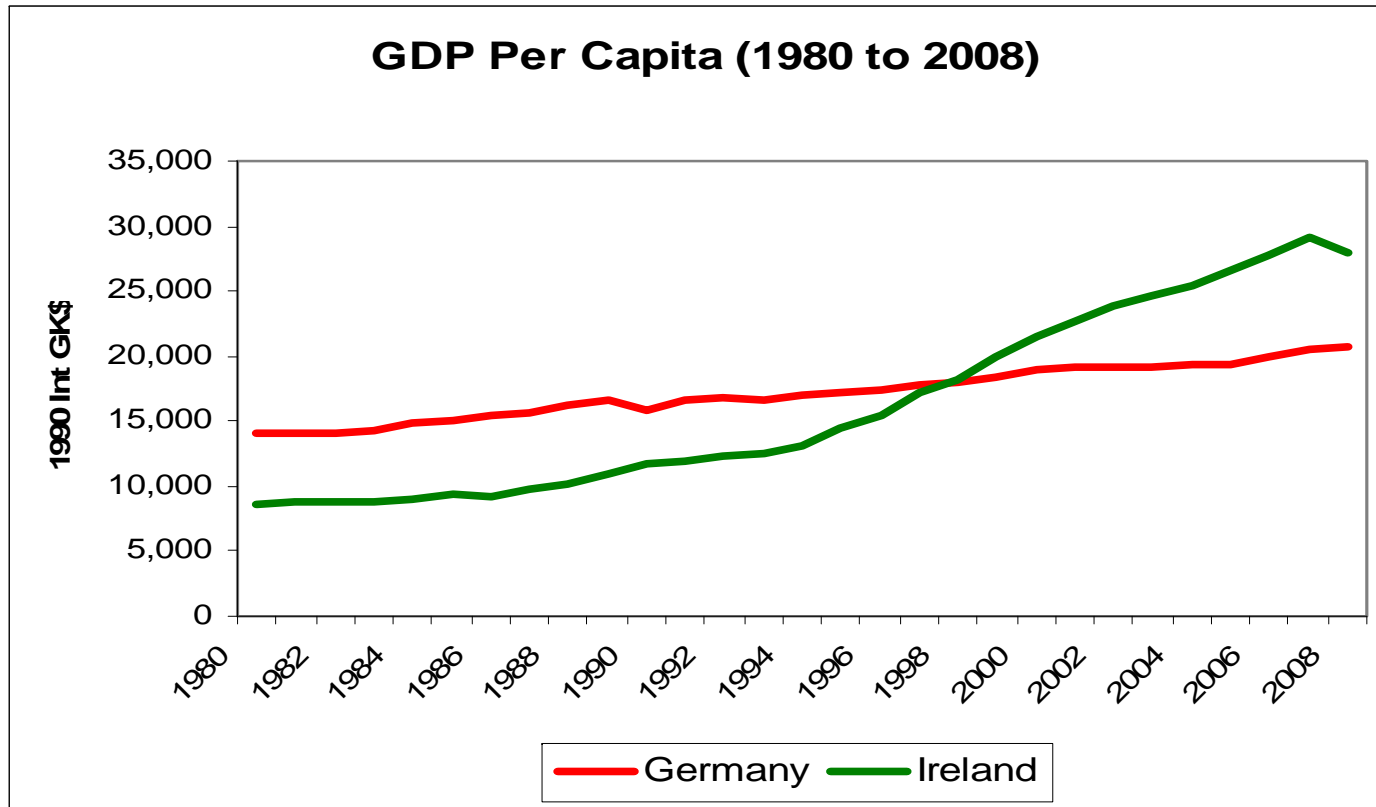


The Debt Crisis in Ireland

- Relative Irish Economic Performance 1980 to 2008
 - Contributing factors
- Factors in the Debt Crisis
 - Concepts mentioned in previous evening meetings
- Economics of European Monetary Integration
 - Late 20th Century European History
 - Theory of Optimum Currency Areas & Balassa-Samuelson Effect
- Ireland / Irish Culture
- Comments on Portugal, Italy, Greece & Spain
- Likely future developments/scenarios
 - Good
 - Bad
- Summary



Ireland versus Germany



Source: Maddison

The Celtic Tiger

- European Integration
 - EU transfers – infrastructure, great roads
 - Lower interest rates
- Some Irish factors
 - Industrial Development Authority (IDA)– foreign direct investment
 - International Financial Services Centre (IFSC) – friendly regulation
 - Education investment in 70s and 80s
 - Low corporate tax rate (since the 60s)
 - Only English speaking country in the Euro
 - Other factors



Factors in the Debt Crisis

- Money Supply Bubble
- Medical Analogy
- Political Economics
- Principle Agent Problem
 - Staying in the Shoal
- Dynamics of a Capitalist System, QE and Neo-liberalism
- The 'Money Tree'
 - direct vs insurance & derivative exposures to peripheral bonds
- Negative Wealth Effect
- Bad economic theory
- A Bond Bubble



European Monetary Integration

- Late 20th century European history – Post Breton Woods
- Theory
 - Theory of Optimum Currency Areas
 - Balassa-Samuelson Effect
- Germans and Italians too different culturally - could never work!
- But went ahead with Greece
 - Greeks got German interest rates without German austerity!
- All relationships can work with effort
 - but if not compatible – divorce likely – can be messy / a bad breakup
- Currently public opinion is on the side of keeping the Euro alive.
 - Will stay alive for as long as the will to keep it alive is there. If public opinion changes, & consequently political opinion, then it may break-up.



Irish Culture

- Eternal Passivity of the Irish Culture
 - <http://www.irishtimes.com/newspaper/opinion/2011/0219/1224290287663.html>
- Irish Language
- Philology Analysis
- Irish Solution to an Irish Problem
 - Bank Guarantee Scheme
- Implications
 - Significant austerity measures, but
 - Very unlikely to see major protests in Ireland



Italy

- Too big to fail, too big to save
- Gigantic debt
- It's the all about growth! (or the lack of it)
- Italy vs US (income per capita)
 - 1950 = 50%
 - 1990 = 80%
 - 2010 = 60% (back to the mid-Sixties)
- 1996-2000 +1.9% (average) 2000-2005 +0,7% (average)
- 2008 -1.0% 2009 -5.0% 2010 +1.3% 2011 +0.6%
- Decisions taken at the European level need to buy enough time to allow Italy to do the fiscal adjustment and the structural reforms
- Will Italy do it? Maybe



Greece, Italy, Portugal & Spain

- Could regard as relatively disfunctional economies vs Germany
- Debt default history
- Different long run economic equilibrium
 - Theory of optimum currency areas
 - Balassa-Samuelson effect
- Attempt to impose functionality/responsibility on disfunctionality
- Psychologist joke
- Saint Exupéry quotes
- Giving a junkie lots of money so that he/she can sort out his/her life
 - Euro entry opened significant opportunities for these economies but it effectively increased the disfunction, which in a functional straightjacket was asking for trouble !! (back to history & politics)



Possible future scenarios

- Ireland leaving the Euro
 - Bringing back the Punt and devaluing
 - If we keep the multinationals in the country (maintain our existing benefits from Euro membership), then this could be very positive
 - The profits washed through Ireland would be worth more in Punts, so higher tax revenues
 - We would become more competitive
 - More expensive imports – but we have a trade surplus so not that bad relatively
- Median Voter Theorem
 - The median voter and the government have too much debt so this will be sorted out – crisis or investment opportunity!
- Derivatives markets - contagion



Possible future scenarios

- Greece leaving in the short term
 - Will Euro collapse if Greece leave, maybe not
 - One scenario is that Greece brings back Drachma and effectively would have both currencies in circulation for a specified period of time
- Political economics
 - Germany and France want a currency to match the dollar
 - Already have the big countries lose out in Optimum Currency Areas
 - Will they try to ‘make the bad assets, their assets’ and bring themselves down like we stupidly did with the banks?
 - Likely! Go short German bonds?
- Other scenarios
 - A strighter straightjacket for the relatively dysfunctional PIGS
 - Monti, Papademos & right wing Spanish Government



Summary

- Ireland
 - Unregulated bad bacteria ran riot, turned into a cancer cell
 - Poor medical diagnosis & poor use of medical resources
 - Currently on a morphine high??
 - Staying in the Euro (the Shoal) – are sharks better than trawler now??
- A Sick National & International Financial Market System
 - Undiagnosed money supply bubble – diagnosed as a credit crisis
 - Authorities have inherited a house of cards – need to keep building
 - Will the house fall down?
 - Like the 1920's when Britain acted so irrationally as it was losing its hegemonic power?
- Likely to be dramatic times ahead for Ireland



Dataset - Introduction

- Acknowledgements
- Background
- Data compiled
- Credibility of data
- Actuarial and Economics Theory
- Relevance of Data
- Some key points from the research
- Discussion
- Further research



Acknowledgements

- I would like to acknowledge the assistance and goodwill of the following individuals in the production of this dataset.
- Prof. Robert Allen (Oxford), Prof. Morgan Kelly (UCD), Prof. Cormac O'Grada (UCD), Prof. Kevin O'Rourke (TCD), Prof. Jeffery Williamson (Harvard), Prof. Fergus D'Arcy (UCD), Prof. Larry Neal (Illinois), Dr. John Turner (Queens), Prof. Stephen Broadberry (Warwick), Dr. Shane Whelan FSAI (UCD), Prof. Gregory Clark (UC Davis), Prof. Peter Lindert (UC Davis), Dr. Bas van Leeuwen (Warwick), Prof. Marc Deloof (Antwerp), Prof. Richard G. Anderson, Prof. William Goetzmann (Yale), Prof. Sam Williamson, Dr. Jutta Bolt (Groningen), Yvonne Lynch FSAI, David Kavanagh FSAI, Paul Kenny FSAI, Dermot Greally



Background

- This dataset has been produced with the primary aim to aid in the setting of guidance for financial and investment assumptions by the Finance & Investment Committee of the Society of Actuaries in Ireland
- A secondary aim was to produce data to aid future financial, economics and investment research by members of the Society of Actuaries in Ireland
- The data are **economically homogeneous but actuarially heterogeneous** and therefore require adjustment before actuarial use.
- The dataset has been produced with funding from the Society of Actuaries in Ireland. For technical queries regarding the dataset, please contact colm.fitzgerald@dcu.ie



Background

- Background: I produced about 300 years of data (before the internet) back in the mid 1990s which I used for modelling/predicting economic variables and financial markets.
- Original brief for the research
- Finished research:
- Indirect aim was to try to move some of the research conducted by the Society from a voluntary basis to a more professional basis.
- ‘Public’ actuarial goods are best produced by the Society
 - Comparison with the Continuous Mortality Investigation



Equity Data

- S&P Index & Dividend Yield Annual 1871 to 2011
- Dow Jones Industrial Average Daily 1885 to 2011
- US Equity Data & Dividend Yields Annual 1815 to 1925
- Bank of England Share Price Monthly 1709 to 1823
- East India Company Share Price Monthly 1709 to 1823
- South Sea Company Share Price Monthly 1711 to 1789
- Belgian Equities Annual 1833 to 2005
- Irish Equity Returns Annual 1783 to 2010



GDP Data

- | | | |
|------------------------------------|--------------------|--------------|
| • English/British | Summary Statistics | 1270 to 1870 |
| • Spanish | Summary Statistics | 1270 to 1850 |
| • Japan | Summary Statistics | 730 to 1870 |
| • Fra, Ger, Ita, Net, Jap, Spa, | | |
| • Swit, UK, US, China, India, | | |
| • Brazil, Arg, Can, NZ, Aus | Various | 1500 to 2008 |
| • Ireland | Annual | 1921 to 2008 |
| • Ireland | Various | 1500 to 1921 |
| • Belgian, Dutch, German, | | |
| • Spanish, Italian, India, Swedish | Various | 1300 to 1870 |
| • US | Annual | 1790 to 2005 |
| • UK | Annual | 1830 to 2005 |



Bond/Interest Rate Data

- Irish Bond Returns Annual 1783 to 2000
- Three Per Cent Consols Monthly 1753 to 1789
- UK Short Term Interest Rate Annual 1790 to 2009
- UK Long Term Interest Rate Annual 1729 to 2009
- US Short Term Interest Rate Annual 1831 to 2009
- US Long Term Interest Rate Annual 1798 to 2009



Inflation Data

- Ireland Annual 1783 to 2010
- London, Oxford (Allen Data) Annual 1264 to 1913
- Florence (Allen Data) Annual 1326 to 1913
- Antwerp, Strasbourg, Valencia (Allen Data) Annual 1399 to 1913
- Paris, Krakow (Allen Data) Annual 1409 to 1913
- Munich, Vienna (Allen Data) Annual 1440 to 1913
- Milan, Naples, Madrid, Augsburg, Leipzig,
Gdansk, Warsaw, Lwow, Hamburg (Allen Data) Annual 1520 to 1913
- Clark Data (England) Annual 1209 to 1914
- RPI (UK) Annual 1264 to 2009
- US CPI Index Annual 1774 to 2010



Earnings Inflation Data

- Ireland Annual 1900 to 2010
- Dublin Annual 1667 to 1918
- US, GB, Arg, Aus, Can, Bel, Den, Fra, Ger, Irl, Ita, Net,
- Nor, Spa, Swe, Brz, Por (Jeff Williamson Data) Annual 1830 to 1988
- London, Oxford (Allen Data) Annual 1264 to 1913
- Florence (Allen Data) Annual 1326 to 1913
- Antwerp, Strasbourg, Valencia (Allen Data) Annual 1399 to 1913
- Paris, Krakow (Allen Data) Annual 1409 to 1913
- Munich, Vienna (Allen Data) Annual 1440 to 1913
- Milan, Naples, Madrid, Augsburg, Leipzig,
- Gdansk, Warsaw, Lwow, Hamburg (Allen Data) Annual 1520 to 1913
- England (Clark Data) Annual 1209 to 1914
- US Unskilled Wage Data (MW Data) Annual 1774 to 2010
- UK Average Real and Nom Earnings (MW Data) Annual 1264 to 2009
- Spain Summary Statistics 1280 to 1850



Population & Other Data

- **Population data**

- Fra, Ger, Ita, Net, Jap, Spa, Swit, UK, US, China, India, Brazil, Arg, Can, NZ, Aus, Ire

Annual 1500, 1600, 1700,
1820, 1830- 2008

- **Other Data**

- Gold Price (New York Market Price)
- Gold Price (London Market Price)
- Gold/Silver Price Ratio
- Number of U.S. dollars per British pound.
- US Money Supply Data

Annual 1791 to 2010

Annual 1718 to 2010

Annual 1687 to 2010

Annual 1791 to 2009

Annual 1800 to 2010



Credibility of Data

- All from reputable sources
 - Credibility of each series discussed with a number of highly regarded academics
 - For some series, there are several estimates. In these cases, the ranges between the estimates would often be considered a consensus viewpoint.
 - E.g. Broadberry's GDP data would be considered by him to be an upper bound, and Clark's GDP data would be considered by him to be a lower bound
- The historical data contains a lot of reconstituted statistics
 - Funnel of doubt the further back you go
 - The estimates appear to be improving with further research by economic historians and are likely to improve in the future.
- Probably the best available data



Actuarial Theory

- **Equities**
- Over the long term equity dividend growth might be expected to be close to growth in GDP, assuming that the share of GDP taken by “capital” remains constant. There is, however, a dilution effect due to the need for companies to raise new equity capital from time to time if dividend yields are high. The dilution effect also depends on the extent to which economic growth is generated by start-up companies.
- Equities would therefore be expected to give a real return close to (*or slightly below*) the growth in real GDP plus the equity yield. From historical data this seems to be a reasonable model, but the short term fluctuations are significant and the actual returns achieved by investors will depend on the exact timing of deals as well as their tax position.
- **Reference: CA1 Core Reading Unit 6 Section 5.2.1 Page 27**
- Equity yield likely to be less than bond yields??



Economics Theory

- **GDP**
- GDP is made up of the incomes from the four factors of production
 - Land
 - Labour
 - Capital
 - Enterprise
- These four factors of production earn
 - Rent
 - Salaries/Wages
 - Interest
 - Profit
- The split of GDP between these factors can vary over the short to medium term but is probably more stable over the long term



Relevance

- Is the data relevant?
 - “It relates to the past, things have changed so much since then”
 - Quality of the data?
- Yes it is relevant.
 - The Human Condition has not changed
 - e.g. Greek & Roman Literature - we have not changed much despite what our egos might tell us.
 - Best data available – what is the alternative? to ignore it?
- “He who does not learn from the past is condemned to repeat it”
 - Very little if any awareness of past financial, economic and investment data.



Some key points from research

- The last 100 years have been hugely different to the previous 1000 years.
 - Price Inflation outside wartime
 - Economic Growth rates
 - England – GDP Growth per Capita 0.2 to 0.5% p.a. from 1270 to 1870
 - Japan - GDP Growth per Capita 0.05% p.a. from 730 to 1870
 - Italy, Spain and Germany
 - Equity Risk Premium
 - 1.5% for the last 300yrs, 4.5% for the last 100 years, but only 0.5% for the previous 200 years. Based on GDP growth it was lower before then!
- Climate change & Resource depletion
 - Recent 'Limits to Growth' Research funded by the Institute & Faculty of Actuaries. Has the bubble of the last 100years burst?



Some key points from research

- Inflation assumptions
 - What will happen to the fiat monetary system
 - A return to some kind of gold standard or ??
- Equity Risk Premium
 - Discussion
- Bond yields
- Is the last 100 years a new trend or a blip?

- Much more research/work to be done



Discussion

- To whom do we make the dataset available?
- I would suggest making it available to academics
 - To improve the learned society profile of the Society
- Should it be made available to other professionals?
- Should it be made available to overseas actuaries?
 - Opportunity to improve the profile of the Society
 - ST5 Core Reading



Future Research

- Data is economically homogeneous but actuarially heterogeneous
- Further research and analysis to homogenise the data for actuarial use
- Likely to be a considerable amount of research
- Likely to take a considerable period of time
- Likely beneficial to work with economic history academics

- Another perspective
 - What should be easier to predict:
 - 1) Mortality 2) Lapses or 3) stock & bond prices
 - Intuition would argue stock and bond prices!



Q&A

- Thank you for your attention this evening!
- Comments/questions to colm.fitzgerald@dcu.ie
or paragonresearchltd@gmail.com



The Debt Crisis in Ireland & The Financial, Economics and Investment Dataset of the Society of Actuaries in Ireland

Colm Fitzgerald

Dublin City University / Paragon Research Ltd

Society of Actuaries in Ireland

November 21st 2011

