International Money and Banking: 17. The Euro Crisis and Developments Since

Karl Whelan

School of Economics, UCD

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The Euro Area Crisis

- During its first decade, global economic policy makers and journalists commonly remarked on what a great success the euro was.
- During its second decade, it became common to hear people talk about the end of the euro. Even Europe's finance ministers casually discussed the idea that certain countries might leave the euro.
- There is less pessimism about the euro right now relative to a few years ago but there is also less confidence than there used to be that the euro will endure as a common currency.
- So how did opinions on the euro as a common currency change and what might the future hold?
- We will focus on:
  1. The Euro crisis as a sovereign debt crisis.
  2. The Euro crisis as a sudden stop crisis.
  3. The Euro crisis as a banking crisis.
  4. Policy developments since the Euro crisis.
  5. Prospects for the future of the euro.

Readings on this Topic

- This is a very complex subject and these lecture notes probably won't do it justice.
- More than other topics on this course, I recommend reading some other papers before preparing an answer on this topic.
- In particular, I recommend six key readings (mainly short) each of which are on the website.
  1. Karl Whelan (2013). Sovereign Default and the Euro, *Oxford Review of Economic Policy*.
  2. Karl Whelan (2019). The Euro at 20: Successes, Problems, Progress and Threats.
  3. CEPR (2015): Rebooting the Eurozone: Step 1 – Agreeing a Crisis Narrative.
  4. Benassy-Quere et al (2018). Reconciling risk sharing with market discipline: A constructive approach to euro area reform.
  5. Stephen Cecchetti and Kim Schoenholtz (2018). Sudden stops: A primer on balance-of-payments crises.
  6. Barry Eichengreen (2007). The Breakup of the Euro Area.

Part I

Three Types of Crisis

Sovereign Debt Crises

- Crises often occur when governments accumulate too much debt and then have difficulty paying it all back.
- Investors may look at a country's fiscal situation and believe its deficit is so high that they are unlikely to be paid back before.
- As we have discussed before, the issue states face is not just borrowing to finance a budget deficit: If a country has a debt-GDP ratio of 120% and its debt was borrowed equally over each of the last six years, then in addition to borrowing to finance a budget deficit, the country has to pay back the 20% of GDP debt it borrowed six years ago. These refinancing obligations are usually much larger than the costs of financing a budget deficit.
- If investors do not want to "roll over" their investments in these sovereign bonds, the most likely outcome is a sovereign default.
- As the probability of default rises, the cost of borrowing from financial markets also rises, making the debt even more unsustainable.
- So sovereign debt crises can occur quite fast and have very negative outcomes: Often a country needs to cut its deficit to zero or rely on funding from the IMF which requires a large fiscal adjustment.

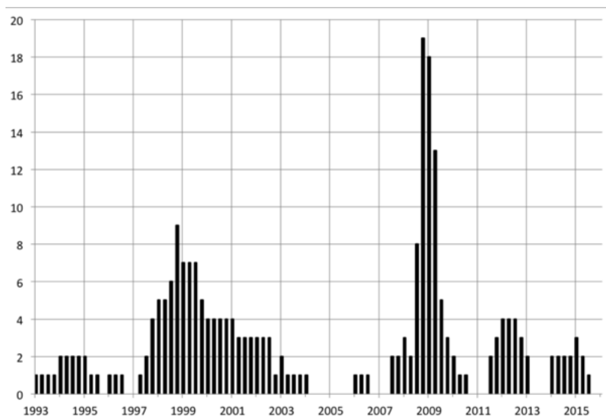
Three Responses to Sovereign Debt Crises

- There is a large literature on debt crises and how they end.
- Traditionally, countries with very high debt-GDP levels reduce them in one of three ways:
  1. **High Rates of Nominal GDP Growth**: It is rare to see countries actually pay down large amounts of nominal debt. Instead, debt ratios come down mainly through high growth in the denominator, i.e. nominal GDP. In many cases, it is high rates of inflation and currency devaluation that drives this nominal growth.
  2. **Financial Repression**: Governments can pass laws that force banks or pension funds to hold their debt even if it carries a low rate of interest.
  3. **Default**: The direct way to cut debt! Default can mean a complete failure to pay but it can also mean a restructuring that sees maturities extended and interest payments reduced.
- Without a separate currency for countries to devalue, the ECB targeting a low rate of inflation and financial repression methods running against EU laws on free movement of capital, you might have expected before the euro came into existence that debt problems for euro area countries would be dealt with via sovereign defaults.

Sudden Stop Crises

- International capital flows can have a large effect on exchange rates.
- During the period after 1945, most countries were part of the Bretton Woods system of fixed exchange rates so this required serious restrictions on international capital flows.
- The move to flexible exchange rates from the 1970s onward saw a liberalisation of these restrictions.
- A new kind of crisis emerged: A sudden stop crisis associated with a sharp reversal of capital that had been flowing into a country.
  1. Investors think a country provides good investment opportunities and provide it with bank loans, purchase bonds from them and invest in equities and property.
  2. But then there is a re-assessment of risk and investors pull their money out. East Asia in the late 1990s is a classic example of a sudden stop.
  3. The finance that had been fueling booms in consumption and investment are gone and people often struggle to repay the debts.
  4. The country goes from running a large current account deficit to a current account surplus and there is often a sharp devaluation of the currency, raising inflation and reducing living standards.

Number of Countries Experiencing a Sudden Stop



Banking Crises

- Banks play a crucial role in modern economies. Their work as financial intermediaries is crucial to financing expenditures on key items such as housing or durable goods and in providing capital to businesses to invest.
- But fractional-reserve banking is innately unstable and few banks are able to withstand a "run" in which depositors or other providers of funds decide they want their money back.
- When the banking system stops operating well, it can have a large negative impact on the economy, often greatly exacerbating an initial negative shock.
- Sovereign debt crises can sometimes trigger a banking crisis: The banks own large amounts of their own country's sovereign bonds and they become insolvent after a default or debt restructuring. This leads to a run on the banks or a requirement for recapitalisation by the state.
- Sudden stop crises can also trigger a banking crisis. International depositors or bond investors decide to pull their money from a country's banking system and international banks decide to close the branches or subsidiaries they have been operating in the country.

Part II

The Euro Crisis as Three Types of Crises

The Euro Area Crisis As All 3 Crises

We will discuss the Euro Area crisis via the crisis framework just developed. The crisis could be seen as all of

1. A sovereign debt crisis.
2. A sudden stop crisis.
3. A banking crisis.

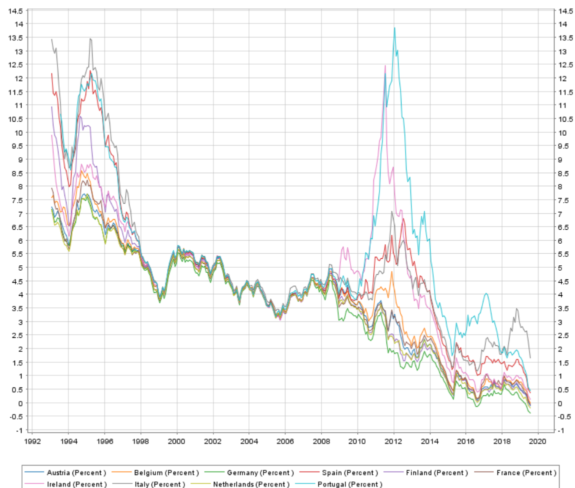
Public Debt: What Economists Thought Would Happen

- My paper "Sovereign Default and the Euro" discusses the debate about euro that took place during the 1990s.
- Lots of papers were written in 1990s about EMU. A small number warned about problems with sovereign default (e.g. Goodhart) but most did not.
- Economists generally believed
  1. There would no bailouts for countries with fiscal problems.
  2. There would be no sovereign bond purchases by ECB.
  3. So defaults could happen but it was generally expected that spillovers to the banking sector or to other economies would be limited.
  4. And it was expected that the Stability and Growth Pact would help maintain fiscal stability.
- Debate largely focused on whether the Eurozone was going to be an optimum currency area. US economists pointed out many of the ways in which the Eurozone would not be an optimal currency area and would find it difficult to cope with asymmetric shocks
- Some Europeans argued there would be fewer asymmetric shocks once the euro was in place. (That wasn't a great prediction).

Public Debt: What Actually Happened

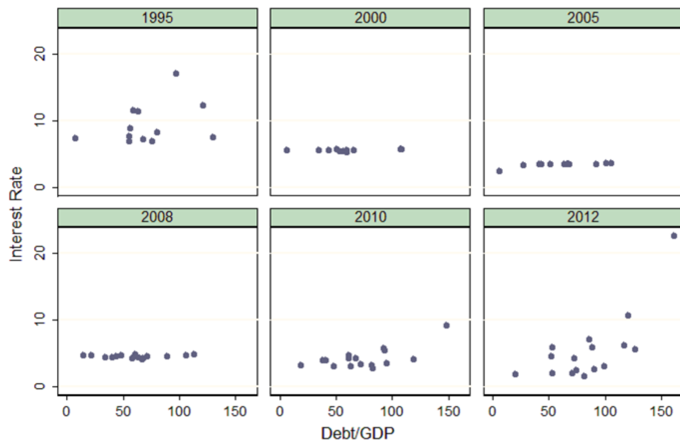
- The early years showed the Stability and Growth Pact to be toothless. It was violated by France and Germany and then others.
- But markets celebrated the elimination of devaluation and inflation risk and began to price all Eurozone sovereign debt very similarly. Public debt levels seemed to have almost no impact on borrowing rates.
- This may partly have been because, despite the SGP failings, they believed that euro area countries would ultimately pursue sound fiscal policies.
- Alternatively, investors may not have believed earlier pledges about no bailouts. Indeed, it turned out that the European Treaty's so-called "no bailout clause" actually didn't rule out bailouts at all.
- Low sovereign debt yields fuelled self-fulfilling expectations of low default risk. While debt levels did not fall much, the cost of servicing it did e.g. Debt interest share of Italian GDP fell from 14% in 1993 to 5% in 2004, so a much smaller primary surplus was needed to stabilise the debt.
- This lowered the political pressure on countries like Greece and Italy to deal with long-standing fiscal problems.

10-Year Sovereign Bond Yields of Selected Countries



Source: ECB Statistical Data Warehouse

Public Debt Ratios and Government Bond Yields



Implications for Private Debt

- The elimination of risk spreads was a big asymmetric shock: It had a profound effect in countries like Spain and Ireland and very little effect in "core" euro area states such as Germany.
- Lower public borrowing rates were largely passed though to the private sector.
- Firms and households could now borrow at much lower rates and they (and their banks) believed that they could handle much larger stocks of debt.
- With most of Europe now using a single currency, an integrated European financial market emerged which channelled a lot of money from Europe's core to its periphery either via bond market lending or via core country financial institutions expanding their operations into Euro-area member states in which they had previously not done business.
- These developments boosted domestic demand in many countries leading to a loss of competitiveness and higher current account deficits. In countries like Ireland and Spain in particular, the huge increases in debt fuelled house price bubbles and construction booms.
- When the global financial crisis came, many peripheral economies were left with high debt, weak banking sectors and serious competitiveness problems.

The Sudden Stop

The global financial crisis that began in 2007 brought an end to many of the trends that had allowed the build-up of debt in the periphery.

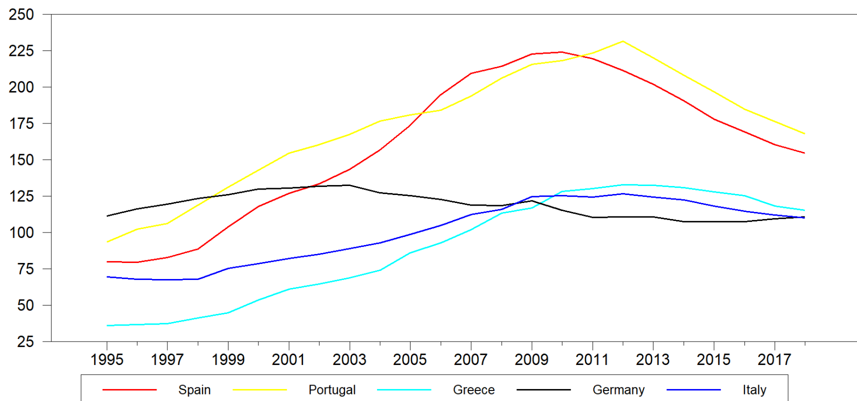
1. **Re-Appearance of Sovereign Risk Premia**: After a long period in which financial markets ignored sovereign default risk, developments of recent years have seen sovereign debt risk premia re-emerge with much of this increase being passed through to private sector rates.
2. **Increases in Private Risk Premia**: The Lehman Brothers default of September 2008 led to a re-pricing of financial sector risk. In particular, financial markets began focusing on the build-up of debt that occurred in peripheral Euro area economies.
3. **Financial Sector Deleveraging**: The global crisis brought home to investors and regulators the problems associated with over-sized and over-leveraged financial institutions. As banks executed deleveraging programmes, there was a significant decline in private sector lending to peripheral economies.
4. **Reversal of Financial Integration**: With major banks in core countries having received significant assistance from governments, banks chose to deleverage via withdrawing from lending to peripheral economies rather than cut back lending in their own countries.

A Banking Crisis

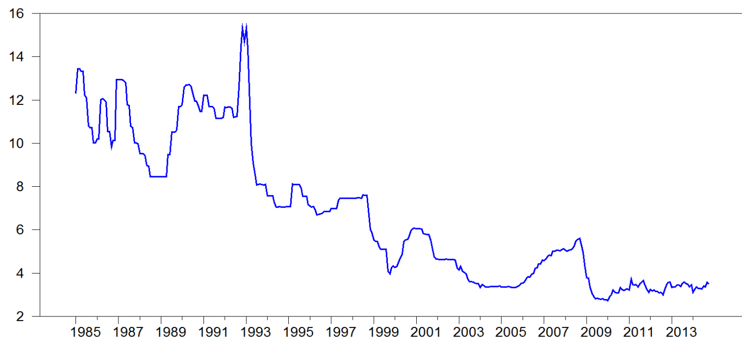
The Euro crisis was also a banking crisis. There are a number of reasons why the Euro Area proved to be a fertile ground for banking crises.

- The EU requires free movement of capital so it was easy for bank creditors to pile money into and then pull money out of troubled banks and governments generally couldn't use capital controls to stop this.
- The sudden stop lead to collapses in property prices and defaults by borrowers which led to banks becoming insolvent.
- Euro member states could not use central bank funding to provide to the government to recapitalise banks and they could not use depreciation to reduce the real value of the banking sector's liabilities.
- Until BRRD was passed in 2015, there was no consistent set of legal principles in the Euro Area for inflicting losses on bank creditors.
- Euro Area banks also had large holdings of their own country's sovereign debt, so a sovereign debt default would threaten the solvency of the banks.
- Banks in countries with weak fiscal situations were also more likely to experience runs because depositors and investors would think the state was unable to provide funds for a bail out or for recapitalisation.

Private Debt as a Share of GDP



Mortgage Rates in Ireland



Charts from Central Bank of Ireland Annual Report, 2000

Figure 1: Private-Sector Credit as a Share of GDP (1960 to 2000) – Ireland

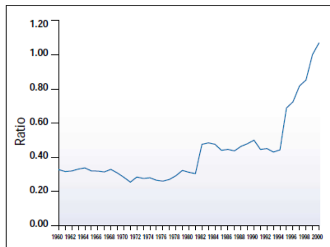
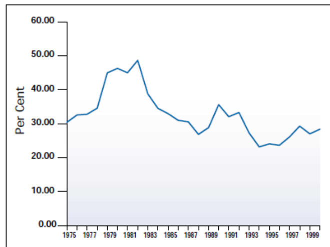
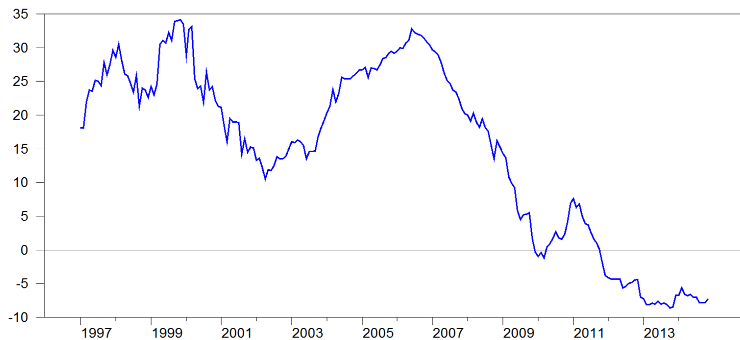


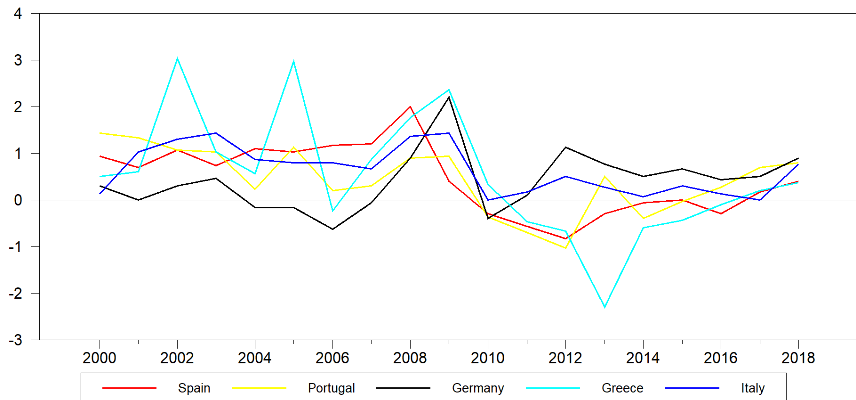
Figure 2: Average Mortgage Repayment Burden as a percentage of Average Household Disposable Income (1975 to 2000) – Ireland



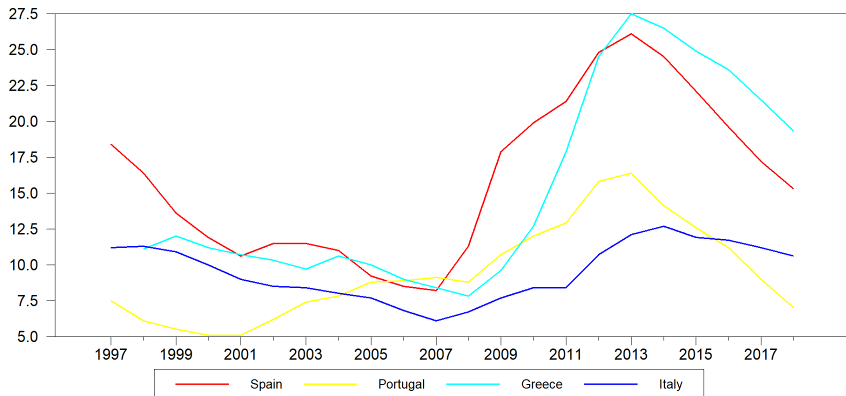
Year-over-Year Growth Rate of Irish Private Sector Credit



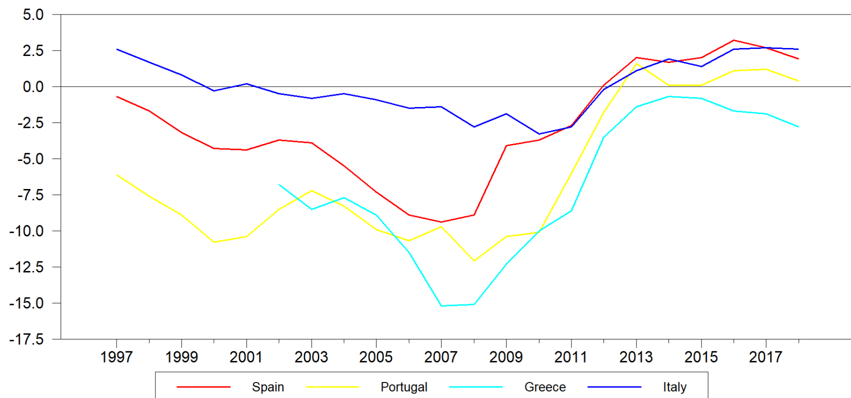
Growth in Unit Labour Costs



Unemployment Rates



Current Accounts As Percent of GDP



Part III

Resolving the Crisis

Default Inside the Euro

- In May 2011, the euro area leaders set up the bailout fund that has now become the European Stabilisation Mechanism.
- Those who expected no bailouts underestimated
  1. The perception across the euro area of shared political damage due to defaults.
  2. Populist desire to blame "speculators" for the euro's problems.
  3. Concerns about knock-on effects of sovereign defaults on banks.
- But those who expected no default ever in the Eurozone were also proved wrong. Setting up the bailout fund prevented default in Ireland and Portugal but it only delayed default in Greece.
- As Greek debt unsustainability became clear, Eurozone leaders became worried about not getting their money back. Deauville declaration in 2010 calling for "adequate participation of private creditors" a key turning point.
- By summer 2011, Europe's leaders reluctantly accepted that Greece was not going to be able to pay back all of its debts and that its private-sector debt should be "restructured." A deal swapping privately-held Greek bonds for new ones with lower value took place in April 2012.

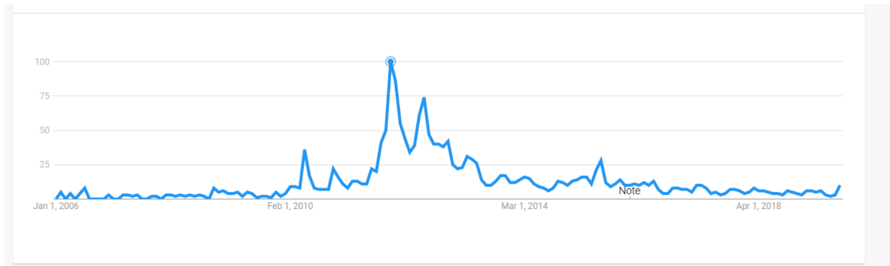
2012: The Euro on the Verge

- By late 2011, with states such as Italy and Spain under massive pressure and the Eurozone in recession, there was widespread concern that countries would leave the euro rather than deal with long-term austerity and/or disruptive sovereign defaults.
- Sovereign yields were rising to unsustainable rates in many countries and banks in the periphery were seeing huge withdrawals of funds as depositors and bond investors feared their investments could be redenominated into new, lower-valued, currencies.
- Pressure began to grow on the ECB to use its money-creation powers to ease pressure on governments and help to keep the euro together.
- The first significant step taken by the ECB was the introduction of the huge Long-Term Refinancing Operations (LTRO) of late 2011 and early 2012 eased funding pressure on banks in the periphery. Many of the funds loaned to banks were used to purchase sovereign bonds of peripheral countries and yields temporarily declined.
- But by summer 2012, the LRTO purchases were seen as a temporary "sticking plaster" measure and talk that various countries would soon possibly leave the euro was rampant.

The ECB's Policy Responses: OMT

- By summer 2012, the positive effects of the LTRO had begun to fade away and Spanish bond yields were moving up to their euro-era highs.
- Mario Draghi gave a speech in July 2012 in which he said the ECB "would do whatever it takes" to save the Euro.
- In September 2012, ECB announced a new programme of secondary bond purchases, known as the Outright Monetary Transactions (OMT) programme.
- This programme would see the ECB making sovereign bond purchases on the secondary bond markets without placing any limits on how much would be purchased. Countries seeking the ECB to make OMT purchases would have to agree a programme of fiscal adjustment with the European Stabilisation Mechanism (ESM).
- While no country has yet requested an OMT intervention from the ECB, it is widely thought that the OMT can cut off the vicious circle by which a loss of confidence in a country leads to higher yields and a quick default.
- The existence of OMT greatly reduced sovereign bond yields in the periphery.

Google Searches for "Euro Crisis" (Peak = 100)



Crisis Over But A Slow Recovery

- All of the countries that were deeply affected by the Euro crisis have been recovering in recent years.
- But the recovery has been very slow and Italy, Spain and Greece still have unemployment rates well above their pre-crisis levels.
- The slow recovery reflects the absence of macroeconomic stabilisation tools in the euro area. These countries do not have a currency to devalue and they have had to run tight fiscal policy under the EU's fiscal rules and without any resort to central bank financing.
- The recoveries have not felt great for workers: After having higher wage growth than Germany for the first decade of the euro, the crisis countries have generally had lower wage growth, with cost competitiveness being recovered and current account balances being restored slowly over time.
- Levels of private debt are falling but generally remain higher than their pre-euro levels.
- If these countries were not in the euro, the alternative would likely have been a short sharp crisis with default and/or a large currency devaluation, followed by a quicker recovery.

Part IV

Another Crisis Issue: ECB Emergency Lending to Banks

The Eurosystem's Rules on Loans to Banks

- The Eurosystem has a relatively clear set of rules on lending to banks:
  - Loans must be collateralised. There is a publicly available list of eligible collateral with "haircuts" for each asset. There are over €13 trillion of marketable assets acceptable as collateral.
  - Losses on loans shared among Eurosystem central banks
- But there are some important nuances.
  - The composition of the eligible collateral list can change, for instance if the ECB views the credit quality of an asset as declining.
  - The risk control framework can be used to select individual assets or institutions as not being eligible for regular credit from ECB.
- Banks can also received loans through Emergency Liquidity Assistance (ELA)
  - ECB says "*ELA aims to provide central bank money to solvent financial institutions that are facing temporary liquidity problems, outside of normal Eurosystem monetary policy operations.*"
  - Responsibility for ELA (and the risk involved) lies with the issuing NCB.

The ECB and ELA

- When a bank has run out of eligible collateral for regular Eurosystem loans, it can apply for ELA. This decision occurs at a national central bank level and the NCB takes on the balance sheet risk.
- But the ECB still plays a role. An example of the ECB's description of its role (from October 2014):

> *The ECB neither provides nor approves emergency liquidity assistance. It is the national central bank ... that provides ELA to an institution that it judges to be solvent at its own risks and under its own terms and conditions. The ECB can object on monetary policy grounds; in order to do so at least two thirds of the Governing Council must see the provision of emergency liquidity as interfering with the tasks and objectives of euro area monetary policy.*

- You could argue that the ECB's is saying here that it doesn't provide or approve ELA but also that it sort of does.
- Procedures underlying ELA used to be secret but an "ELA agreement" was published in 2013 and updated in 2017.

Some Examples of ELA

- We will briefly highlight three cases in which ELA was provided.

  1. Ireland 2009-2010
  2. Cyprus 2011-2013
  3. Greece 2014-2015

Ireland: 2009-2010

- **September 2008**: Anglo Irish Bank runs out of eligible collateral. No ELA is provided but the Irish government provides a near-blanket guarantee.
- **March 2009**: €11.5 billion in ELA given to Anglo, which turns out to be highly insolvent in the absence of government-provided equity investment.
- **2010**: ELA provided to other Irish banks. Total rises to over €40 billion.
- **November 2010**: Ireland opens negotiations to begin an EU-IMF programme. During negotiations, ECB President Trichet sends a letter to the Minister for Finance insisting Ireland enter an EU-IMF programme requiring fiscal and structural reforms as a condition for continued authorisation of ELA. The programme is agreed on November 28.
- **2011 onwards**: ELA rises to almost €70 billion in early 2011 but begins to fall as the banking sector stabilises. Ireland successfully exits the EU-IMF programme at the end of 2013 and ELA is fully repaid.

Cyprus: 2011-2013

- **Late 2010**: Cyprus Popular Bank ("Laiki") and Bank of Cyprus (BoC) build up holdings of €5.8 billion in Greek government bonds (1/3 of Cypriot GDP).
- **2011**: Losses wipe out Laiki's equity and almost all of BoC's.
- **October 2011**: Laiki receives €2.5 billion in ELA.
- **February 2012**: European Banking Authority communicates that Laiki needs a recapitalisation of €2 billion while BoC requires €1.5 billion.
- **2012**: Deposits flow out, capital position worsens and ELA increases, reaching €9.6 billion in July 2012. Background negotiations on an EU-IMF programme take place but are not concluded.
- **2013**:
  - After an election, the previous quasi-Communist government is replaced.
  - Post election, the ECB insists on an EU-IMF programme and bank recapitalisation as a condition for continuing ELA.
  - The government is judged by EU-IMF as too indebted to recapitalise banks so haircuts are applied to depositors.
  - Capital controls are put in place and remain there for years. ELA is strictly capped.

Greece: 2014-2015

- **2014**: ECB conducts a Euro area wide comprehensive assessment and stress test and announces the results in October 2014. It declares Greek banks solvent and have limited need for recapitalisation to meet their requirements.
- **2015**:
  - Political uncertainty surrounding an upcoming election leads to deposit outflows from Greek banking system and ELA increases.
  - Various Greek government-issued and government-backed assets removed from the eligible collateral list.
  - After the election of a new left-wing government, the ECB insists that a new EU-IMF programme be put in place by new government as a condition for providing higher ELA.
  - Greek government ends up imposing capital controls because banks do not have access to liquidity.
  - Damage done to the economy and banking system requires further round of bank recapitalisation.
  - Capital controls kept in place for years. ELA finally ends in 2019.

Questions About How ELA Has Been Practiced

- Have ECB's procedures been clear and transparent?
  - Unlike regular Eurosystem operations, collateral requirements for ELA differ from case to case, depending on the NCB's decisions and Governing Council approval.
  - Unclear relationship between national authorities and the ECB Governing Council.
- Is ELA only provided to solvent banks?
  - Laiki bank was not solvent when it was provided with ELA.
  - Anglo solvency was dependent on Irish government support.
  - Should liquidity support be suspended for banks that ECB itself has declared solvent and have passed stress tests?
  - Why did ECB keep ELA limits in place even after banks (such as those in Cyprus and Greece) had been recapitalised?
- Are decisions to limit ELA really made "on monetary policy grounds" or are some other set of criteria used?
  - Links between willingness to approve ELA and wider political events (Irish and Greek EU-IMF programme negotiations, Cyprus election)

Part V

Developments Since the Euro Crisis

Changes in the Euro Area's Policy Infrastructure

- The Euro Area's governments are often criticised for being slow and indecisive in making decisions but there has been a significant amount of institutional change over the past decade and these changes have improved the Euro Area's ability to cope with crisis.
- **Banking**
  - The ECB becoming the single supervisor for the Euro Area's banks has been an important step forward for trust and transparency
  - BRRD has provides crucial tools for facilitating bank restructuring and resolution while minimising fiscal cost and (hopefully) maintaining financial stability.
- **Sovereign Debt Crisis Management**
  - The creation of the European Stabilisation Mechanism (ESM) has provided an institution to help states under funding pressure to manage a fiscal adjustment without defaulting.
  - At the same time, the relatively efficient Greek debt restructuring has led to an acceptance that sovereign default is part of the crisis resolution toolkit in the Euro Area

Changes in the Euro Area's Policy Infrastructure

- **Macroeconomic and Financial Monitoring**
  - The European Commission's new Macroeconomic Imbalance Procedure (MIP) are an improvement over its previous approach of just monitoring fiscal developments.
  - There is a far greater acknowledgement among policy makers of the need for macro-prudential policies to address potential financial instabilities.
- **Monetary Policy**
  - The ECB has introduced many different new monetary policy instruments.
  - ECB was slow to introduce measures like LTROs, QE or the OMT programme but they are now in place and can be used to address future economic weakness.

Progress Not Made

- **The EU's Fiscal Rules**: These are pretty inflexible and the way they are implemented tends to make fiscal policy pro-cyclical with spending cuts and tax increases occurring during recessions.
- **Joint Fiscal Capacity**: Some amount of shared joint fiscal capacity would help with macroeconomic stabilisation. But there has been no progress on this. A very modest Franco-German proposal to use a Eurozone budget for some national stabilisation was rejected in December 2018.
- **Sovereign Bonds**: Still have zero risk weight for sovereign bonds, which encourages the banks-sovereigns loop.
- **Deposit Insurance**: No common deposit insurance scheme.
- **LOLR**: Despite issuing a public "ELA agreement" there is still a lack of clarity in how the ECB implements its Lender of Last Resort policy.

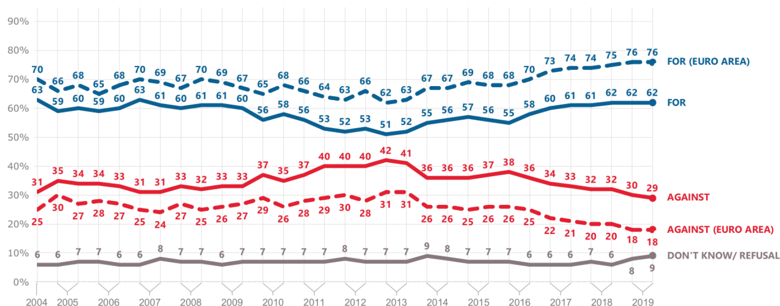
Part VI

Crisis Over?

The Resilience of the Euro

- Despite the difficulties of the past decade and lots of predictions of its demise, the euro is still with us and is now used by more countries than it was in 2008.
- And the euro is more popular than ever with its citizens: 75 percent of the Euro Area's citizens are in favour of EMU.
- One explanation for its popularity is that the ECB has delivered the promised price stability: Inflation has averaged close to 2 percent.
- But there is also a fear factor: People worry about what a euro break-up might look like.
- Even people who think joining the euro was a mistake don't necessarily think leaving it is now a good idea.
- Even populist nationalist parties are increasingly backing away from supporting euro exit.

The Euro Is Popular With Citizens



Partly Because It Has Delivered the Promised Price Stability: HICP Inflation

Crisis Over? Not Quite

- So is the Euro crisis over? I see a few different sources of future crises
- **Political Problems from a Long Slump**:
    - Greece is the most obvious example of how debt problems and a long slump could end in euro exit.
    - But years of poor growth could lead to a failure to stabilise debt ratios in countries like Italy.
    - What happens then? Ongoing ECB support? Rolling ESM programmes? More sovereign defaults? The public could move towards leaving the euro.
- **A Banking Crisis**: Events in Cyprus in 2013 and Greece in 2015 show how banking problems can potentially destabilise the euro.
    - EU and ECB were unwilling to provide the capital and liquidity to restore confidence in the Greek or Cypriot banks so instead they imposed capital controls: A euro in Greece or Cyprus stayed trapped in these countries.
    - Depositors in other countries did not react but future attempts to impose capital controls could trigger deposit outflows and possibly euro exits.
    - Other countries may decide that exit and re-denomination of deposits is a better outcome than deposit haircuts, as happened in Cyprus.

Crisis Over? Not Quite: Populism/Nationalism

- Analogy with Brexit. The economic benefits from euro membership are smaller than the benefits of being a member of the EU.
- In the case of the UK, there were no reputable economic arguments for leaving the EU and plenty of expert analysis indicating the large losses that would occur under various leave scenarios.
- All of these were dismissed by populists who relied on catchphrases about "taking back control" and dismissed all counter-arguments as part of a "Project Fear" conspiracy being promoted by various unseen elites.
- Despite the obvious short-term and long-term potential economic downsides of leaving the euro, talking points about "taking back control of our money and our budgets" may at some point become very effective in the hands of nationalist parties who will have learned from Brexiteers how to dismiss counter-arguments as elitist fear-mongering.
- While we can rely on opinion polls as a reliable indicator of opinion at a point in time, the Brexit process shows that opinions of large parts of the electorate on economic issues can become radicalised in a relatively short time in the right conditions.

Leaving the Euro: Logistics

- Can a country actually leave the euro? The euro is intended to be fixed and irrevocable, so there is no official legal way to leave.
- See the ECB legal working paper on the website. Leaving the euro likely involves reneging on Treaty commitments and those leaving the EU altogether.
- If people expect that the new currency will be worth less than the old one, then they will likely pull their money out of domestic banks and look to send it abroad. To some extent, we have already seen this happen in Greece, Spain and elsewhere. But an official pre-announced plan to leave would cause chaos.
- An exit would likely work as follows:
  - It would occur over a weekend.
  - Banks would not re-open the following Monday and payment systems would be shut down.
  - A law would be passed redenominating all deposit accounts.
  - When ATM machines start working again, they would dispense euro notes with a new stamp to indicate they they're not euros, they're drachmas, liras, whatever. And, within a week or two, new notes would be dispensed replacing the stamped euros.

The End of the Euro: The Mother of All Crises?

- Many European policy makers say the exit of a single country would be "manageable". I'm not sure.
- If one country left, it is likely that investors and depositors would anticipate that others would also leave. To prevent massive outflows of capital, these countries may need to impose capital controls.
- Despite the precedents from Cyprus and Greece, it would probably be difficult to re-establish the euro as a common currency after widespread restrictions have been put in place that prevent euros moving from one country to another.
- If there was a full euro break-up, the outcome would likely be chaotic. The meaning of financial contracts denominated in euro would be completely uncertain. There would be large-scale defaults as creditors with lira and drachma assets may be unable to pay back foreign liabilities previously denominated in euro.
- While the world would pull through in the end, the resulting uncertainty could make the Lehman Brothers crash look like a tea party.