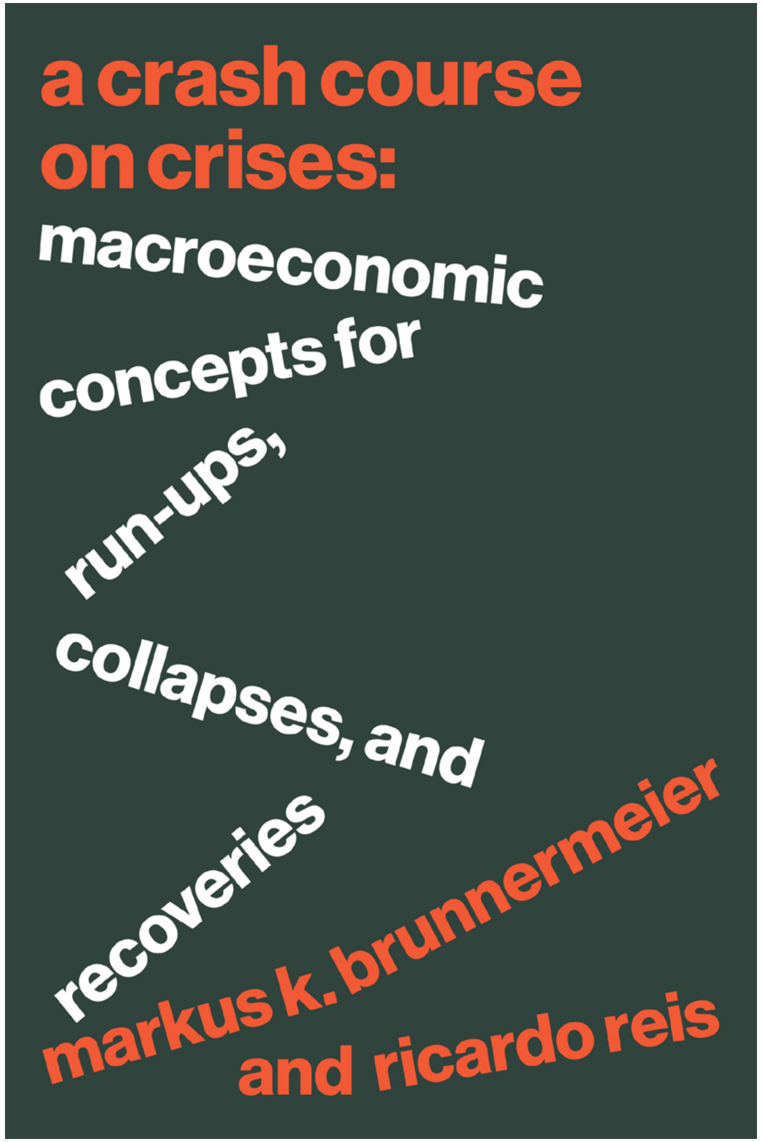
CHAPTER 4

BANKS AND THEIR COUSINS

The Traditional Bank

Modern Banks: Risks and Consequences

Examples: US MBS, Spanish Cajas



FROM TRADITIONAL TO MODERN BANKS

- Banks are subject to runs: fiscal and/or monetary backing as solutions
- Modern banks face a different balance sheet compared with traditional banks, from both asset and liability sides
- The marked-to-market nature of modern banks’ assets and liabilities allow banks to grow more quickly, but also creates further funding risks, with more volatile asset prices
- Examples: US subprime mortgage crisis, Spanish Cajas, and European banks in general

THE TRADITIONAL BANK

THE TRADITIONAL BANK

On the **asset** side are holdings of mortgages, business loans, and financial assets which are mostly government bonds.

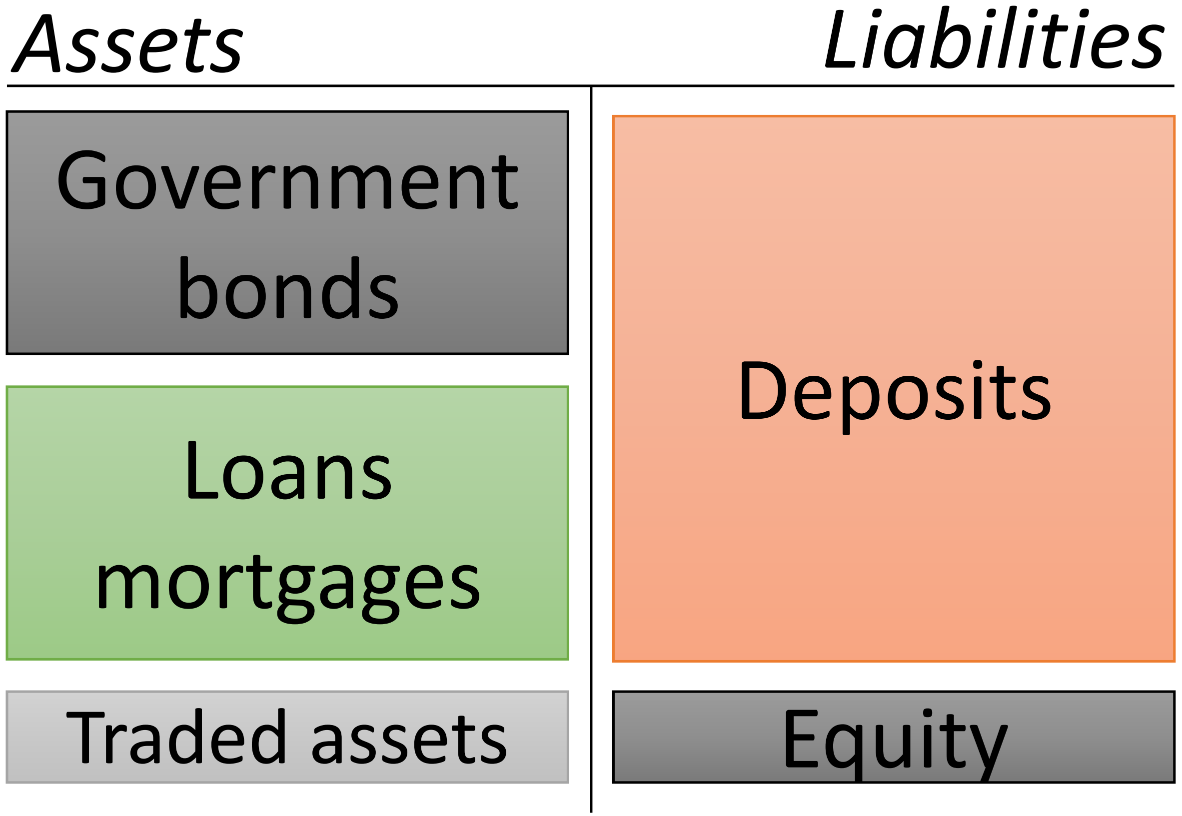
By holding and pooling many assets, risk is reduced due to the imperfect co-movement of asset prices.

On the **liabilities** side are demand deposits from individual households. These are short-term and can be withdrawn at a moment’s notice.

Banks **monitor** domestic borrowers to reduce chances of default as well as transforming from liquid liabilities to illiquid assets. The banker must have some skin in the game (some equity) that will fall in value if the loans are not repaid. This encourages monitoring and discourages excessive risk-taking with the depositor’s fund.

Transformation of maturity and liquidity allows depositors to have access to funds when they need them for individual reasons, while the bank uses their pooled funds to finance long-term investments. However, this transformation leaves banks exposed to bank runs.

Traditional bank



BANK RUNS

What They Are

If all depositors demanded to withdraw their deposits at the same time then the bank would not be able to liquidate its assets to honour its promises

Self-fulfilling Equilibrium

If one depositor expects a bank run then she would want to run as well to be ahead of the line to withdraw before they run out

Policy Solutions

1. Deposit insurance backed by fiscal authorities

2. Lender of last resort by monetary authorities

These measures eliminate the incentive to run on banks

Reason Behind

If depositors know that their deposits will always be honoured, they no longer need to run

The self-fulfilling bad equilibrium breaks down

MODERN BANKS

ASSETS

Securitization

LIABILITIES

Wholesale Funding

SECURITIZATION OF ASSETS

- Pool mortgages to remove idiosyncratic risks

- Sell future revenue stream that comes from the total payments of the mortgages inn exchange for a payment today

- Previously hard-to-trade mortgages are now tradable securities

WHOLESALE FUNDING MARKET: TWO SOURCES

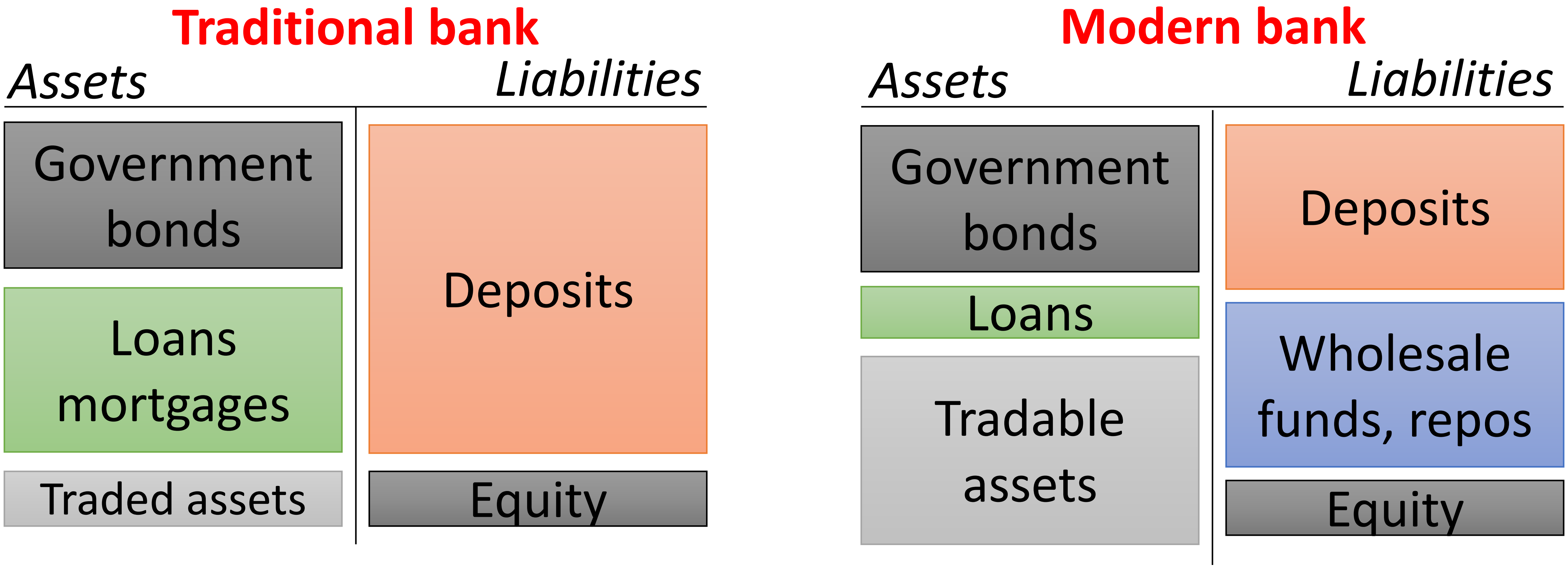
Short-term borrowing in the unsecured market:

- Have no collateral
- As lenders, financial institutions are well informed: they are quick to withdraw their loans.

Repurchase agreements (repo):

- Securities temporarily sold to other financial institutions to be later repurchased at pre-agreed price
- A security is sold for a price below its market value. At a haircut (margin): the difference between the market value and the price sold. A safety cushion for the borrower in case the value of the collateral changes. New funding risk: suddenly raised haircuts
- Typically have short durations, rolled over frequently: quickly disappear as a source of funding
- As repos are collateralised borrowing, they can collect that collateral if the bank fails, regardless of the other credits on the bank

TRADITIONAL VS MODERN BANKS



CONSEQUENCES OF GOING FROM TRADITIONAL TO MODERN

Consequences of Securitization

- Share of traded assets that are constantly marked-to-market is now considerably larger, making bank's balance sheets more transparent but also more volatile
- Volatile: price overreactions during market up-and-down turns exacerbate bank gains and losses. The risk may stay primarily within the banking system as other banks would buy the securities or extend loans to others taking these securities as collaterals.
- The modern bank can quickly realize losses and relies on markets working to sell these securities

Wholesale Funding

- Bank runs are harder to prevent as financial institutions are more well-informed and quicker to withdraw their loans than depositors
- New funding risk form repos not being rolled over.

Both allow banks to grow quickly!

MODERN BANKS ARE RISKIER: SIZE

- They grow quickly supported on wholesale borrowing, as this can be obtained more quickly than deposits can be collected
- The share of net worth that funds the assets is lower.
- Weaker incentives for banks to exert effort to monitor the quality of their loans, induce more risks.

MODERN BANKS ARE RISKIER: FUNDING RISK

- Funding liquidity risk is higher
- Lenders of wholesale funding are quick to exit at the first sign of trouble.
- Some institutions do not take deposits at all, funding themselves entirely through wholesale funding, and so avoid the government regulation that comes with them.
- They continue to use short-term funding to make long-term investments
- These “shadow banks” (mutual funds, bond funds, etc.) are prone to classic bank runs

MODERN BANKS ARE RISKIER: ASSET PRICE CYCLES

- Modern banks amplify asset-price cycles.
- When house prices rise, the marked-to-market assets increase immediately which makes it easier to obtain wholesale funding in the repo market.
- This enables further lending, lower mortgage costs, induce more demand for houses and therefore leading to further appreciation

US SUBPRIME MORTGAGES AND SECURITIZATION

SEQUENCE OF EVENTS

The rise of securitised products led to considerable cheap credit, lower lending standards, and ultimately to an increase of house prices.

One common type of loans:

Collateralised debt obligations (CDOs): after banks granted loans and mortgages, they repacked them in so-called "structured" products.

Another common type of loans:

Asset-backed securities (ABS): the underlying assets that were auto loans, credit card receivables, and other assets.

The pool of these loans was sliced into different tranches, where the cash flows from the underlying assets first pay off the senior tranches and the left-over cash flows go to the junior tranches (riskier).

The riskiness of a senior tranche is dependent on the diversification benefits across the underlying loans in the pool.

Before the crisis, the statistical model that were used to evaluate the riskiness of the tranches at the time underestimated the default correlations across mortgages.

They relied too much on the recent U.S. history during which house price downturns were regional, not national, phenomena.

THE BOOM IN US MBS MARKET

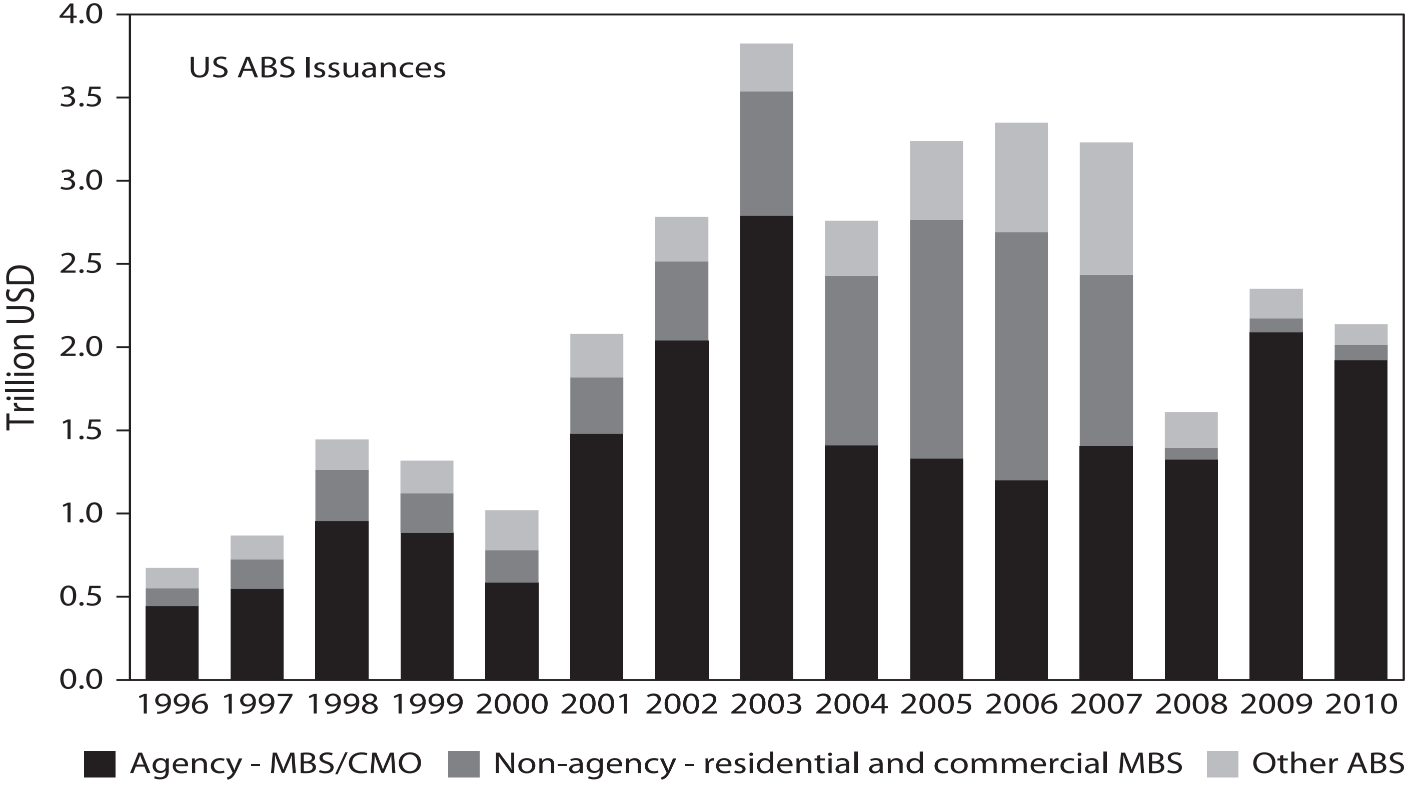


FIGURE 4.2. Issues of mortgage and asset-backed securities

THE CRISIS

2007: In spite of increasing doubts that the run-up in the housing market was sustainable, the financial sector kept on securitising mortgages and other loans

Mar. 2008: The investment bank Bear Sterns failed

July 2008: The U.S. government gave an explicit guarantee to Fannie Mae and Freddie Mac and put them in conservatorship

Sep. 2008:

- **Lehman Brothers declared bankruptcy, triggered a global financial crisis**
- **Most U.S. banks were kept afloat only by using public bail out funds**

SPANISH CREDIT BOOM AND THE CAJAS

Cajas: traditionally small banks, with strong ties to local politicians, specialised in holding mortgages in their regions

From 2002, when Spanish banks start to expand small local savings and loan banks at a rapid rate (blue line), "Cajas", also started to grow despite little growth in deposits (orange line)

The new ability to securitise, sell mortgages and access the wholesale market enabled them to become modern banks and grow quickly

Hence, the Cajas were able to fund credit to real estate at a much faster rate than other banks

By 2007, the Cajas accounted for 52% of all loans to the Spanish private sector and its loans to real estate grew by a factor of 4.9

10 years later, all of the Cajas had been dismantled or absorbed by other banks as a result of their high losses and mismanagement

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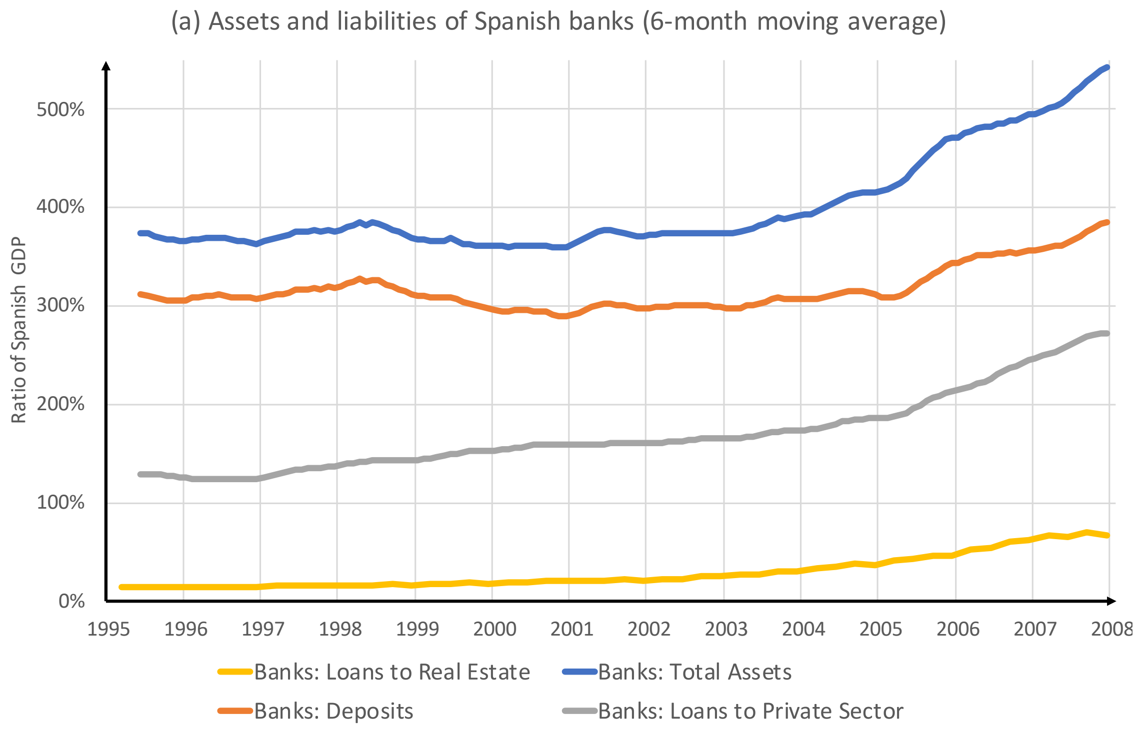
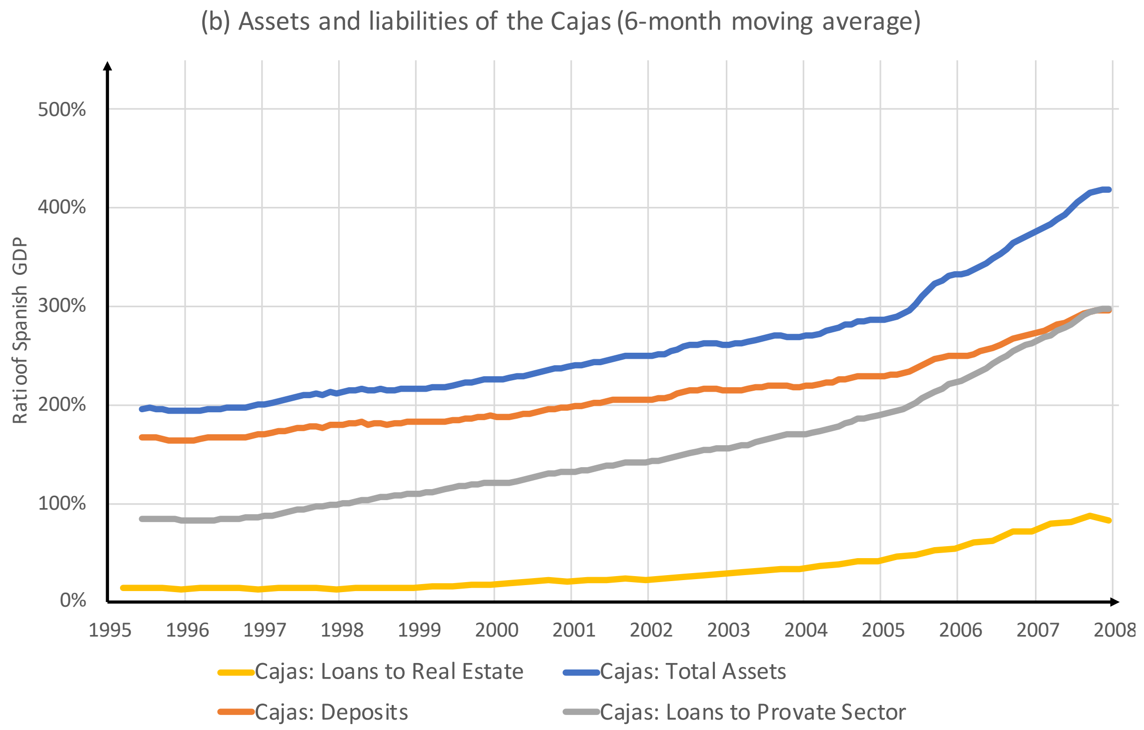
SPANISH BANKS VS CAJAS





FROM SPAIN TO THE EUROPEAN PERIPHERY

Measures of the claims of core banks on periphery banks closely match the evolution of capital flows in the 2000-07 period.

These capital flows were almost entirely accounted for by interbank debt (little equity or physical property that exchanged hands).

Savers in the core regions made short-term deposits in core financial institutions. They sent the capital through the wholesale market as short-term loans to periphery financial institutions.

The periphery financial institutions lent funds to projects (especially those that have tangible collateral, e.g. housing) and securitise them and sell in deep markets allowing the banks to expand quickly.

Part of these loans were used to pay wages in the periphery -> pay for imports of intermediate inputs from core countries.

Firms in the core countries deposited their receipts from the sales to the periphery in the core banks, completing the cycle.

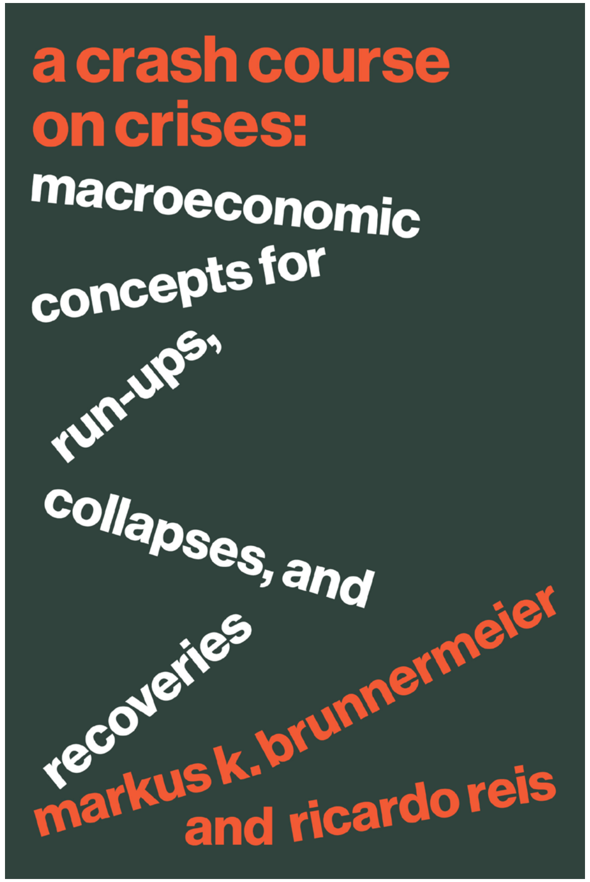
Through this cycle, the modern banks in the periphery relying on short-term funding grew quickly, providing loans that spurred the misallocation between sectors and further enhancing the capital flows across borders.

EUROPEAN BANKS' DISTINCT FEATURES

- Size of bank credit relative to total GDP is very large.
  - ➢ Bank financing is dominant in Europe.
- Concentrated within countries.
  - ➢ Largest few banks in each European country are very large relative to their countries, with total assets often in excess of annual GDP. Any individual country has trouble bailing out its banks.
- Flows of capital happened across multiple regions in Europe, involving countries with different deposit insurance mechanisms, different resolution authorities for troubled banks, and different fiscal authorities and legal systems behind these.
- Altogether, banking sector problems would have a larger impact on the European economy. The sovereign safety net of the financial sector was unreliable.

SUMMARY

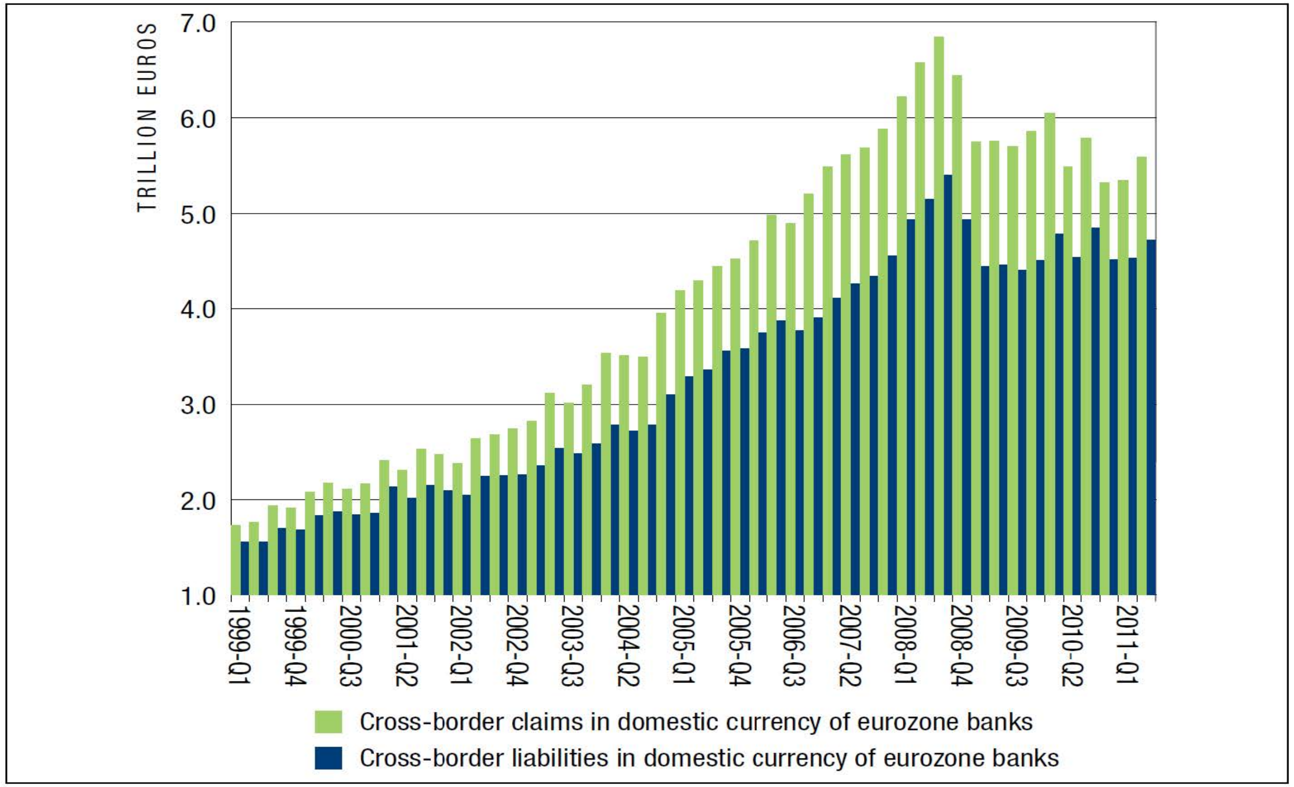
- Traditional banks have a simple balance sheet: mortgages, business loans and government bonds as assets and demand deposits as liabilities
- The transformation from illiquid liabilities to liquid assets expose banks to runs. However, policy in the form of deposit insurance or lender of last resort can eliminate the incentive to **run**
- Modern banks, however, have a much larger share of traded assets that are constantly **marked-to-market** and **grow very quickly**
- **Funding liquidity risk** is higher. Modern banks **amplify asset-price cycles**
- The Cajas expanded rapidly from 2002 despite little growth in deposits. They became modern banks and funded credit to real estate and spurring misallocation between sectors



EXTRA PICTURES

CAPITAL FLOWS CORE-PERIPHERY THROUGH BANKS

Figure 17: Cross-Border euro-denominated assets and liabilities of euro area banks (Billion Euros)



Source: Bank for International Settlements, Locational Banking Statistics, Table 5A

Source: Bank for International Settlements

CAPITAL FLOWS CORE-PERIPHERY THROUGH BANKS

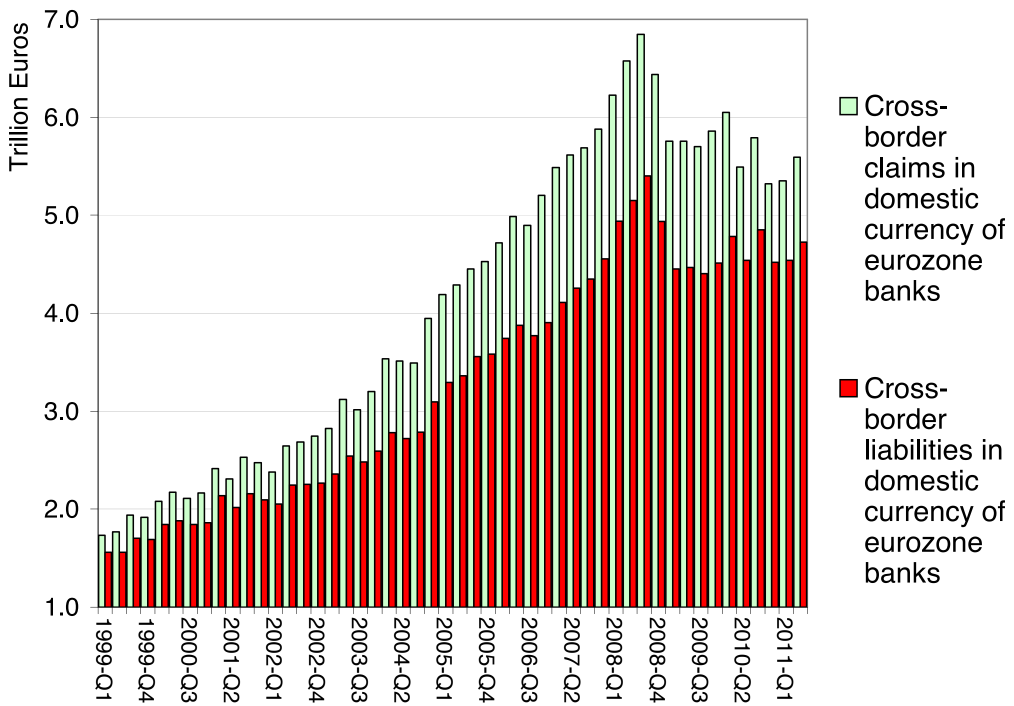


Figure 6. Cross-border euro-denominated claims and liabilities of eurozone banks (Source: BIS Locational Statistics, Table 5A)

Source: Shin, H (2012) "The Euro Crisis Through the Lens of Capital Flow Reversals"

FROM GERMAN TO SPANISH BANKS

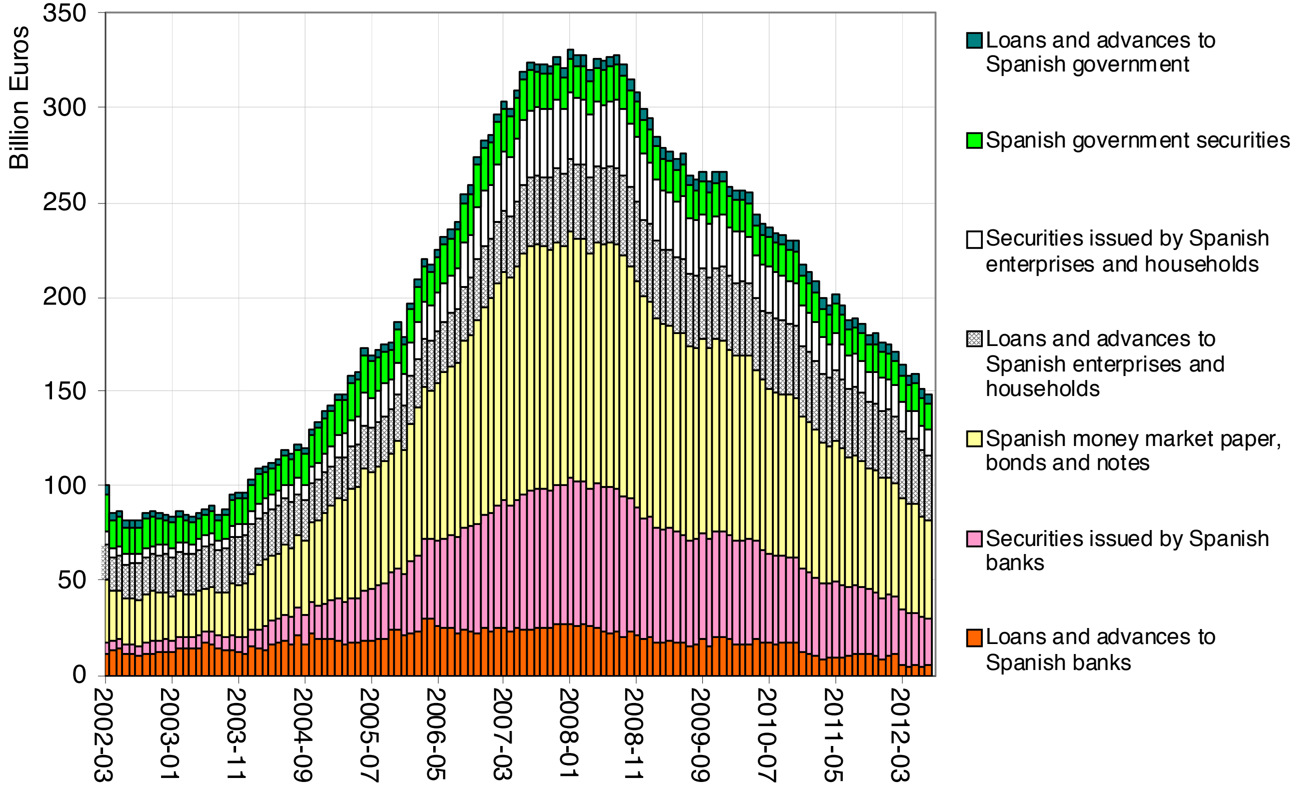
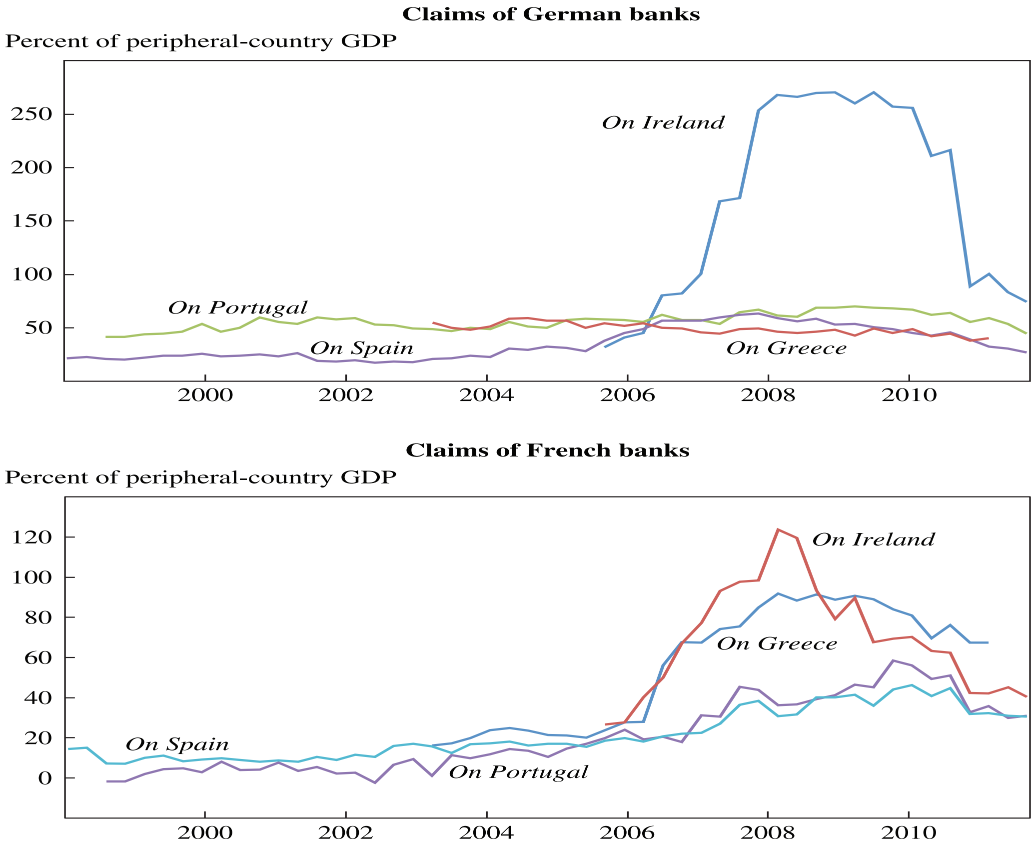


Figure 16. Claims of German banks on Spanish counterparties (Source: Bundesbank)

Source: Shin, H (2012) "The Euro Crisis Through the Lens of Capital Flow Reversals"

CAPITAL FLOWS INTERMEDIATED BY BANKS

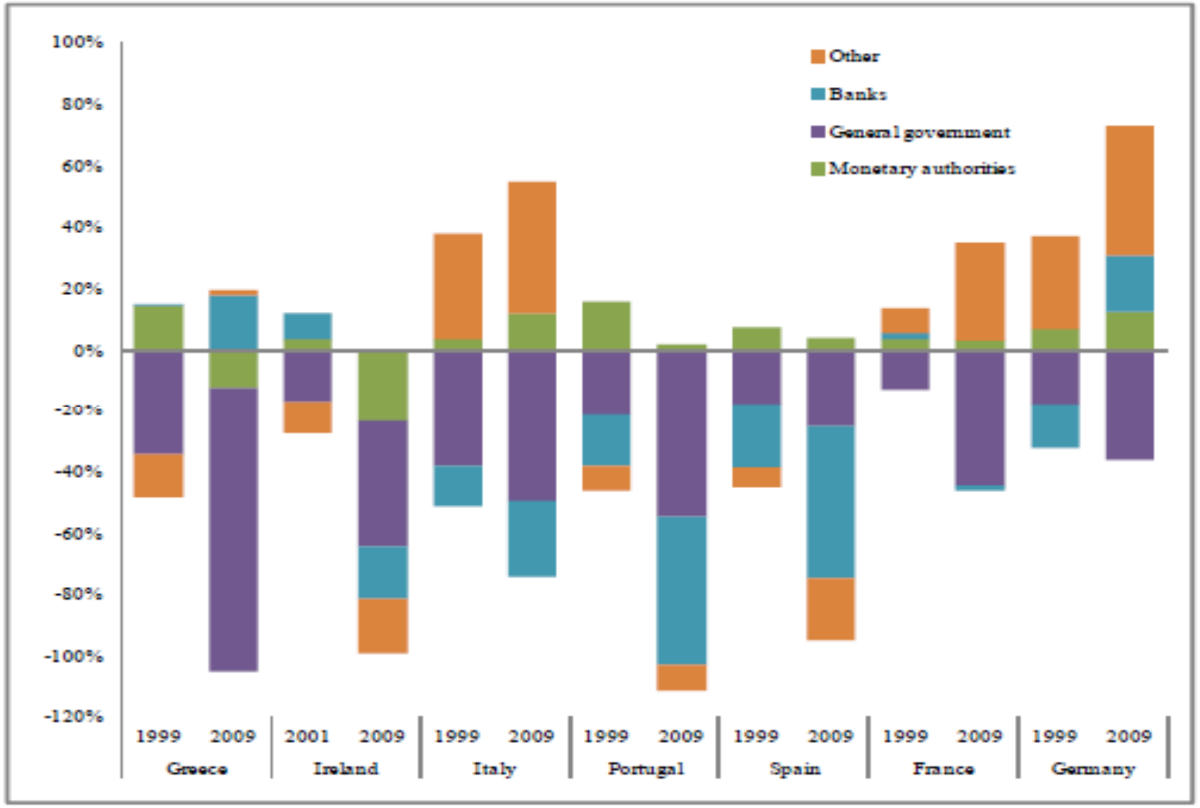
Figure 2. Net Consolidated Claims of German and French Banks on Countries in the Euro-Area Periphery, March 1999–September 2011



Source: Rey, H (2012)

BANKS AND GOVERNMENT BORROWED FROM ABROAD

Figure 7. Sectoral NFA positions (in percent of GDP)

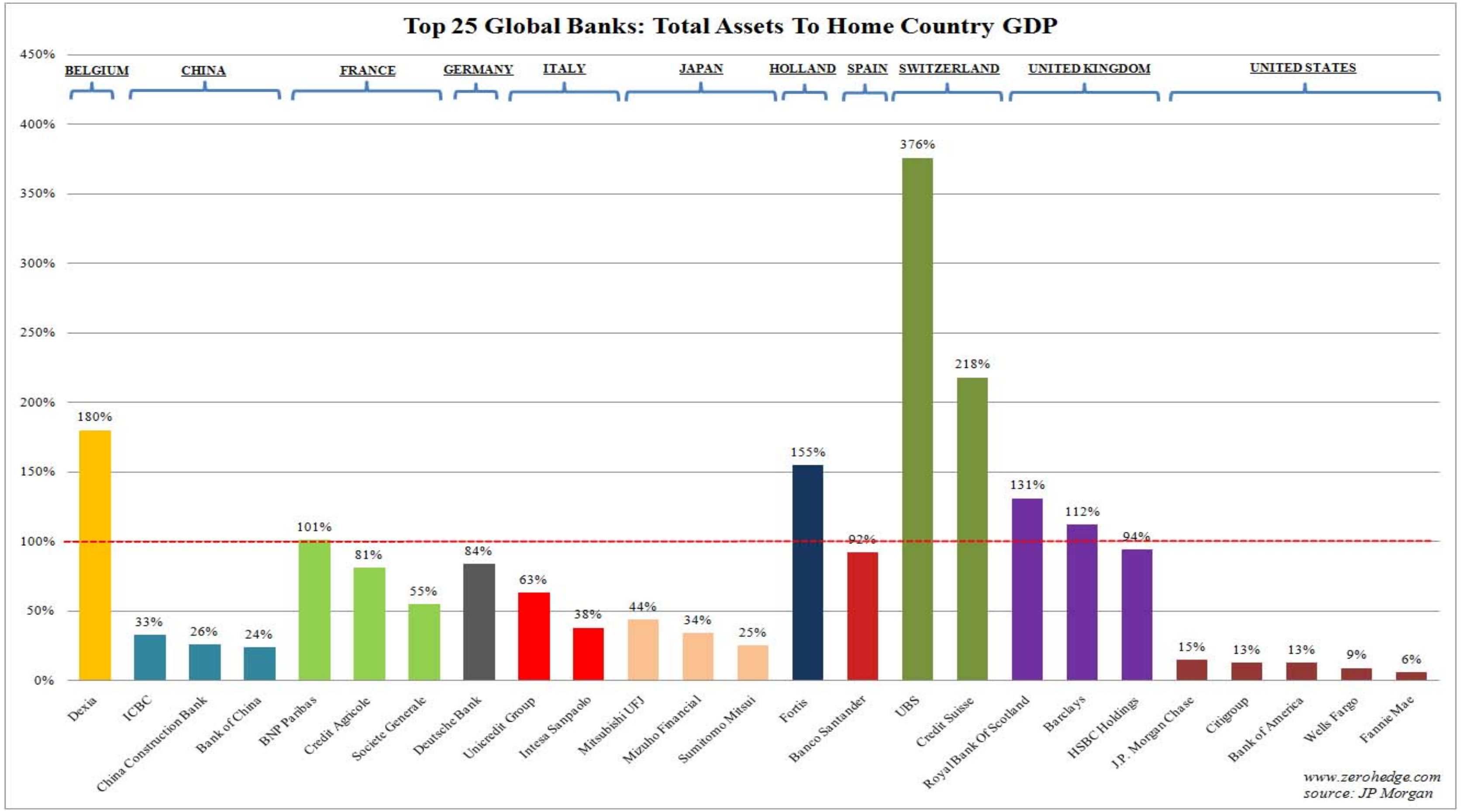


Sources: IFS data

Notes: Data available only from 2001 for Ireland.

Source: Chen, Milesi-Ferreti, Tressel (2012)

EUROPE’S HUGE BANKS



COUNTRIES BORROWING THROUGH BANKS

Table 1. Total lending from core countries' banks into the periphery (billion euros)

	1999 4th quarter	2009 4th quarter	% change 99-2009
Portugal	26	110	320
Ireland	60	348	481
Italy	259	822	217
Greece	24	141	491
Spain	94	613	554
GIPS	204	1,212	495
Total	463	2,033	340

Note: EZ core is Germany, France, Austria, Belgium and Netherlands.

Source: Adapted from Baldwin, Gros and Laeven (2010), which draws on BIS Consolidated Banking Statistics, June 2010.

Source: Baldwin Giavazzi (2015) "The Eurozone Crisis: A Consensus View of the Causes and a Few Possible Remedies" CEPR Press

THE GROWTH OF SECURITIZATION IN EUROPE

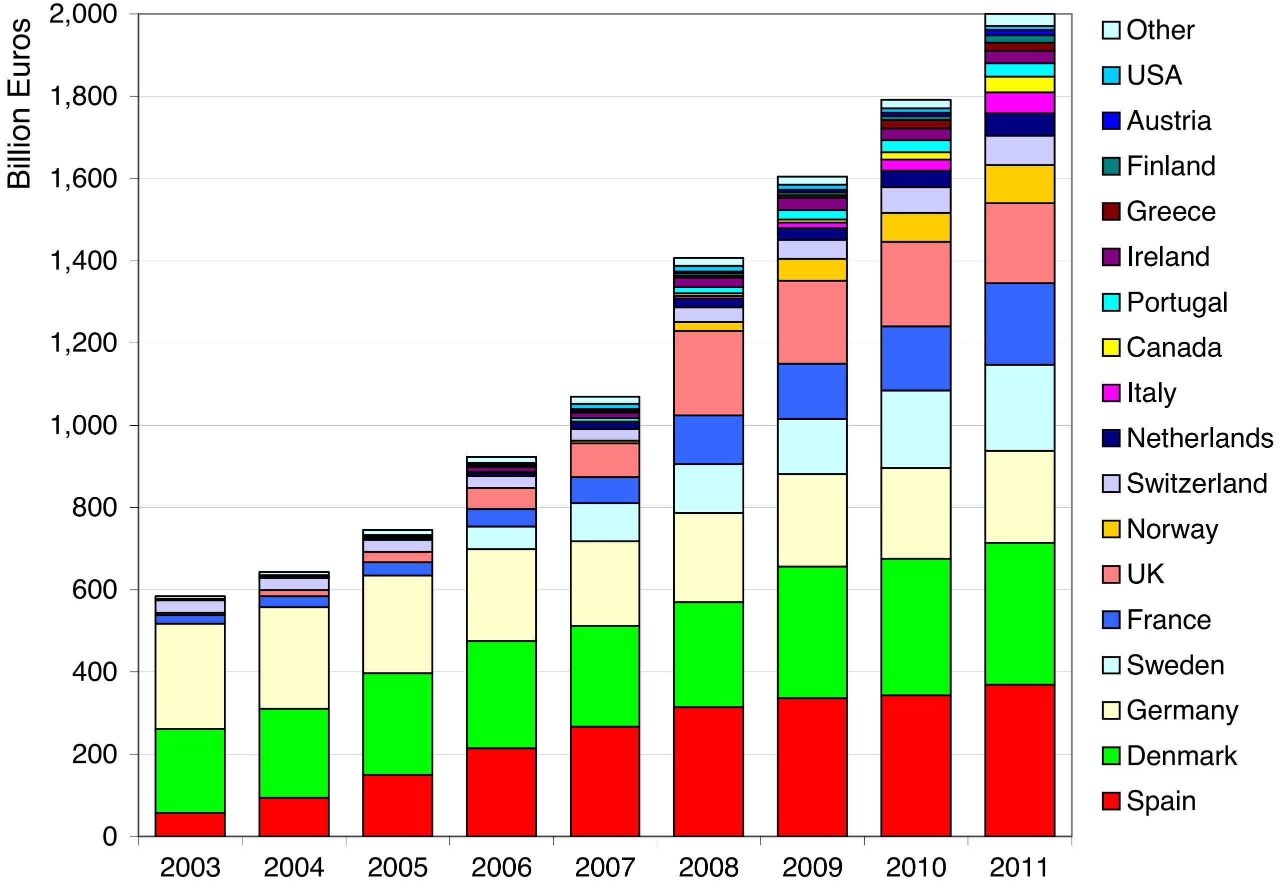


Figure 17. Mortgage covered bonds outstanding by country and by year (Source: European Covered Bond Council Factbook 2012)

Source: Shin, H (2012) "The Euro Crisis Through the Lens of Capital Flow Reversals"

SECURITIZATION IN SPAIN

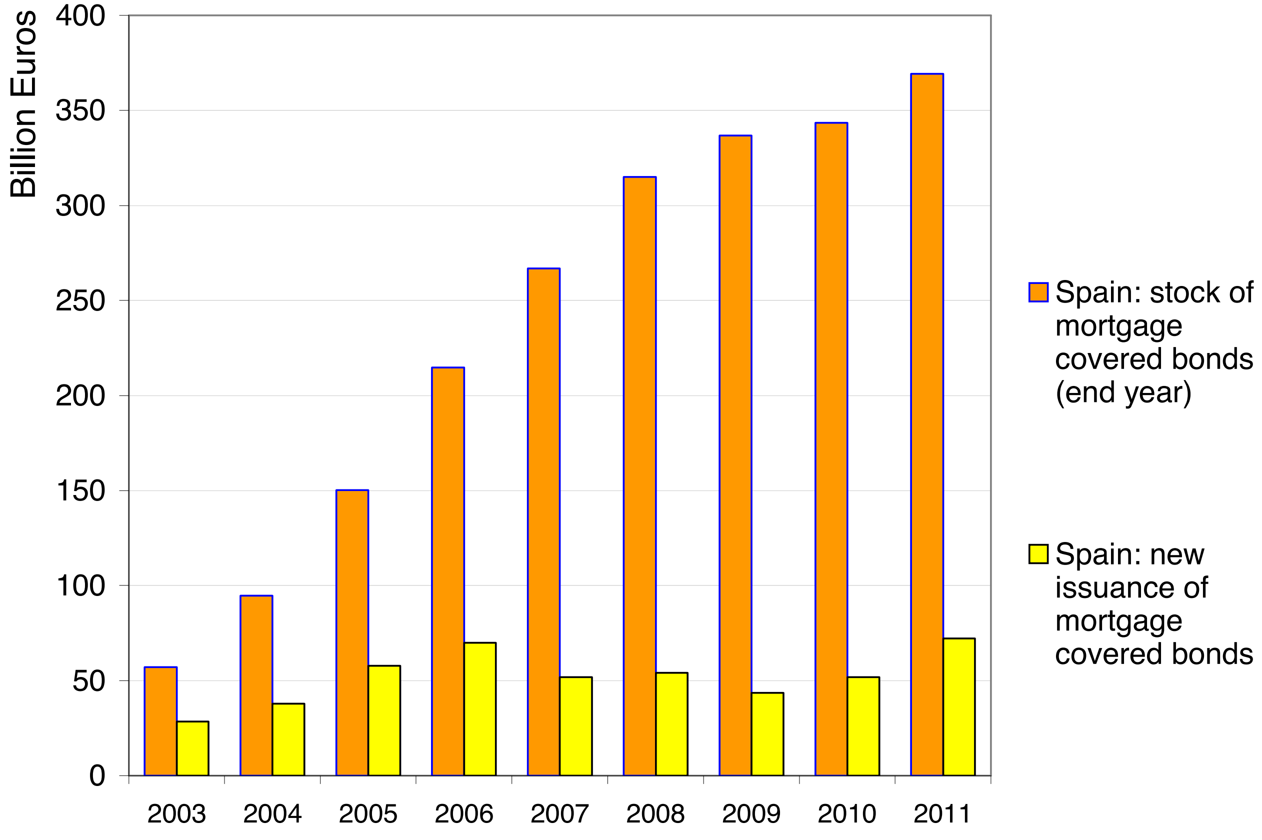


Figure 19. **Spain:** stock and new issuance of mortgage covered bonds (Source: European Coveren Bond Council)

Source: Shin, H (2012) "The Euro Crisis Through the Lens of Capital Flow Reversals"

GREEK BANKS GROWTH IN LOANS FROM OTHER BANKS

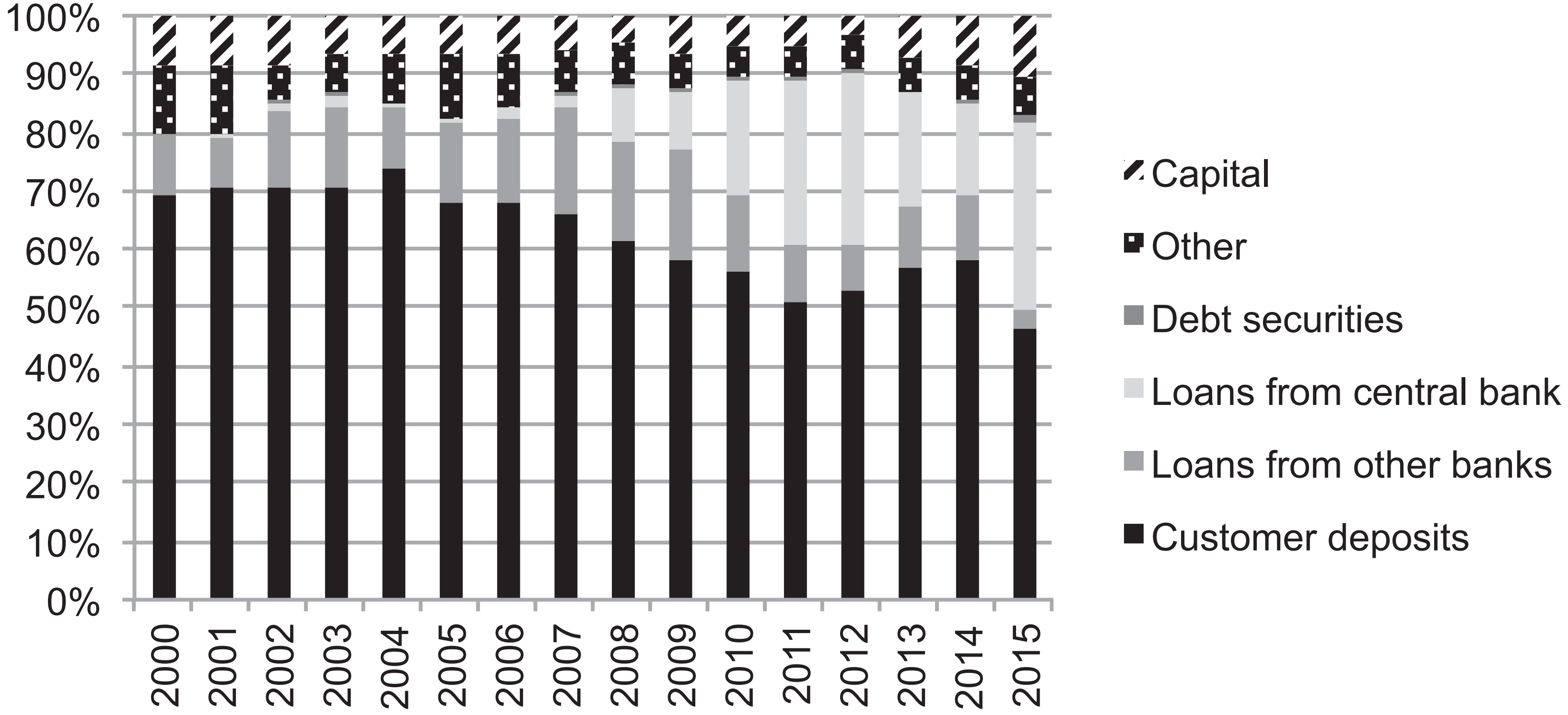


Figure 7.11

Liability structure of Greek financial institutions. The data come from the BoG, are monthly and sampled in December, and cover the period 1998 to 2015.

Source: Meghir, Pissarides, Vayanos, Vettas (2017) Beyond Austerity: Reforming the Greek Economy, MIT Press