

Global Liquidity and Growth in the Aftermath of the European Crisis

Hyun Song Shin

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Making Sense of Global Liquidity

- Or “*Why Investors and Policy Makers Everywhere Should Be Concerned with the Course of Events in Europe*”

- Ebb and flow of global liquidity
 - Driven by bank leveraging/deleveraging cycle
 - Determines financial conditions globally

- Two themes at the heart of transmission of global liquidity
 - European global banks
 - US dollar funding

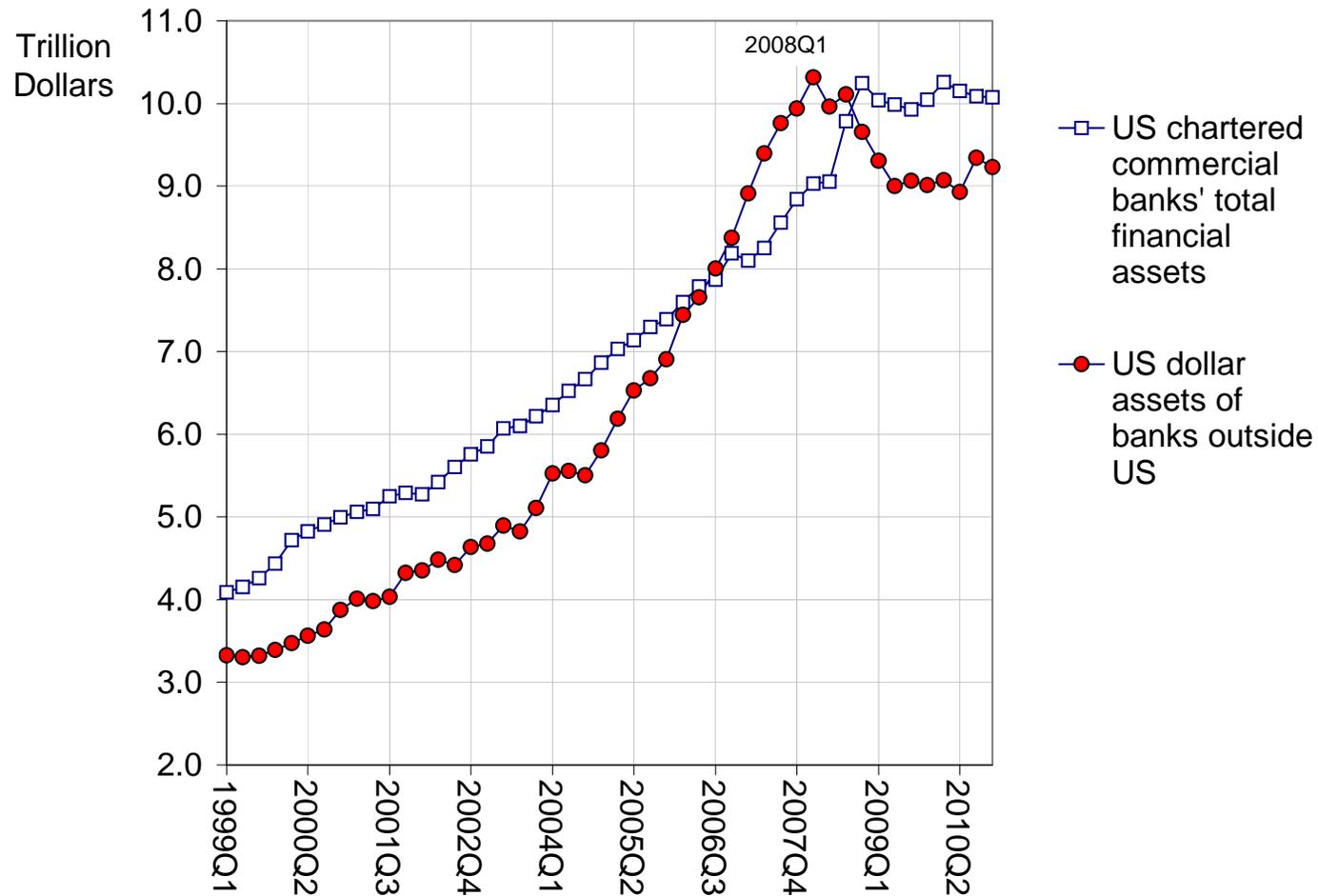


Figure 1. US dollar foreign currency claims of BIS banks and US commercial bank total assets (Source: Flow of Funds, Federal Reserve and BIS locational banking statistics, Table 5A)

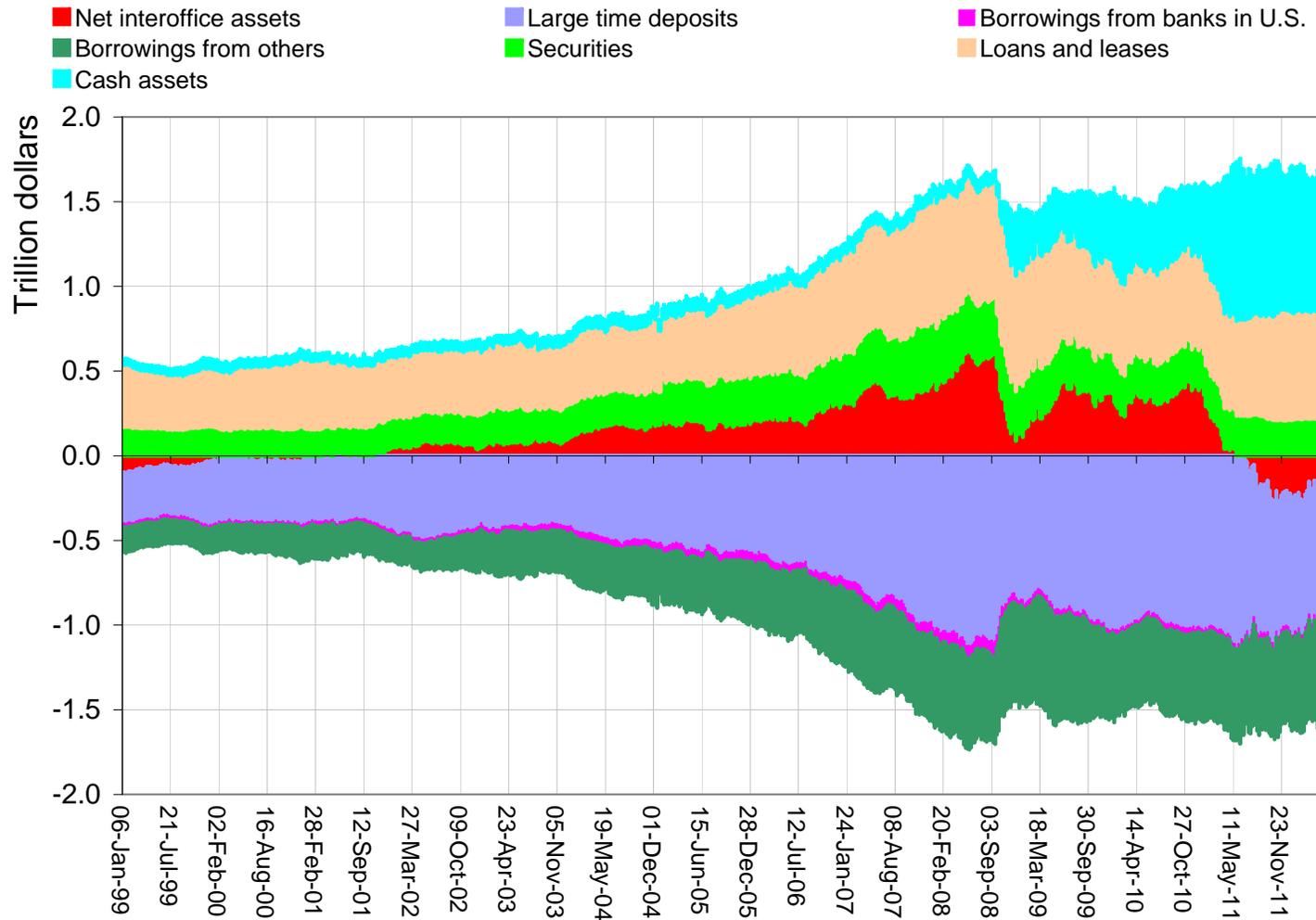


Figure 2. Assets and liabilities of foreign banks in the U.S. (Source: Federal Reserve H8 weekly series on assets and liabilities of foreign-related institutions)

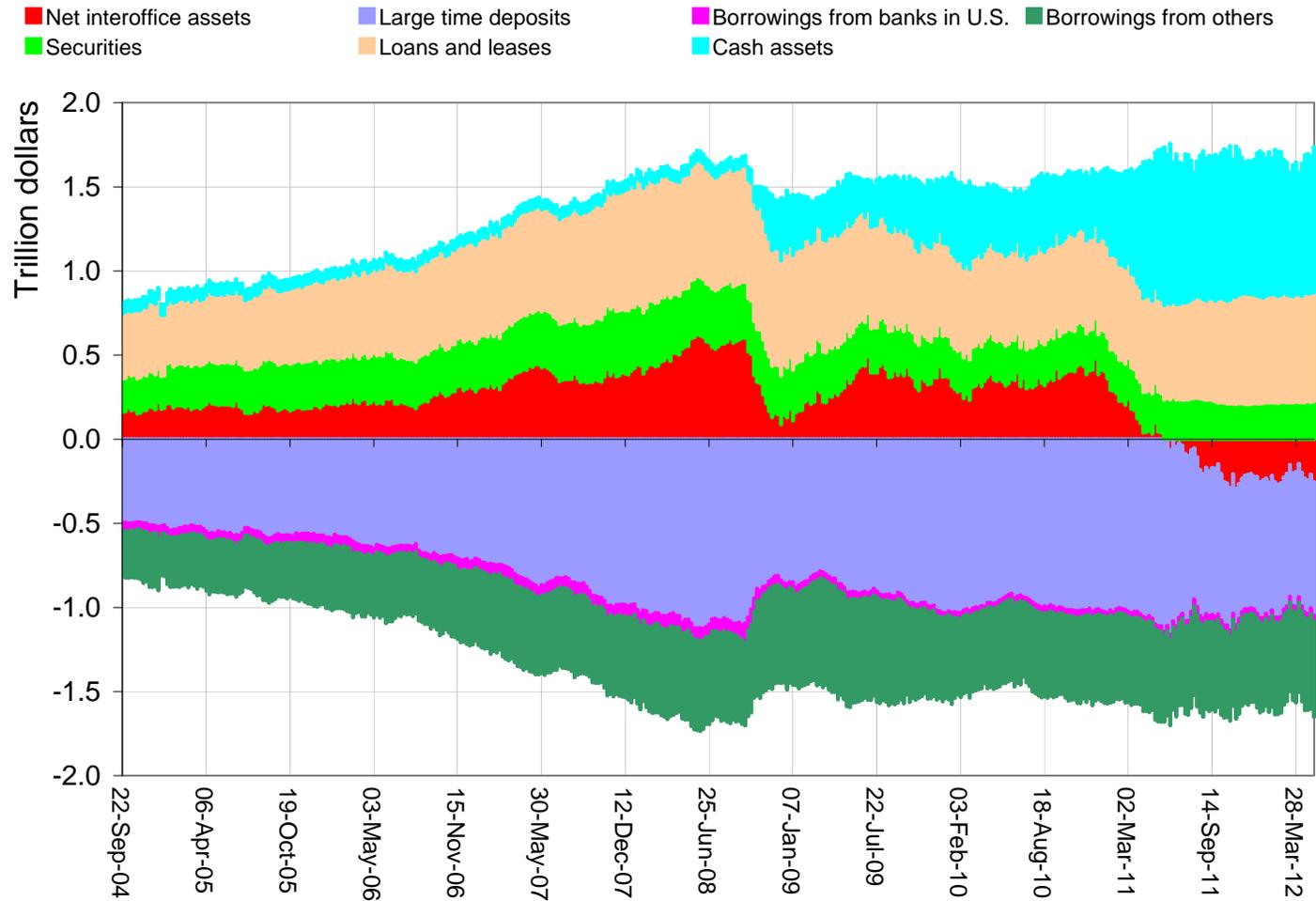


Figure 3. Assets and liabilities of foreign banks in the U.S. (Source: Federal Reserve H8 weekly series on assets and liabilities of foreign-related institutions)

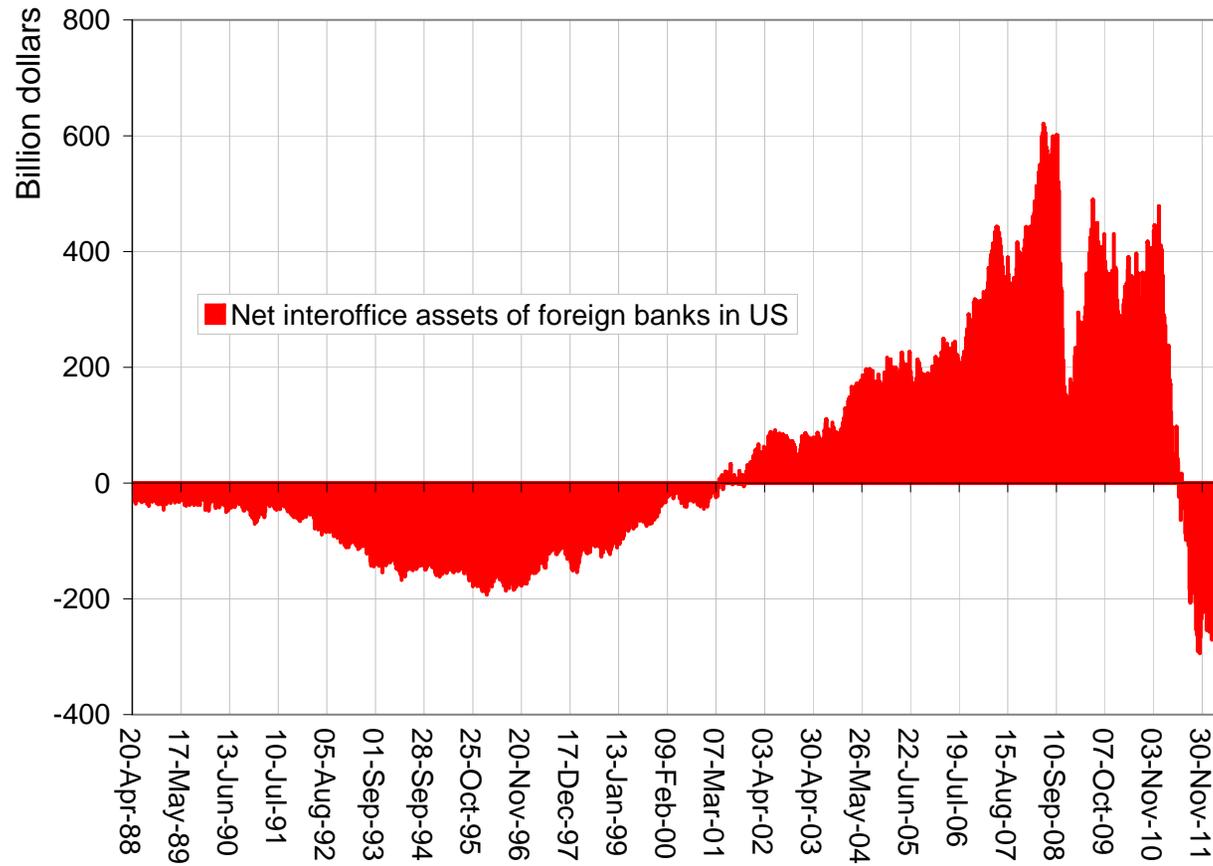


Figure 4. Net interoffice assets of foreign banks in U.S. given by negative of Federal Reserve weekly H8 series on “net due to related foreign offices of foreign-related institutions”

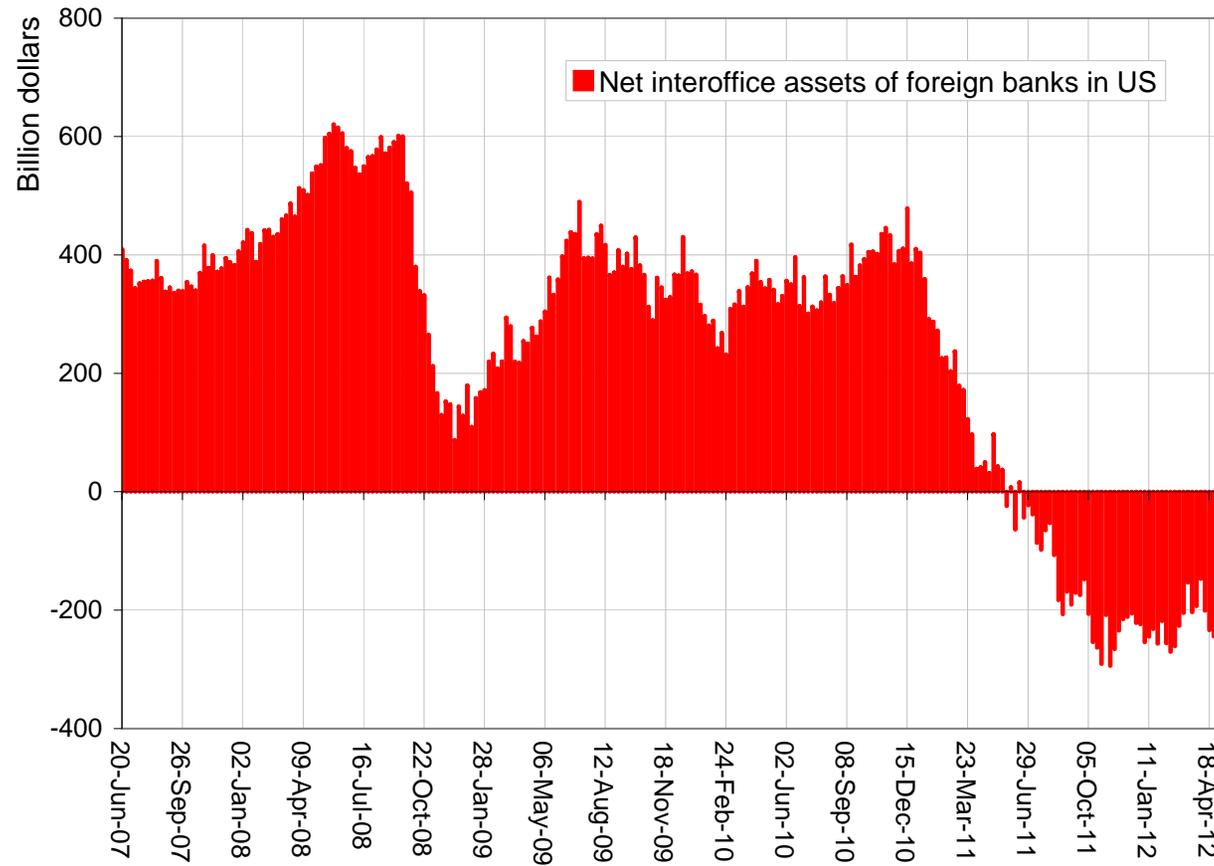


Figure 5. Net interoffice assets of foreign banks in U.S. given by negative of Federal Reserve weekly H8 series on “net due to related foreign offices of foreign-related institutions”

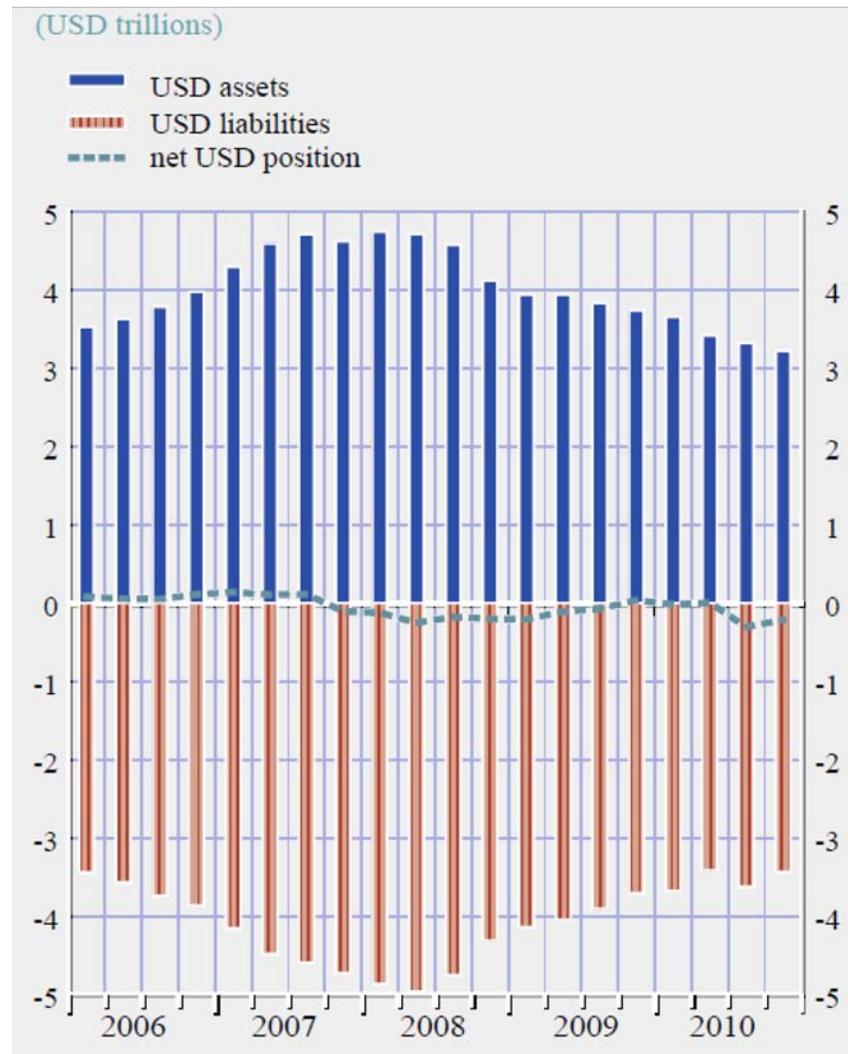


Figure 6. US Dollar-denominated assets and liabilities of euro area banks (Source: ECB Financial Stability Review, June 2011, p. 102)

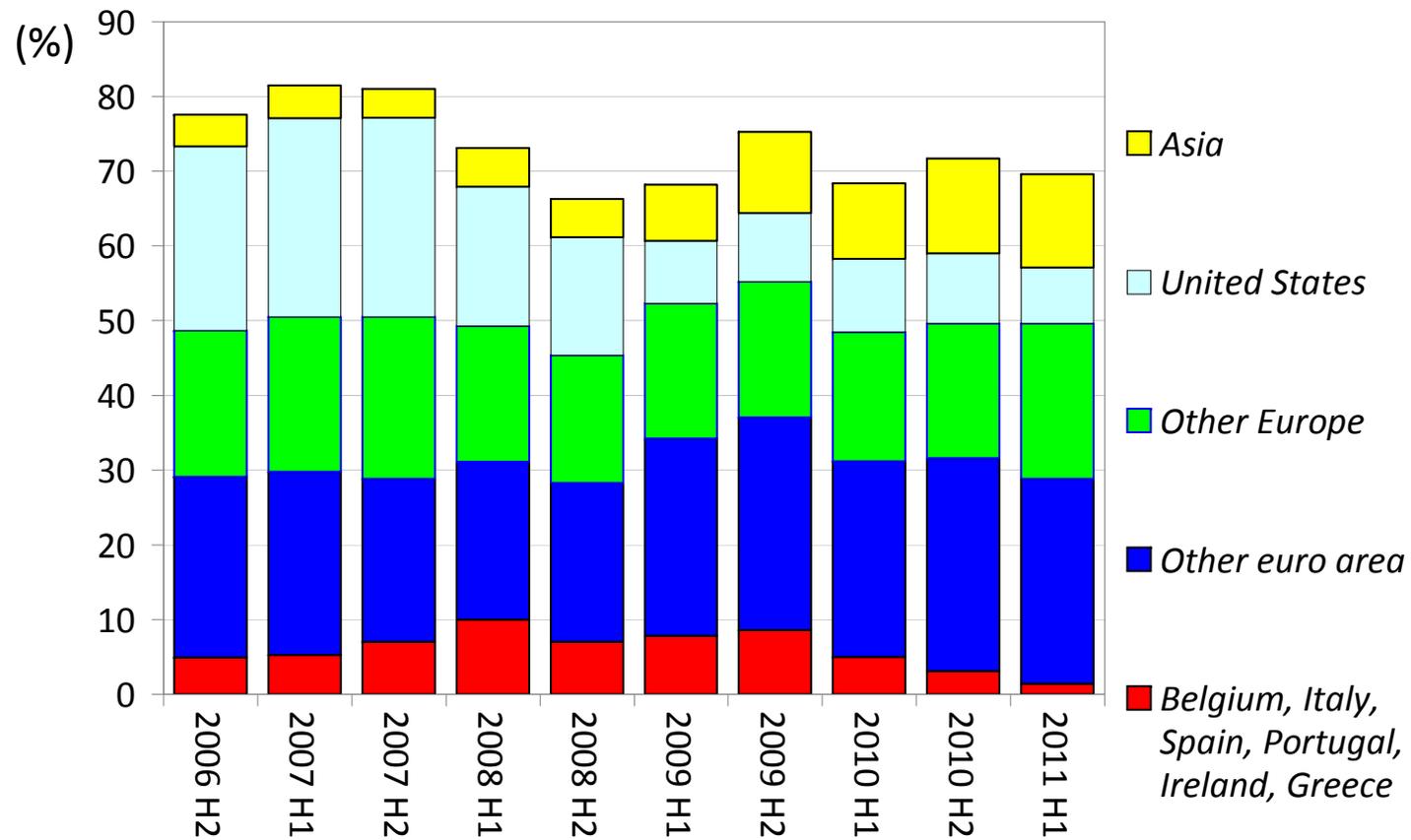


Figure 7. Amount owed by banks to US prime money market funds (% of total), based on top 10 prime MMFs, representing \$755 bn of \$1.66 trn total prime MMF assets (Source: IMF GFSR Sept 2011, data from Fitch).

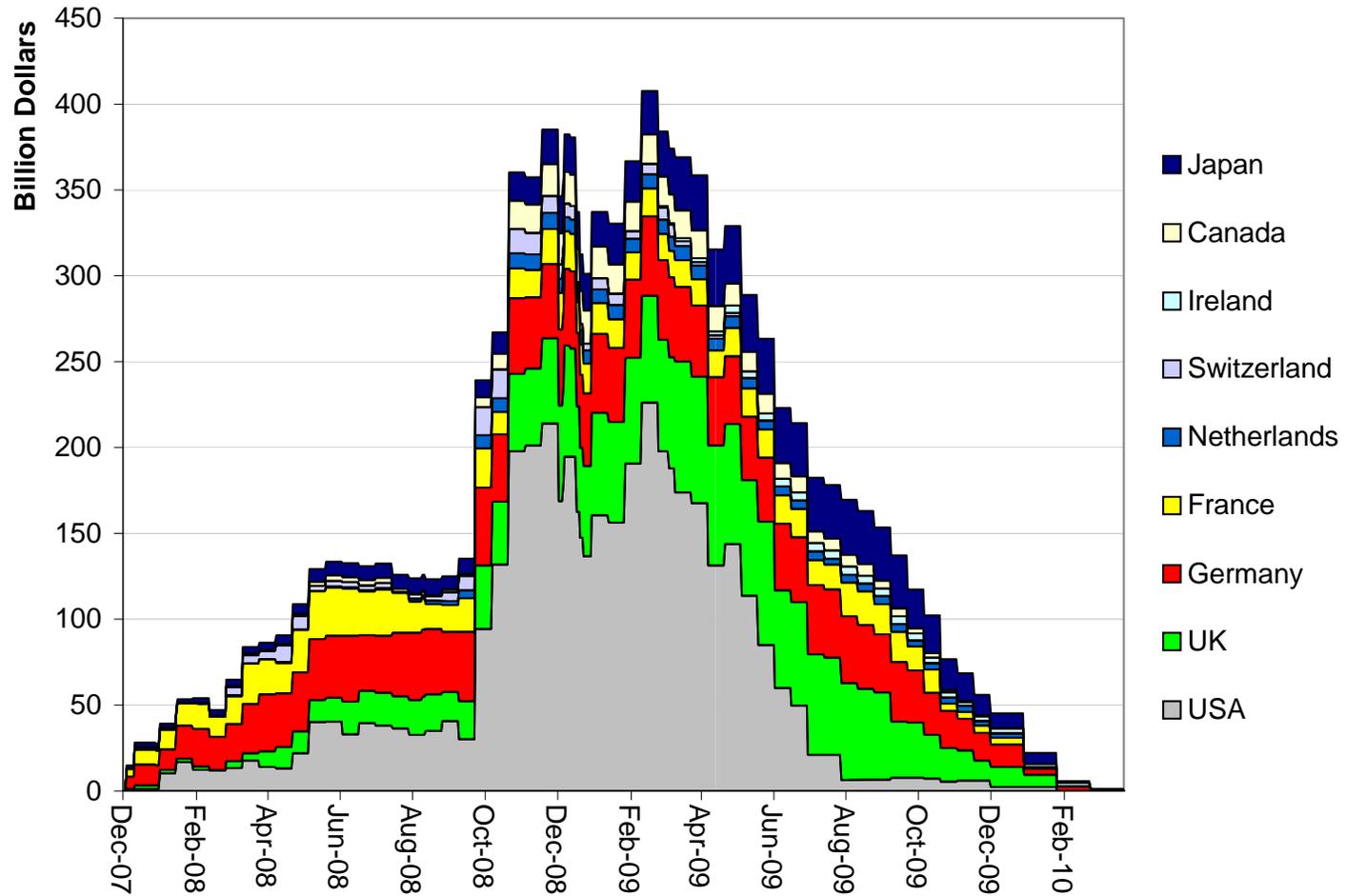


Figure 8. Claims outstanding on Federal Reserve Term Auction Facility (TAF) on US and non-US banks (Source: Federal Reserve disclosures on TAF)

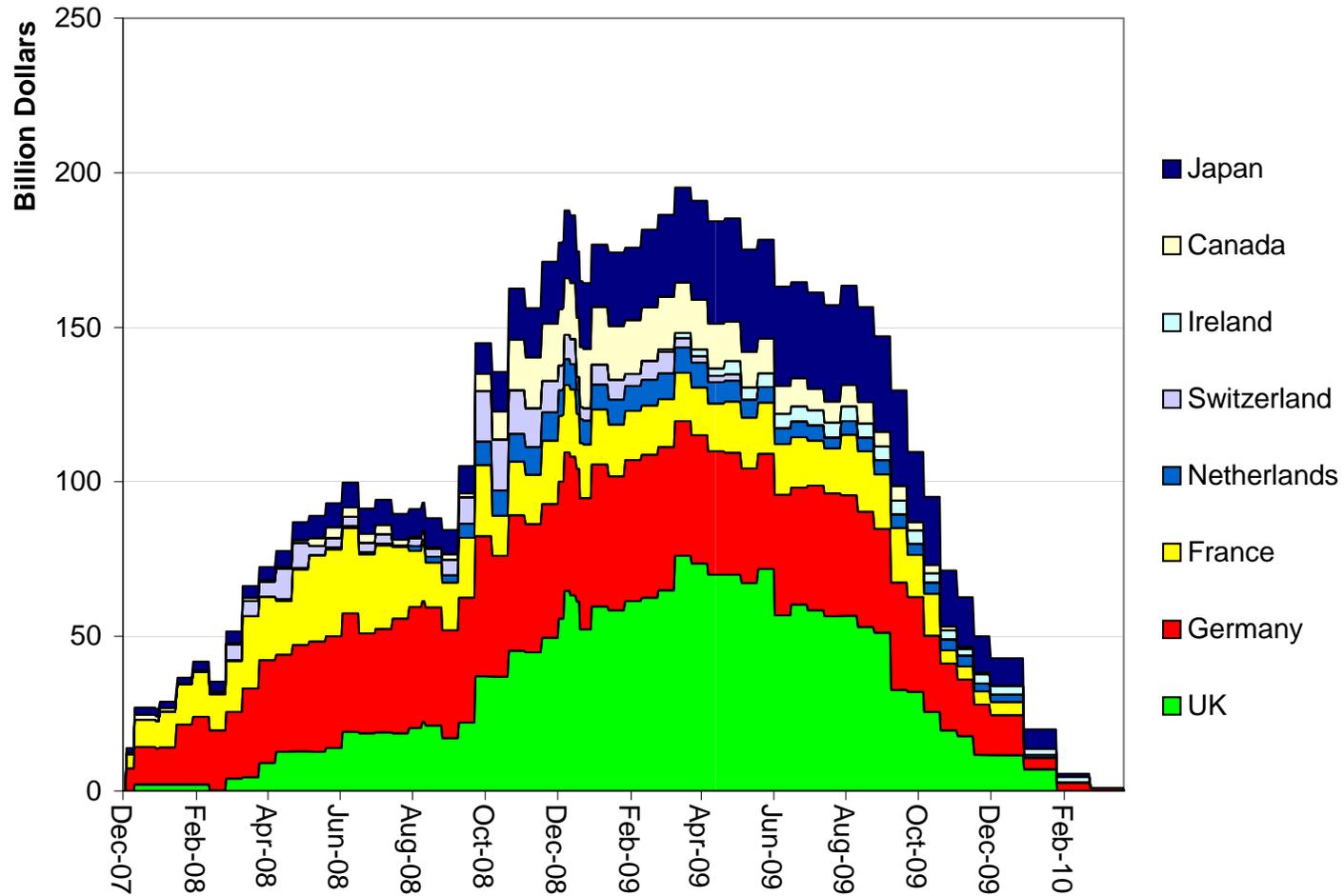


Figure 9. Claims outstanding on Federal Reserve Term Auction Facility (TAF) on non-US banks (Source: Federal Reserve disclosures on TAF)

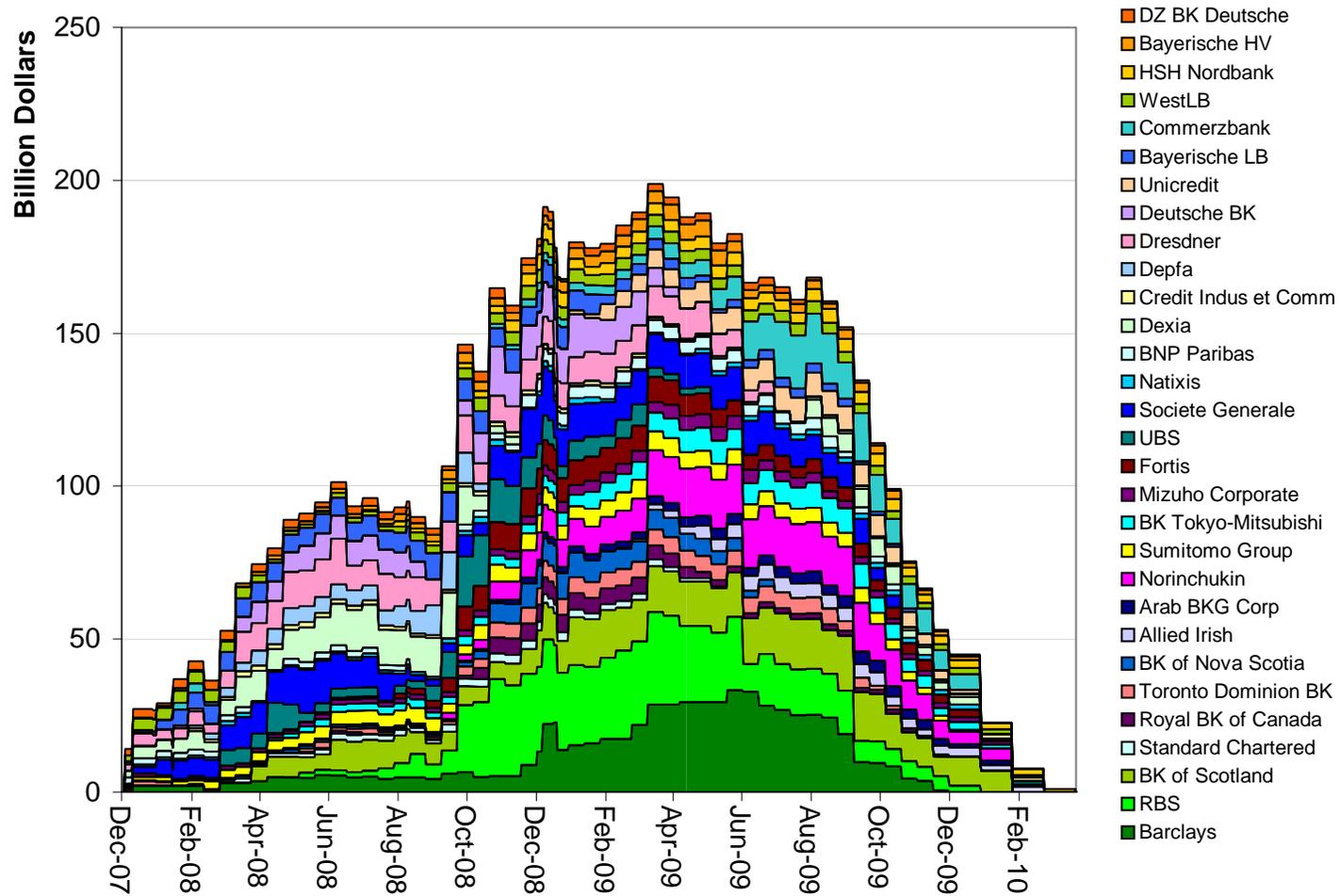


Figure 10. Top 30 claims outstanding on Federal Reserve Term Auction Facility (TAF) on non-US banks (Source: Federal Reserve disclosures on TAF)

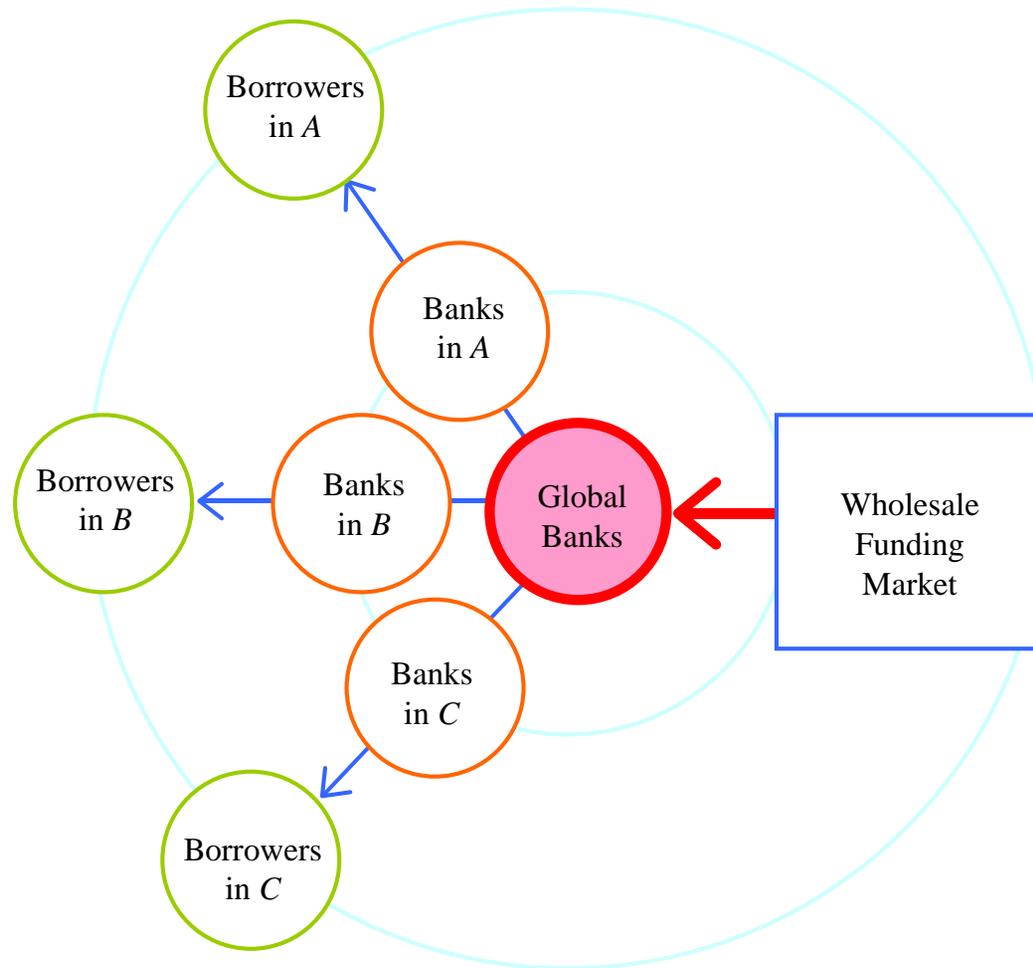


Figure 11. Topography of global liquidity

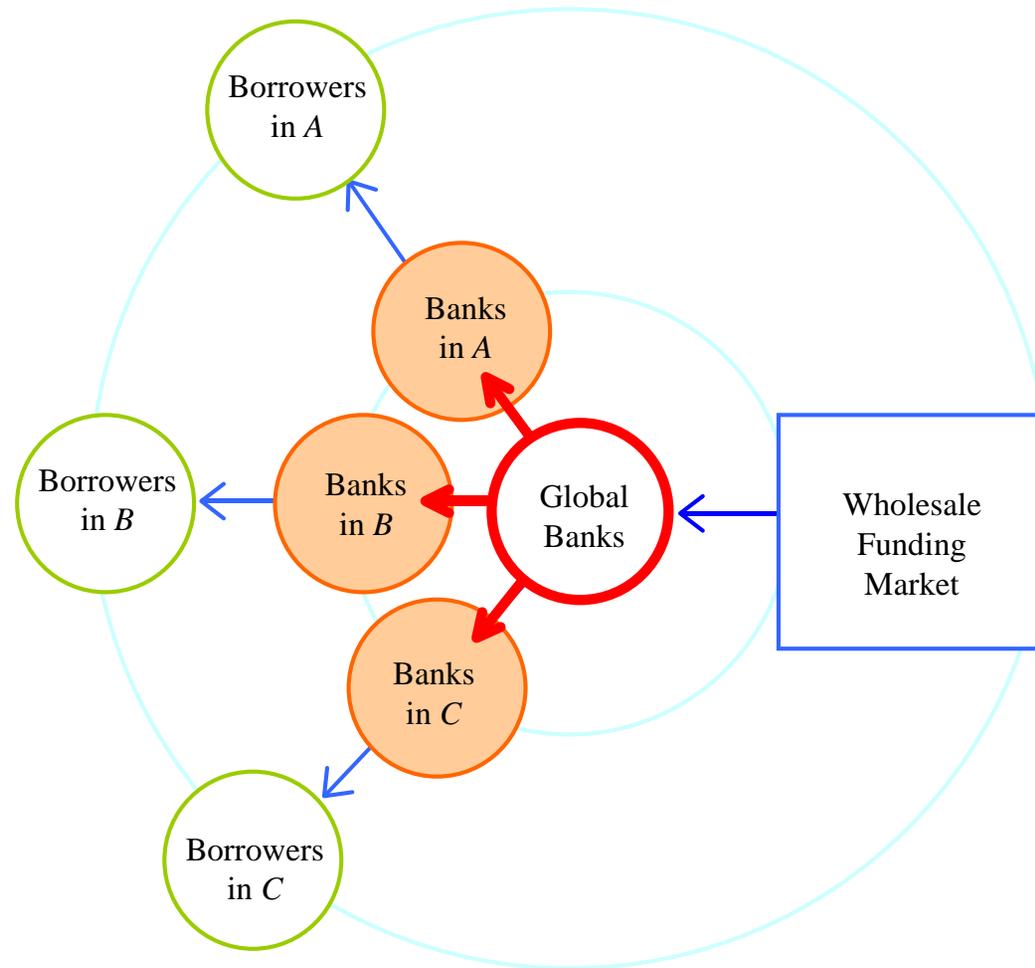


Figure 12. Topography of global liquidity

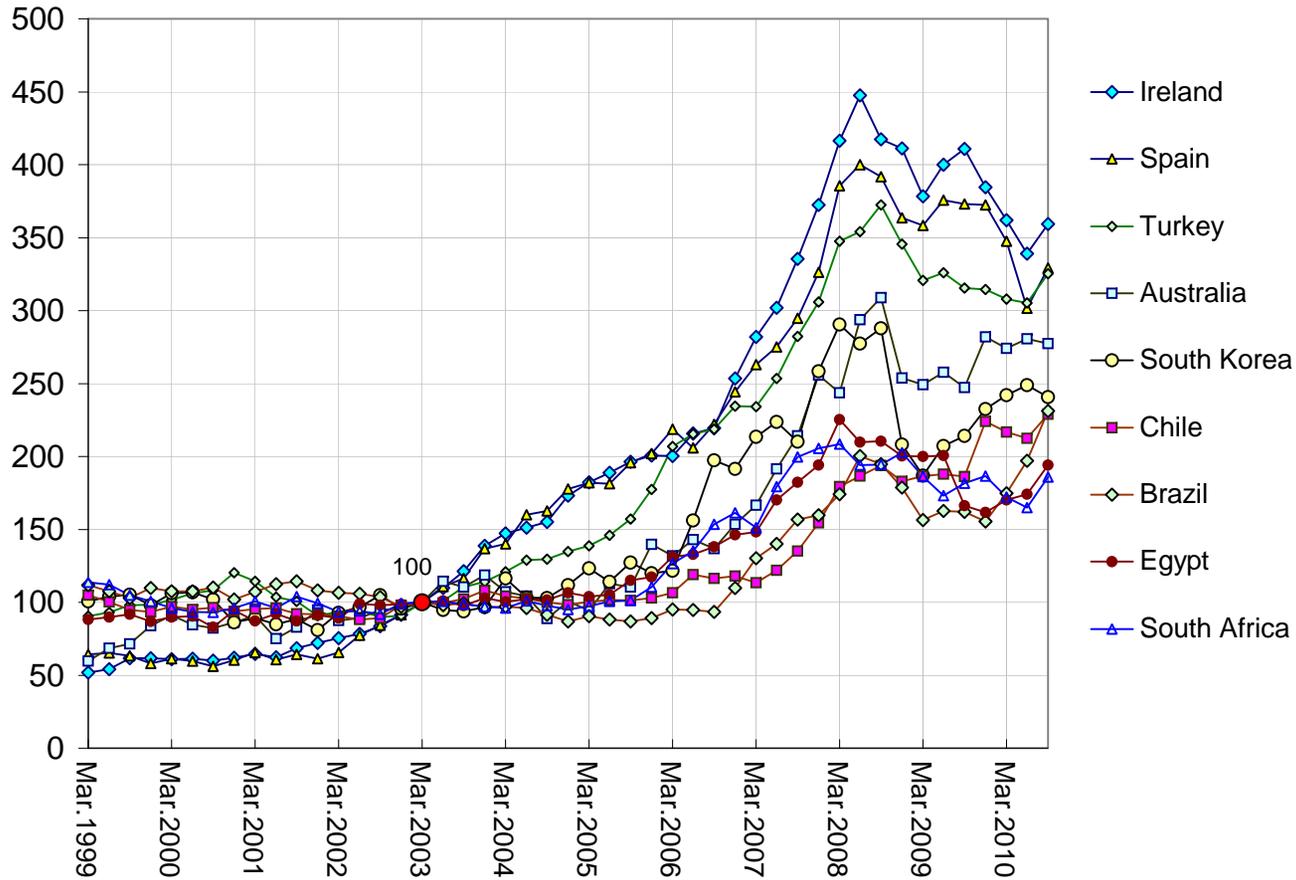


Figure 13. External claims (loans and deposits) of BIS reporting banks on counterparties listed on right (Source: BIS locational banking statistics Table 7A)

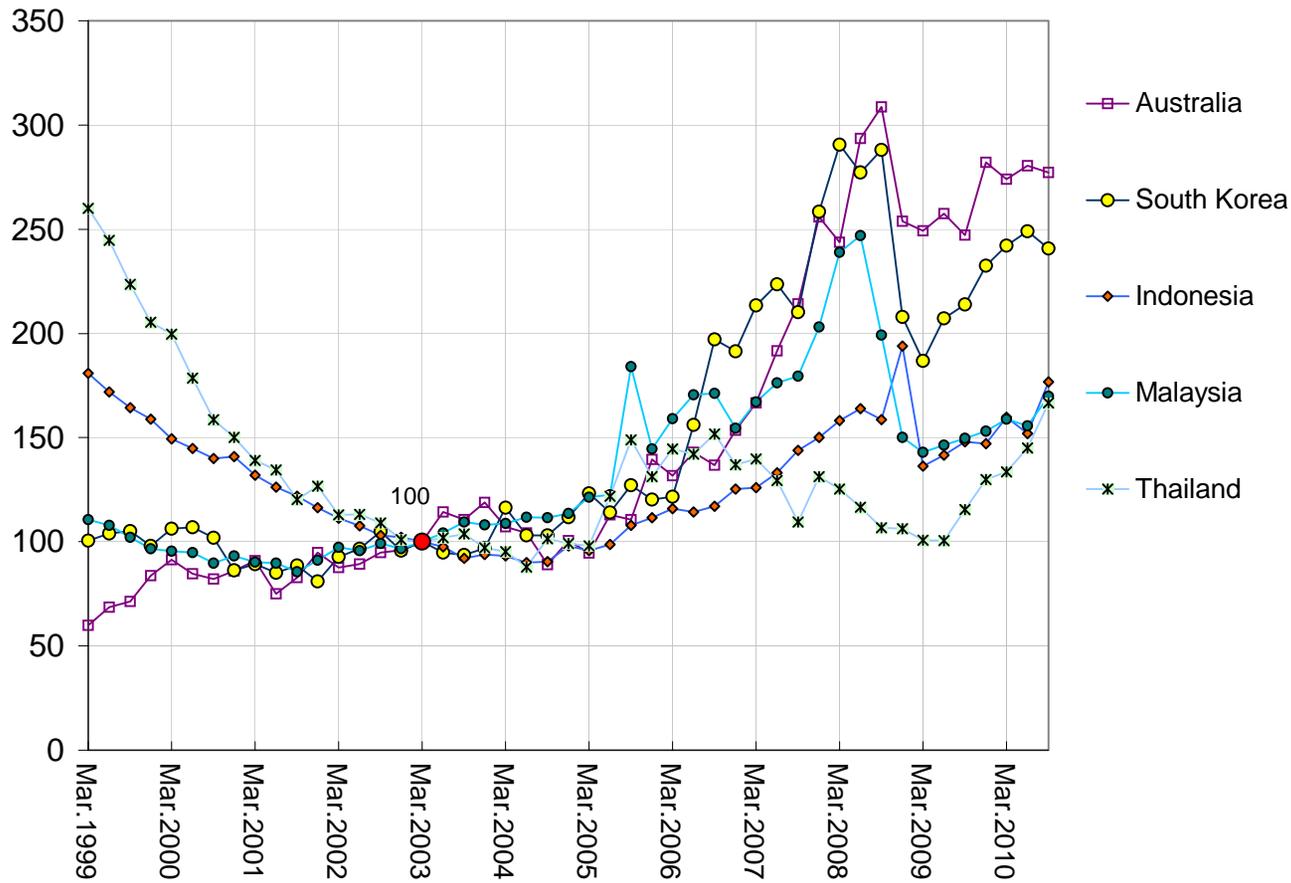


Figure 14. External claims (loans and deposits) of BIS reporting banks on counterparties listed on right (Source: BIS locational banking statistics Table 7A)

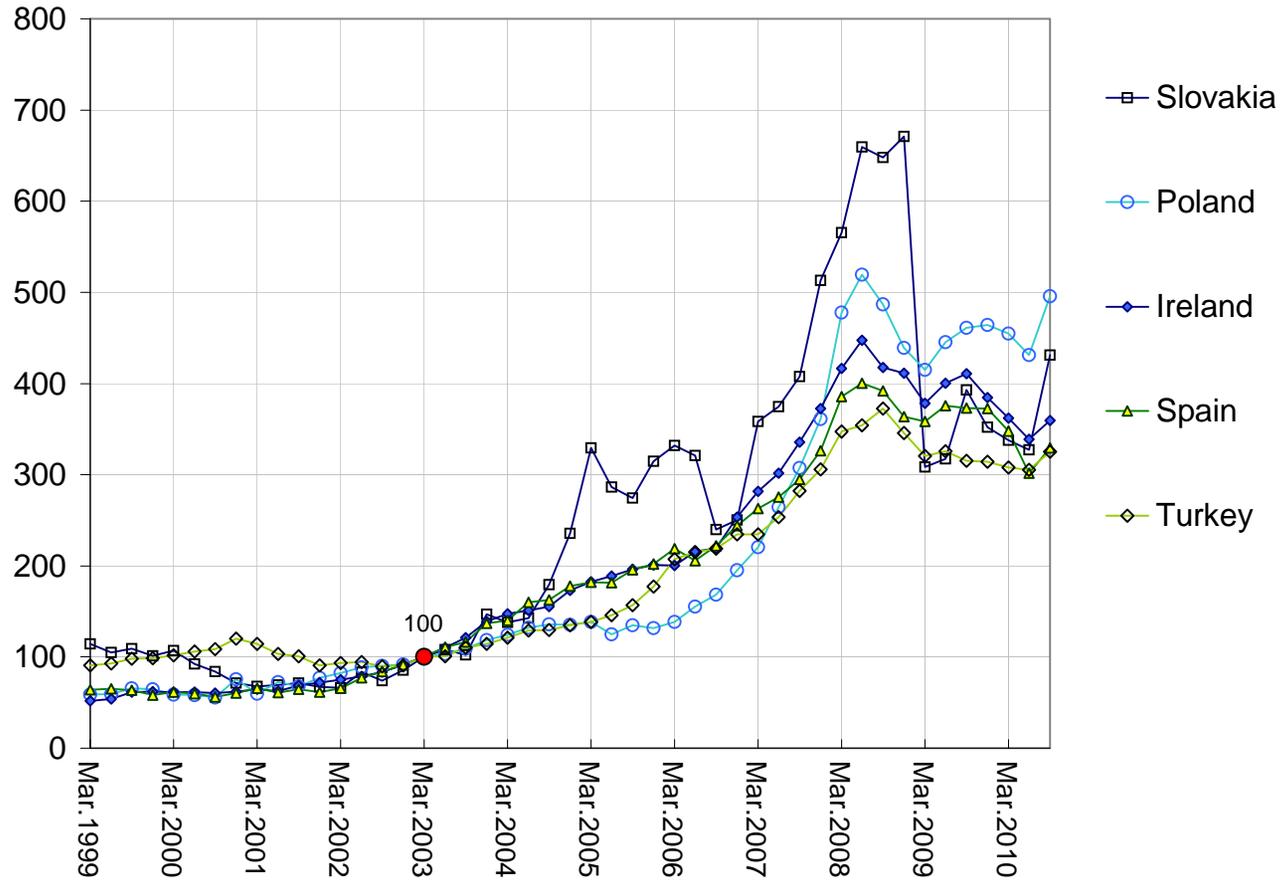


Figure 15. External claims (loans and deposits) of BIS reporting banks on counterparties listed on right (Source: BIS locational banking statistics Table 7A)

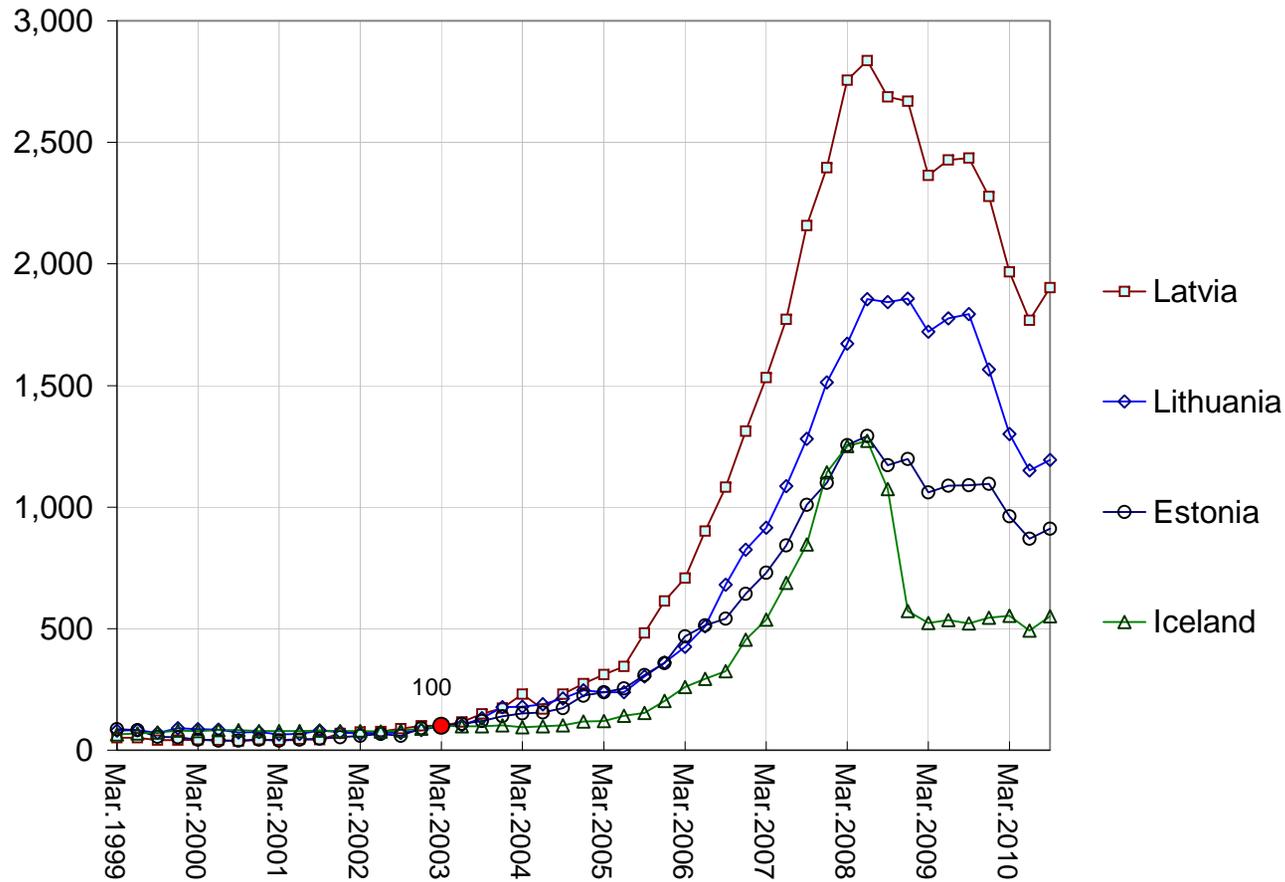


Figure 16. External claims (loans and deposits) of BIS reporting banks on counterparties listed on right (Source: BIS locational banking statistics Table 7A)

Three (Interlocking) Features of the Euro Crisis

- Sovereign debt crisis

- Banking crisis

- Balance of payments crisis
 - Cross-border capital flow reversal
 - “Sudden Stop”

Common thread is the **bank leveraging/deleveraging cycle**

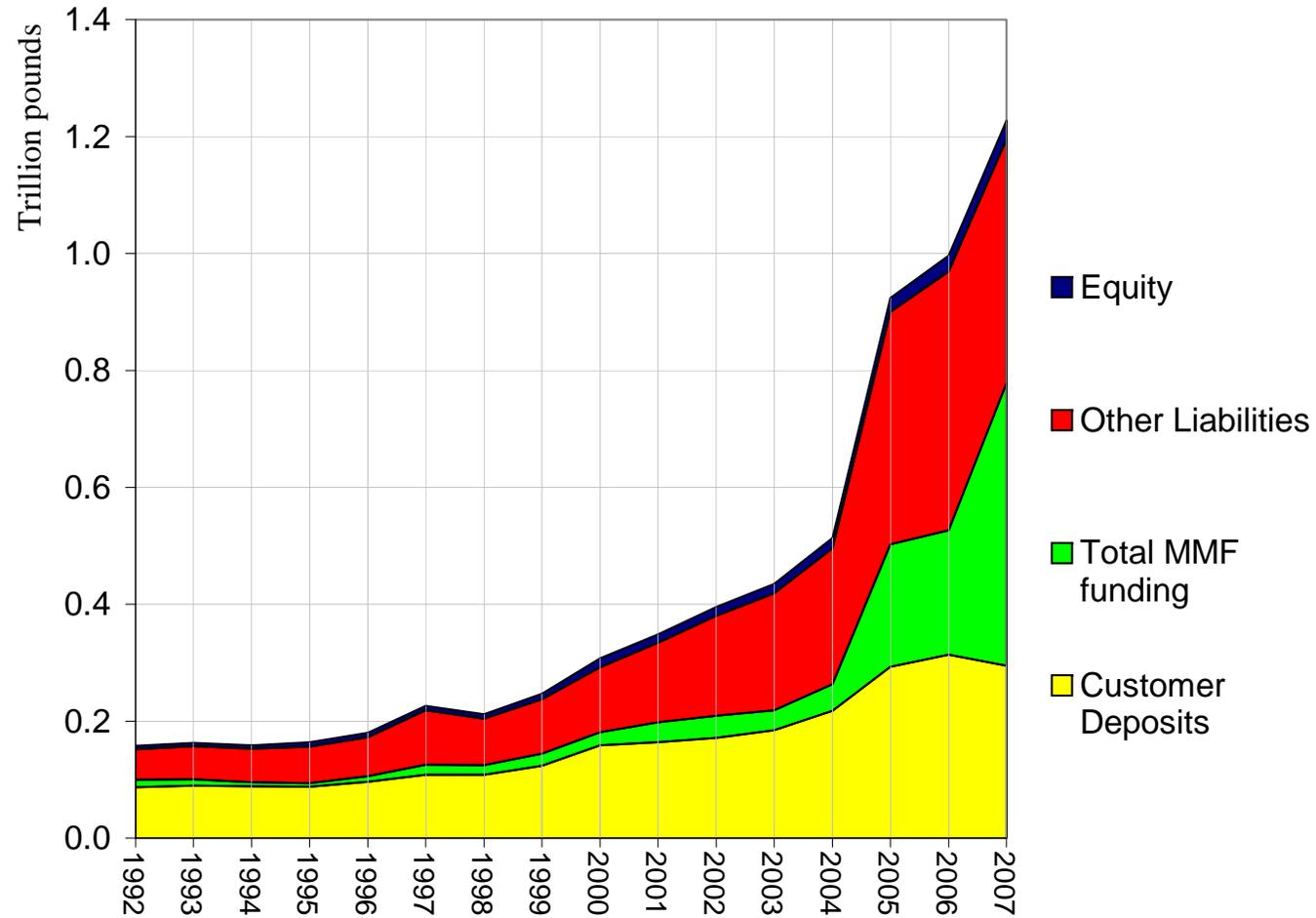


Figure 17. Total Liabilities of Barclays (1992 - 2007) (Source: Bankscope)

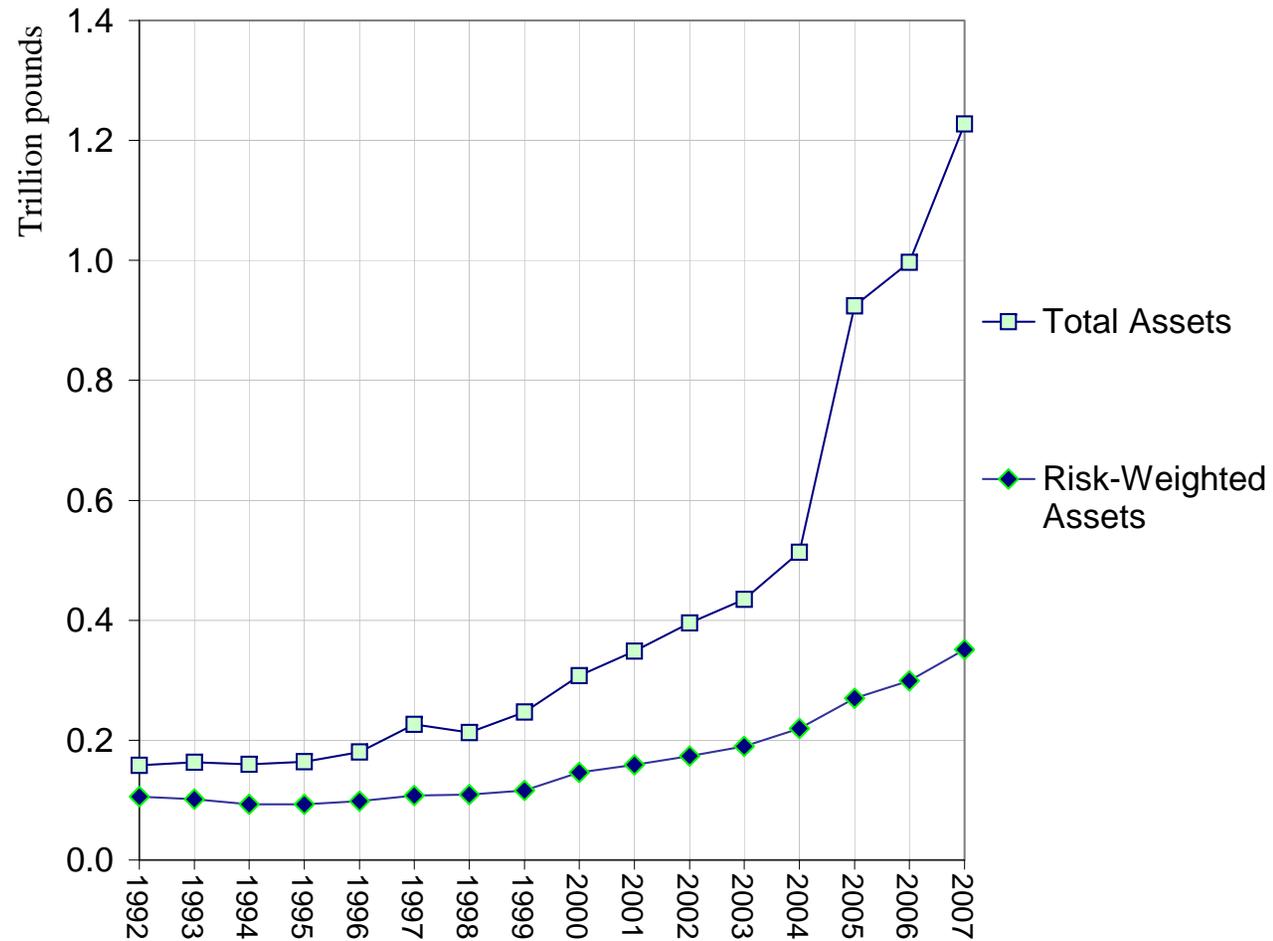


Figure 18. Barclays, risk-weighted assets and total assets (Source: Bankscope)

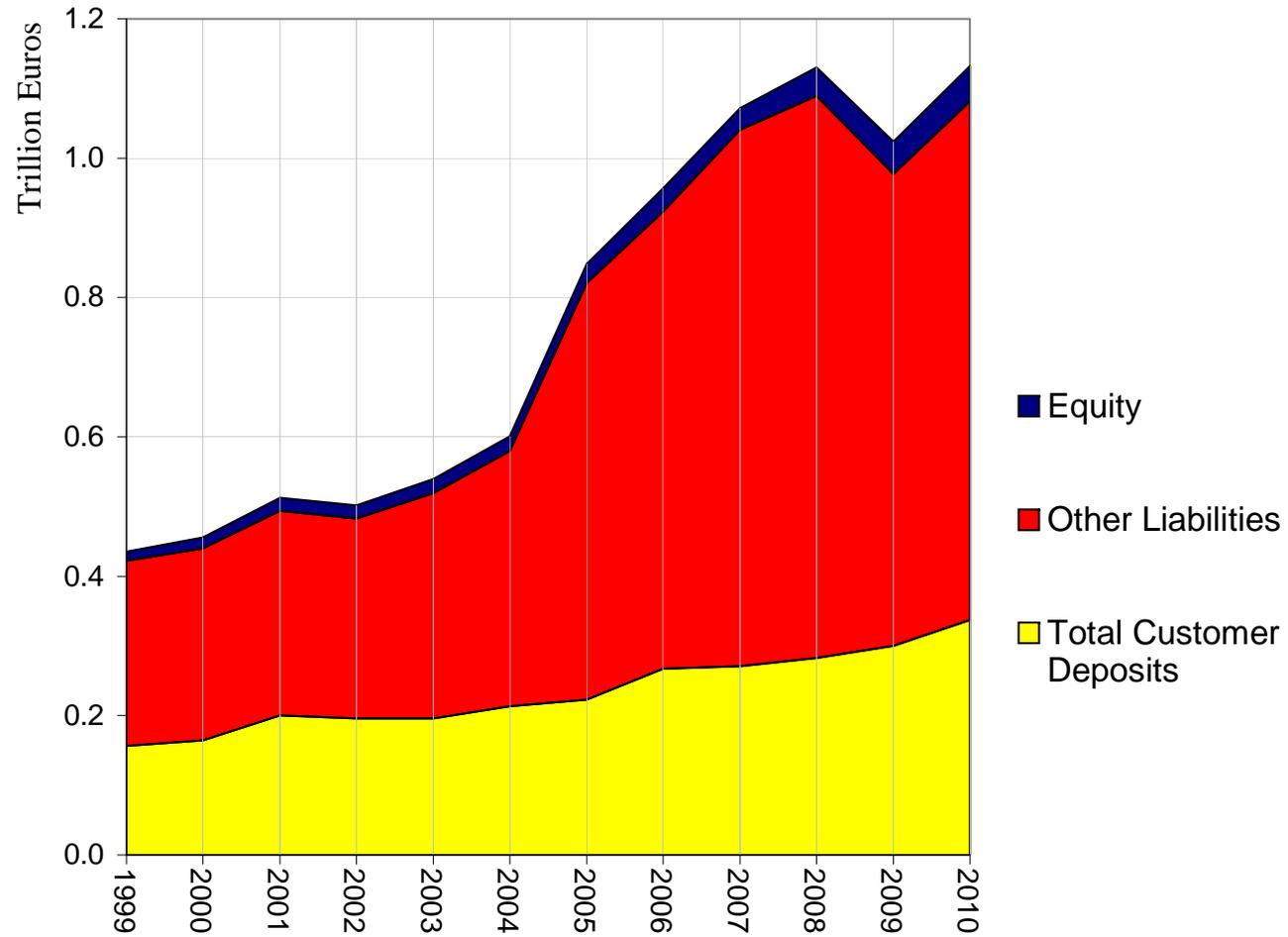


Figure 19. Société Générale liabilities 1999 - 2010 (Source: Bankscope)

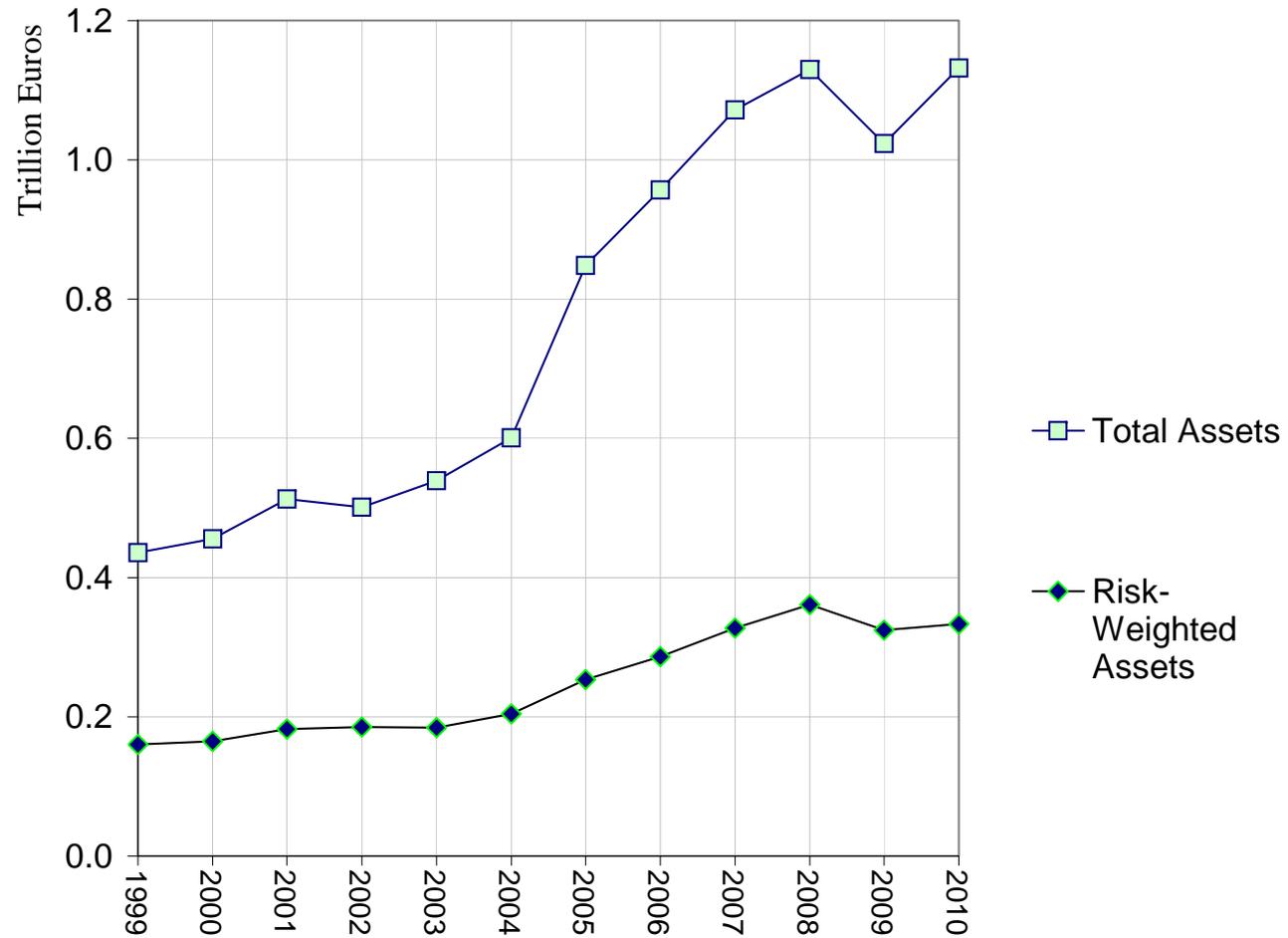
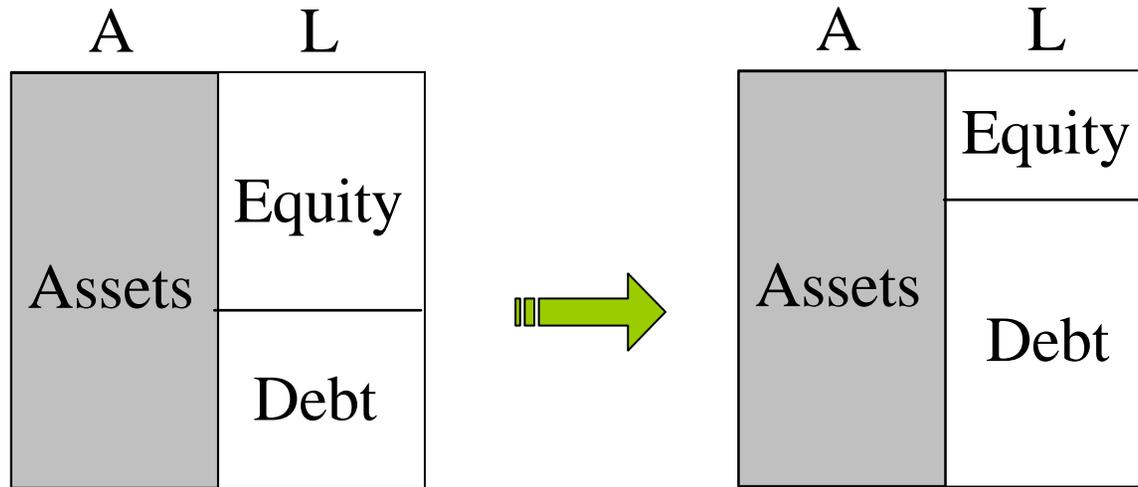
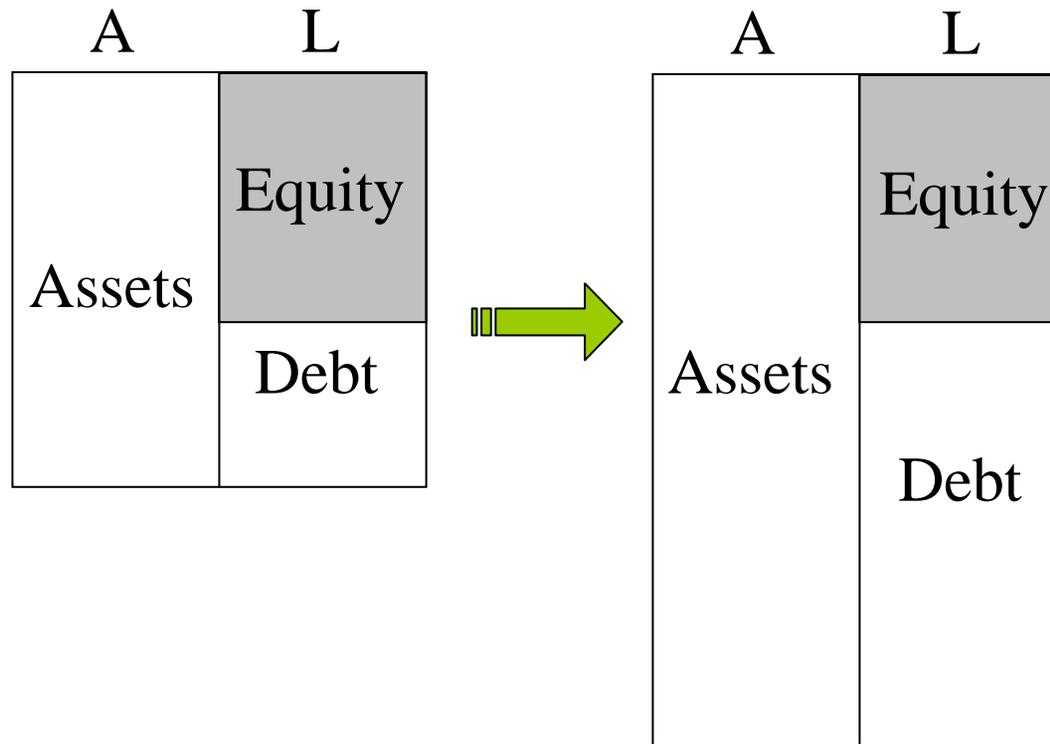


Figure 20. Société Générale risk-weighted assets and total assets (1999 - 2010) (Source: Bankscope)

Corporate Finance of Banking

A	L
Assets	Equity
	Debt





Barclays: annual changes in assets, equity, debt and risk-weighted assets (1992 -2010)

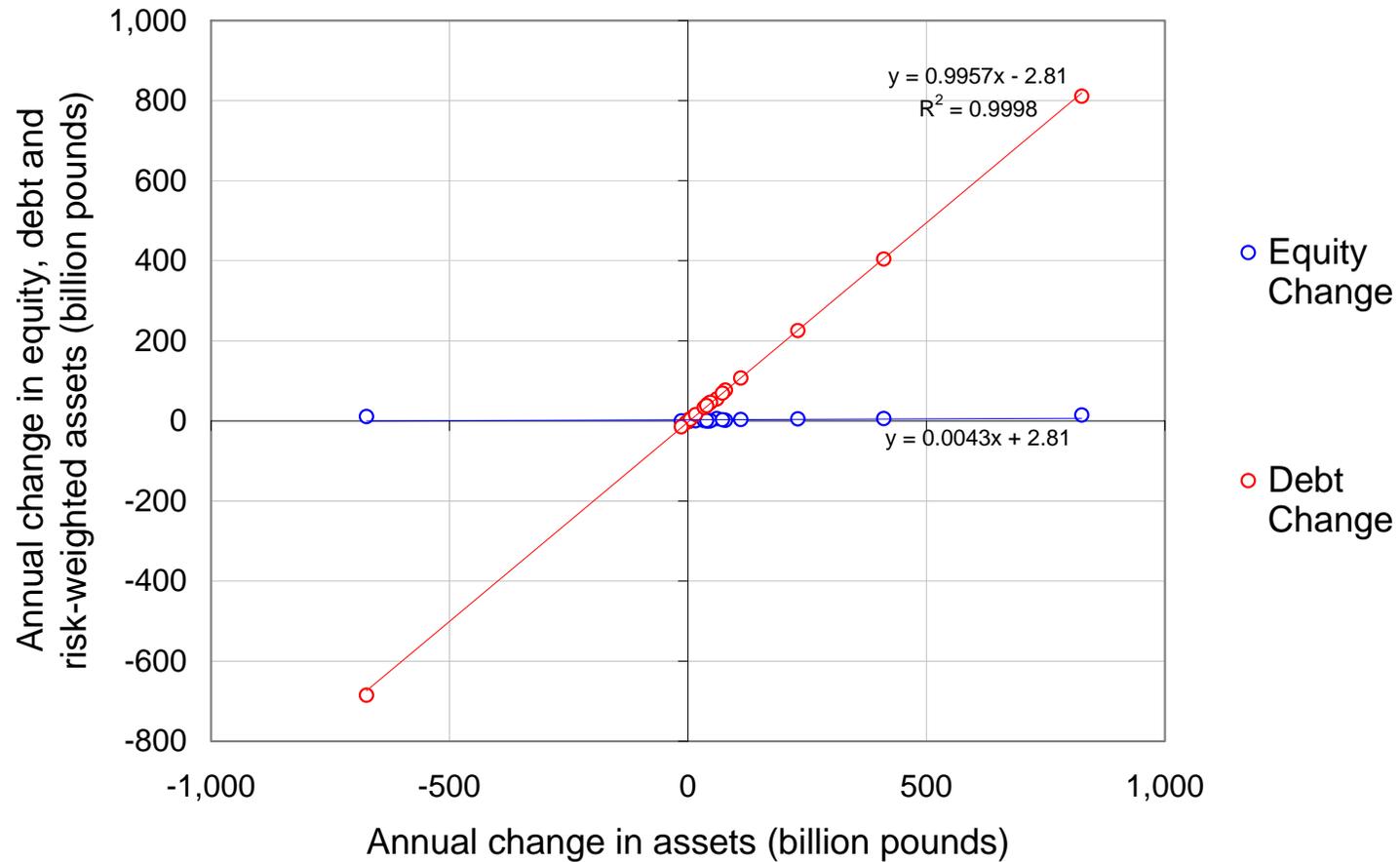


Figure 21. Barclays: annual change in assets, equity and debt (1992-2010) (Source: Bankscope)

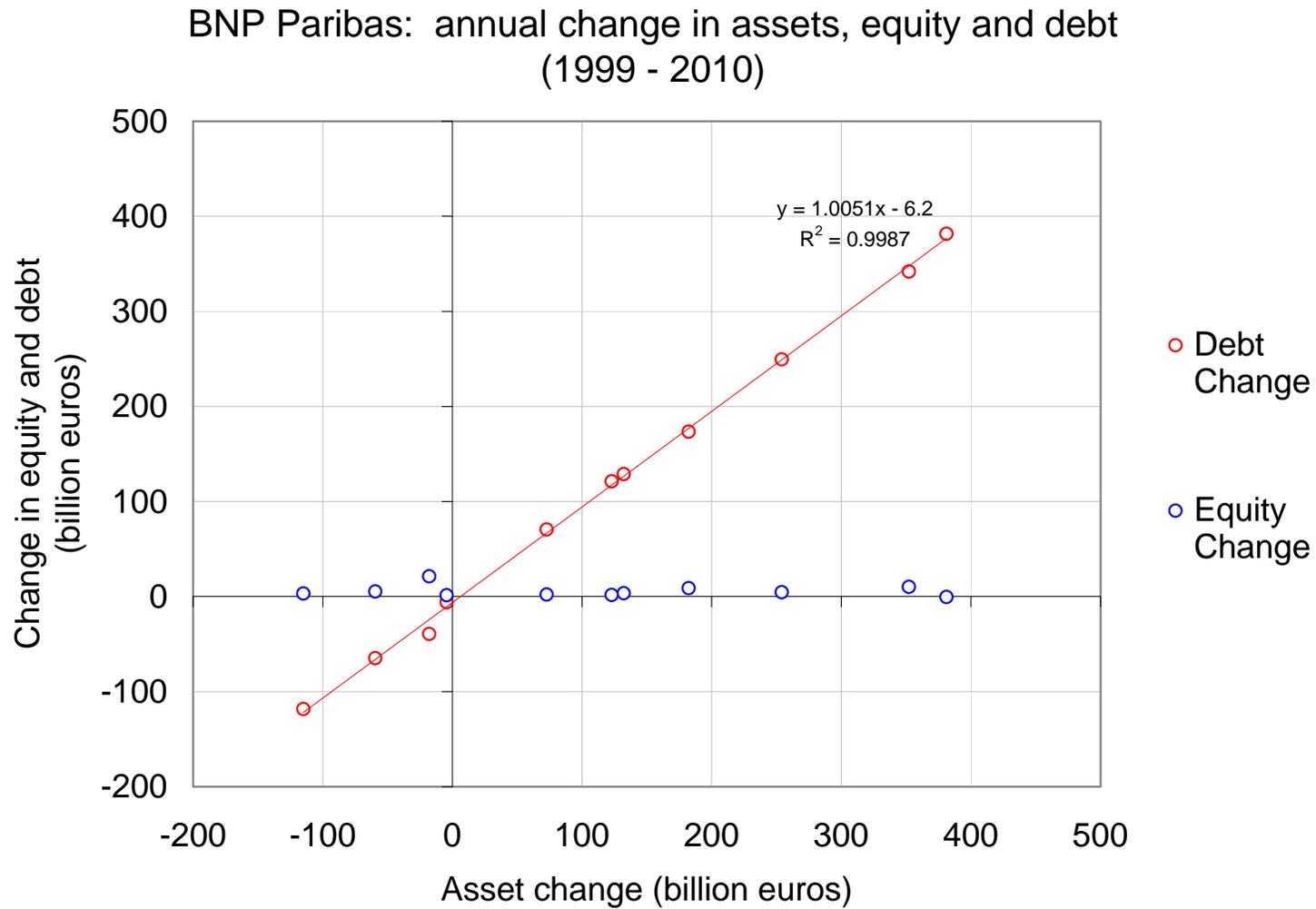


Figure 22. BNP Paribas: annual change in assets, equity and debt of (1999-2010) (Source: Bankscope)

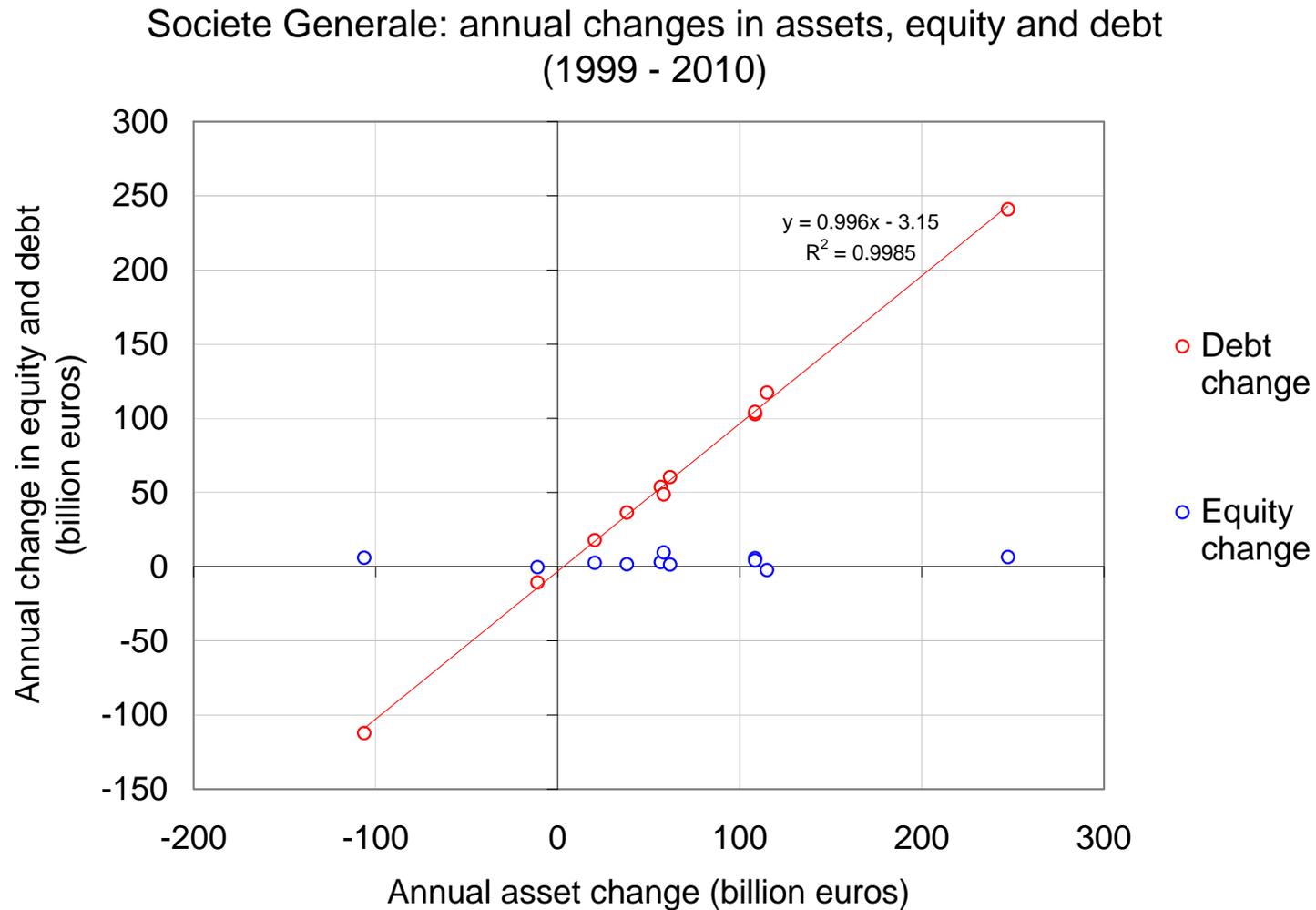


Figure 23. Societe Generale: annual change in assets, equity and debt of (1999-2010) (Source: Bankscope)

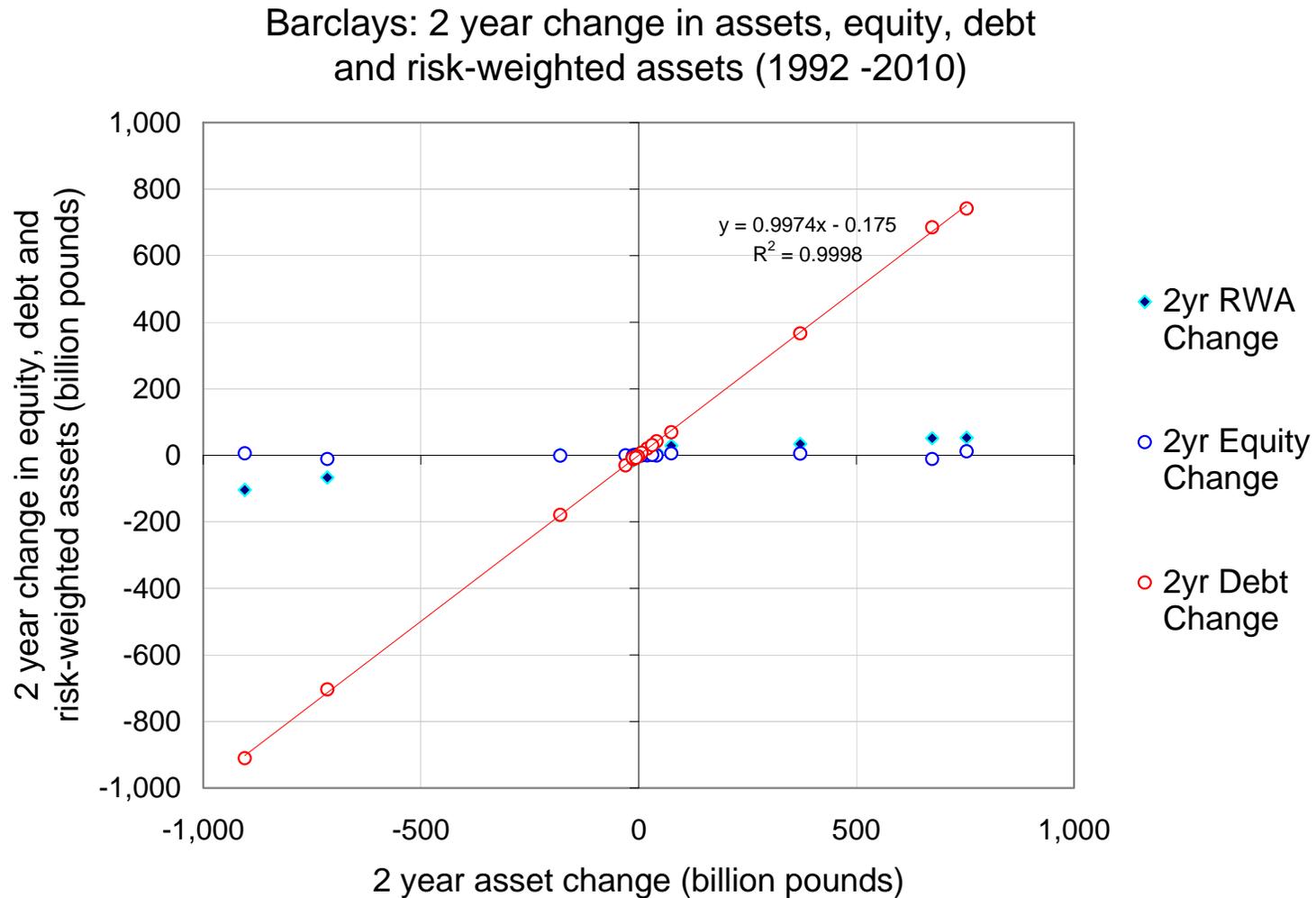


Figure 24. Barclays: 2 year change in assets, equity and debt (1992-2010) (Source: Bankscope)

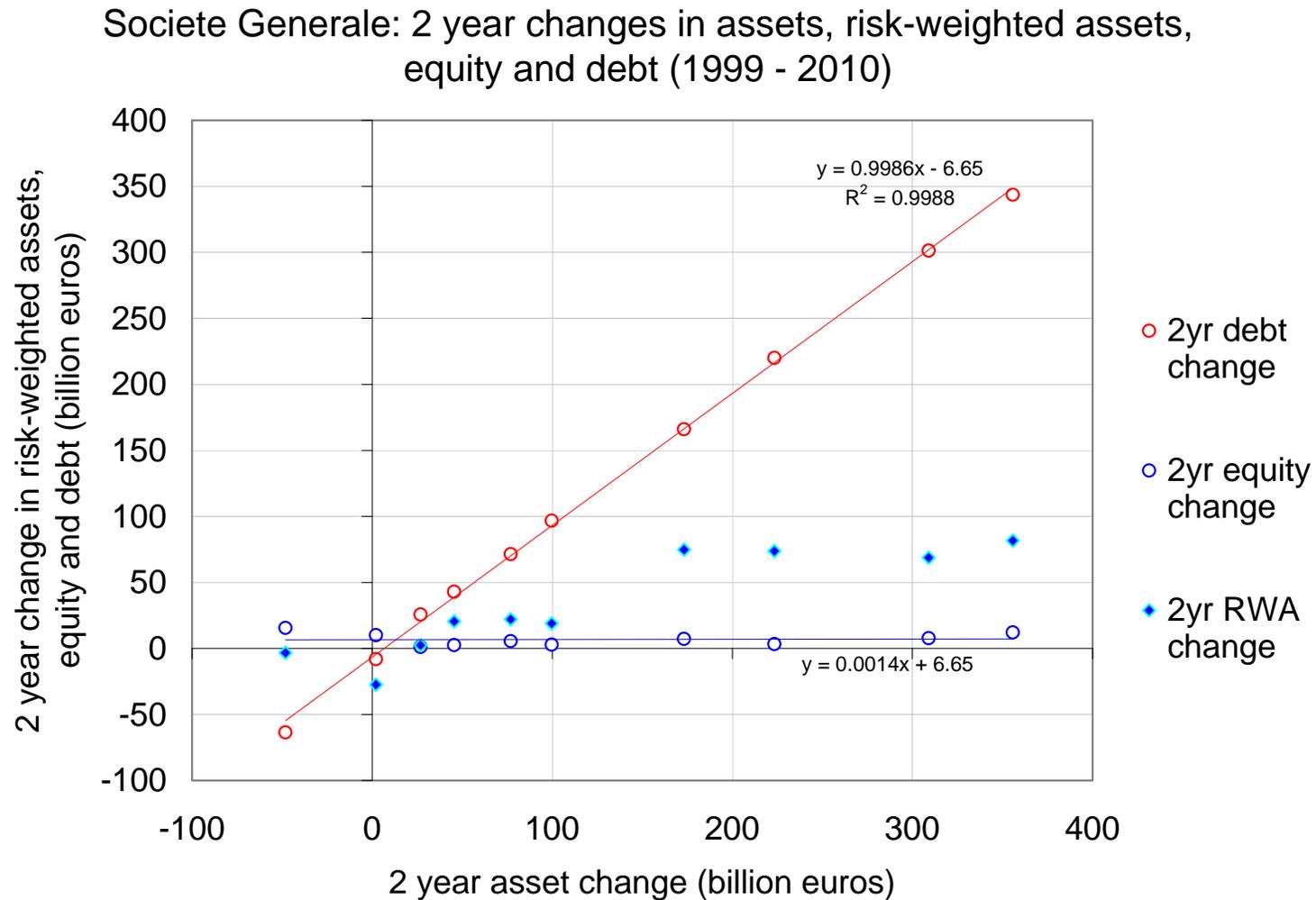


Figure 25. Societe Generale: 2 year change in assets, equity and debt of (1999-2010) (Source: Bankscope)

Why did European banks expand so much?

Two candidate hypotheses:

- Regulatory environment: circumvention of Basel I, impending Basel II and EU Capital Adequacy Directive (CAD)
- Advent of Euro opened up cross-border banking market within the eurozone

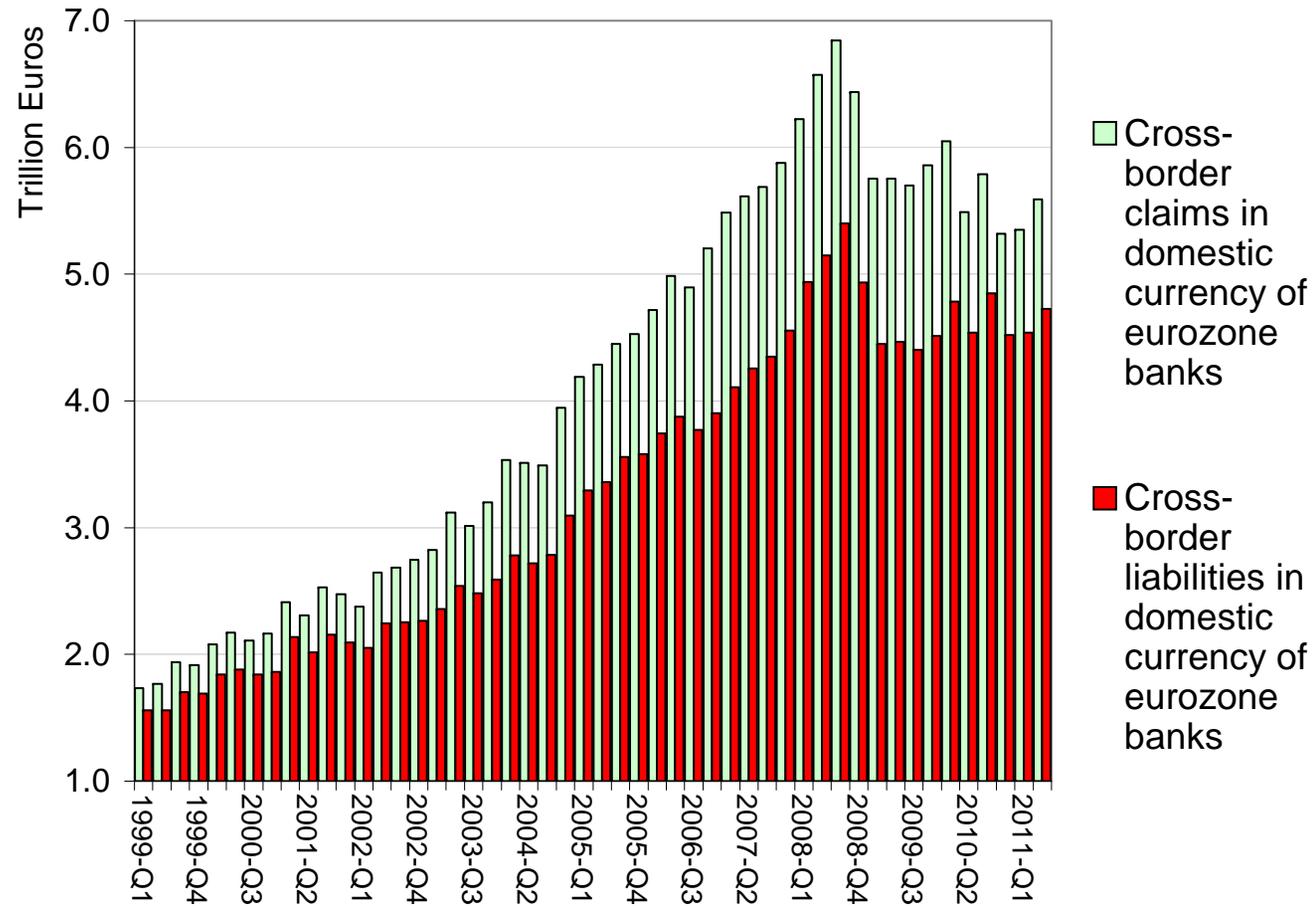


Figure 26. Cross-border euro-denominated claims and liabilities of eurozone banks (Source: BIS Locational Statistics, Table 5A)

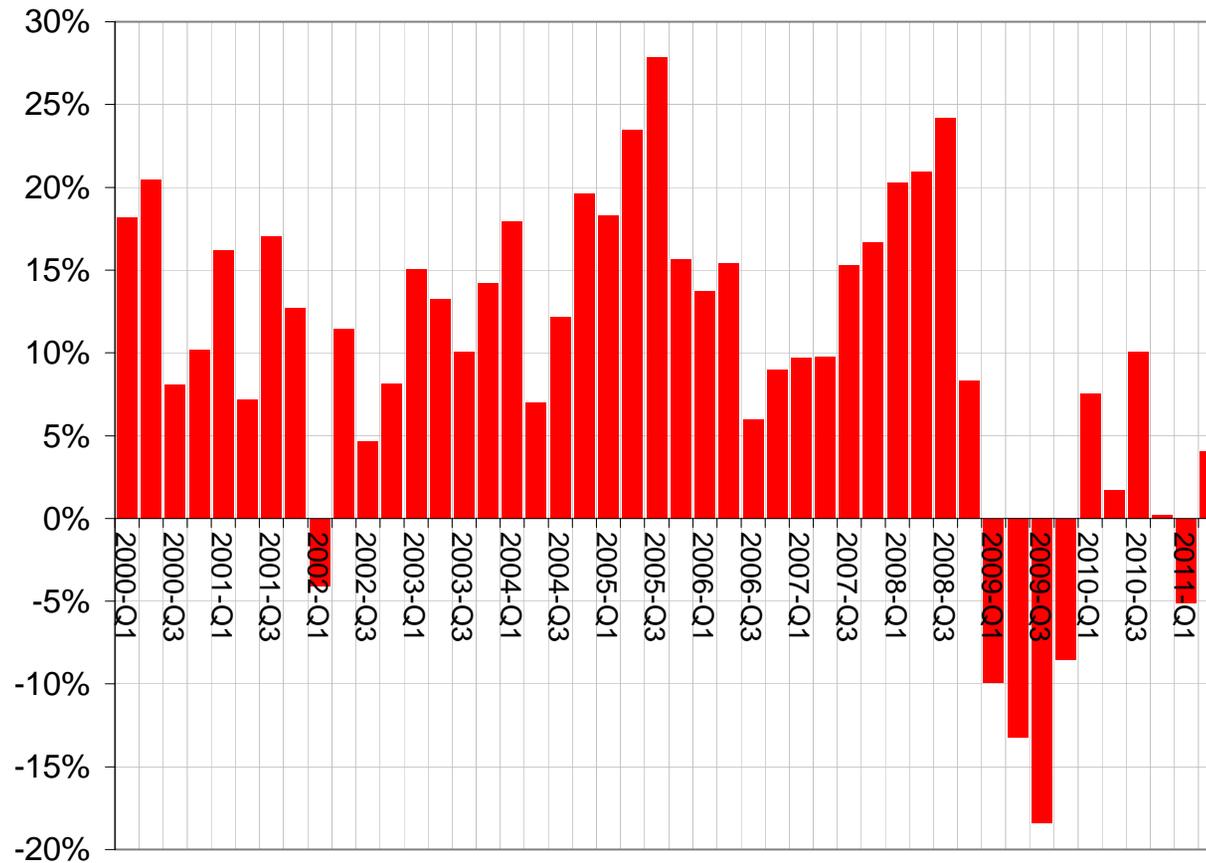


Figure 27. Four quarter growth rate of cross-border euro-denominated liabilities of eurozone banks (Source: BIS Locational Banking Statistics Table 5A)

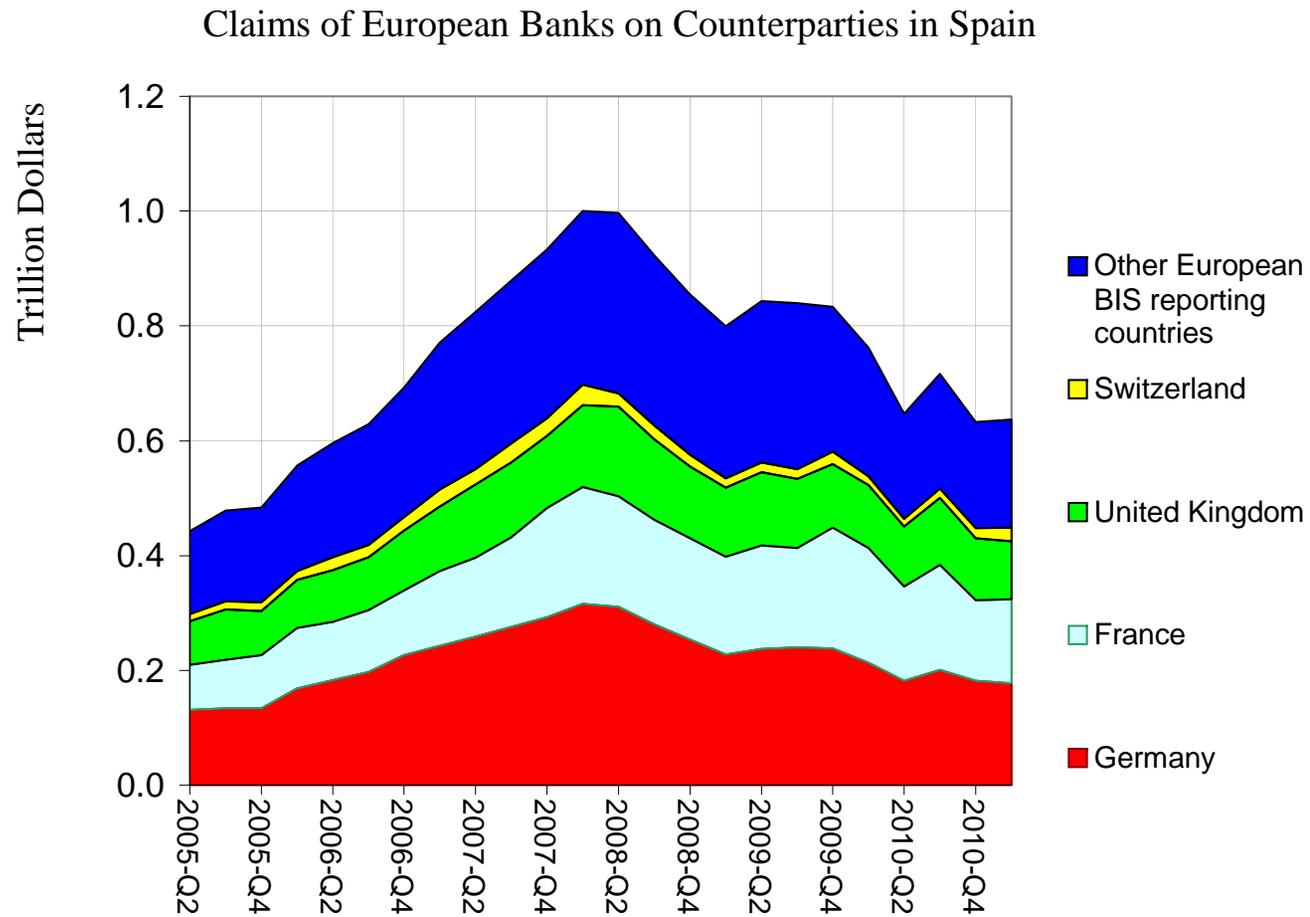


Figure 28. Foreign claims of European BIS-reporting banks on counterparties in Spain (Source: BIS consolidated banking statistics, Table 9D)

Claims of European banks on Counterparties in Ireland

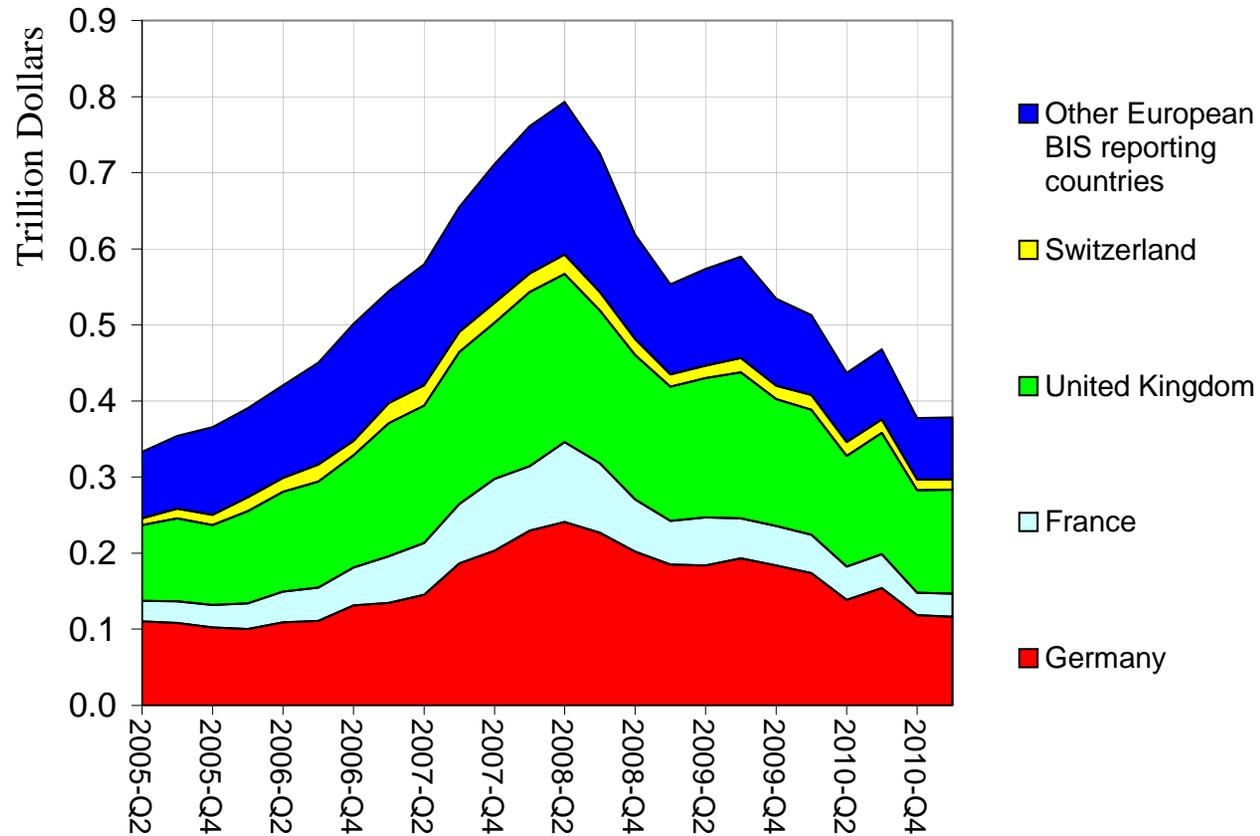


Figure 29. Foreign claims of European BIS-reporting banks on counterparties in Ireland (Source: BIS consolidated banking statistics, Table 9D)

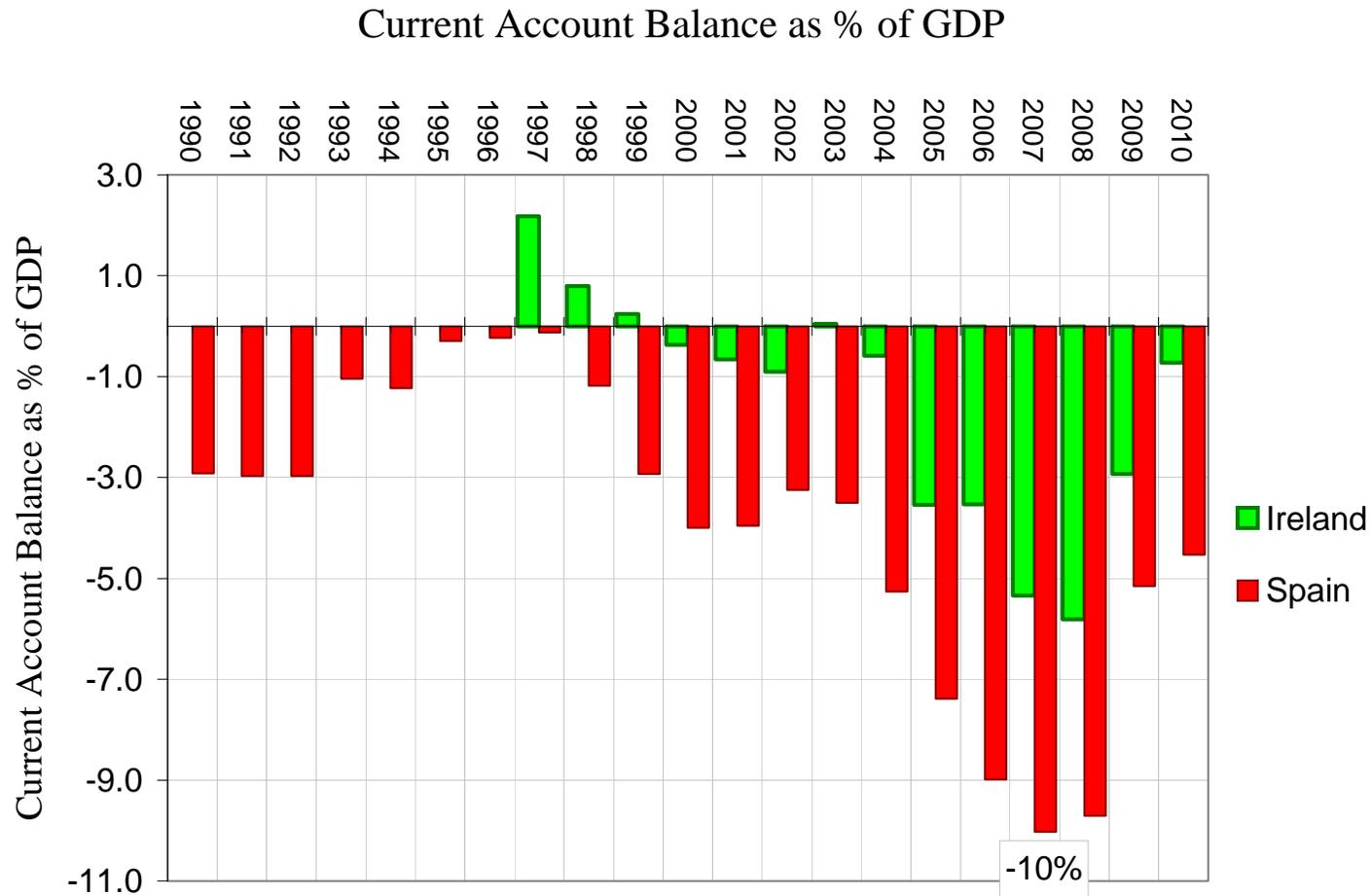
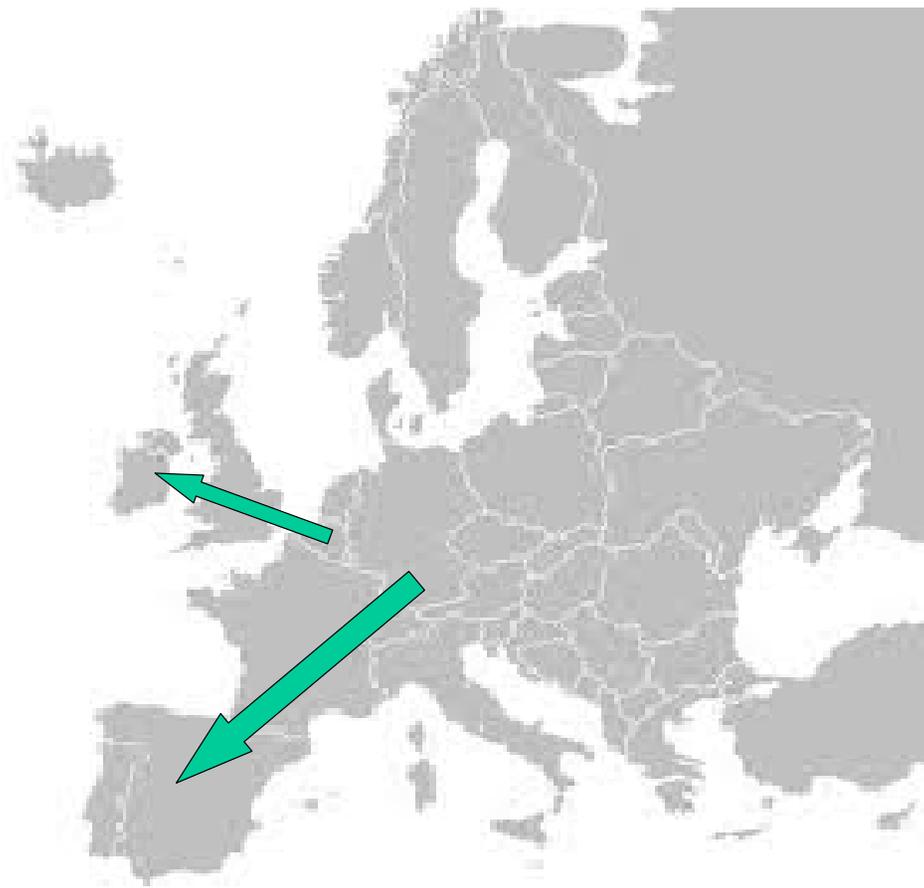
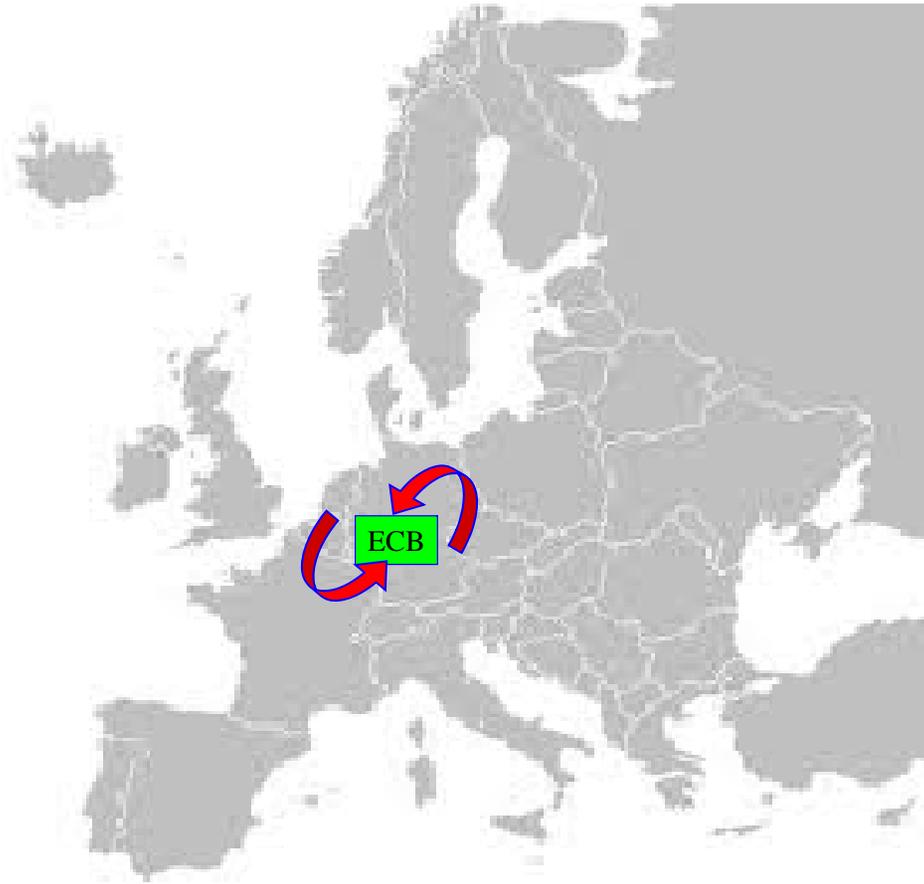
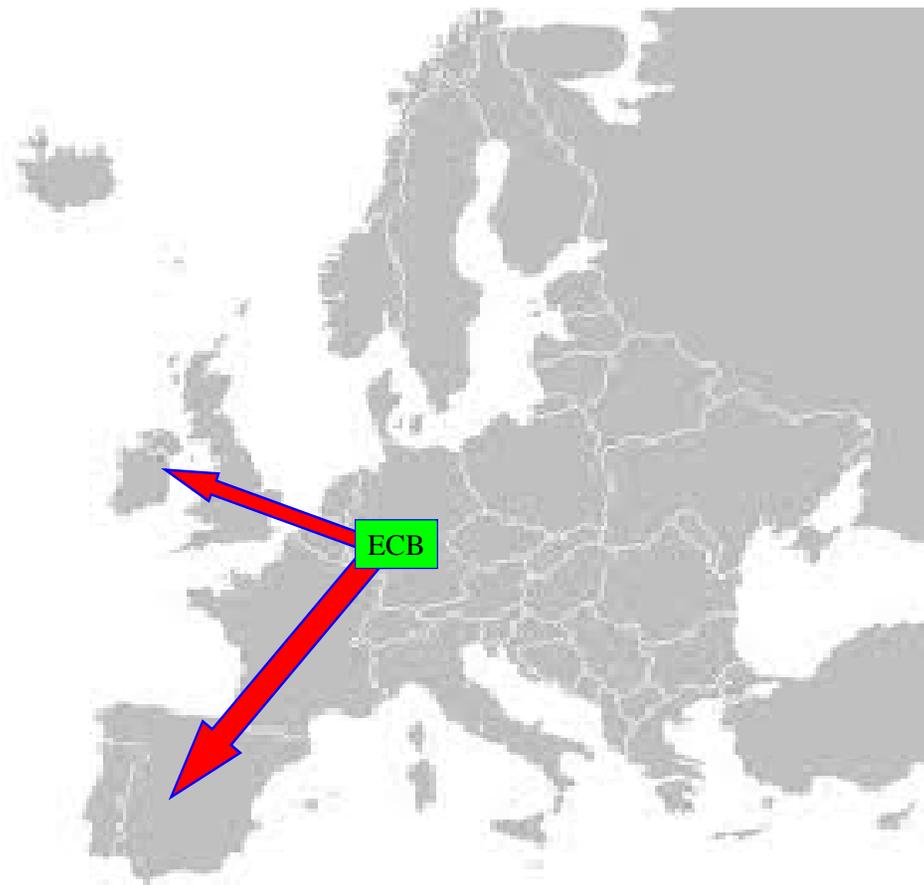


Figure 30. Current account of Ireland and Spain (Source: IMF International Financial Statistics)







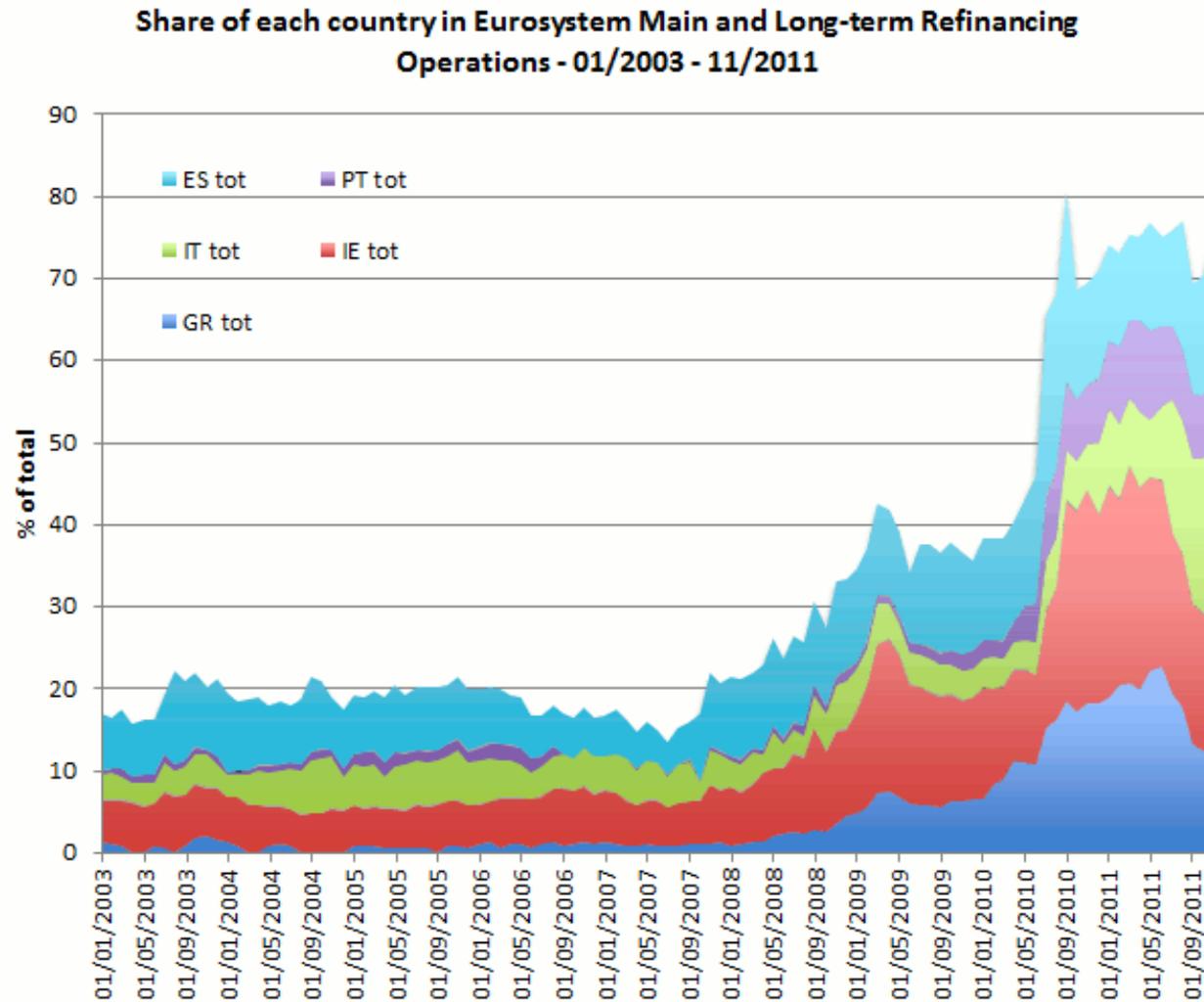


Figure 31. Share of Eurosystem Main and Long-term Refinancing Operations (Jan 2003 - Nov 2011) (Source: “Sudden stops in the Eurozone” Silvia Merler and Jean Pisani-Ferry (2012), data from European Central Bank)

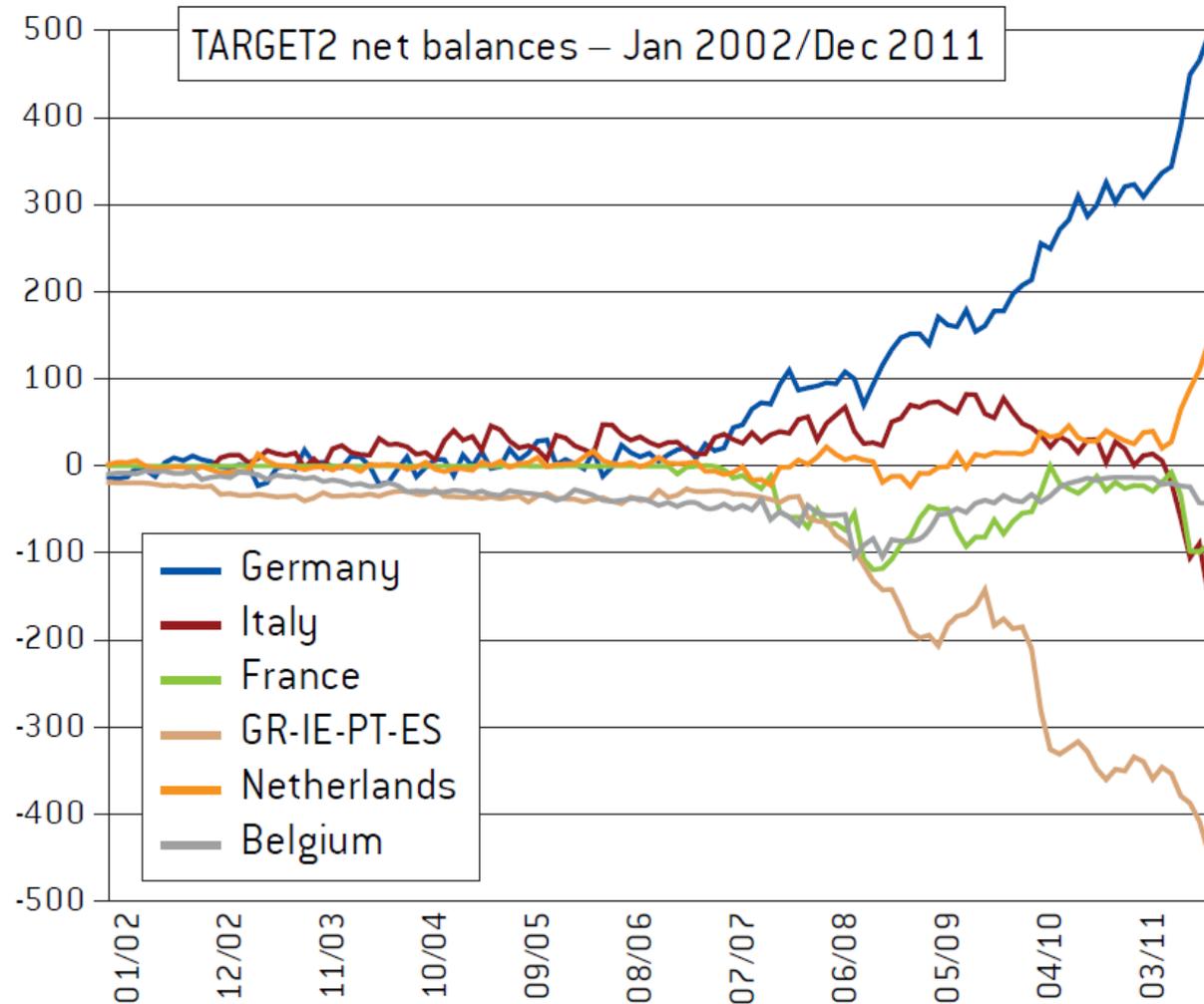


Figure 32. TARGET 2 net balances in the Eurosystem (Source: “Sudden stops in the Eurozone” Silvia Merler and Jean Pisani-Ferry (2012), data from Eurosystem central banks)

Some Historical Parallels

- US mortgage crisis 2007 ~
- Japan's bursting bubble 1990 ~ 2003

Slow deleveraging eventually results in bad assets and public recapitalization of banks

How much? How soon? How?

Some lessons from Japan

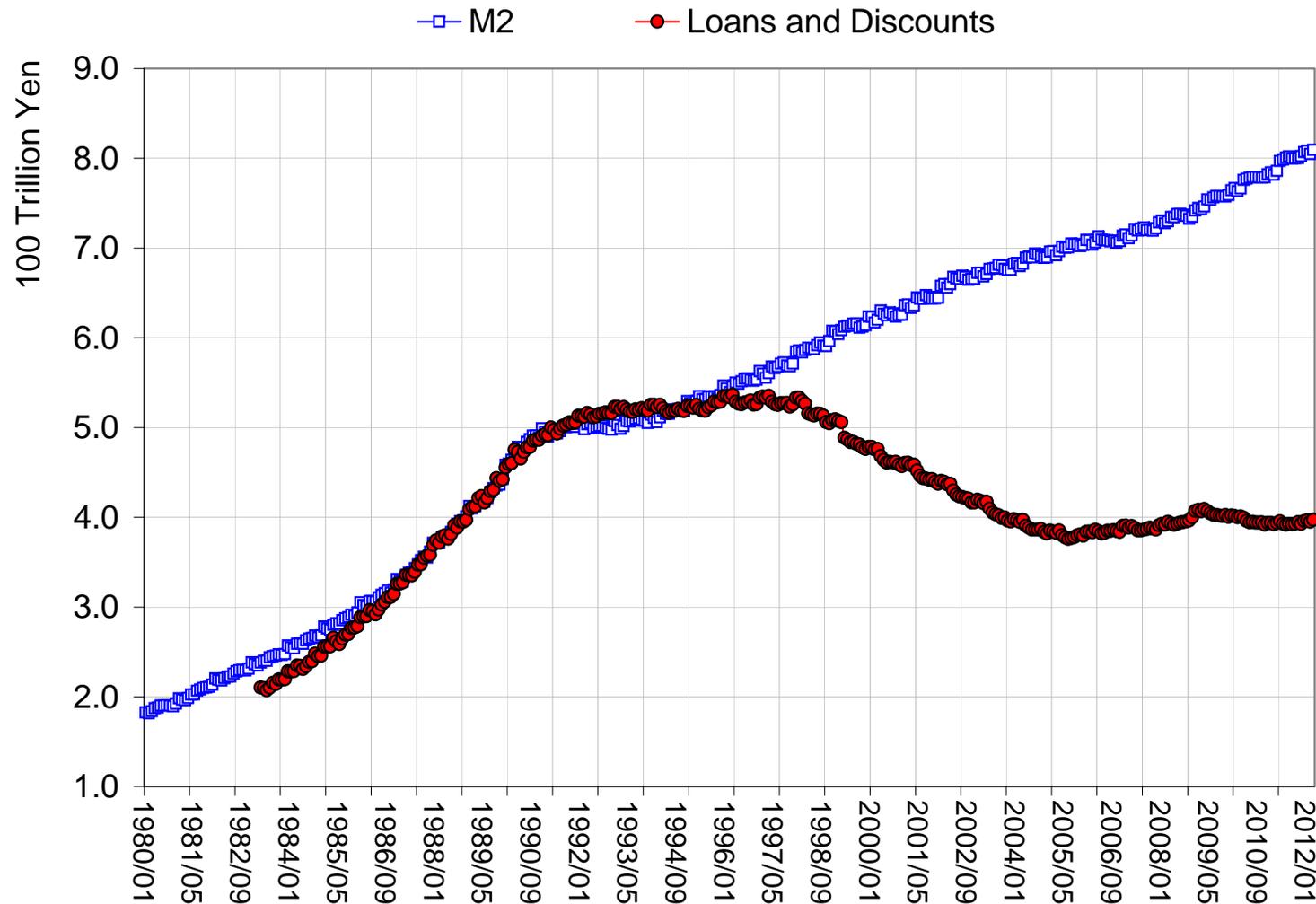


Figure 33. **Japan:** Loans and discounts of major and regional banks (in red) and M2 money stock (in blue)
(Source: Flow of Funds, Bank of Japan)

Some Characteristic Features of Boom and Bust

- Boom phase
 - Rapid increase in **lending**
 - Increase in **loan to deposit ratio**
 - Increasing incidence of “non-core” liabilities

- Bust phase
 - Loans and loan-to-deposit ratio decline
 - Liquidity support by central bank cushion (or delay) the process
 - Zombie banks and zombie firms

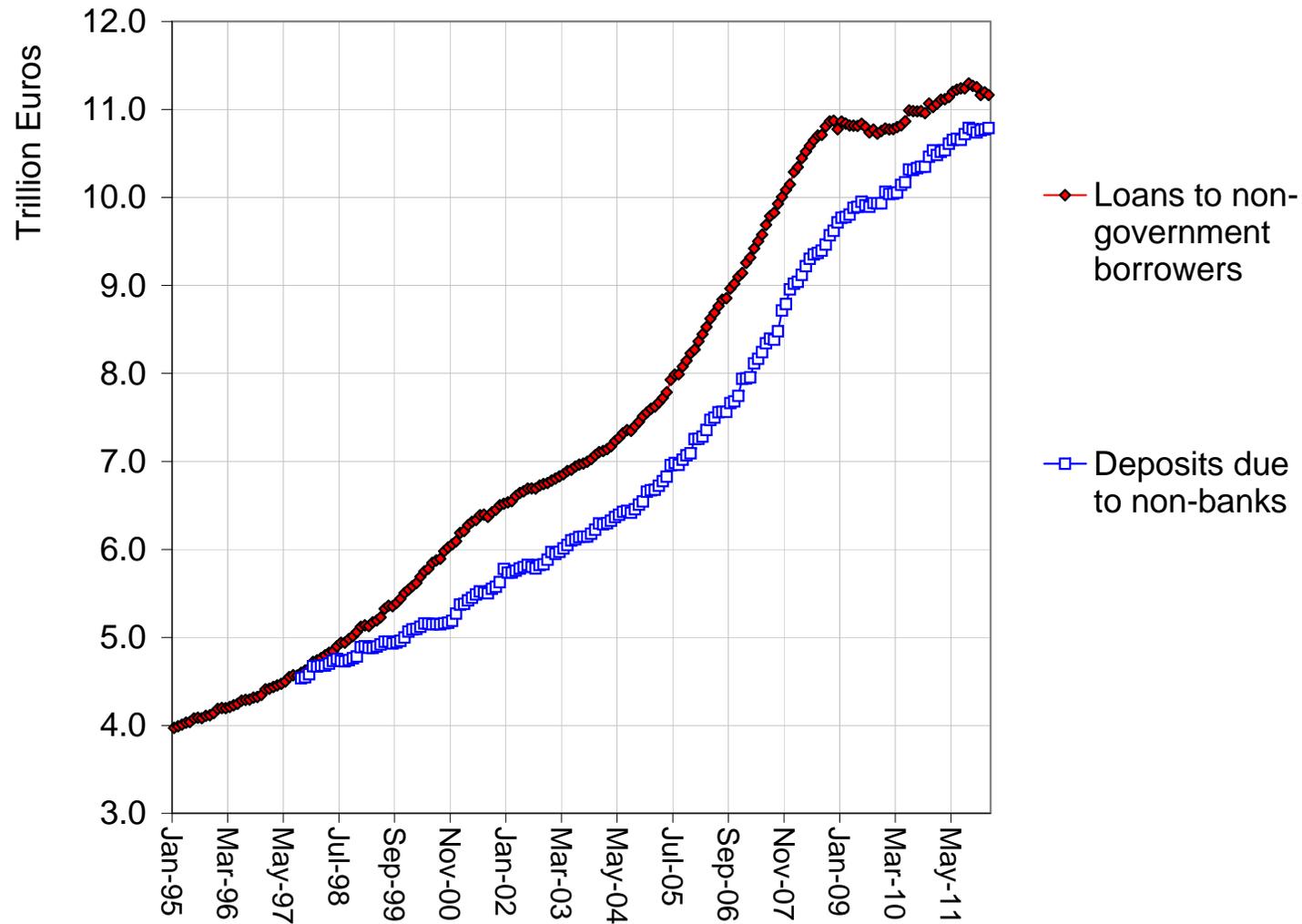


Figure 34. **Eurozone:** Loans to non-MFIs (monetary and financial institutions), excluding general government (in red) and deposit liabilities to non-MFIs excluding central government (Source: European Central Bank)

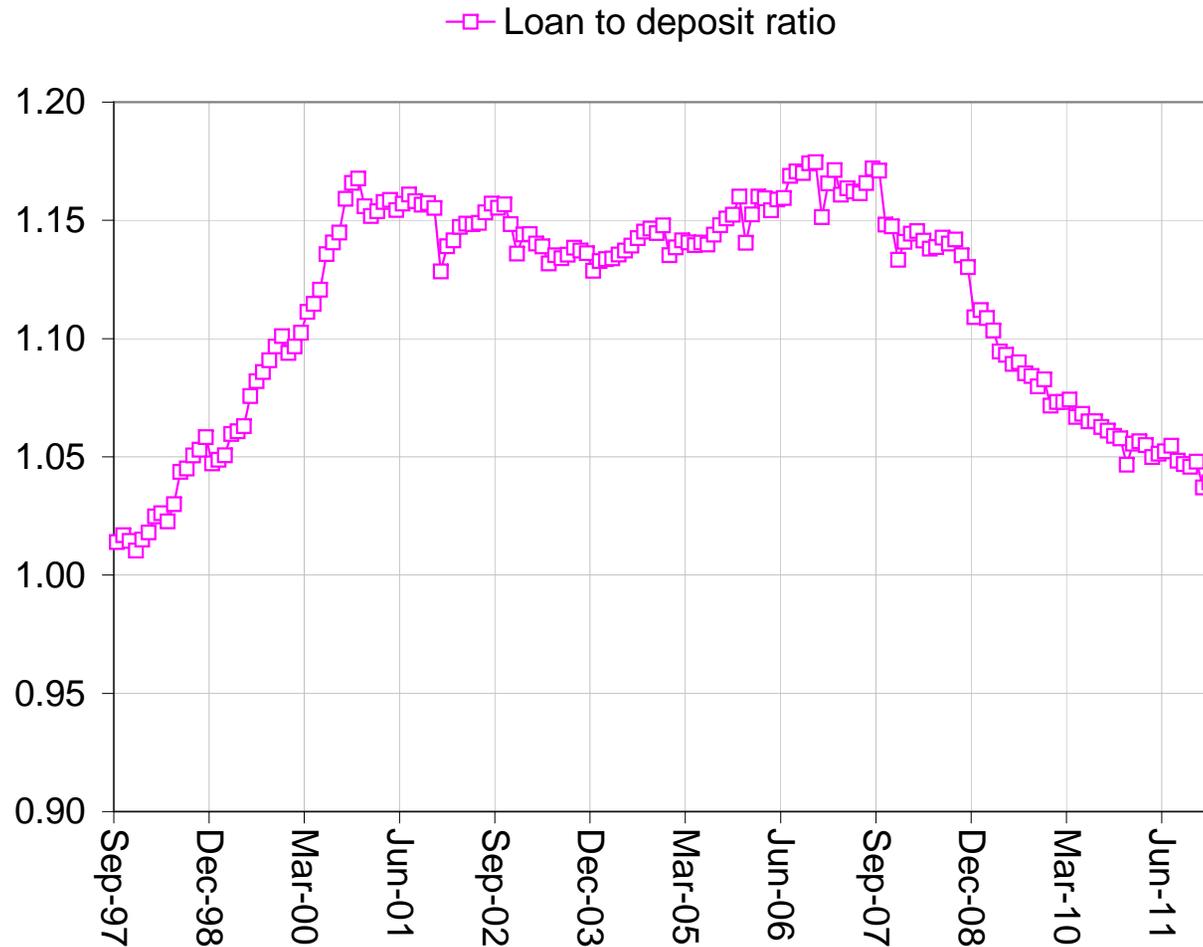


Figure 35. **Eurozone**: Loan to deposit ratio. Numerator is loans to non-MFIs (monetary and financial institutions), excluding general government. Denominator is deposit liabilities to non-MFIs excluding central government (Source: European Central Bank)

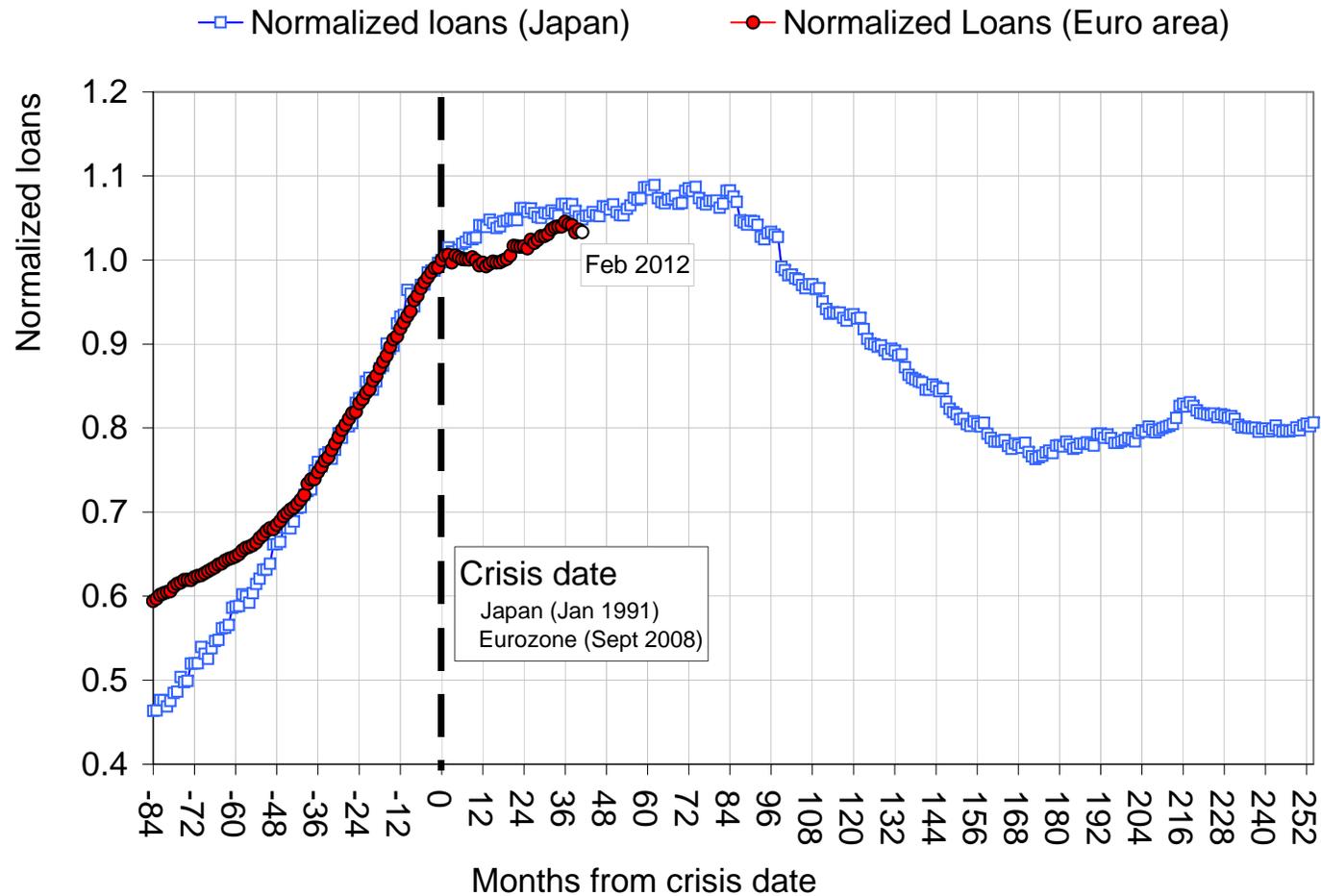


Figure 36. **Eurozone and Japan:** Loans in Euro area (in red) and in Japan (in blue) normalized to 1.0 at crisis date, and measured in months from the crisis date. Eurozone crisis date is September 2008. Crisis date for Japan is January 1991 (between stock market peak and real estate peak)

Lessons for Eurozone from Japan

- **Liquidity** versus **solvency**
 - Comparing Eurozone LTRO with BOJ's monetary policy in 90s
 - Loans granted during the bubble phase almost always go bad, and must be written off eventually...
- Pre-condition for restructuring is **political will**, which needs shared diagnosis of crisis
 - Japan's deleveraging started 7 years after crisis date (see figure)
 - Restructuring entails **fiscal costs**, which is an added complication in Eurozone

Question: How well can the institutions and governance structure of the Eurozone cope with strains of the restructuring process?

What Implications for Rest of the World?

- Implications for the US economy

- Emerging economies

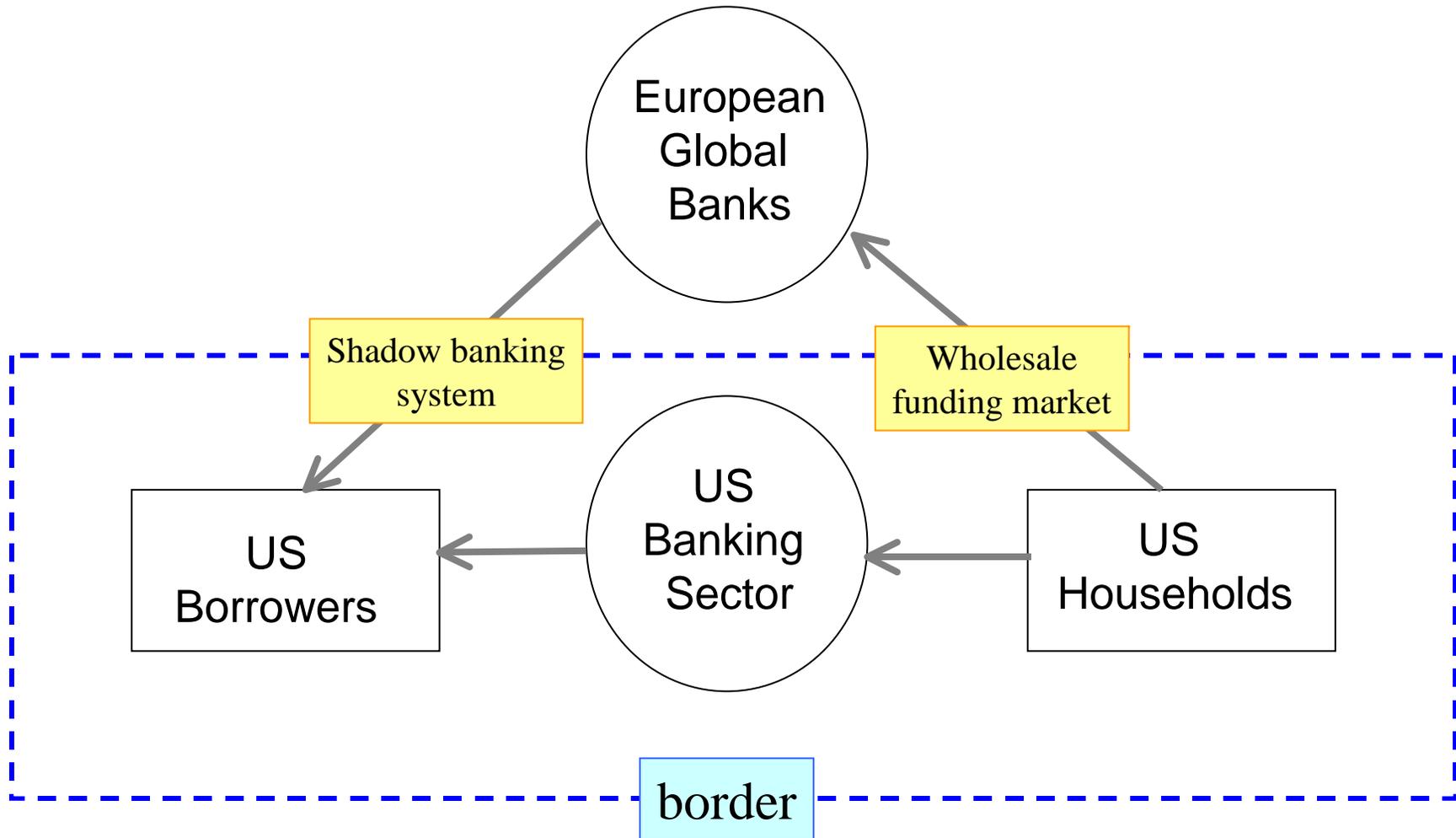


Figure 37. European global banks add intermediation capacity for connecting US savers and borrowers

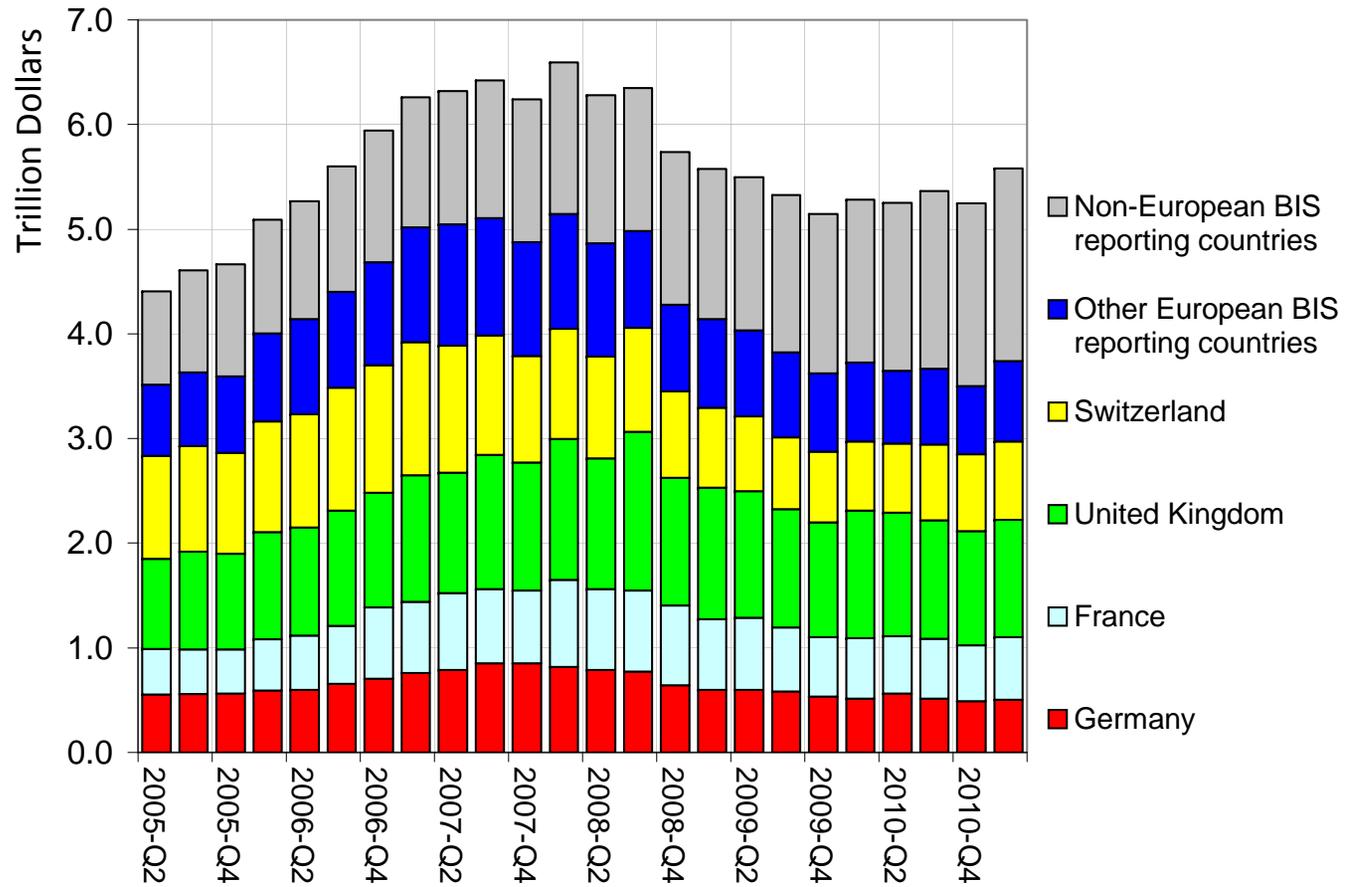


Figure 38. Foreign claims of BIS reporting banks on US counterparties (Source: BIS consolidated banking statistics, Table 9D)

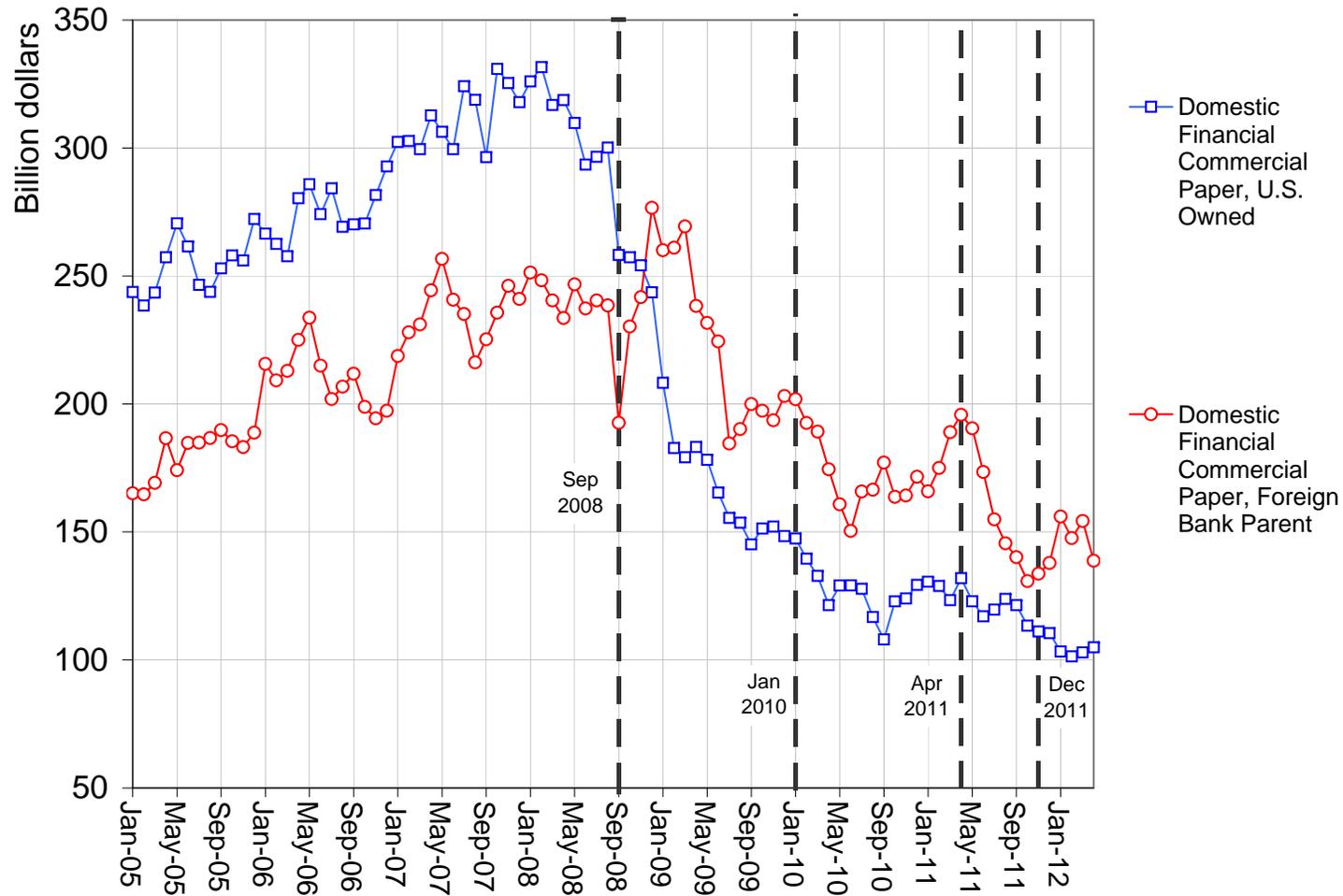


Figure 39. Domestic financial commercial paper outstanding of U.S.-owned banks and banks with foreign parent (Source: Federal Reserve series on commercial paper)

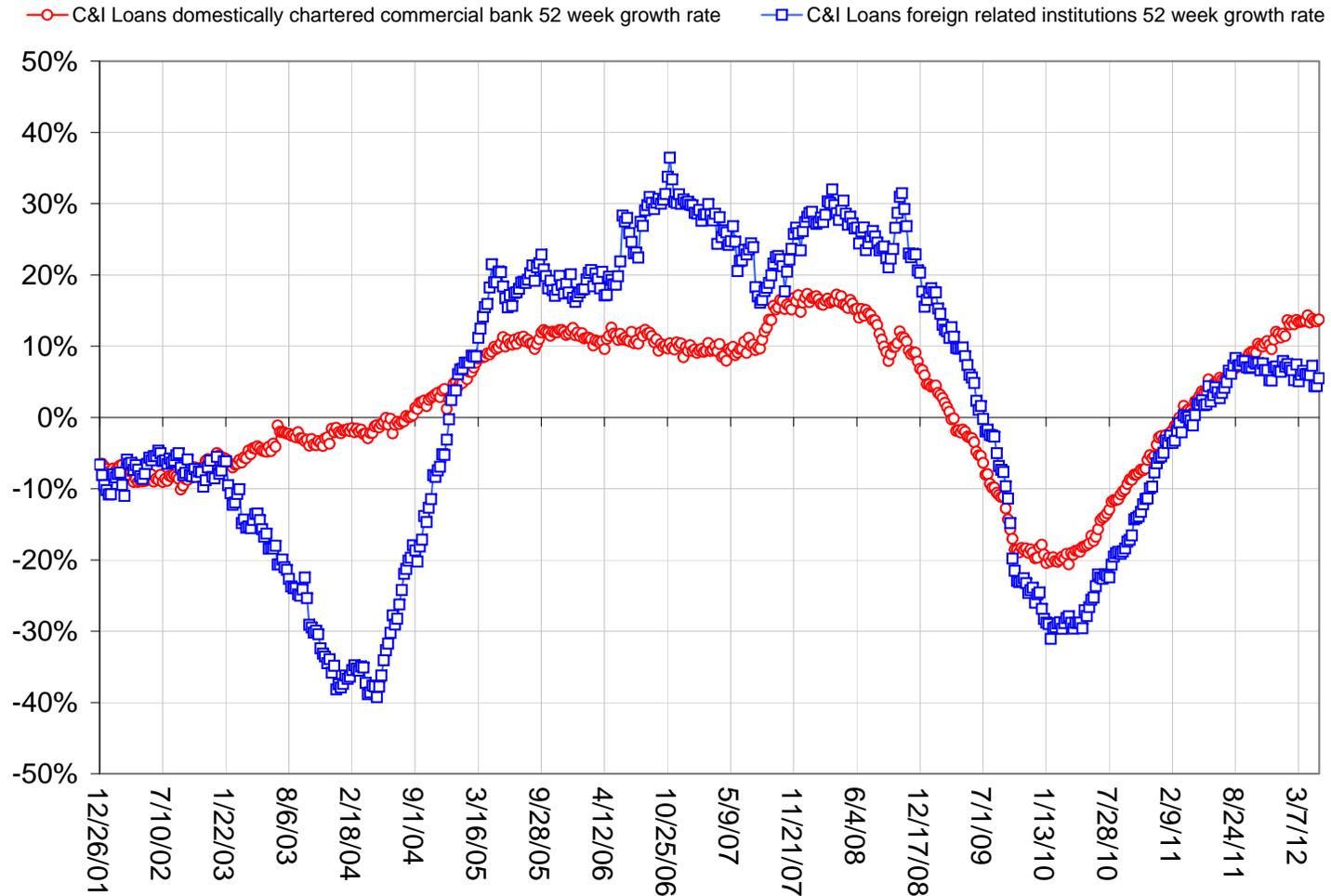


Figure 40. 52 week growth rates of C&I (commercial and industrial) loans of U.S. banks and foreign banks in the U.S. (Source: Federal Reserve, H8 weekly series on assets and liabilities of domestically chartered U.S. banks and foreign-related institutions)

Emerging Economies

- China
- Rest of Asia
- Emerging Europe
- Latin America

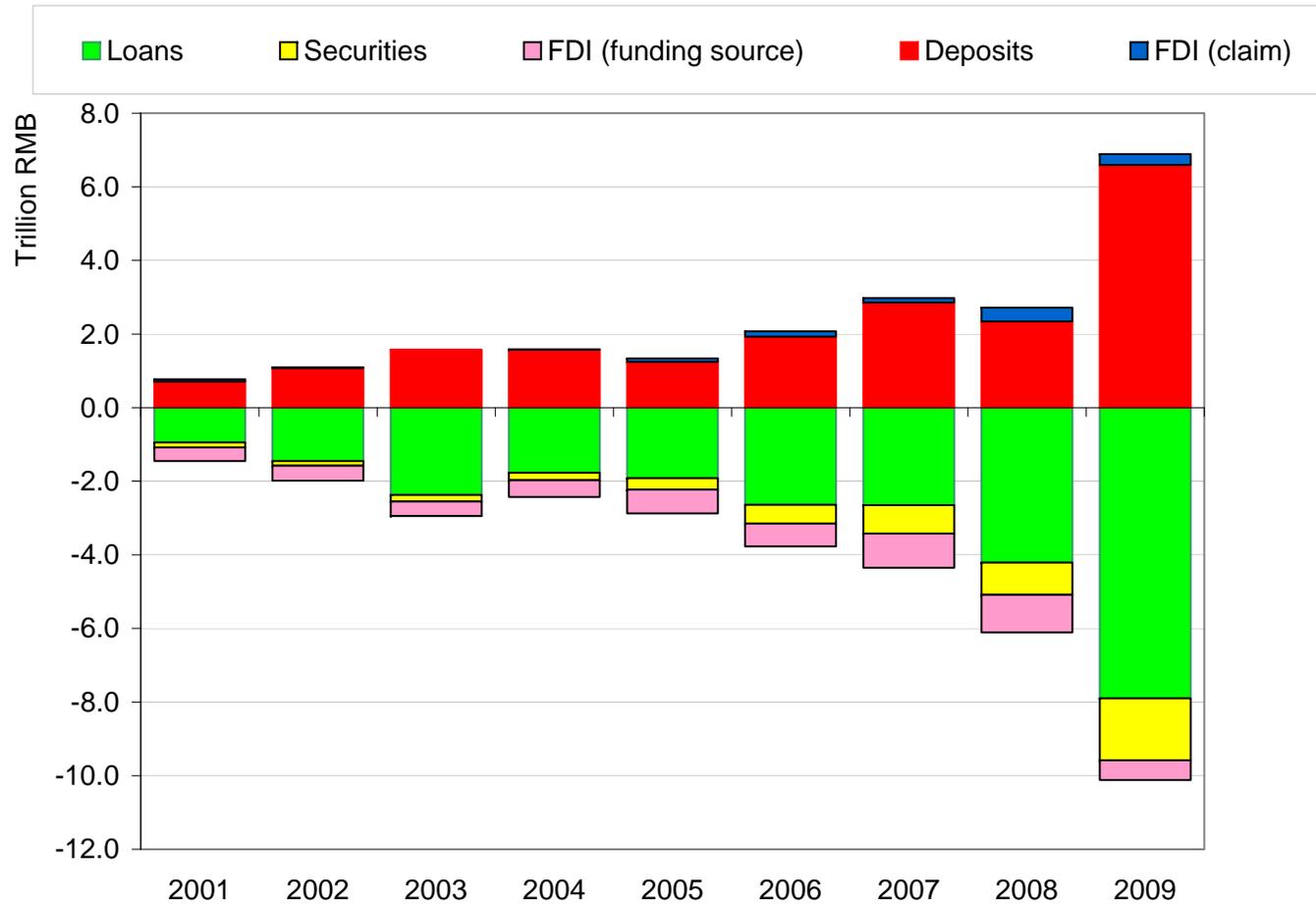


Figure 41. China: non-financial corporate sector financial assets and liabilities (Source: China Statistical Yearbook, Flow of Funds of Chinese Corporations)

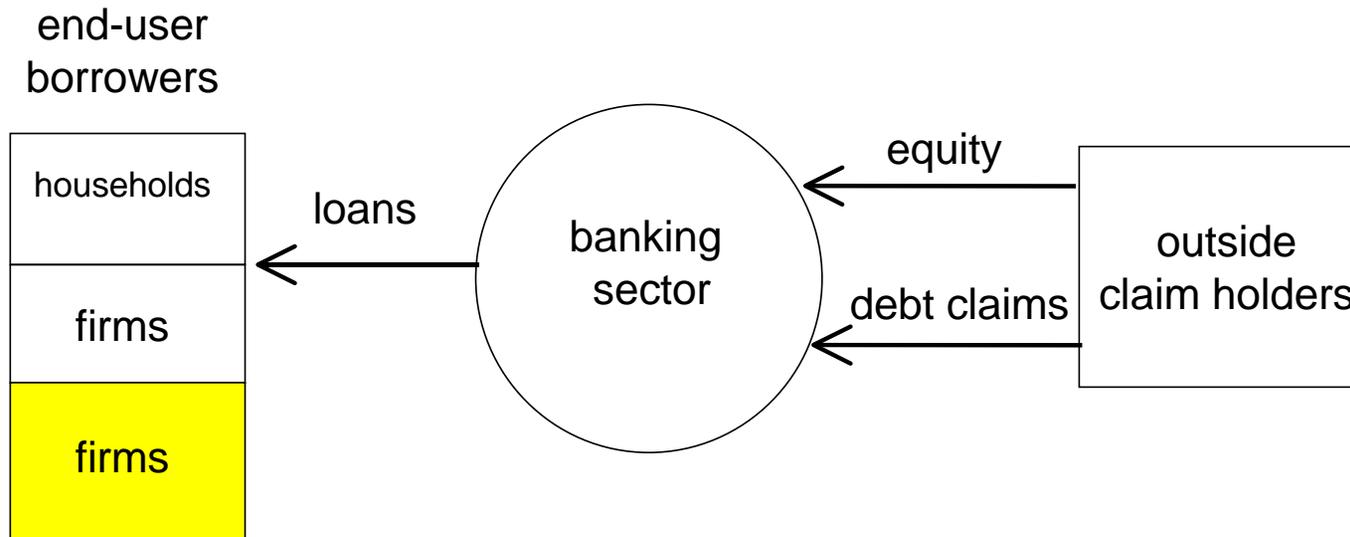


Figure 42. Stylized financial system before inflow of global liquidity (Source: Hattori, Shin and Takahashi (2009))

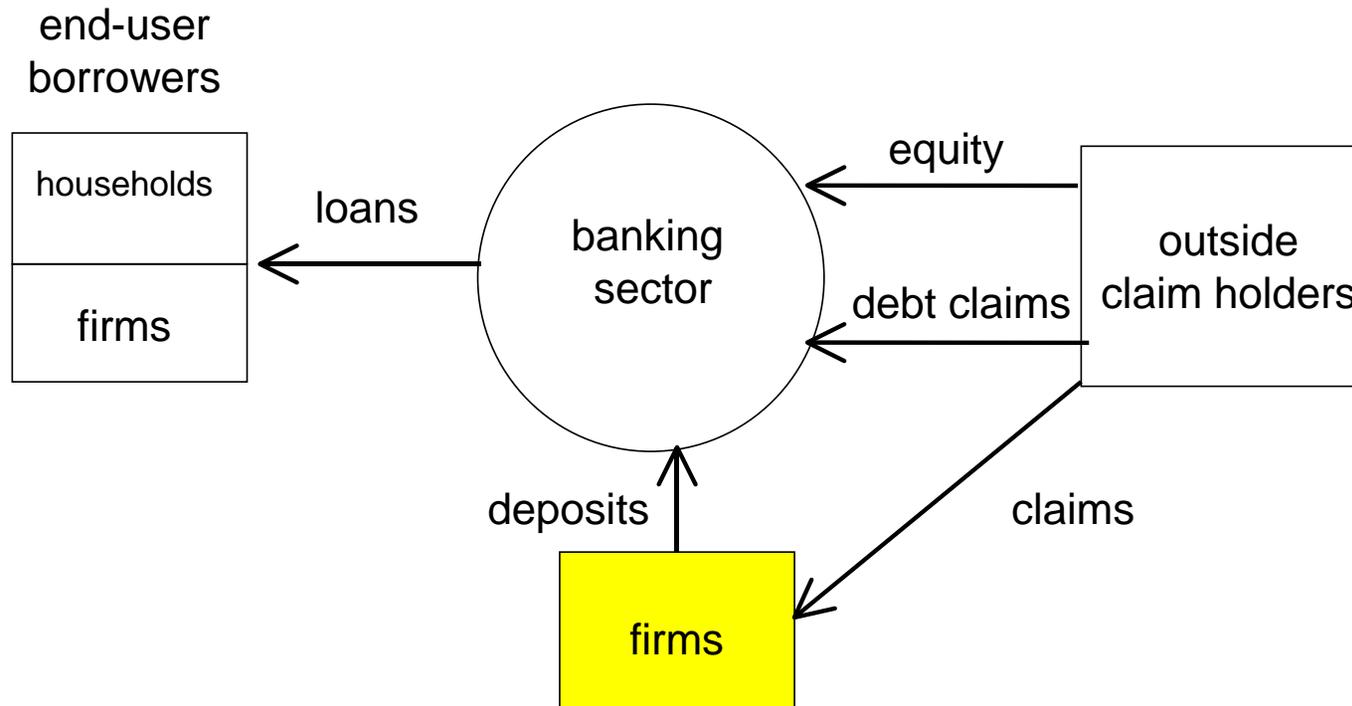


Figure 43. Stylized financial system with non-financial corporates channeling global liquidity (Source: Hattori, Shin and Takahashi (2009))

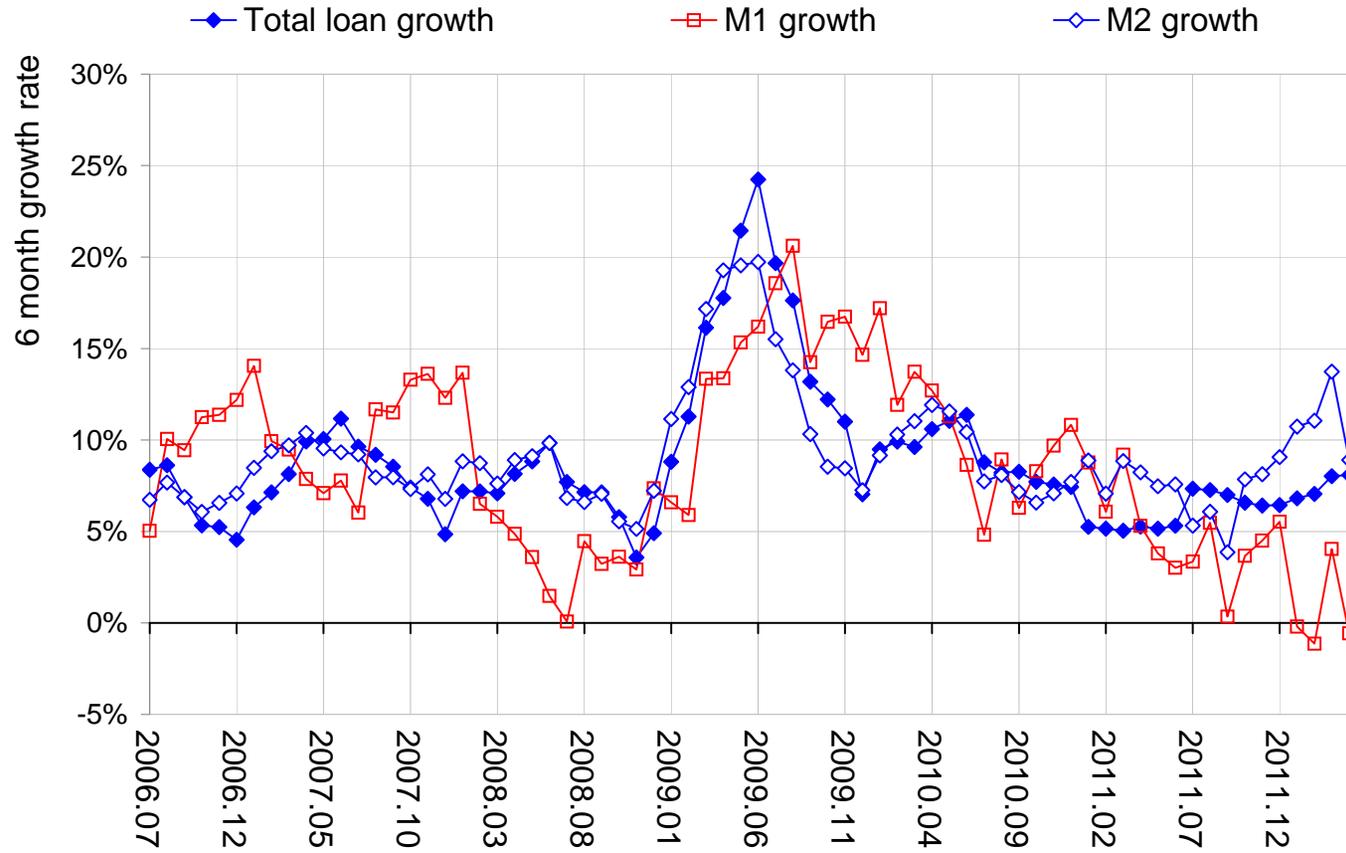


Figure 44. Six month growth rate of money stock (Source: People's Bank of China)

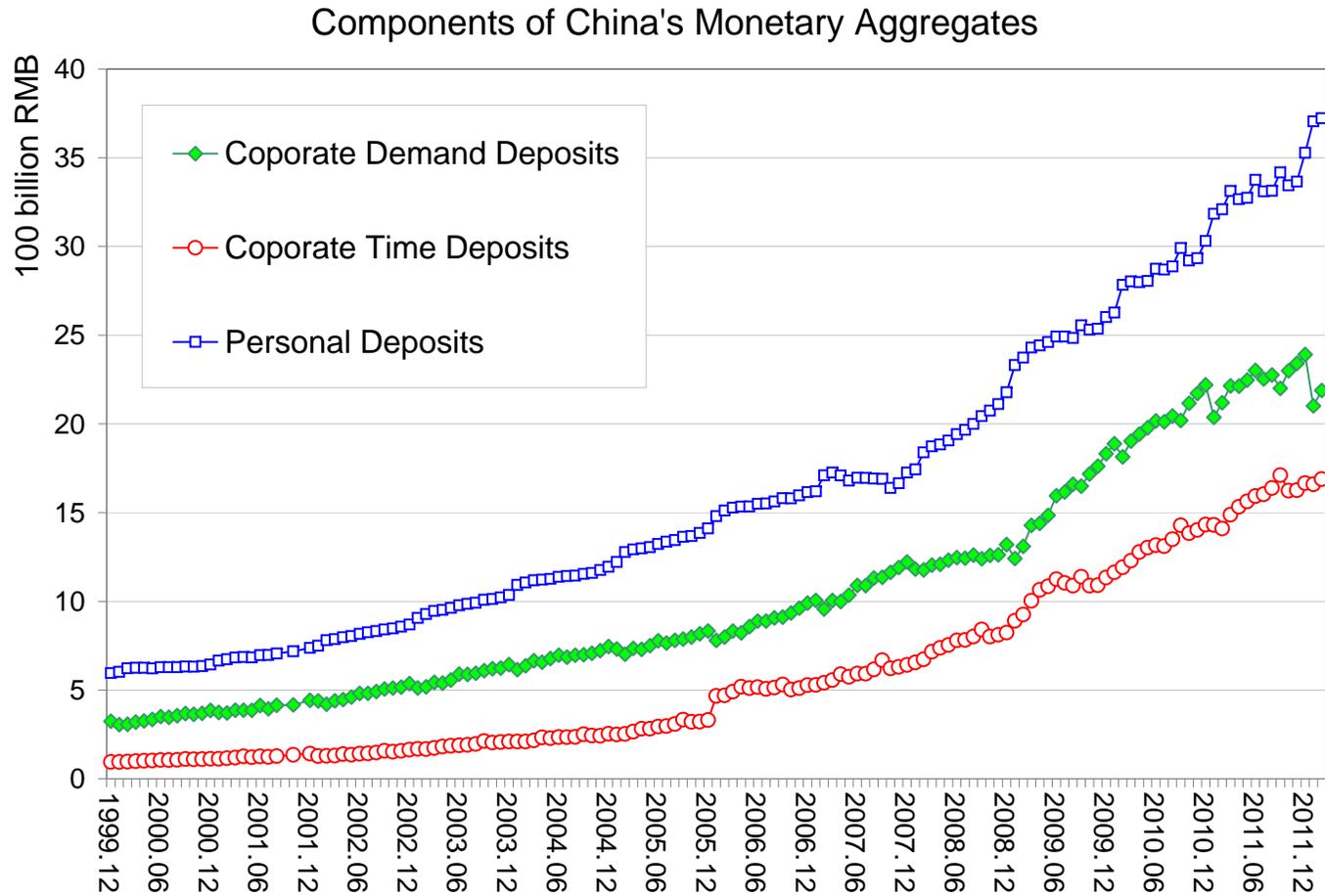


Figure 45. China: corporate and personal deposits of banking sector (Source: People's Bank of China monetary statistics)

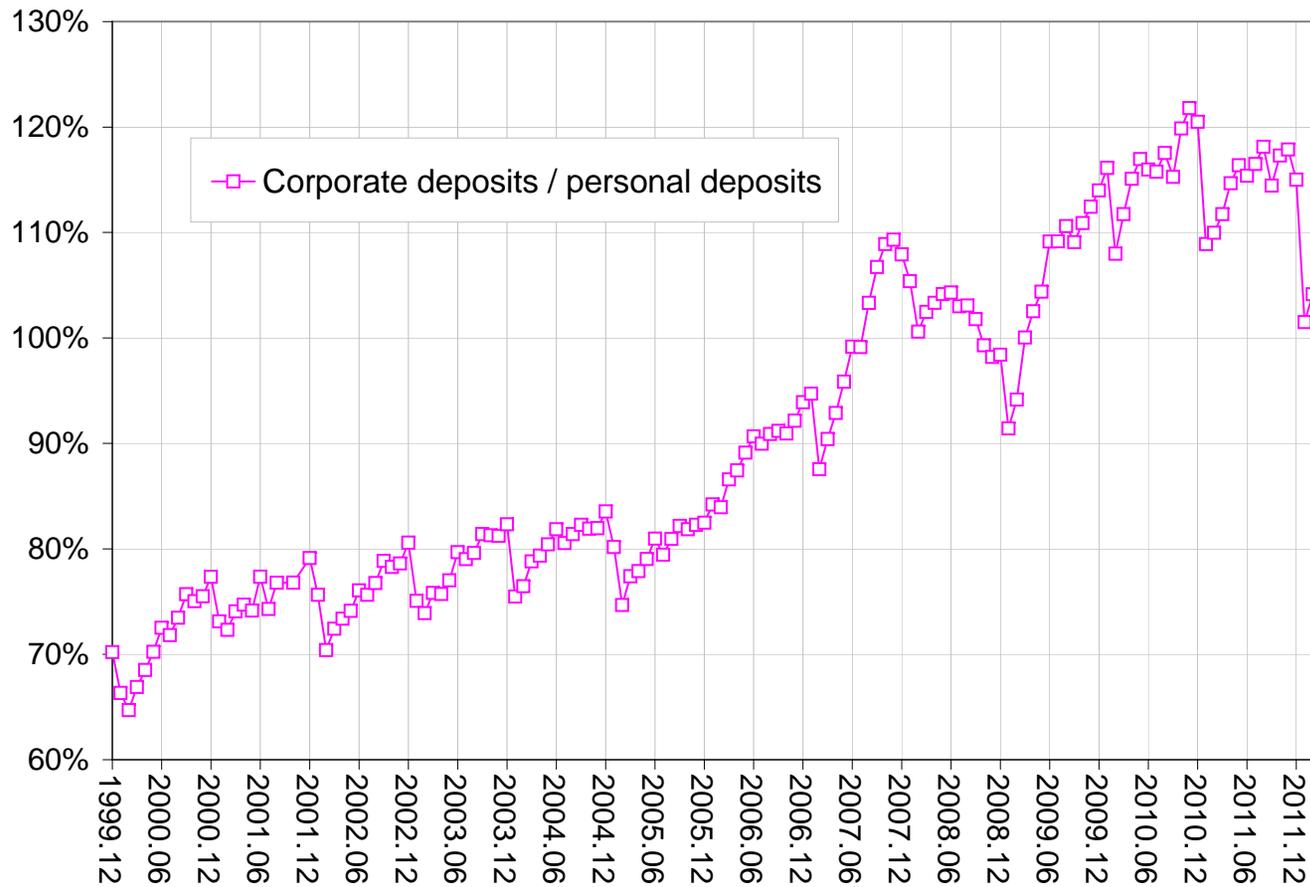


Figure 46. China: ratio of corporate to personal deposits of banking sector (Source: People's Bank of China monetary statistics)

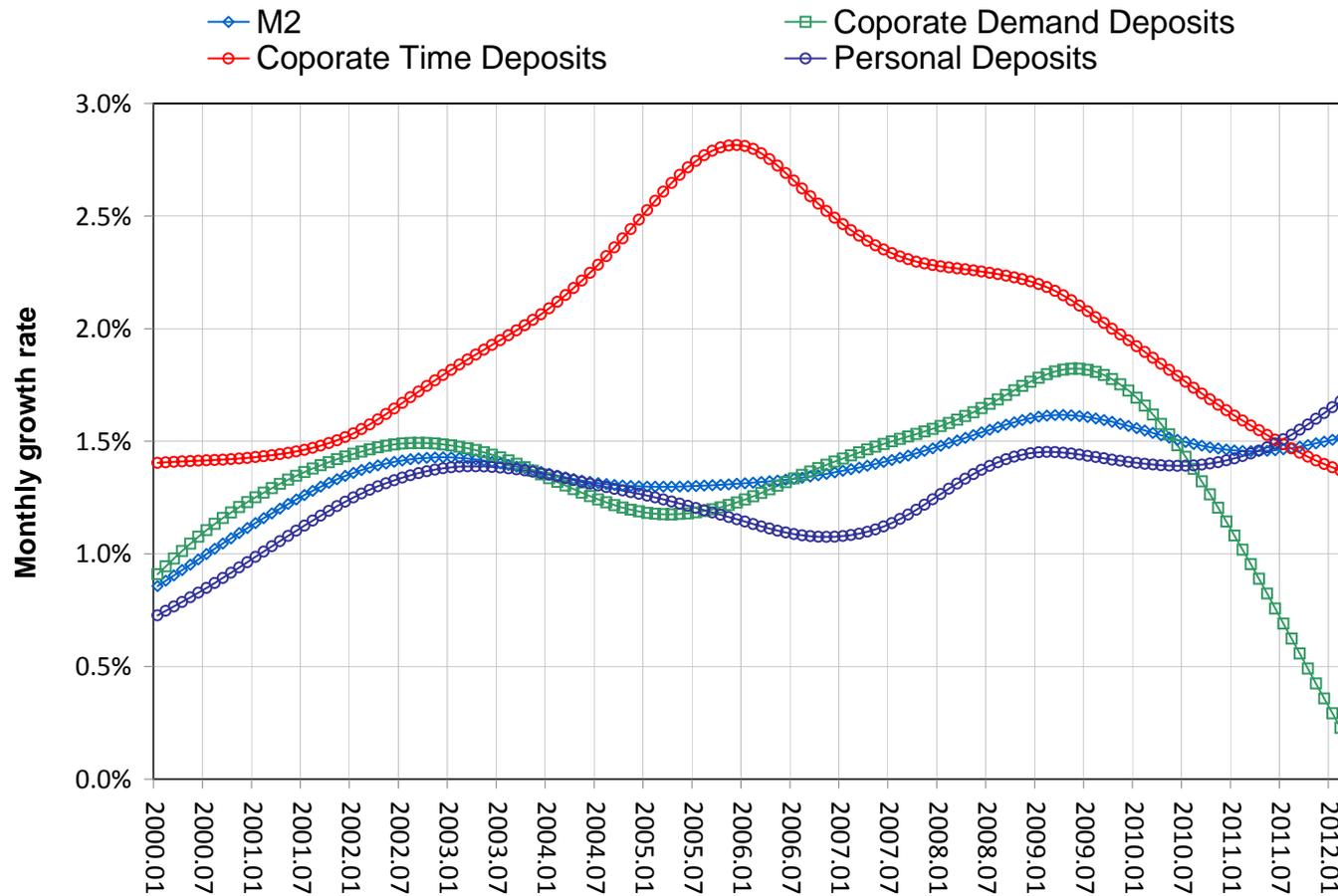


Figure 47. Monthly growth rates of monetary components in China, filtered through Hodrick-Prescott filter ($\lambda = 14400$)

Ebbing of Global Liquidity in China

- Dollar funding shortages reflecting:
 - US dollar claims are official claims
 - Corporate liabilities
- Build-up phase has close parallels with 1980s experience in Japan
 - Role of large Japanese manufacturing firms
 - Hattori, Shin and Takahashi (2009)
- Deleveraging of global banks will affect liquidity conditions in China

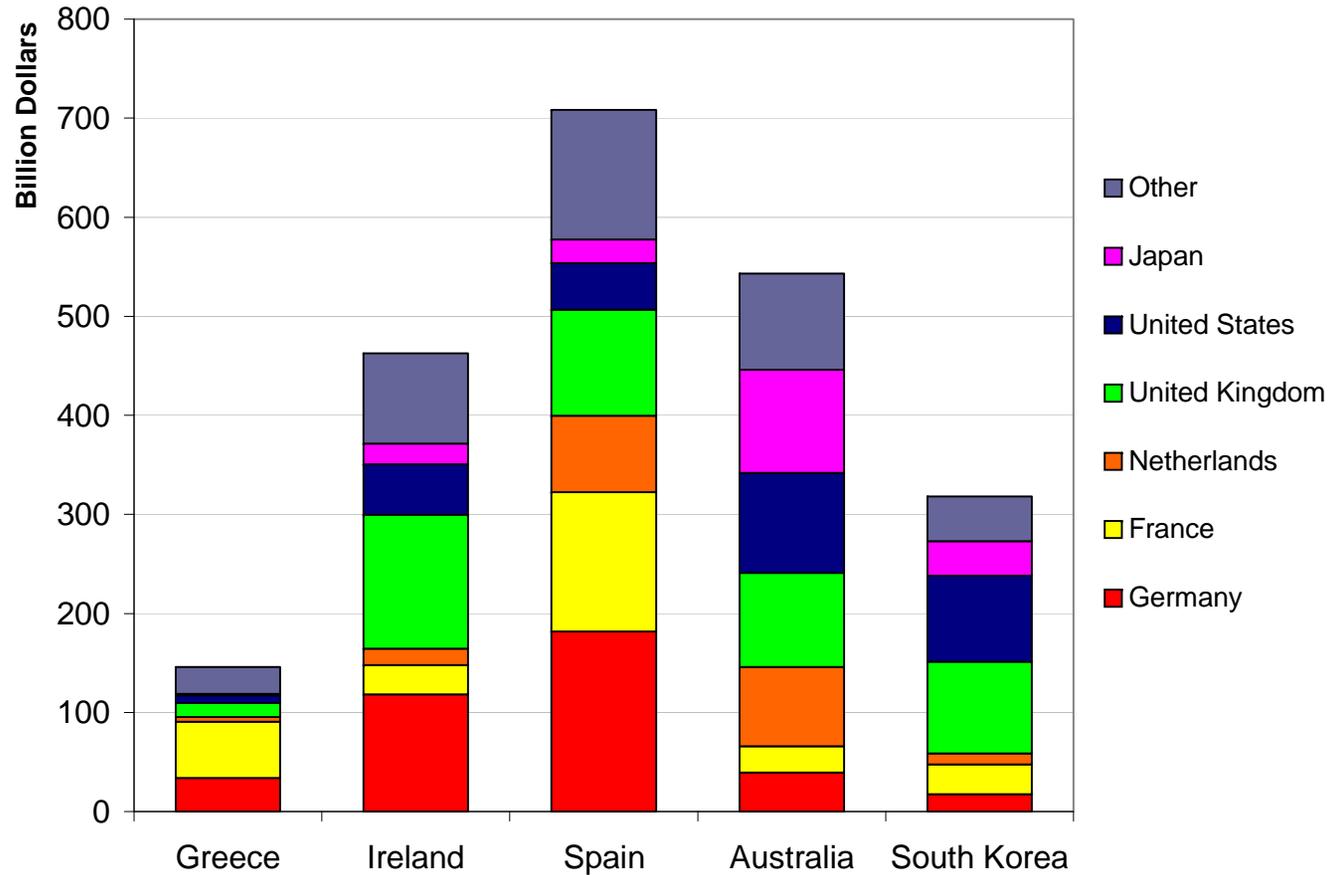


Figure 48. International claims of BIS reporting banks on counterparties in countries listed on right (Dec 2010) (Source: BIS consolidated banking statistics Table 9D)

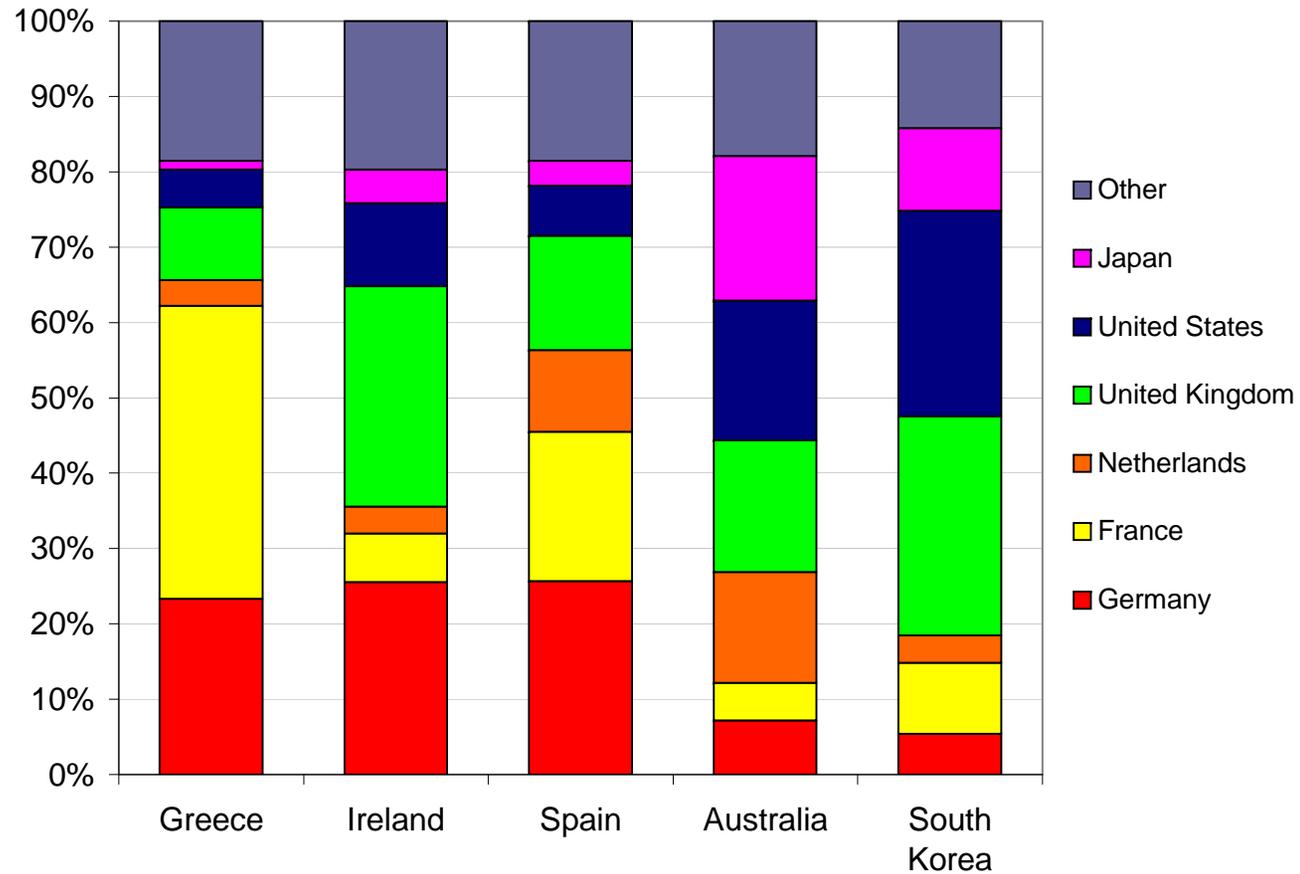


Figure 49. International claims (by percent) of BIS reporting banks on counterparties in countries listed on right (Dec 2010) (Source: BIS consolidated banking statistics Table 9D)

Claims of European Banks on Counterparties in Korea

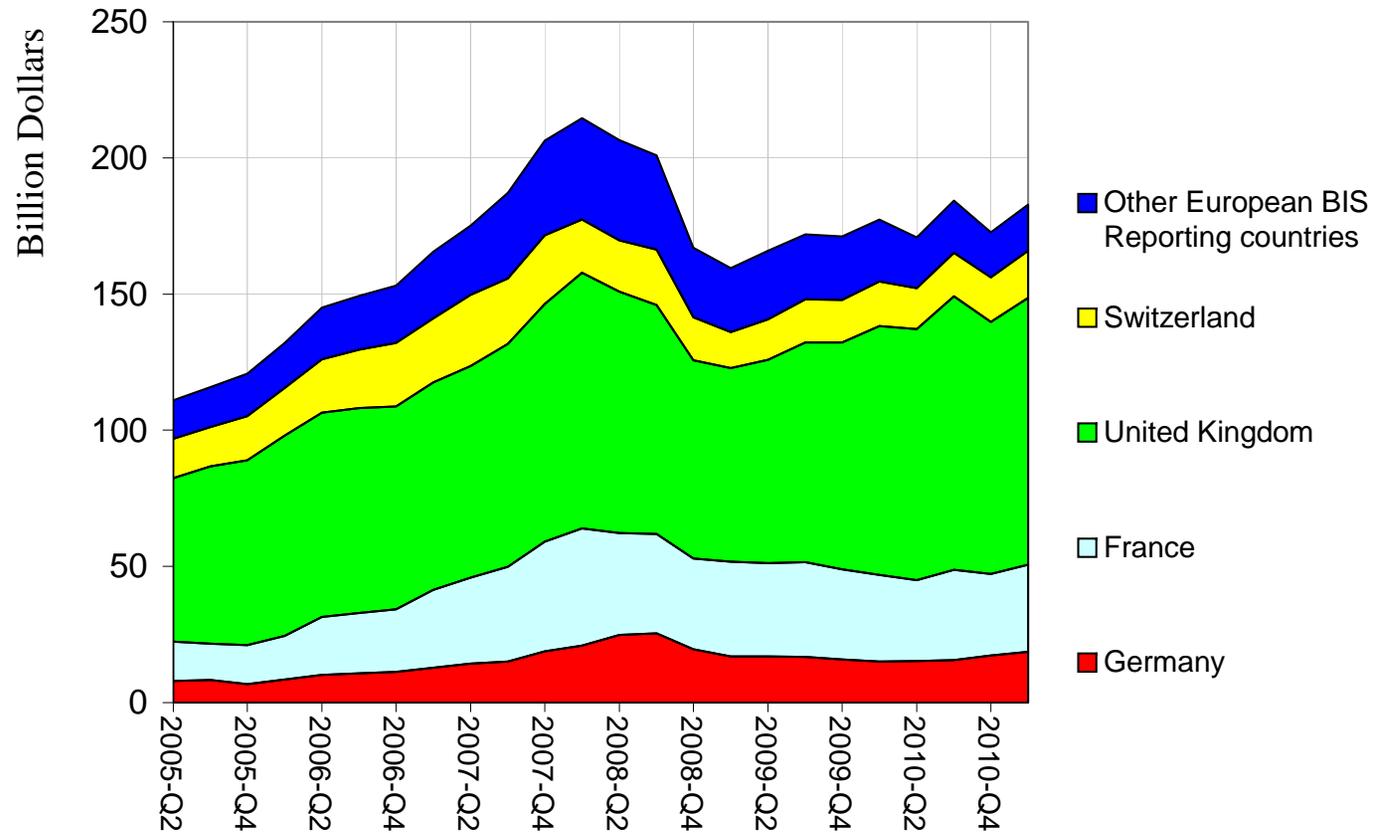


Figure 50. International claims of European BIS-reporting banks on counterparties in Korea (Source: BIS consolidated banking statistics Table 9D)