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# Cross-Border Financial Linkages: Identifying and Measuring Vulnerabilities

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- Measuring cross-border financial linkages:
- Price-based measures; volume-based measures

## Volume-Based Measures

- Exposures through international financial flows and international investment positions
- Balance Sheet mechanisms
- International funding and liquidity shocks





## Direct

- Net financial flows: chronic and acute risks of external imbalances (sudden stops, adjustment dynamics)
- Exposure to international financial shocks (wealth effects; portfolio adjustment; asset prices)
- Amplification of domestic shocks: banks; fiscal

## Indirect

- Domestic credit and international debt flows
- Fiscal volatility
- Sectoral asymmetries





- Cross-border bank-related debt flows
- Financial Sector FDI
- OFIs: loans, portfolio flows
- Sovereigns: public debt, reserves, SWFs
- NFCs: cross-border debt; foreign equity funding
- Households: foreign deposits, foreign portfolios, foreign real estate; foreign debt





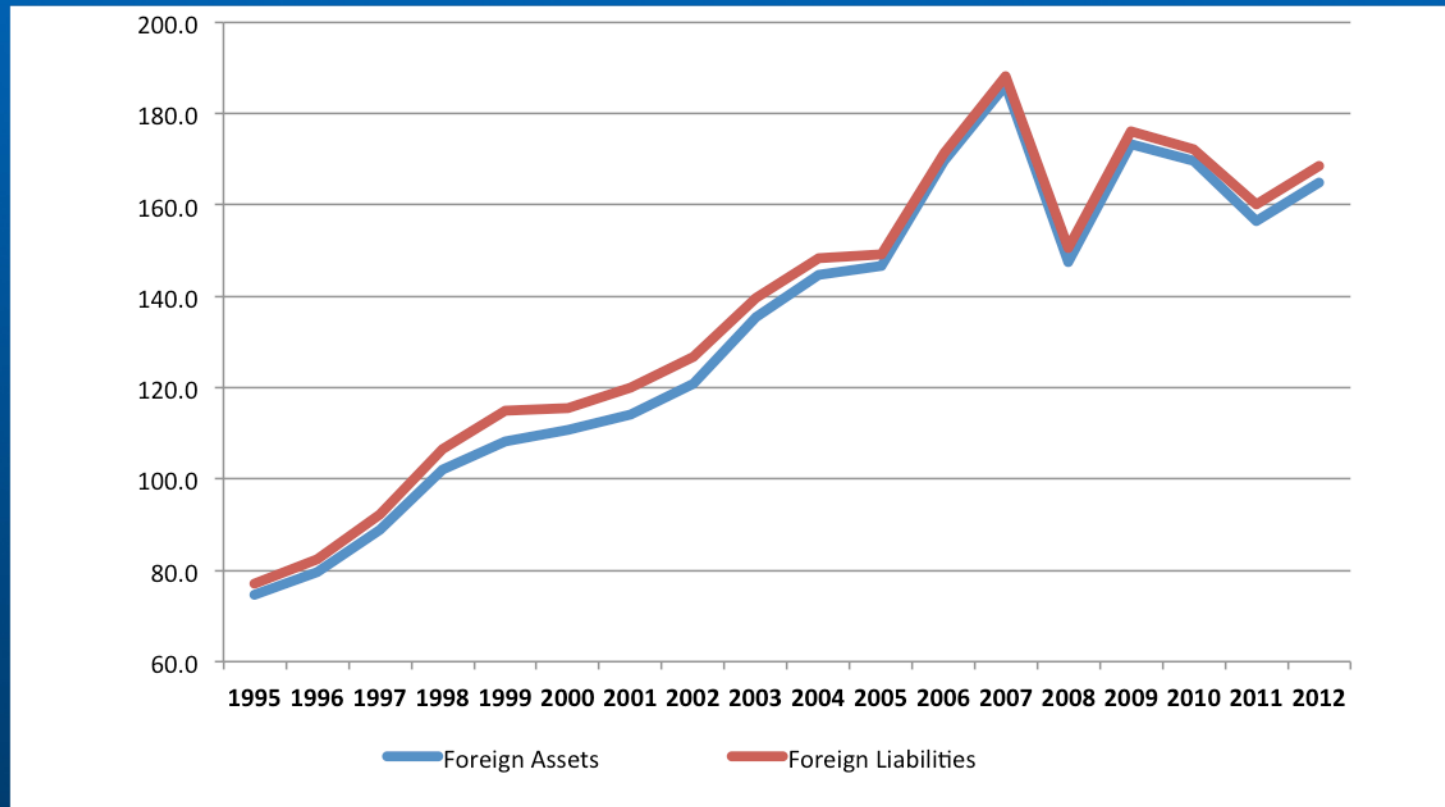
# Dynamics of Financial Globalisation

- Rapid growth since mid-1990s
- Increased dispersion in net positions
- Level and composition of international balance sheets (advanced versus emerging economies): debt-equity mix; currency mix; maturity structure
- Financial globalisation and exchange rate economics





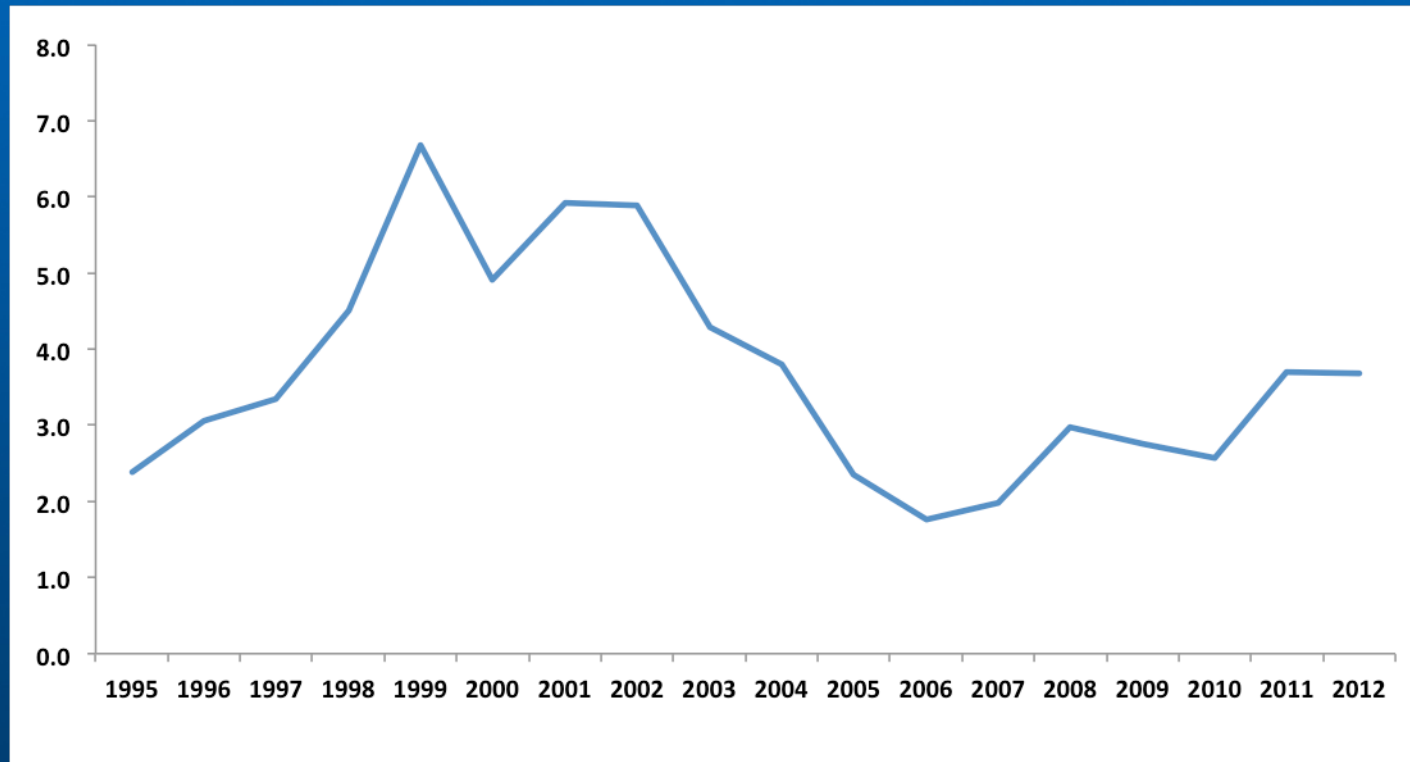
Figure 1. Foreign Assets and Foreign Liabilities (World Aggregates)



Note: Calculated from updated version of External Wealth of Nations data, as described in Lane and Milesi-Ferretti (2007). Percent of world GDP.



**Figure 2. Global Discrepancy (% of World GDP)**

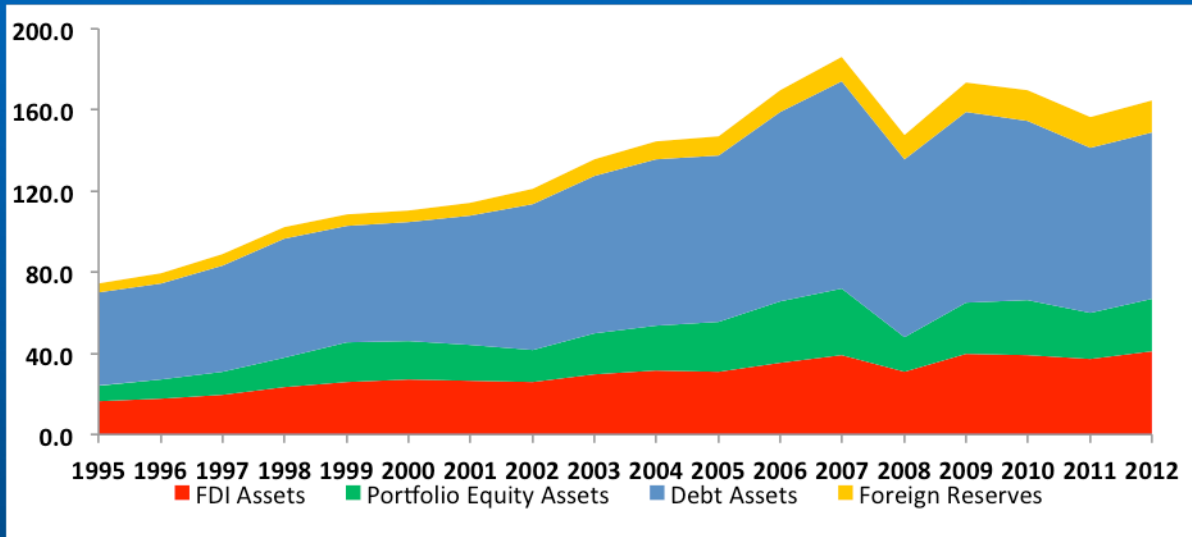


Note: Global sum of foreign liabilities minus global sum of foreign assets, percent of world GDP. Calculated from updated version of External Wealth of Nations data, as described in Lane and Milesi-Ferretti (2007).

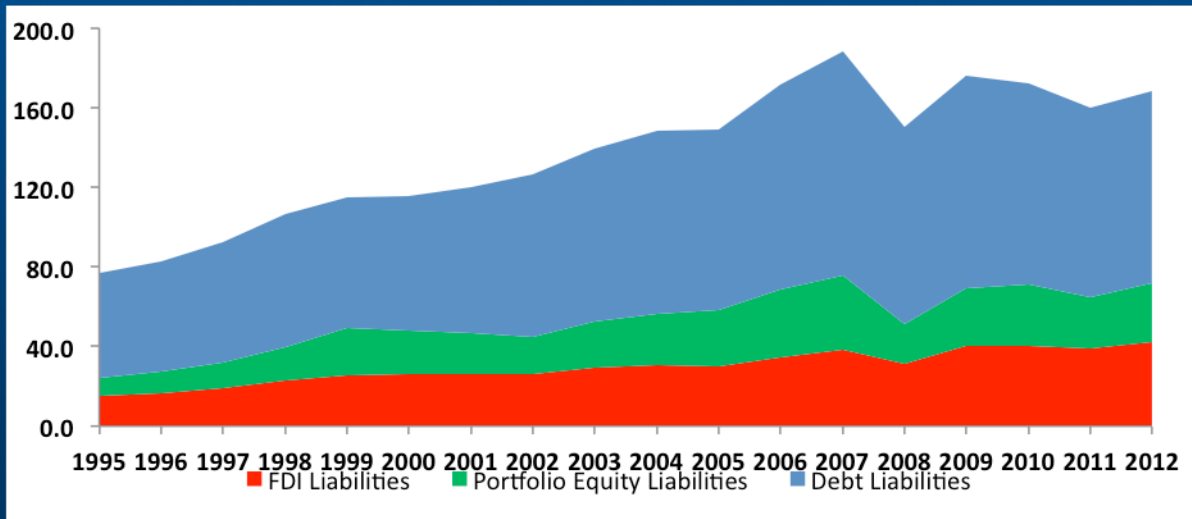


### Figure 3. Composition of International Balance Sheets

Panel A. Foreign Assets



Panel B. Foreign Liabilities



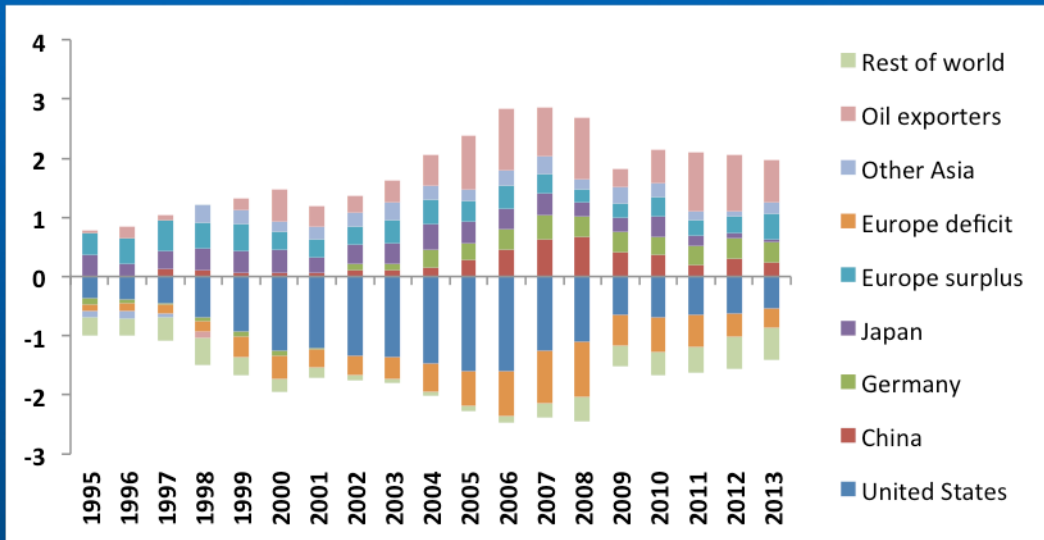
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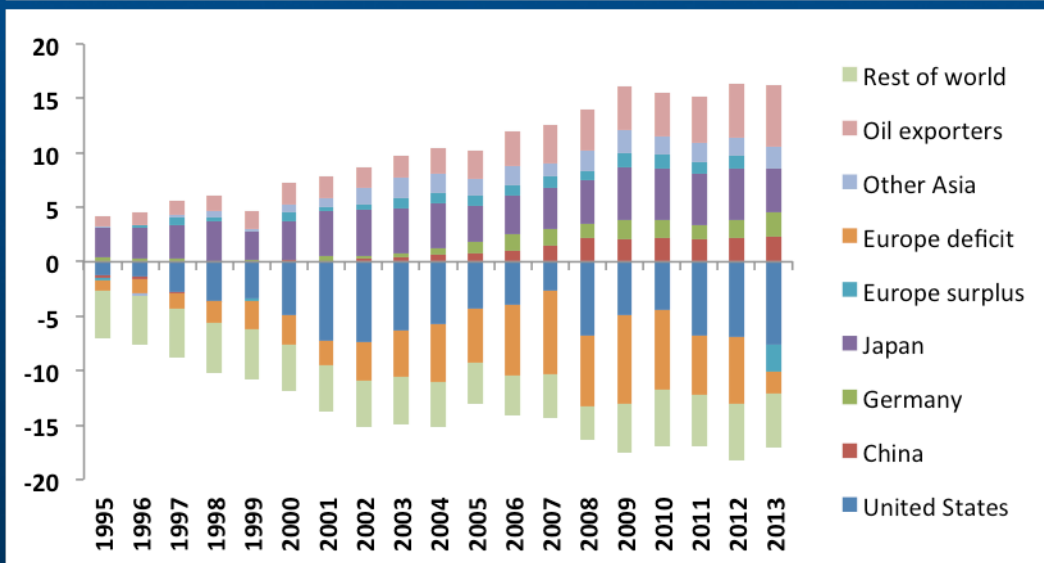


### Figure 4. Global Imbalances: Current Accounts and Net International Investment Positions (% of world GDP)

Panel A. Current Accounts



Panel B: Net International Investment Positions

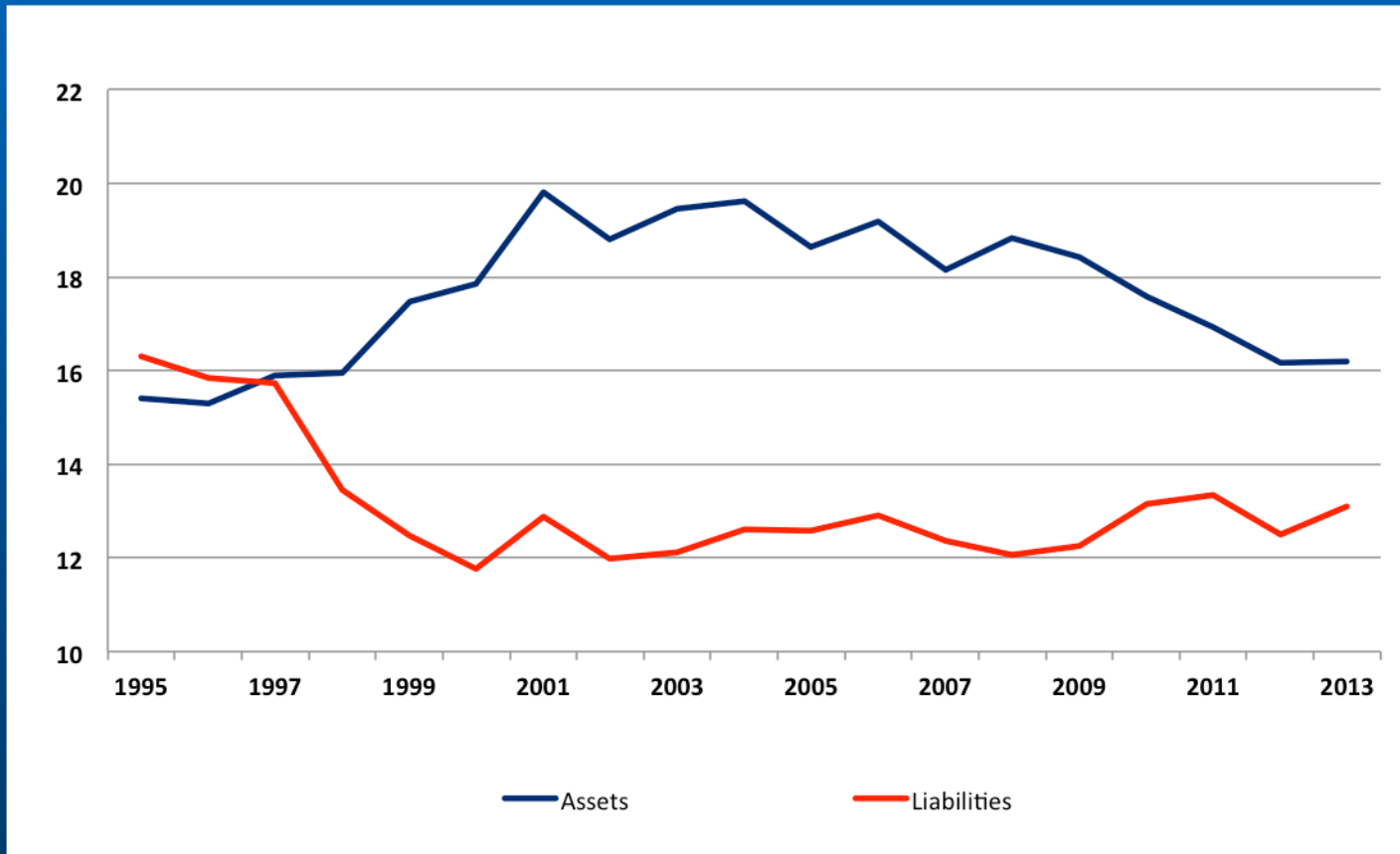


Note: Drawn from IMF's World Economic Outlook (October 2014).





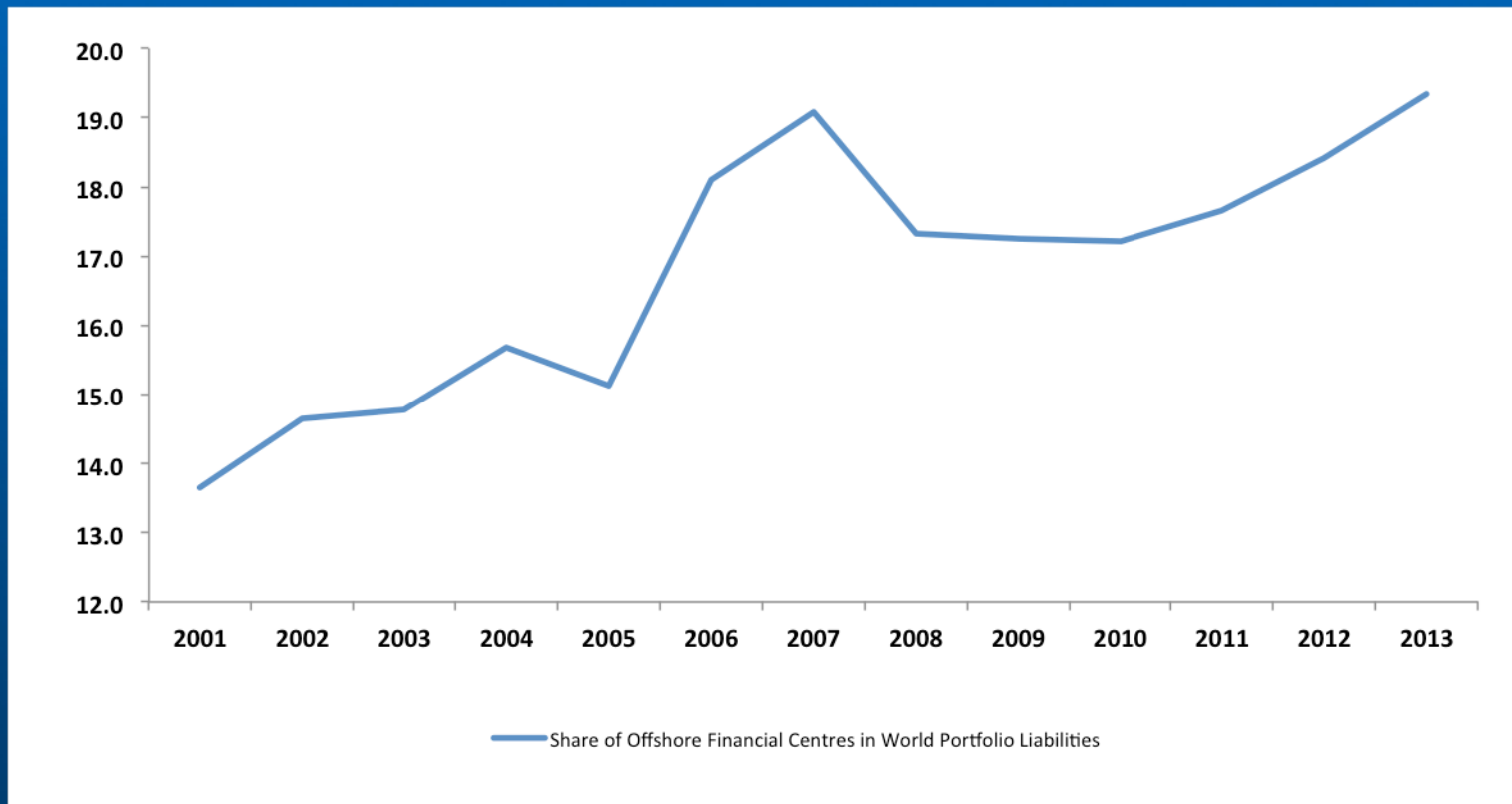
Figure 5. Share of Offshore Centres in Cross-Border Bank Positions



Note: Calculated based on BIS data. Offshore aggregate follows BIS definition of offshore centres.



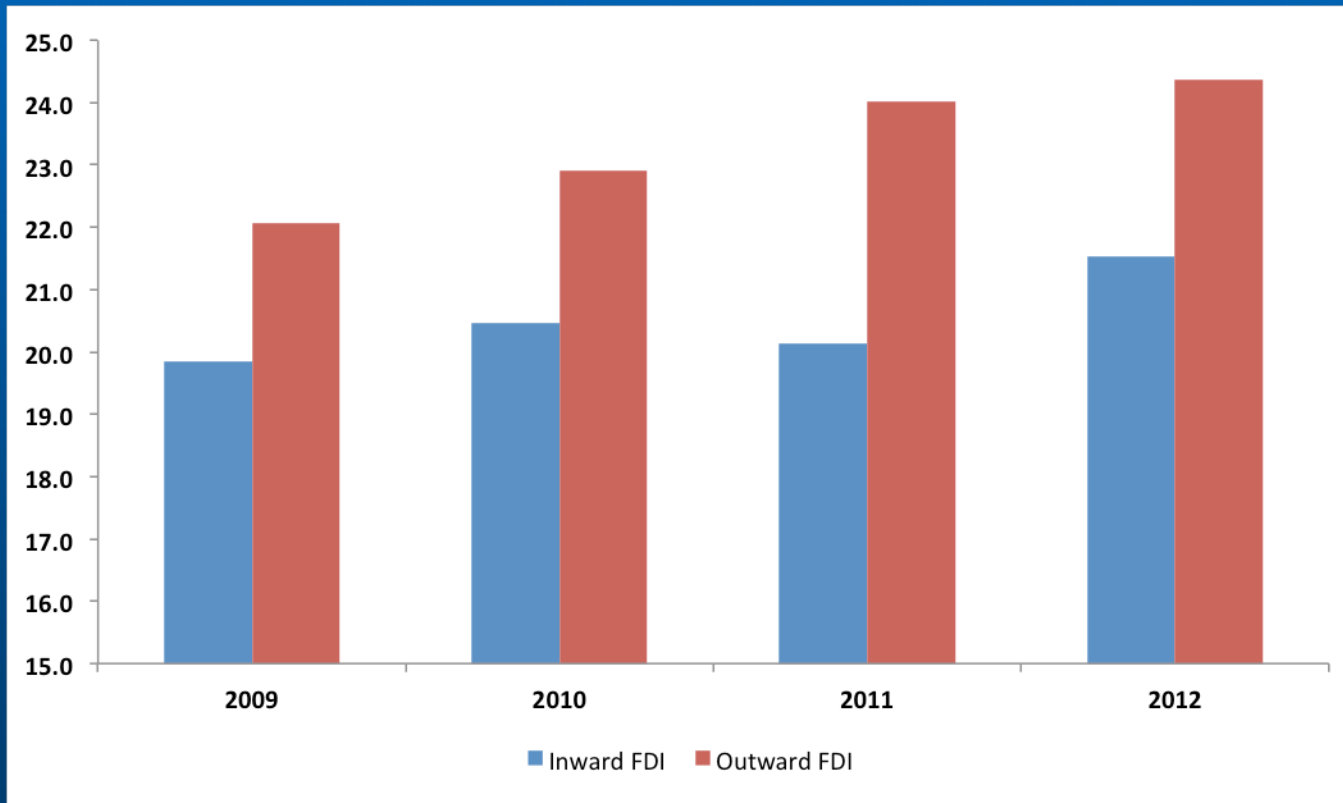
Figure 6. Share of Offshore Centres in Cross-Border Portfolio Holdings



Note: Calculated Based on Coordinated Portfolio Investment Survey data. List of offshores based on IMF-OECD lists.



**Figure 7. Share of Offshore Centres in FDI Positions.**

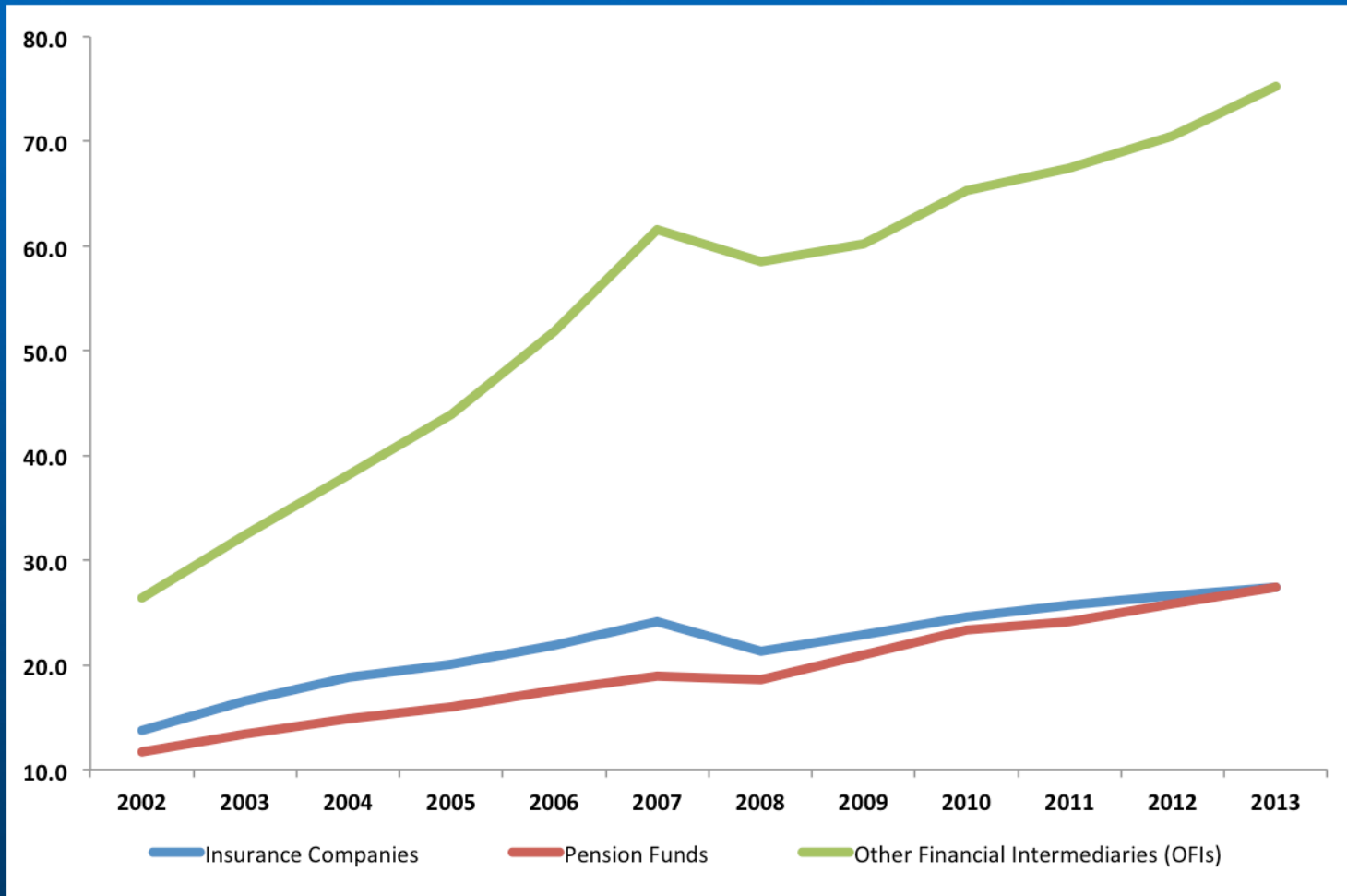


Note: Calculated based on Coordinated Direct Investment Survey data. List of offshores based on IMF-OECD lists.





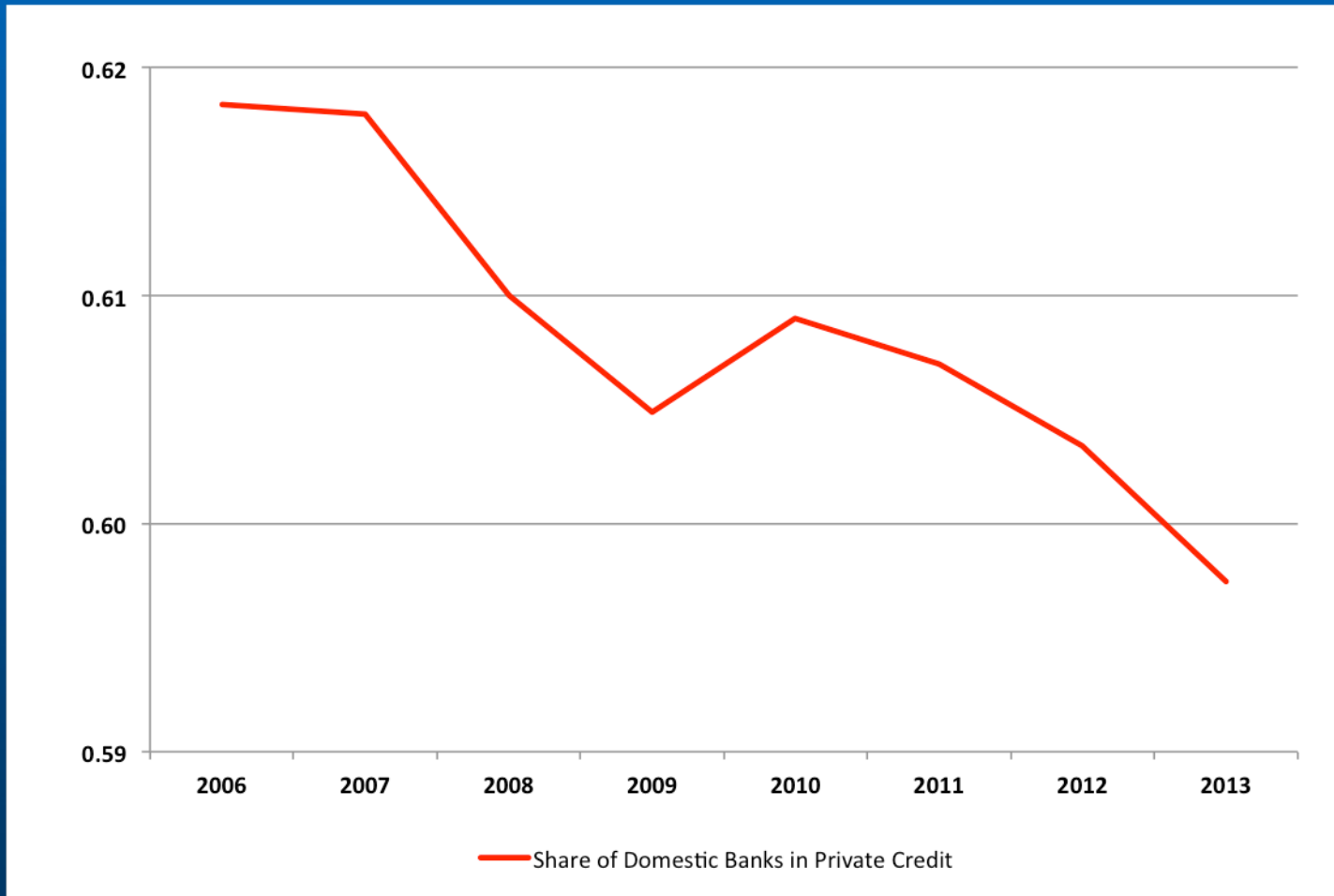
Figure 8. Scale of Non-Bank Financial Sector



Note: Trillions of US dollars. Based on Financial Stability Board “Monitoring the Shadow Banking System” dataset.



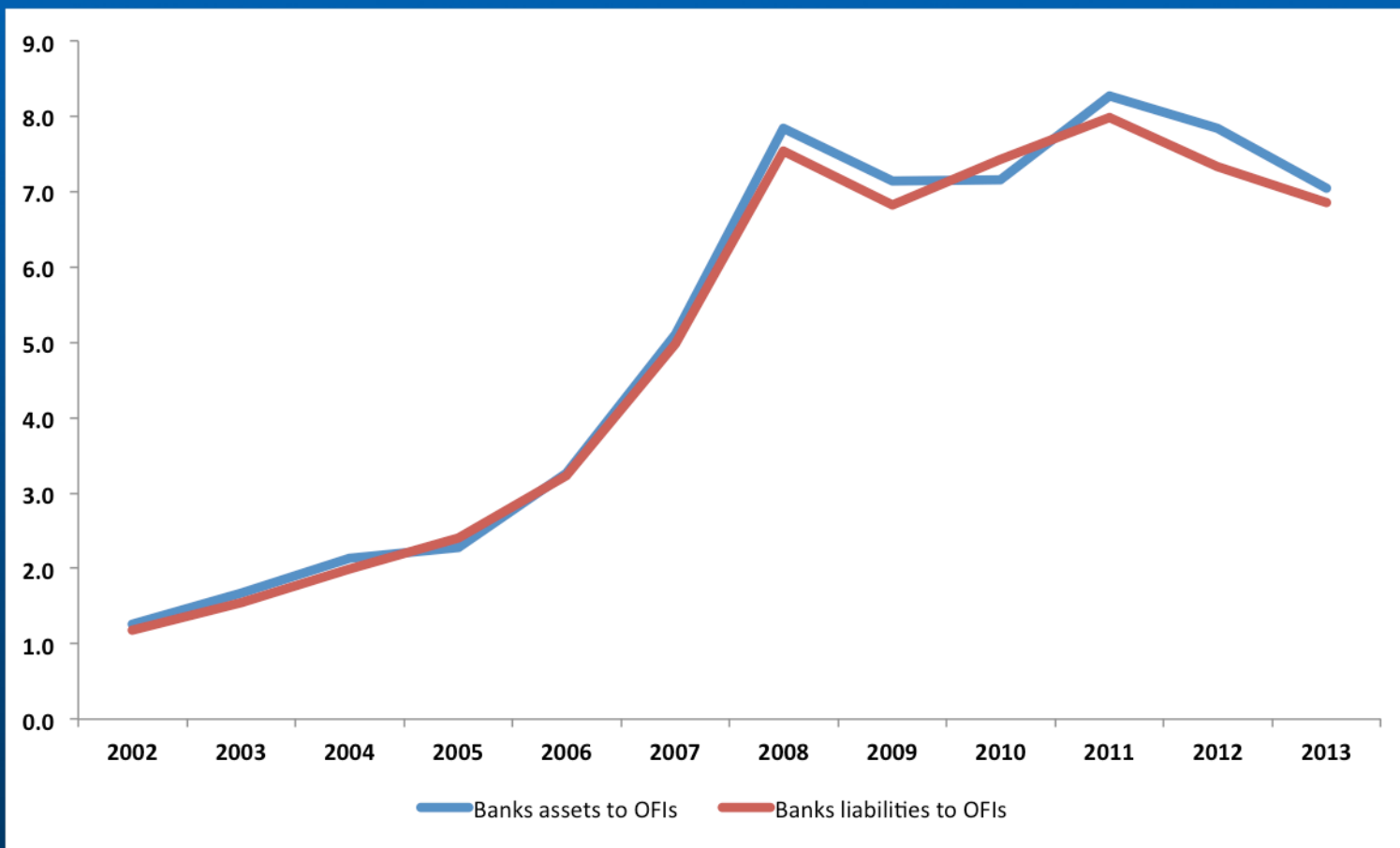
## Figure 9. Proportion of Total Private Credit Provided by Domestic Banks



Note: Based on BIS “Credit to Private Sector” database. Total private credit is sum of credit from domestic banking system, cross-border bank credit and bond issuance.



Figure 10. Linkages between Banks and Other Financial Intermediaries



Note: Trillions of US dollars. Based on Financial Stability Board “Monitoring the Shadow Banking System” dataset.



# Measurement and Interpretation Issues

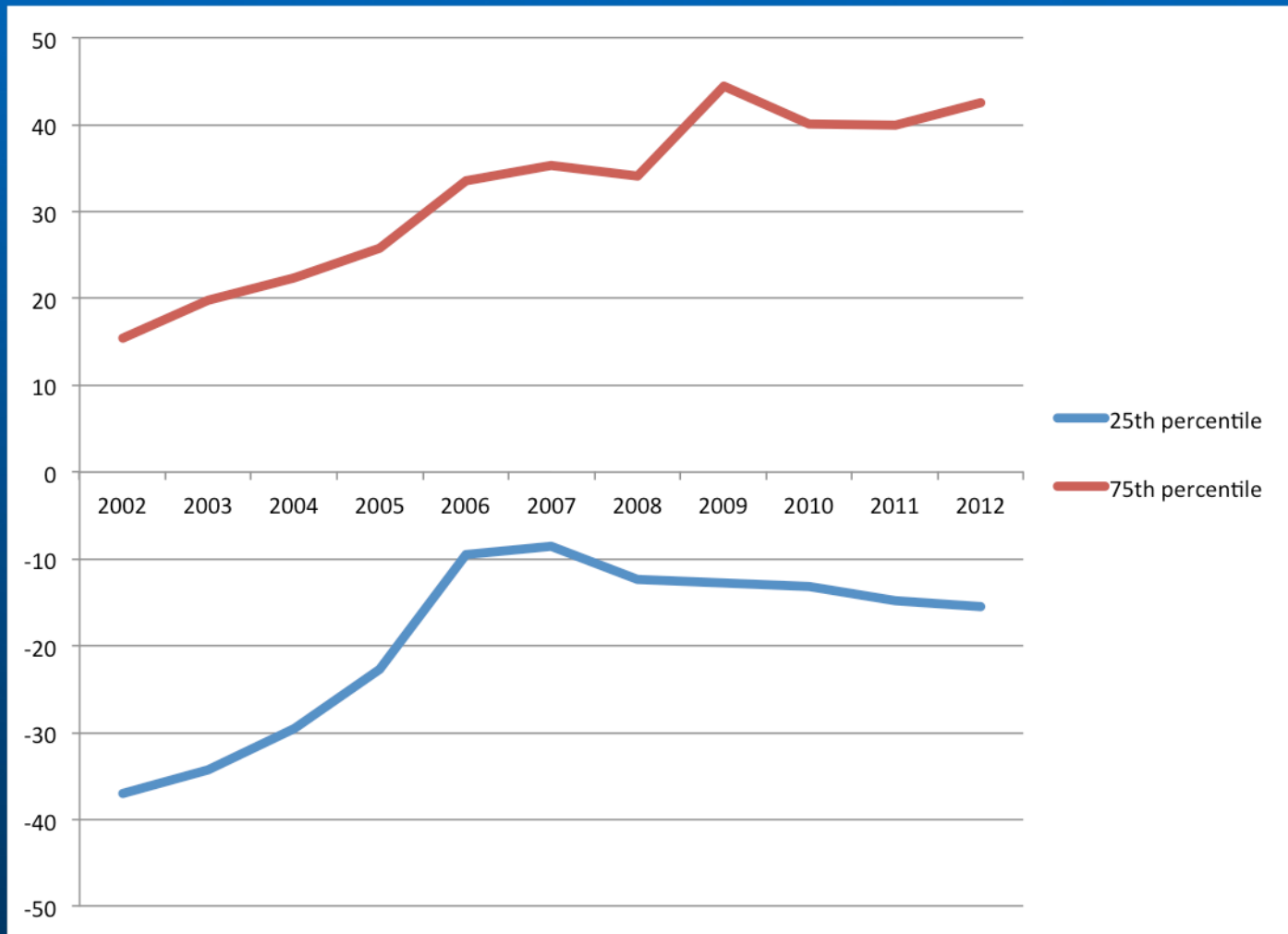
- Impressive expansion in availability of cross-border financial data over last 10 years
- But not sufficient for comprehensive data analytics
- Linking cross-border and sectoral data
- Linking cross-border and domestic financial data
- Within sectors: domestic and foreign-owned entities
- “Global Flow of Funds” analysis (Errico et al 2014)
- International Currency Exposures (Benetrix et al 2014)







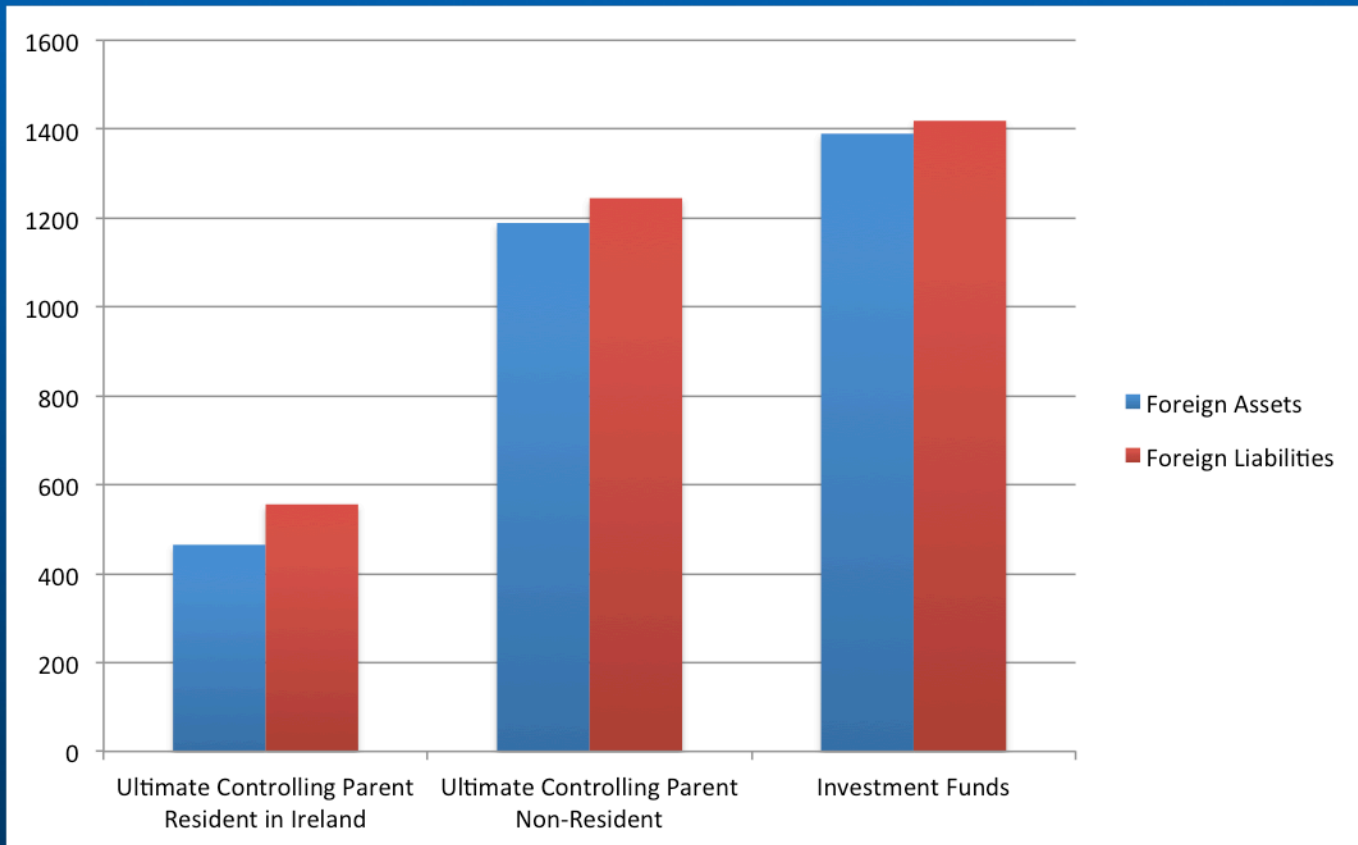
Figure 11. Distribution of Net Foreign Currency Positions, 2002-2012



Note: Adapted from Benetrix et al (2013). NETFX is ratio of net foreign-currency assets to GDP.



**Figure 12. The Irish International Investment Position: Resident and Non-Resident Ultimate Controlling Parents**



Note: Q1 2014 values. Based on data from Central Statistics Office (Ireland).



- BIS international banking statistics:
  - Stage I (no additional data collection) – better exploitation of reported data (geographical composition of “locational by nationality”; currency denomination; full balance sheets (domestic plus cross-border)
  - Stage II (extra data collection) – counterparty sectoral breakdown in consolidated statistics; locational data: resident banks, non-bank financial institutions, non-financial private sector; liability breakdown (deposits, debt securities, other liabilities, equity)
- FSB Shadow Banking Statistics
- Data quality: CDIS example





- Legal Entity Identifier (LEI) project
  - GLEIF established in June 2014
  - Level 1 data (entity identifier); Level 2 data (relationships among Level 1 entities)
  - Standardised financial product identifier (PI) codes
  - Project Actus initiative
- Micro-level national datasets: coordinated research
  - International Banking Research Network (IBRN)





- Advances in cross-border financial data
- Advances in sectoral financial data
- Room for growth: combining sectoral and cross-border datasets (“global flow of funds”)
- Role of micro-level datasets

## Data Gaps

- Upgrade of BIS international banking statistics
- CPIS: currency; offshores; maturity; sectoral identity
- LEI initiative

