Finance
for a Good Society?

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28.10.2017

Outline

- Inequality - Financial inclusion
- Financial services – financial innovation
- (optimal?) Debt
- Demystifying derivatives
- Financialization of commodity (futures) markets
- (Excessive?) Speculation
- Conclusiones / Challenges

EVANGELII GAUDIUM

The economy and the distribution of income

202. The need to resolve the structural causes of poverty cannot be delayed, not only for the pragmatic reason of its urgency for the good order of society, but because society needs to be cured of a sickness which is weakening and frustrating it, and which can only lead to new crises. Welfare projects, which meet certain urgent needs, should be considered merely temporary responses. As long as the problems of the poor are not radically resolved by rejecting the absolute autonomy of markets and financial speculation and by attacking the structural causes of inequality,[173] no solution will be found for the world's problems or, for that matter, to any problems. Inequality is the root of social ills.

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204. We can no longer trust in the unseen forces and the invisible hand of the market. Growth in justice requires more than economic growth, while presupposing such growth: it requires decisions, programmes, mechanisms and processes specifically geared to a better distribution of income, the creation of sources of employment and an integral promotion of the poor which goes beyond a simple welfare mentality. I am far from proposing an irresponsible populism, but the economy can no longer turn to remedies that are a new poison, such as attempting to increase profits by reducing the work force and thereby adding to the ranks of the excluded.

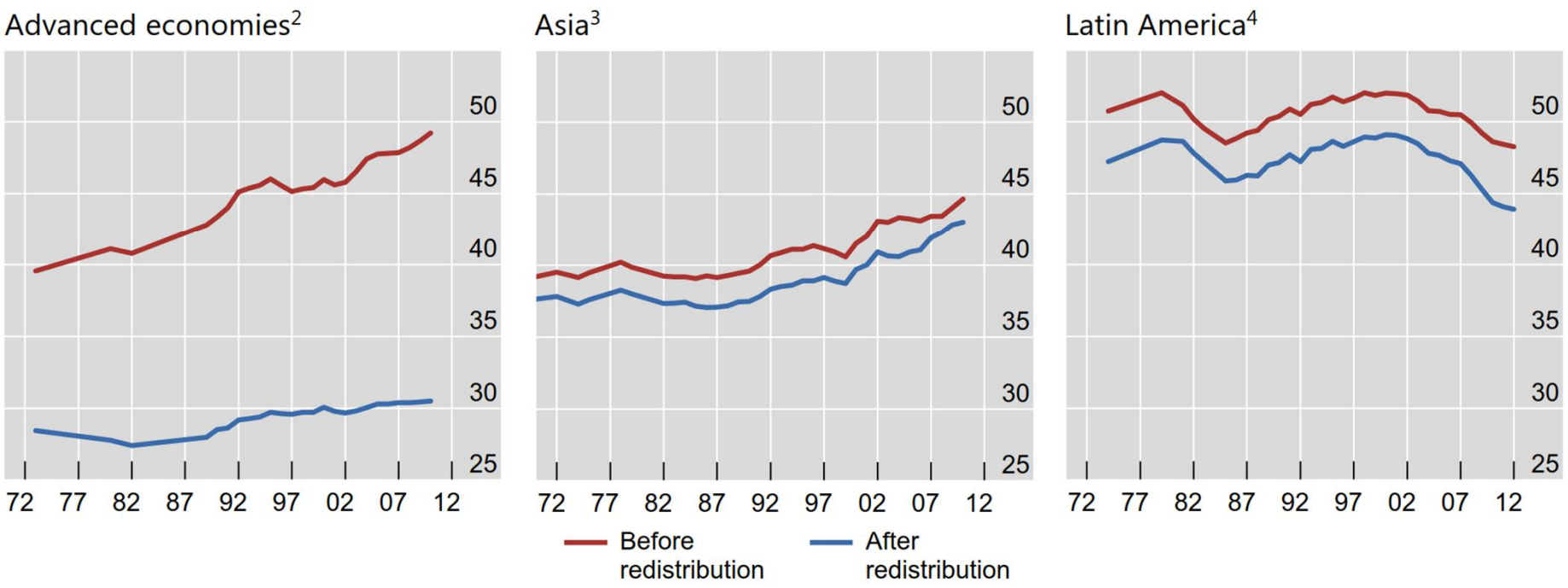
Income inequality has been increasing within countries but decreasing across countries

[1] Pareto coefficients; a higher coefficient means higher inequality. [2] Excluding capital gains. [3] Simple average of the economies listed. [4] Australia, Canada, France, Germany, Ireland, Italy, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. [5] Argentina, India, Korea, Malaysia, Singapore and South Africa. [6] Annual income, in PPP-adjusted 2005 US dollars and in natural logarithms.

Sources: Alvaredo et al (2015); Lakner and Milanovic (2013).

Redistribution decreases income inequality but does not affect trends

Gini coefficient, in per cent[1] Graph B



Before (after) redistribution indicates income pre (post)-tax and pre (post)-transfers.

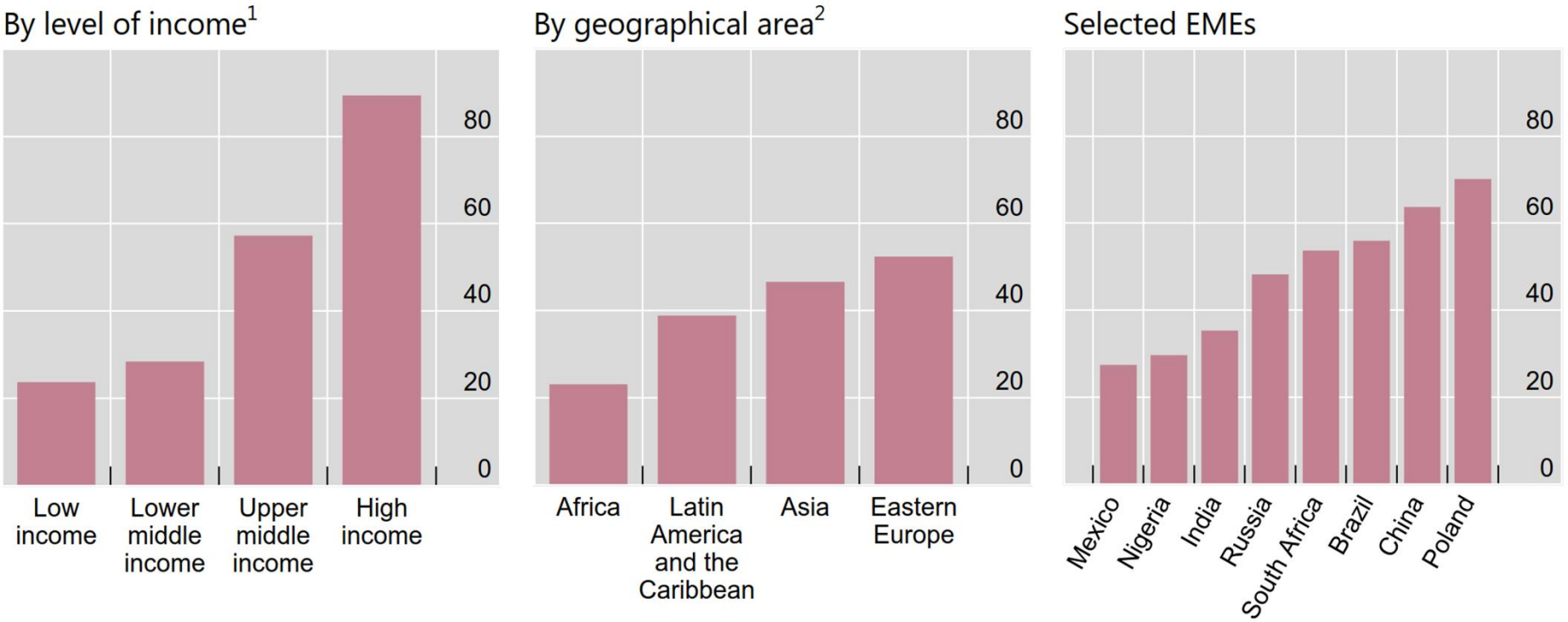
[1] Simple average of the economies listed. [2] Australia, Canada, Denmark, France, Germany, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States. [3] China, India, Indonesia, Korea, Malaysia and Singapore. [4] Argentina, Brazil, Colombia and Mexico.

Source: Solt (2014).

BIS, Quarterly Review, March 2016

Financial inclusion indicators 2011

Share of adults who had an account at a formal financial institution, in per cent — Graph 1



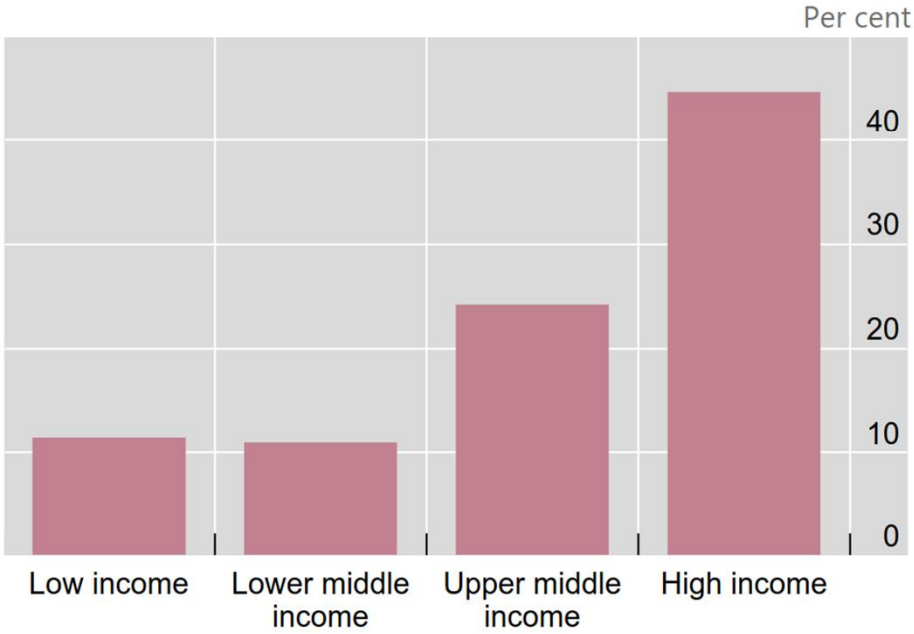
[1] World Bank definitions. [2] Average of all countries in region weighted by population in 2011; based on population estimates and definitions of geographical areas from the United Nations.

Sources: United Nations; World Bank, *Global Financial Inclusion Database*; BIS calculations.

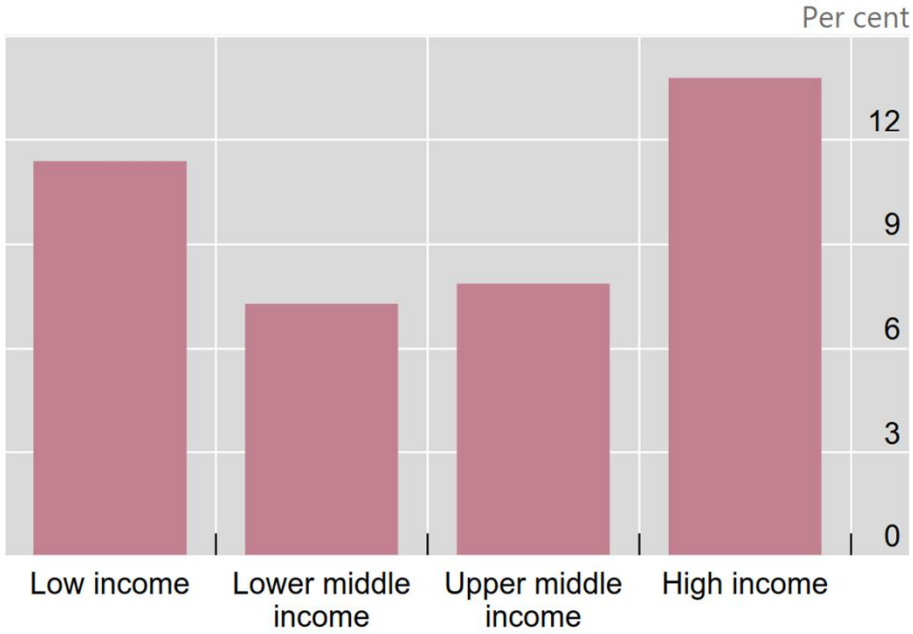
Financial inclusion indicators 2011

By level of income[1] Graph 2

Share of adults who saved at a formal financial institution during the past 12 months



Share of adults who borrowed from a formal financial institution during the past 12 months

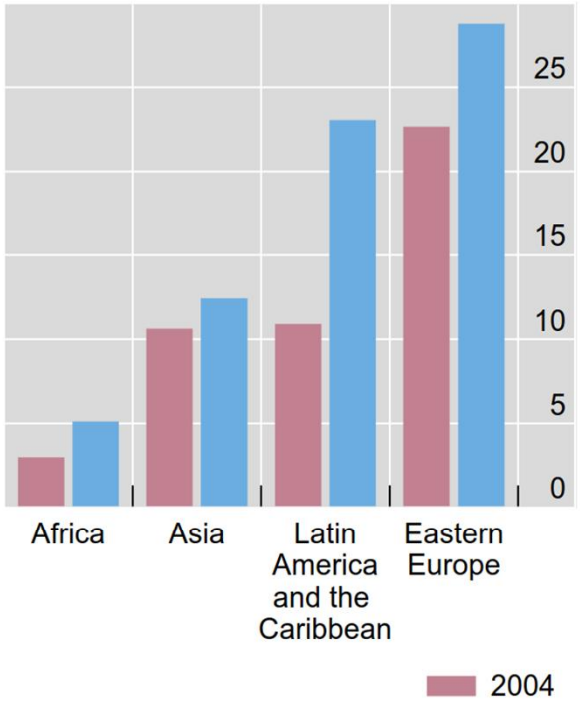


[1] World Bank definitions.

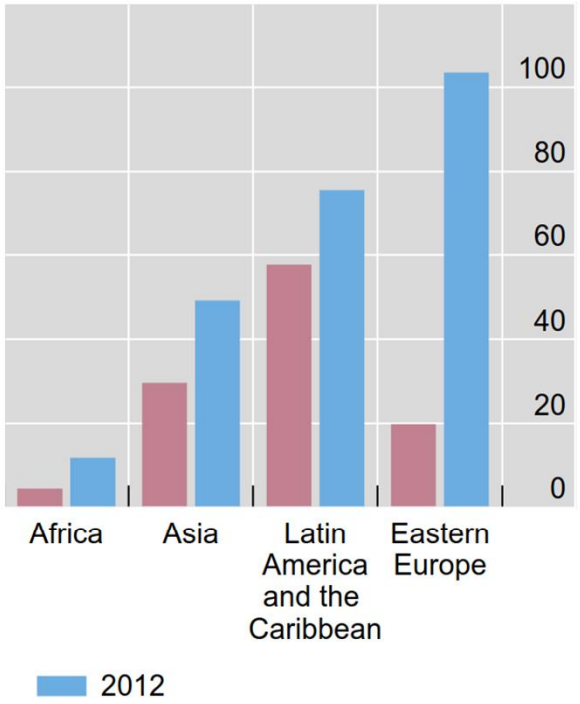
Source: World Bank, *Global Financial Inclusion Database*.

Financial inclusion indicators 2004 & 2012

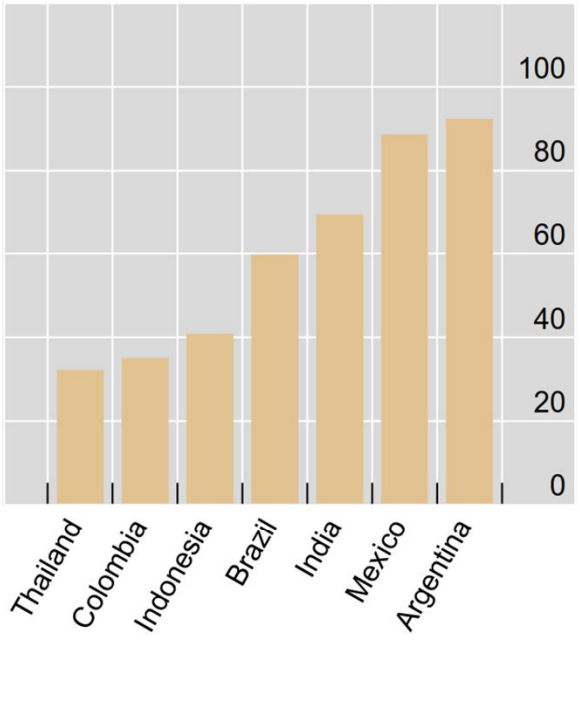
Number of commercial bank branches per 100,000 adults[1]



Number of ATMs per 100,000 adults[1]



Percentage change in the number of deposit accounts with commercial banks per 1,000 adults: selected EMEs (2004–12)



[1] Weighted average by population of the corresponding year in the respective geographical areas; based on population estimates and definitions of geographical areas from the United Nations.

Sources: IMF, *Financial Access Survey*; BIS calculations.

BIS, Quarterly Review, March 2015

Financial Sector of an Economy

- Allocation function (factors of production)
  - Capital
  - Risk !
  - ...
- Instruments
  - assets / liabilities seen as (stochastic) cash flows
  - „Financial engineering“
  - Transaction: Sell & buy!
- Different views
  - Macro
  - Micro-marketstructure
- Financial innovations: make financial intermediation happen

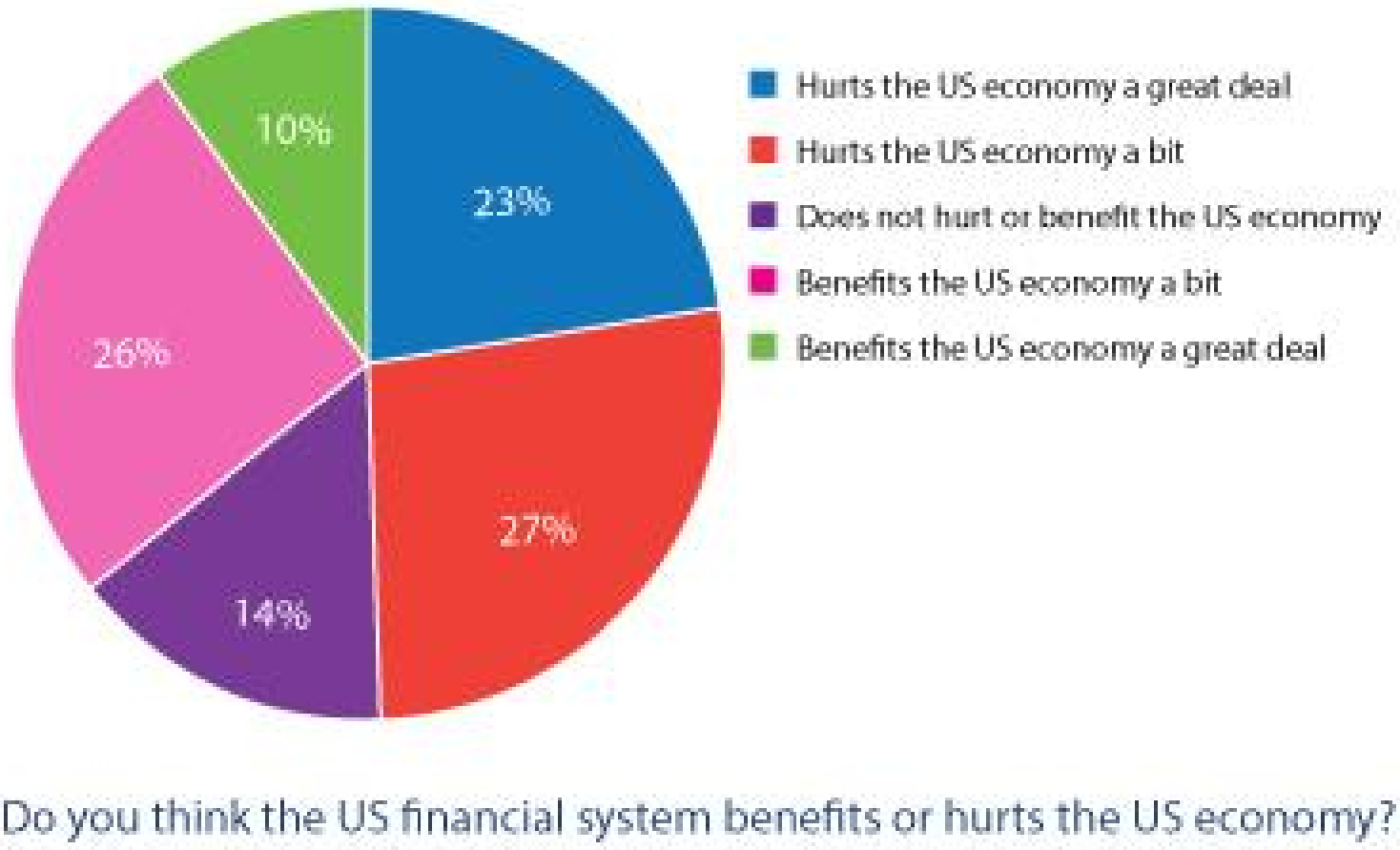
Core function of the financial sector: financial intermediation

Theories explaining the role played by finance

No doubt: a developed economy needs a sophisticated financial sector ® beneficial to society?

- § provides price signals / completes markets
- § managing risks / providing liquidity
- § alleviating informational asymmetries
- § promoting entrepreneurship / encourages innovation
- § reduces transaction costs
- § alleviates poverty / reduces inequality
- ® **fosters growth**
- § **But feeling is not shared by society ….**

Just the Pope? What Americans respond Dec 2014 …

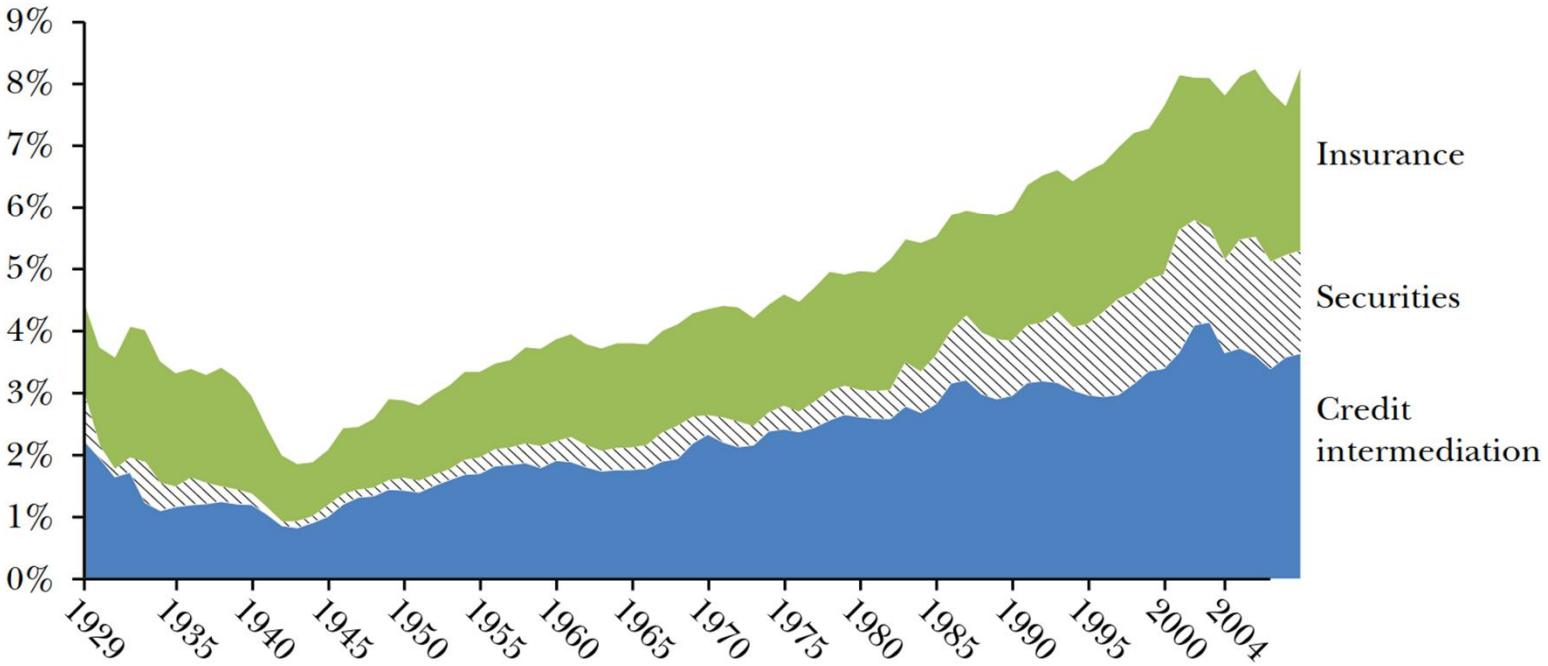


http://www.financialtrustindex.org/resultswave23.htm

The Growth of Financial Services (USA)

The Growth of Financial Services

(value added share of GDP)

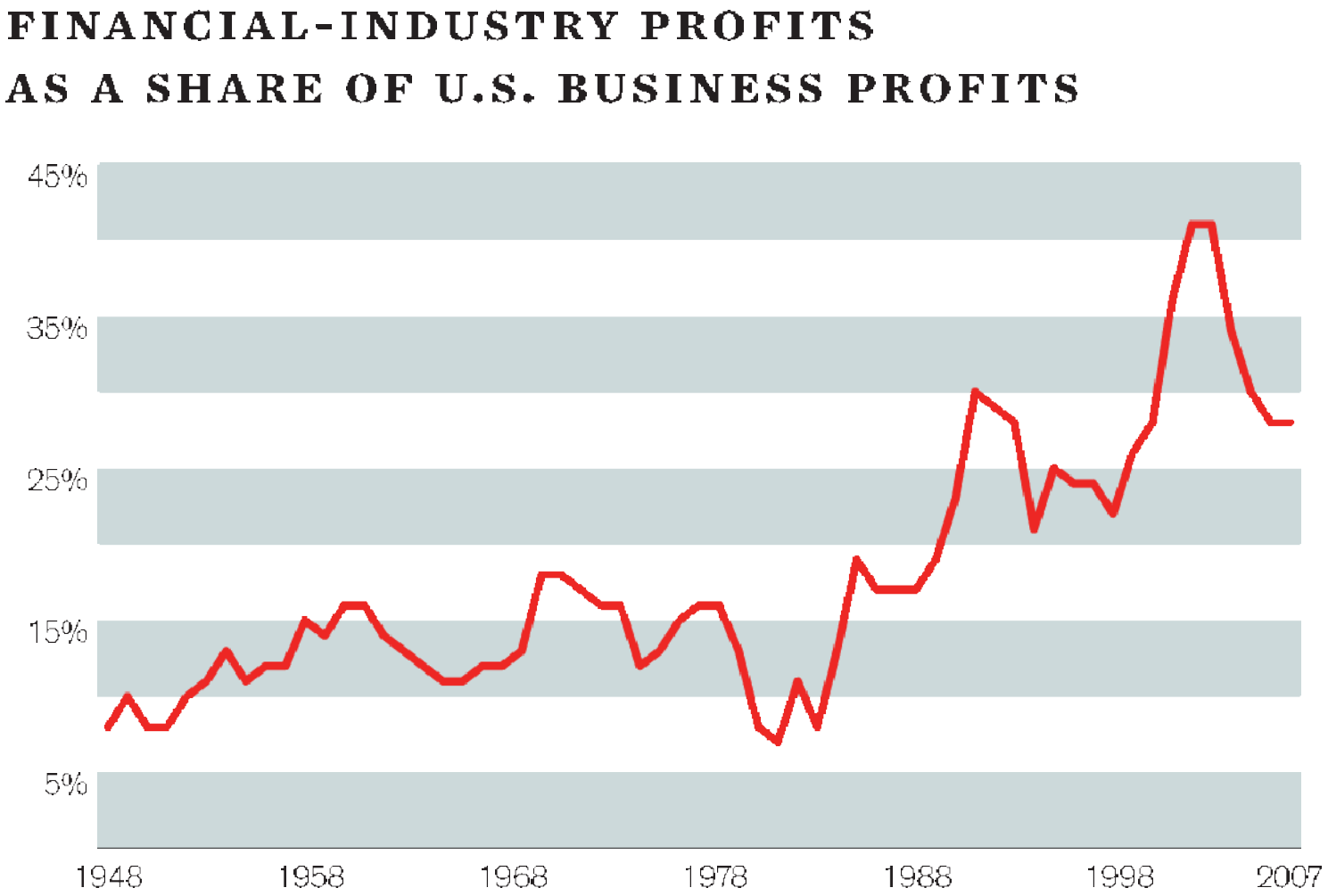


Source: Authors' calculations using data from National Income and Product Accounts (1947–2009) and the National Economic Accounts (1929–1947).

Notes: The finance sector includes the insurance, securities, and credit intermediation subsectors. The securities subsector includes the activities typically associated with investment banks and asset management firms, and it comprises two different categories in later sample years ("Securities" and "Funds, trusts, and other vehicles"); we combine them into one category for consistency.

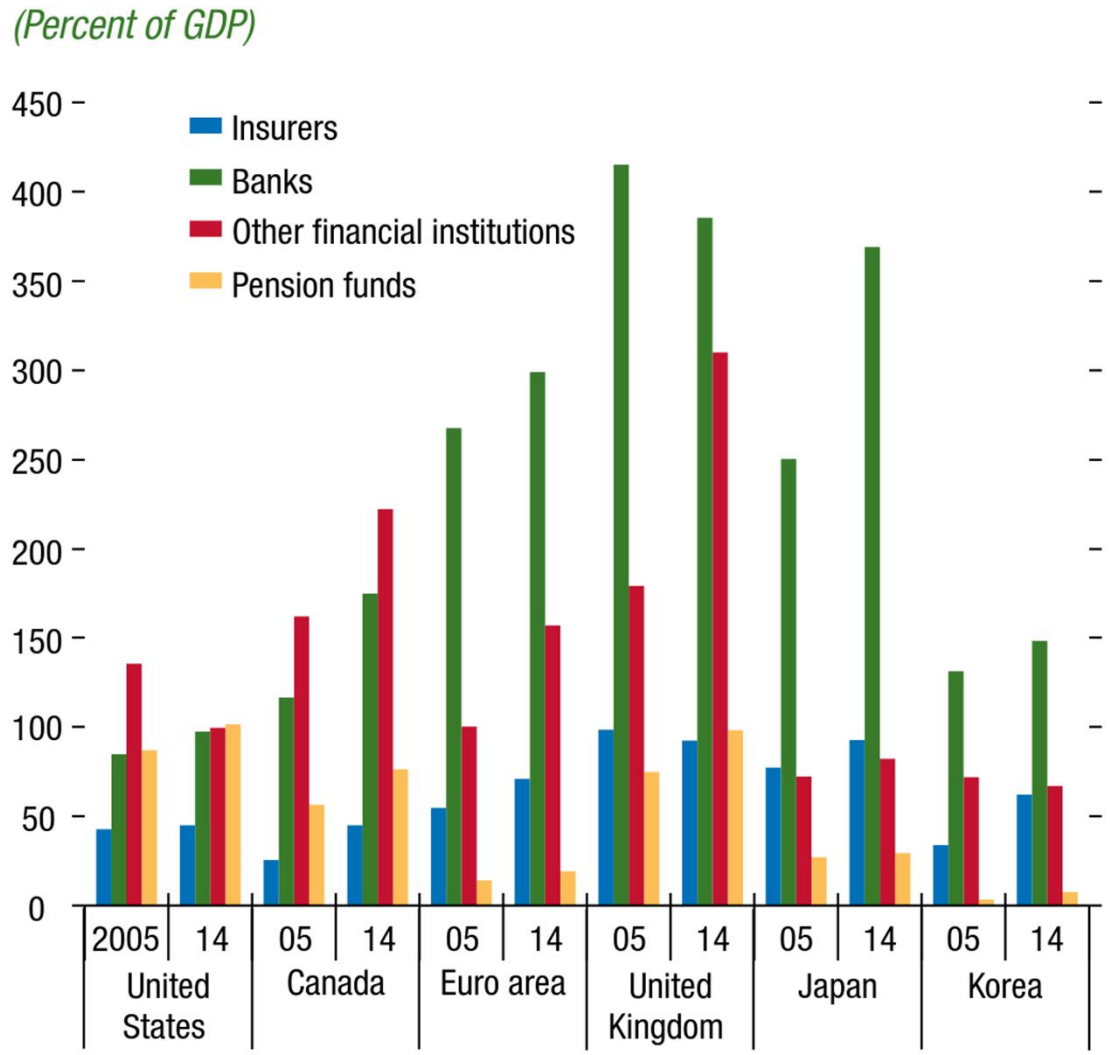
R. Greenwood, D. Scharfstein (2013), The Growth of Finance

… and the Growth of Profits (USA)



Johnson, Simon, 2009, The Quiet Coup in: The Atlantic Online http://www.theatlantic.com/doc/200905/imf-advice, 21.04.2009

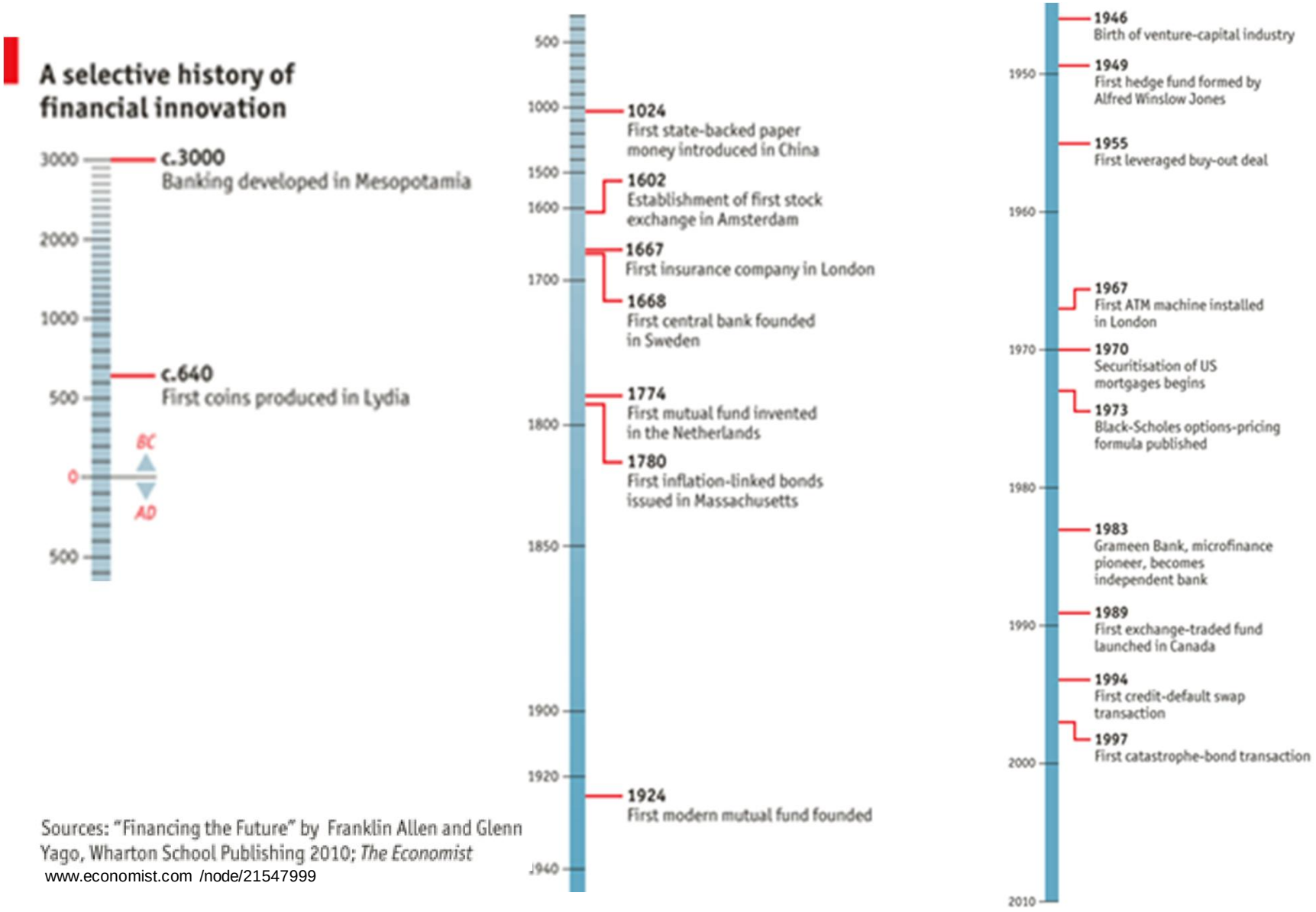
Relative Size of Financial Intermediaries



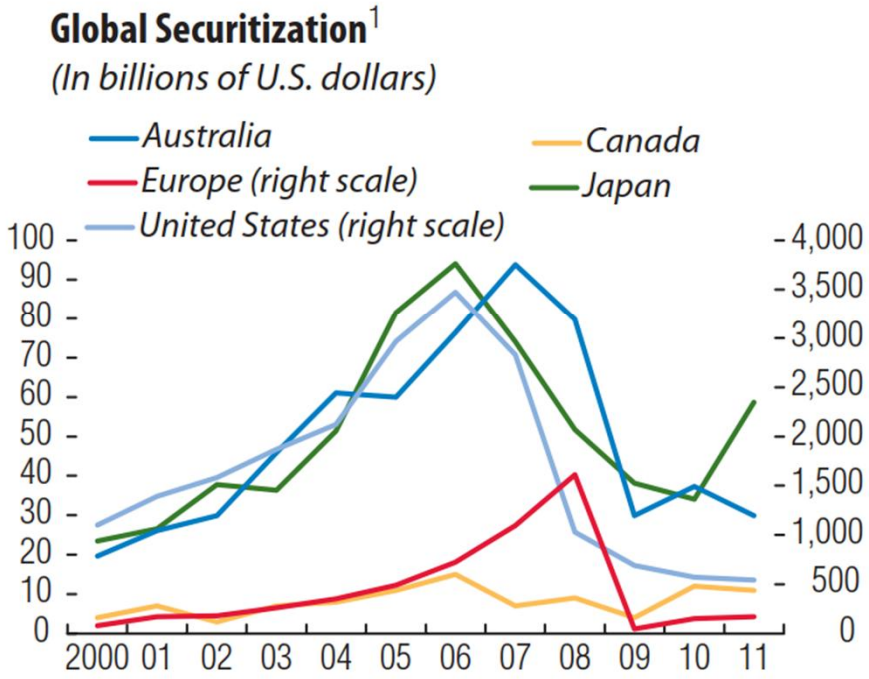
Sources: Haver Analytics; European Central Bank Statistical Data Warehouse; and IMF staff calculations.

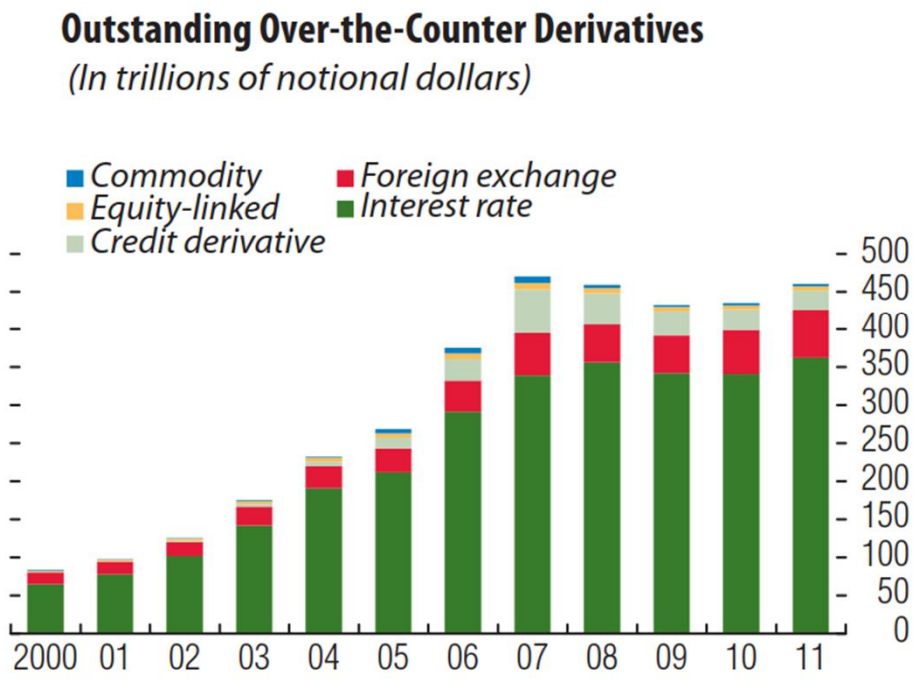
IMF, Global Financial Stability Report, 2016

Selective history of financial innovation



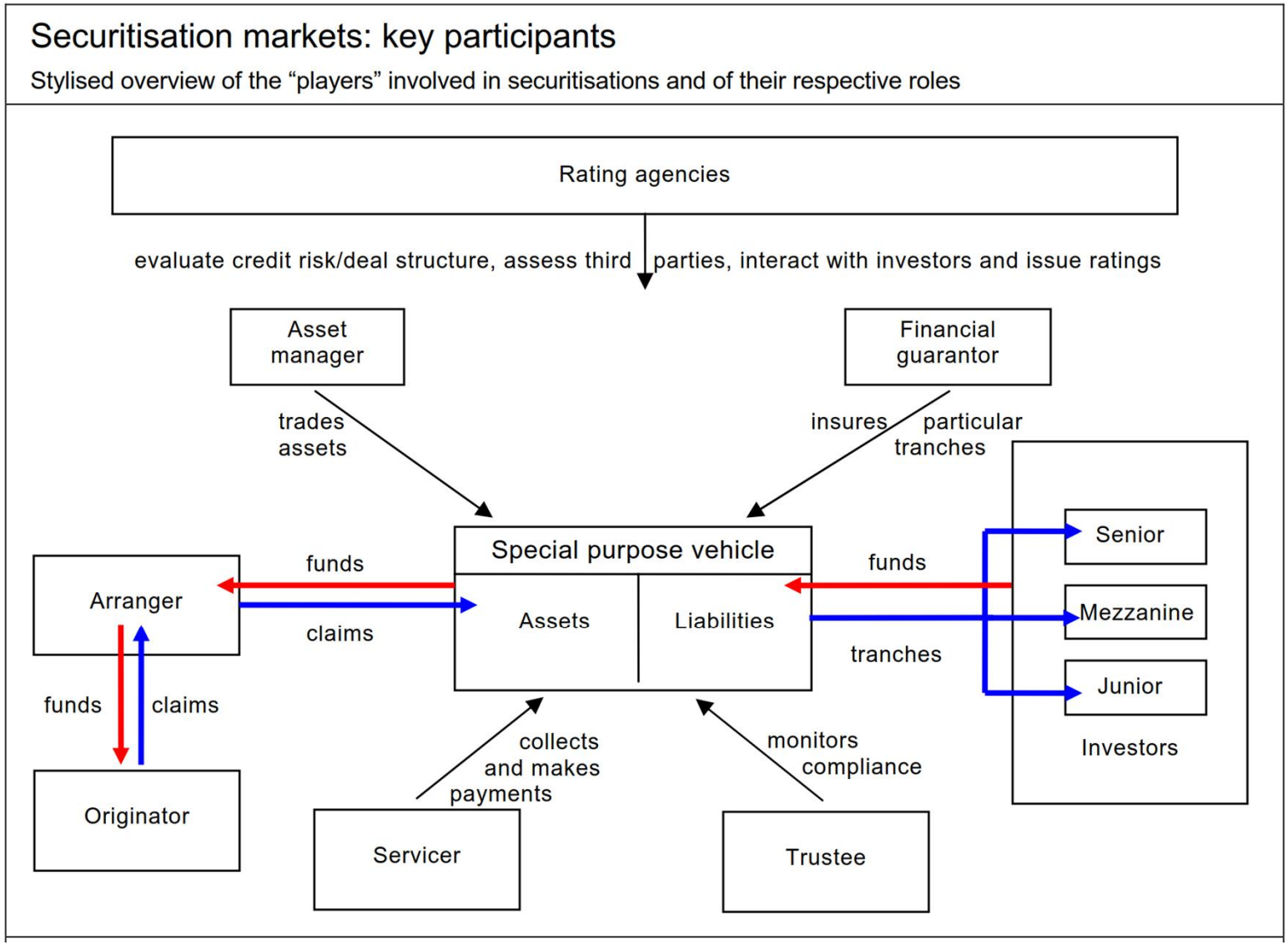
Market-Based Intermediation: New Financial Produkts





IMF, Global Financial Stability Report, 2012

Market-Based Intermediation: New Financial Produkts

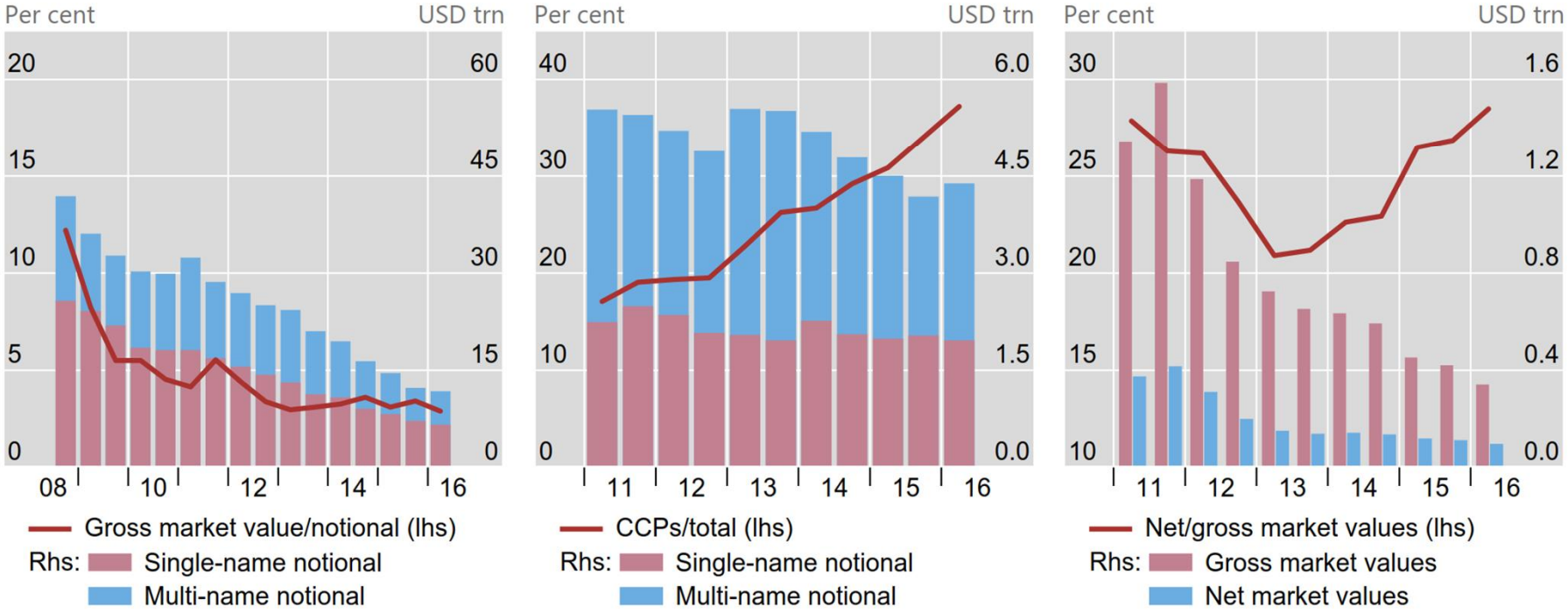


BIS, Quarterly Review September 2009

Market-Based Intermediation: New Financial Produkts

Credit default swaps[1]

Graph B6



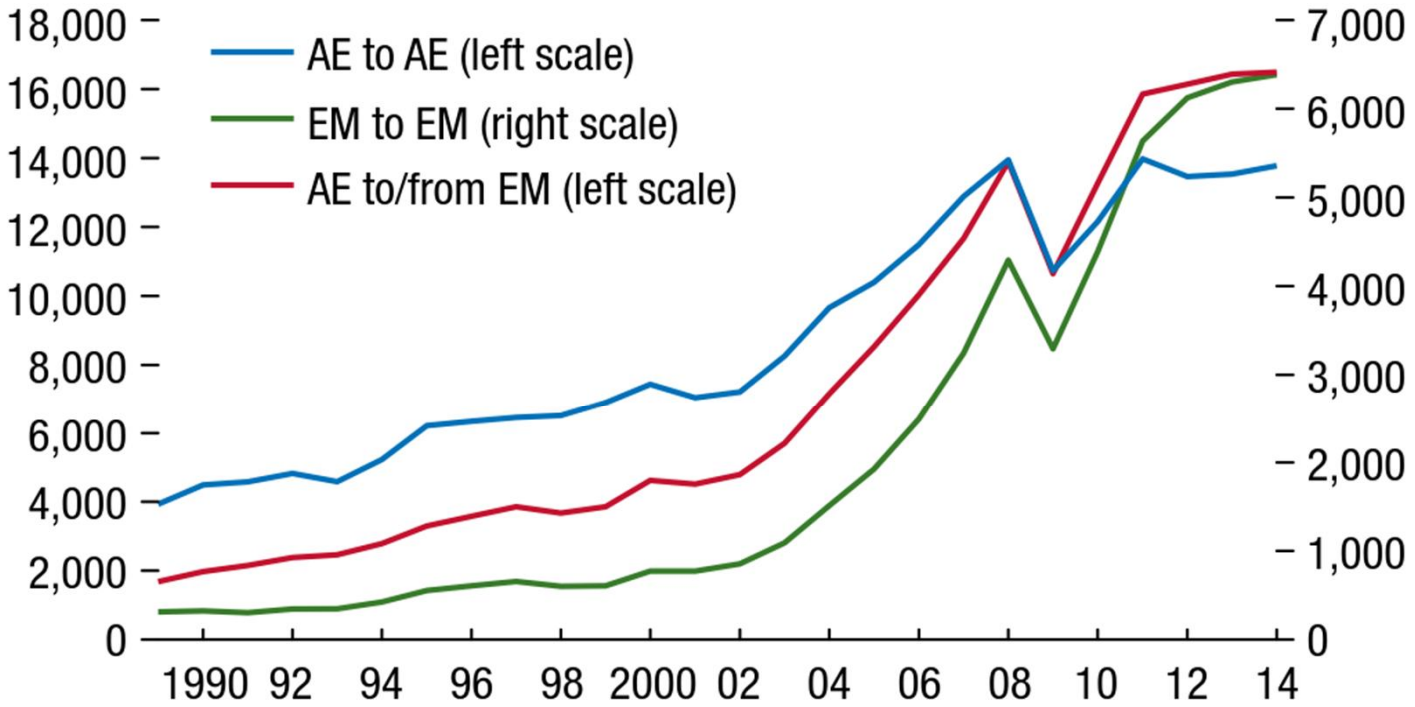
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

[1] At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

BIS, Statistical release, OTC derivatives statistics at end-June 2016 , Nov. 2016

Trade betw. Advanced & Emerging Market Economies

(Billions of U.S. dollars; exports plus imports)

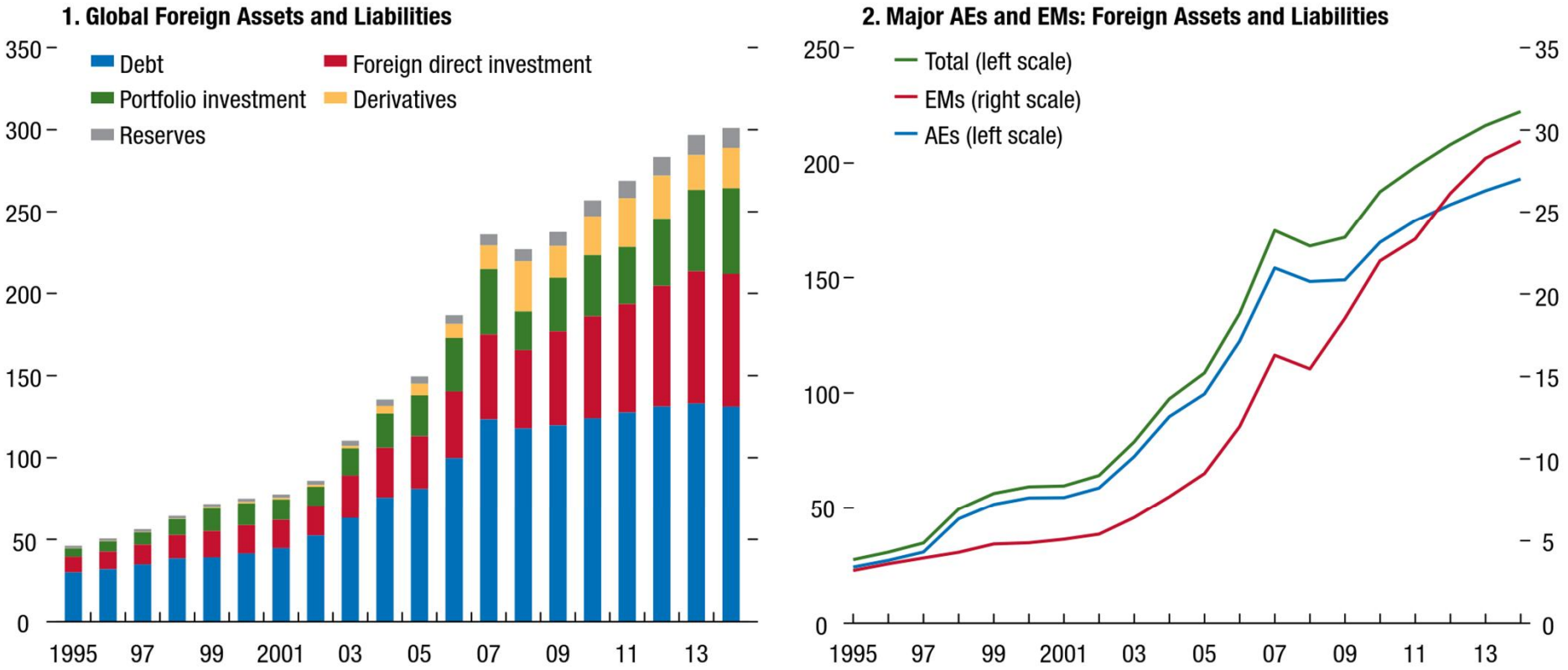


Sources: Haver Analytics; IMF, International Financial Statistics database; and IMF staff calculations.
Note: AE = advanced economy; EM = emerging market economy.

IMF, Global Financial Stability Report, 2016

Global Financial Integration

(Trillions of U.S. dollars)



Sources: External Wealth of Nations Mark II database; Lane and Milesi-Ferretti 2007; and IMF staff calculations.
Note: Both panels depict total gross foreign assets and liabilities. AE = advanced economy; EM = emerging market economy.

IMF, Global Financial Stability Report, 2016

Debt

Jews, Christians, Muslims long regarded lending with suspicion; evang. Protestants had mostly come to regard borrowing as sinful

Governments: religion of financial orthodoxy: Free Trade, Balanced Budgets and the Gold Standard

Debt ® economic welfare benefits:

§ Households can smooth consumption

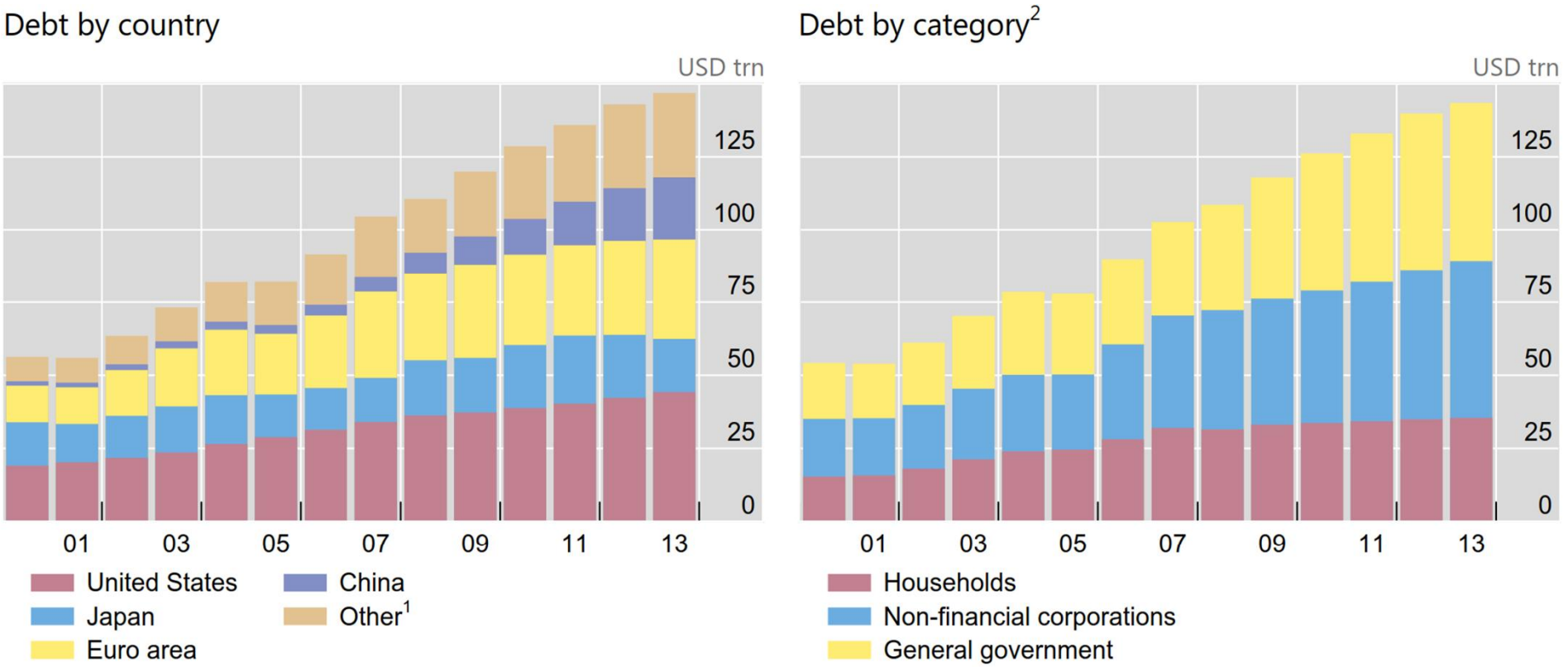
§ Government can offset demand shocks

§ Firms can invest more quickly

§ **How much debt is too much debt (procyclical lending, overconsumption / overinvesting)?**
® resource misallocations ® boom/bust cycles

BIS Papers 80, 2015

Debt trends

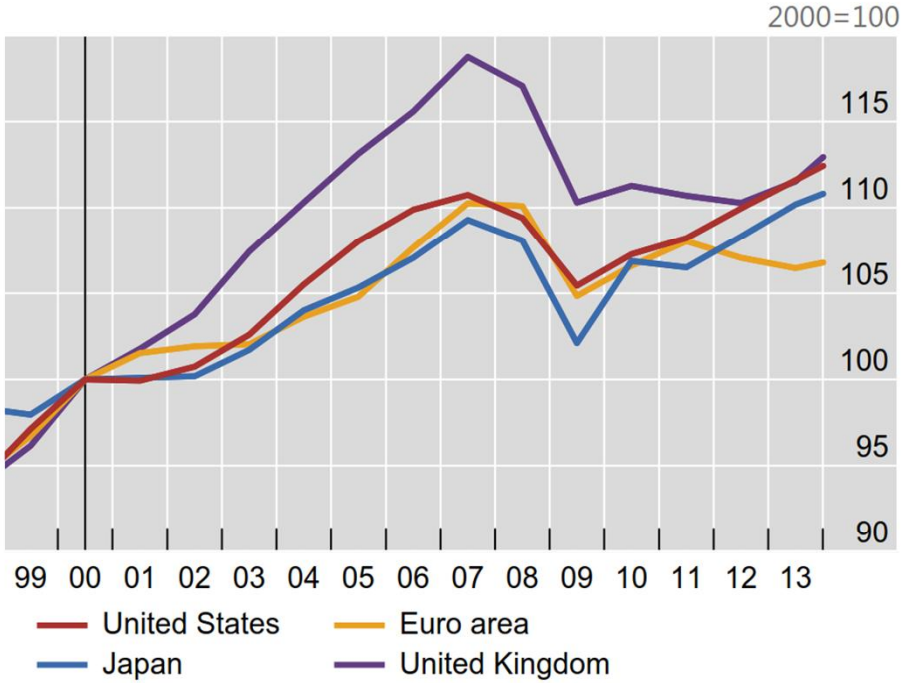


[1] Sum of total debt for Argentina, Australia, Brazil, Canada, China, India, Indonesia, Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey. [2] Sum of the economies listed in the left-hand side panel.

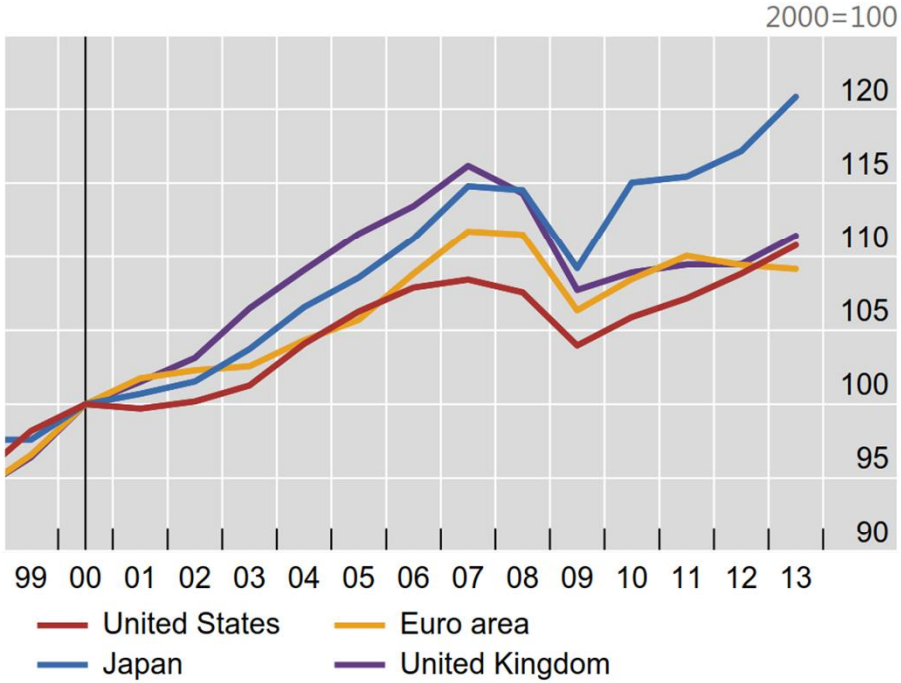
Sources: IMF, *World Economic Outlook*; OECD; national data.

Real GDP per capita trends

Real GDP per capita



Real GDP per working age population[1]



[1] Working age population refers to the 15–64 year olds.

Sources: IMF, *World Economic Outlook*; OECD; Eurostat; BIS calculations.

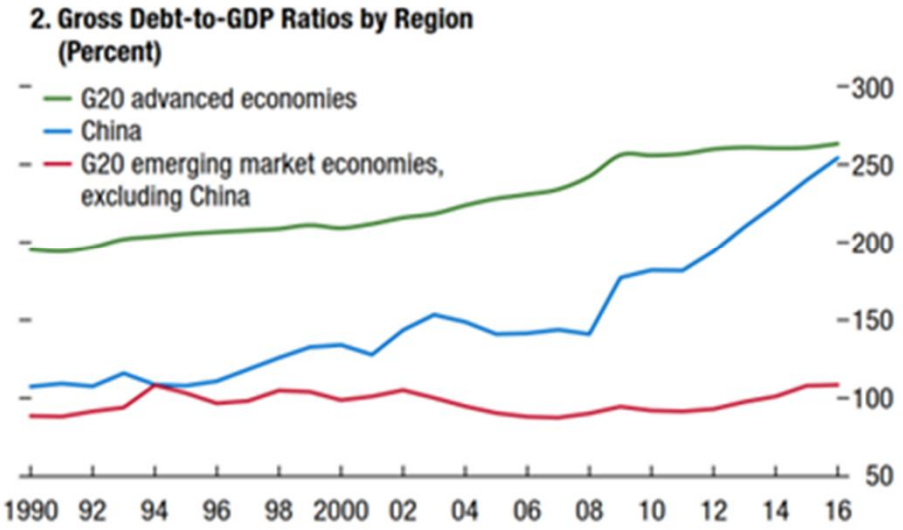
HH Debt-to-GDP Ratio & Financial Development

IMF, Global Financial Stability Report, 2017

G20 Nonfinancial Sector Credit Trends

Debt has been rising more quickly than GDP ...

... largely in advanced economies and China ...

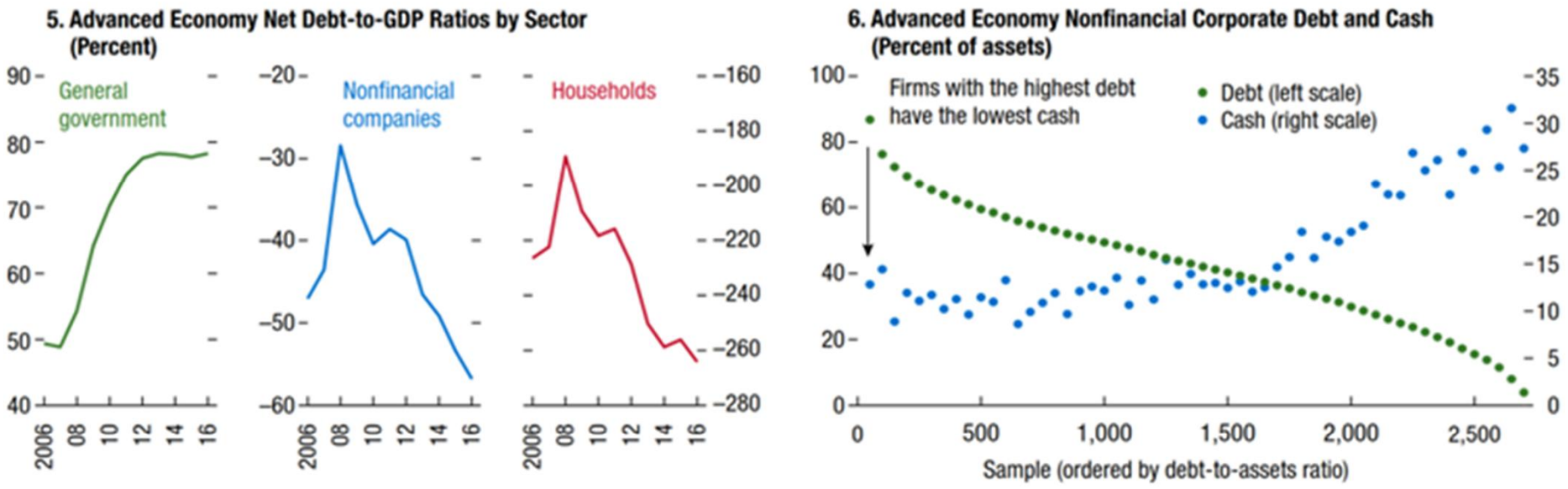


IMF, Global Financial Stability Report, 2017

G20 Nonfinancial Sector Credit Trends

Private sector financial assets have risen ...

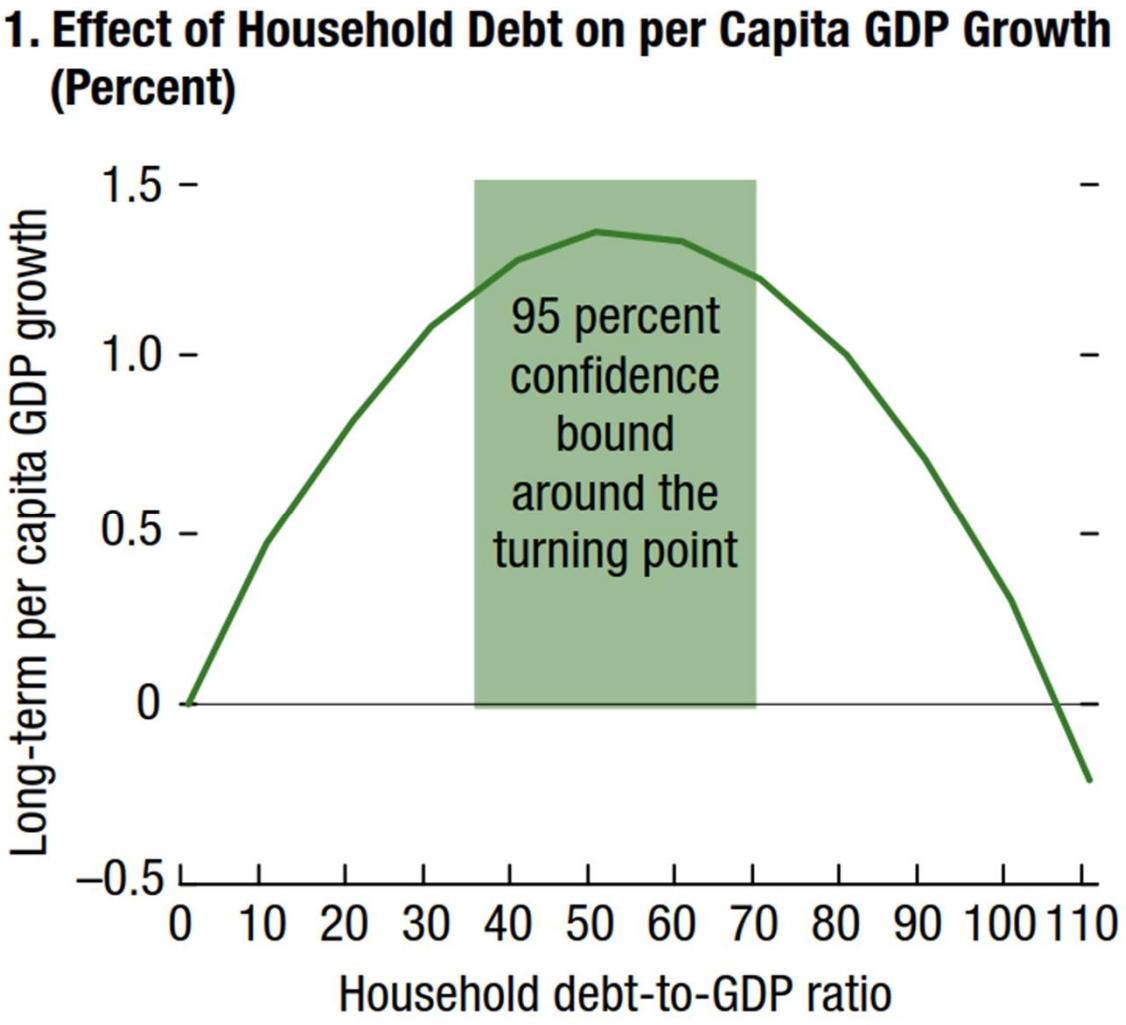
... but cash is unevenly distributed among firms.



Sources: Bank for International Settlements; Bloomberg Finance L.P.; Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Data are adjusted for foreign exchange movements by converting to US dollars at the end-2016 exchange rate. Advanced economy nonfinancial corporate debt is shown net of estimated intercompany loans. In panel 3, OTH = other Group of Twenty (G20) economies. Panel 4 shows the average debt-to-GDP ratio across the G20 economies, by sector. Panel 5 shows debt minus financial assets as a percent of GDP. Panel 6 is based on a sample of more than 2,600 nonfinancial companies in continental Europe, Japan, the United Kingdom, and the United States. Each dot shows average debt and cash to assets for the same 50 firms. Data labels in the figure use International Organization for Standardization (ISO) country codes.

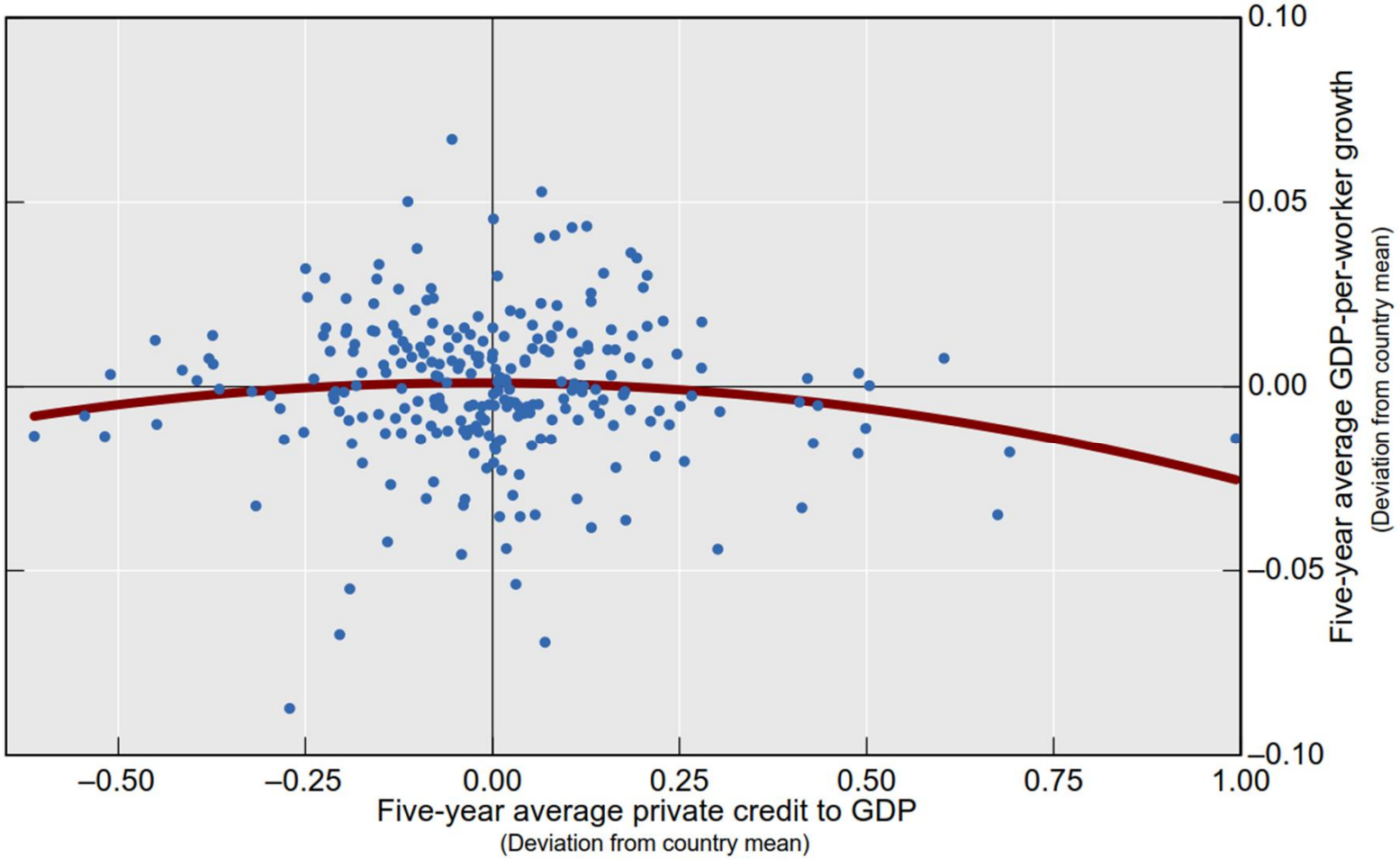
IMF, Global Financial Stability Report, 2017

Long-Term per Capita GDP Growth & Household Debt



IMF, Global Financial Stability Report, 2017

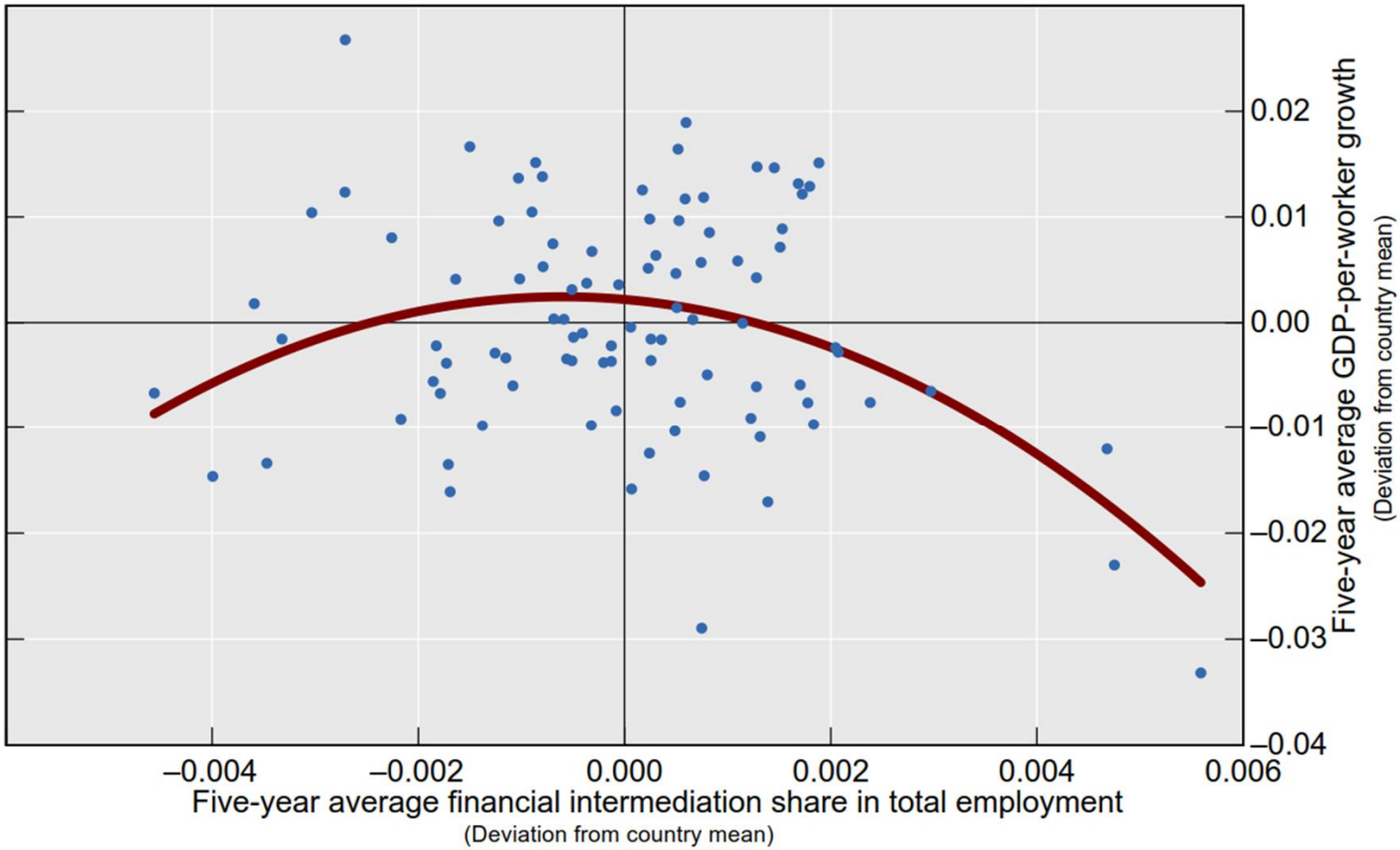
Private credit to GDP ratio and growth 1980-2009



We can use the estimated coefficients to compute an estimate of the peak of the inverted U – the vertical line in Graph 2. These are reported near the bottom of the table, together with 95% interval estimates. The point estimates all roughly 100% of GDP, a figure that is quite close to the threshold of 90% computed in Cecchetti et al (2011).[7]

BIS, Working paper 381, 2012

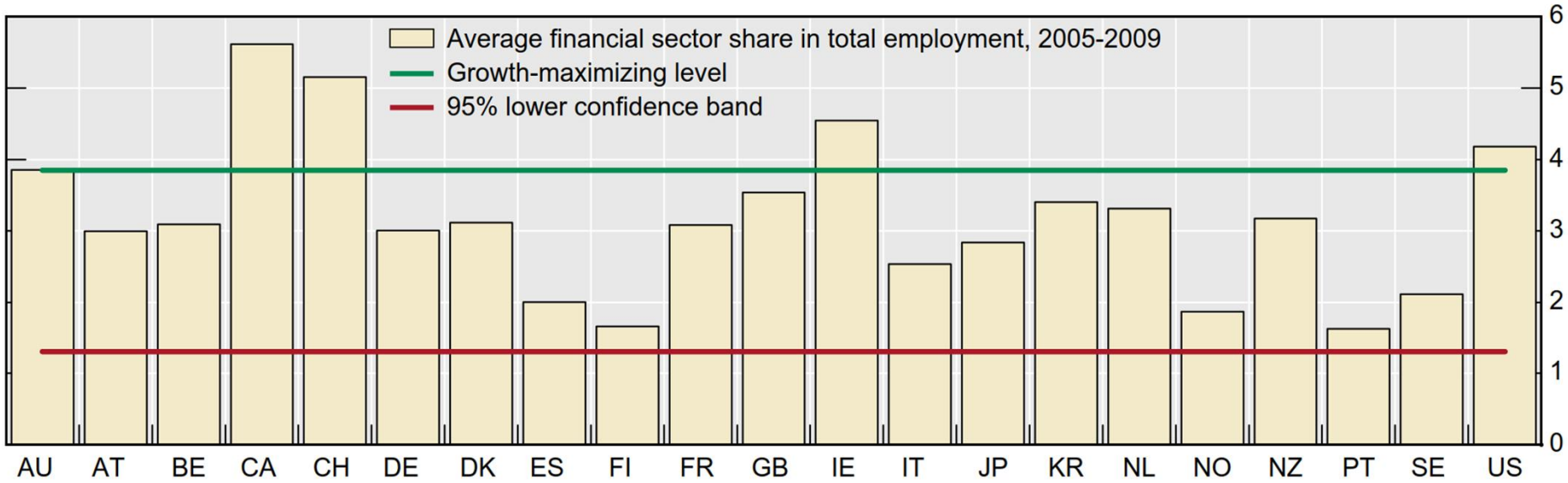
Financial sector share in employment and growth



We start with a scatter plot in Graph 3, which is analogous to Graph 2. The results confirm our previous results: the relationship between growth and the financial sector's share in employment is an inverted U. At low levels, an increase in the financial sector's share in total employment is actually associated with higher GDP-per-worker growth. But there is a threshold beyond which a larger financial sector becomes a drag on productivity growth.

BIS, Working paper 381, 2012

More Finance is not always better



[1] AU = Australia, AT = Austria, BE = Belgium, CA = Canada, CH = Switzerland, DE = Germany, DK = Denmark, ES = Spain, FI = Finland, FR = France, GB = United Kingdom, IE = Ireland, IT = Italy, JP = Japan, KR = Korea, NL = Netherlands, NO = Norway, NZ = New-Zealand, PT = Portugal, SE = Sweden, US = United States.

Sources: OECD Structural Analysis database; authors' calculations.

Coming back to the countries where the financial sector's share in total employment is above the growth-maximising point, we can compute the gain in GDP-per-worker growth if their financial sectors were to shrink back to the growth-maximising point. For Canada, the gain is 1.3 percentage points, for Switzerland 0.7 percentage points and for Ireland 0.2 percentage points.

BIS, Working paper 381, 2012

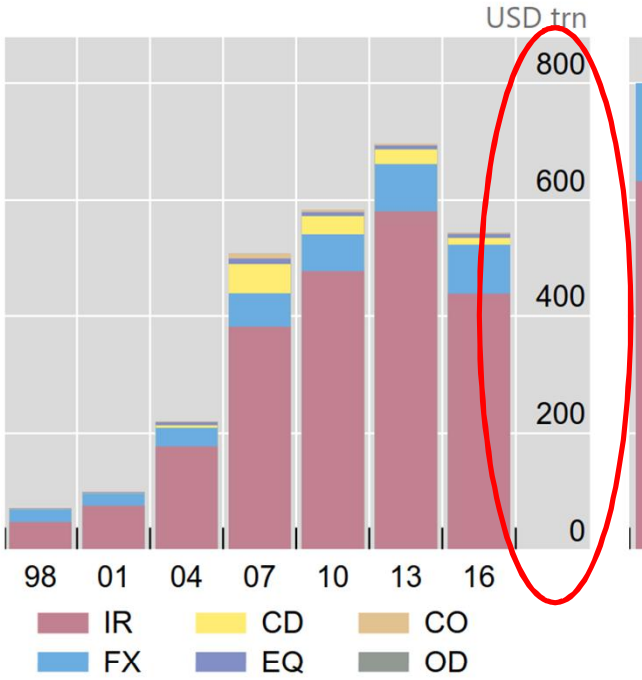
Derivatives: tool for risk management

What is the role/importance of derivatives for the European economy? Derivatives are contracts traded on financial markets that are used to transfer risk. Derivatives are of key importance for the European economy. This is because they serve as insurance against price movements and reduce the volatility of companies' cash flows, which in turn results in more reliable forecasting, lower capital requirements, and higher capital productivity. Derivatives have in recent years developed into a main pillar of the international financial system and are an indispensable tool for risk management and investment purposes. Derivatives contribute to improve the operational, information, and allocation efficiency, thereby increasing the efficiency of financial markets. They help lower the cost of capital and enable firms to effectively invest and channel their resources, thereby making them an important driver of economic growth.

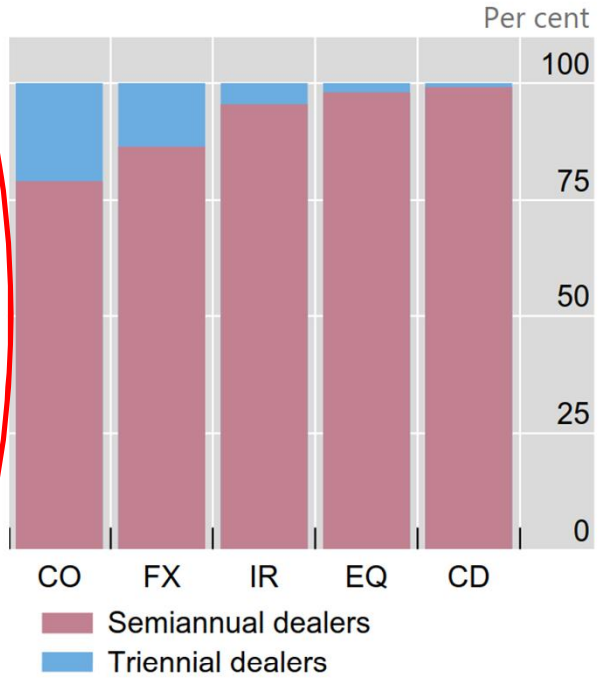
European Commission, MEMO/12/60, Brussels, 1 February 2012

Global OTC derivatives markets

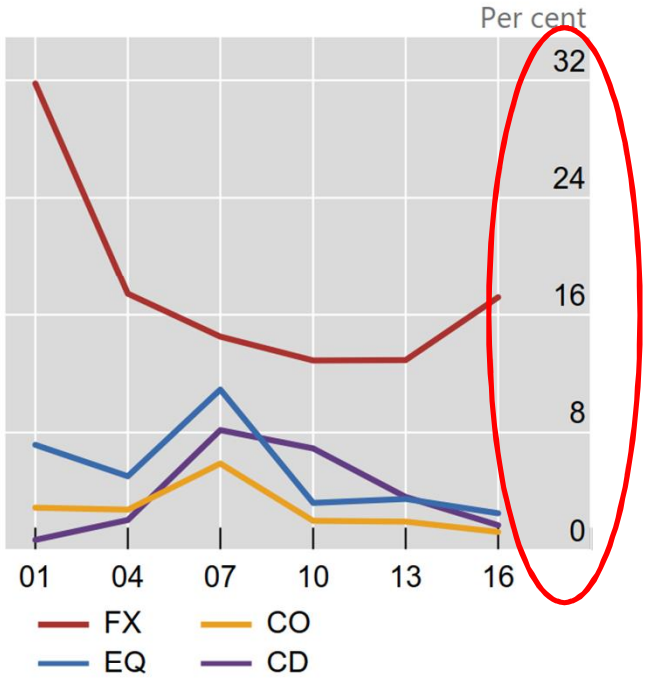
Notional amounts outstanding



Contribution of Triennial dealers at end-June 2016[1]



Gross market values[2]



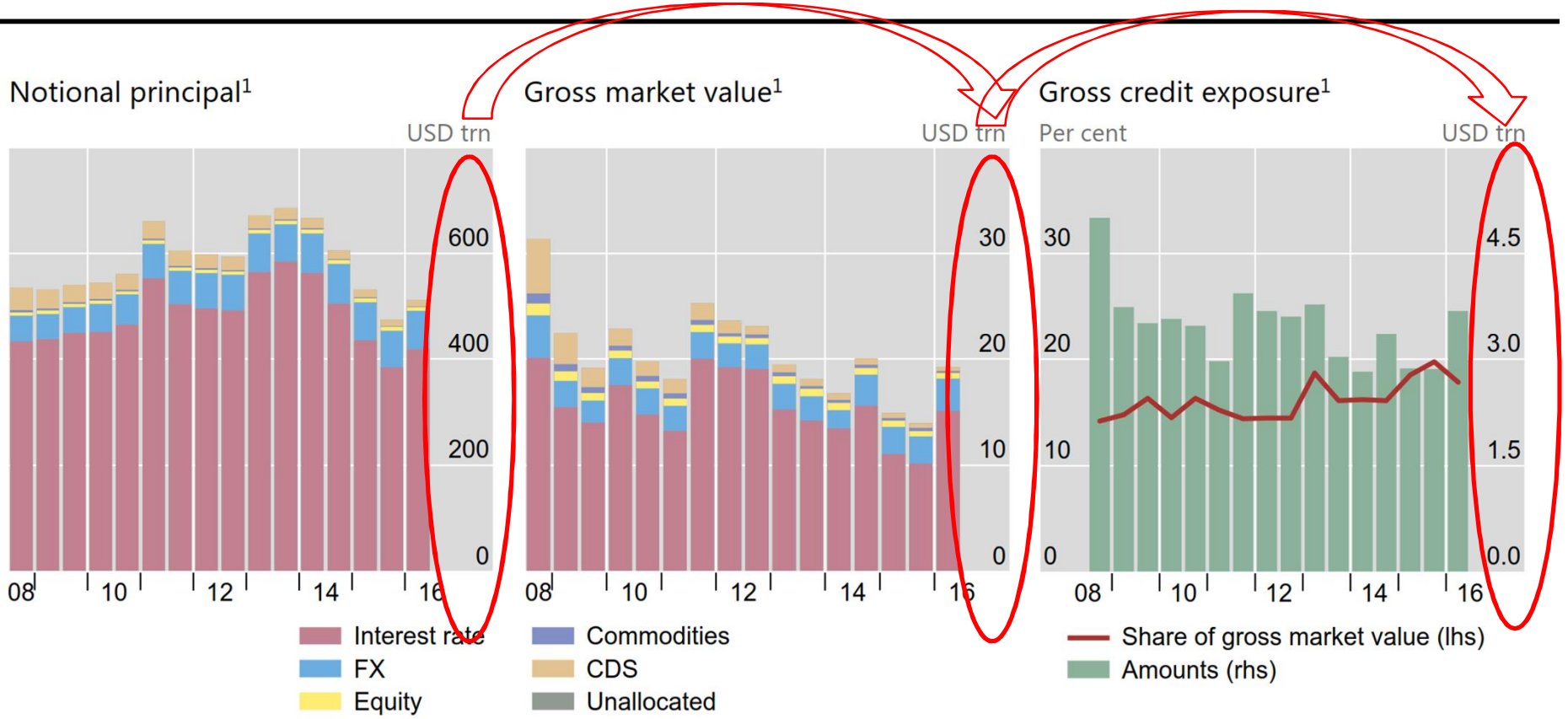
CD = credit derivatives; CO = commodity derivatives; EQ = equity-linked derivatives; FX = foreign exchange derivatives; IR = single-currency interest rate derivatives, OD = other OTC derivatives.

[1] As a percentage of notional amounts outstanding at end-June 2016. Semiannual dealers refer to reporting dealers who participate in the semiannual survey, and Triennial dealers refer to those who participate only in the Triennial Survey, ie excluding semiannual dealers. For a list of countries whose dealers participate in the semiannual and Triennial surveys, see Annex C. [2] As a percentage of the gross market value of all outstanding OTC derivatives.

Source: BIS Triennial Central Bank Survey. Further information is available at www.bis.org/publ/rpfx16.htm.

BIS, Statistical release, OTC derivatives statistics at end-June 2016 , Nov. 2016

Global OTC derivatives markets



Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

[1] At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Gross market value at current market prices provides a measure of economic significance that is readily comparable across markets and products.
Gross credit exposure provides a measure of exposure to counterparty credit risk (before collateral)

BIS, Statistical release, OTC derivatives statistics at end-June 2016 , Nov. 2016

Derivatives and the „real“ sector

2009 ISDA Derivatives Usage Survey, Fortune global 500 companies

Derivatives usage by financial and non-financial firms

		percent					
	No. of firms	Use derivatives	Interest rate	Currency	Commodity	Credit	Equity
Banks	71	100	99	100	87	86	86
Insurers	45	96	87	89	24	64	76
Diversified fin'l	7	100	100	86	29	43	29
Non-financial	377	93	80	86	44	2	12
Total	500	94	83	88	48	20	29

ISDA® Research Notes, Number 2, 2009

Derivatives and the „real“ sector

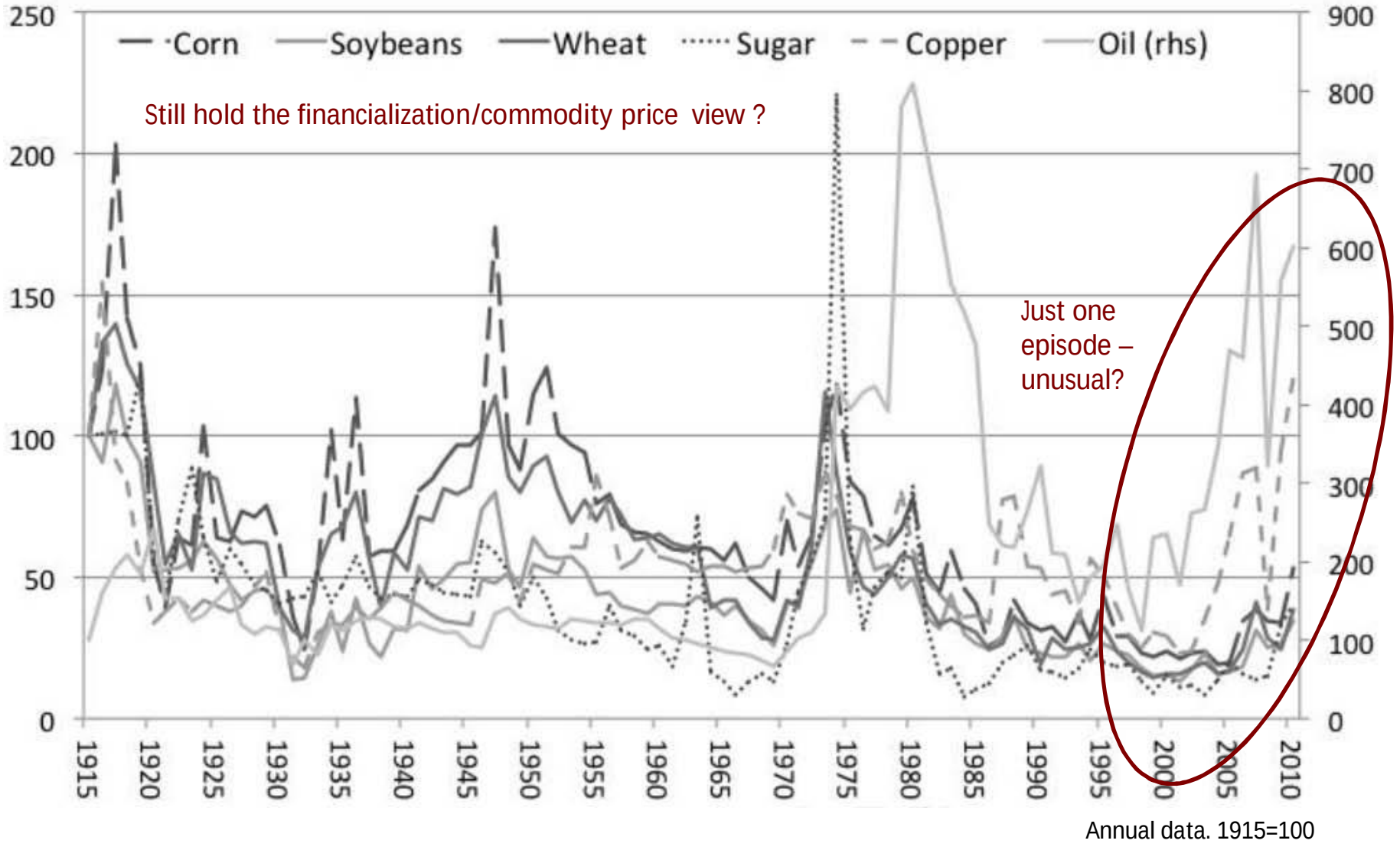
2009 ISDA Derivatives Usage Survey, Fortune global 500 companies

Derivatives usage by industry category

Sector	Interest rate	Forex	Commodity	Credit	Equity
Basic materials	60	74	68	0	5
Consumer goods	46	53	26	1	6
Financial	116	117	75	93	97
Health care	17	14	1	1	5
Industrial goods	34	34	9	1	9
Services	66	69	31	1	8
Technology	55	59	10	4	11
Utilities	22	21	20	0	2
Total	416	441	240	101	143

ISDA® Research Notes, Number 2, 2009

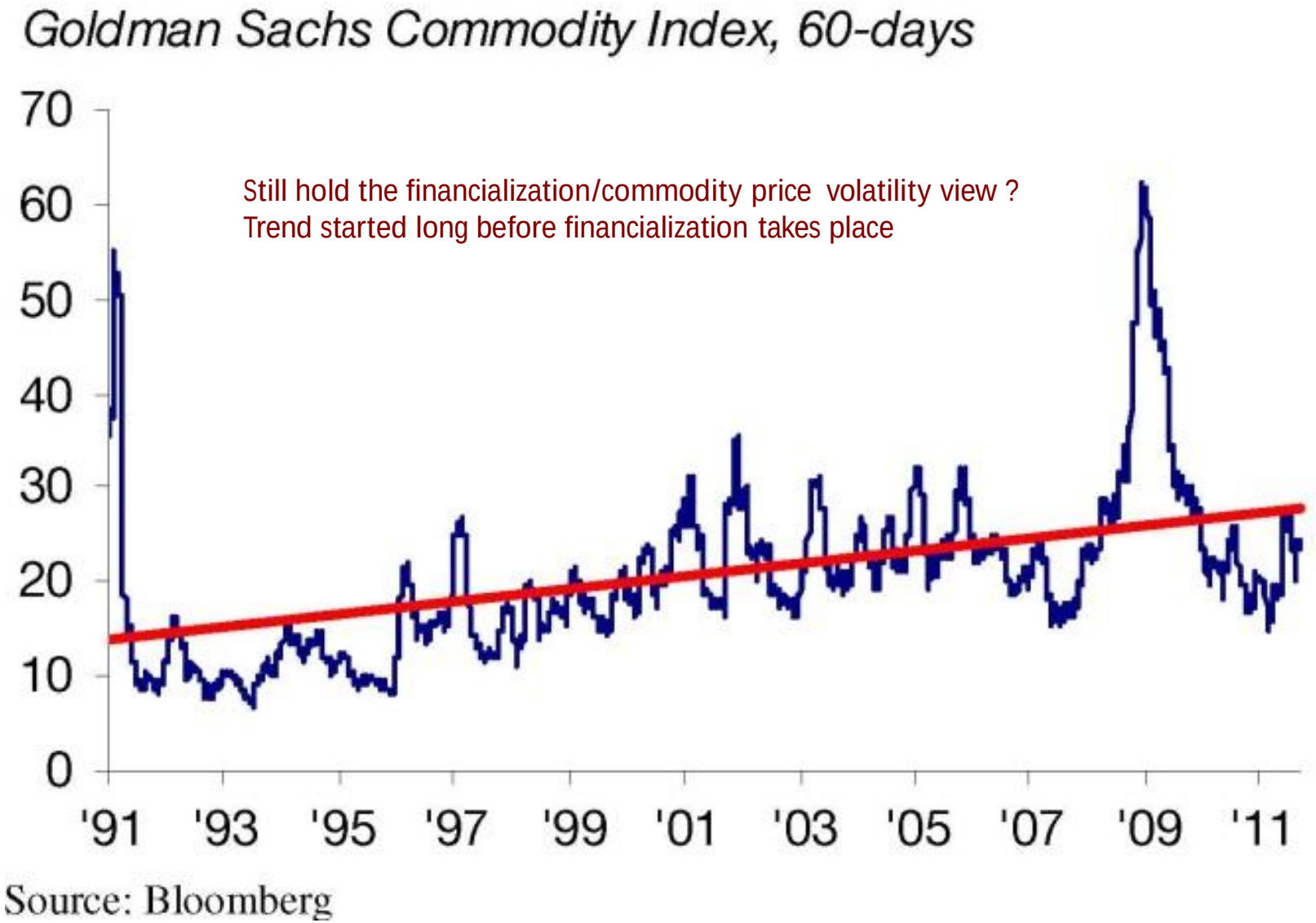
Historical real prices 1915(=100) – 2010



Annual data. 1915=100

Valiante, D. (2013), "Commodities Price Formation: Financialisation and Beyond", CEPS.

Commodity Price Volatility, 1991-2011



IIF Commodities Task Force Submission to the G20 (2011)

Mechanics of futures trading

§ Fundamental difference: spot market – futures market

- Investors / speculators buy „paper“-commodities
  ≈ 2% of futures contracts take delivery of physical commodity

§ Money inflows to commodity futures markets is NOT demand of “real” commodities

→ no limit to the number of futures contracts that can be created at a given price level !!

→ futures markets are zero-sum games: no impact on prices

→ Impact on prices if new information emerges that causes market participants to revise their estimates of physical supply and/or demand

→ no solid evidence of a causal link between financial investment and commodity price trends and volatility !!

Working‘s Speculative „T“ Index

Open interest held by:
speculators = noncommercials, hedgers = commercials

$$T = 1 + \frac{SS}{(HL+HS)} \quad \text{if} \quad (HS \geq HL)$$

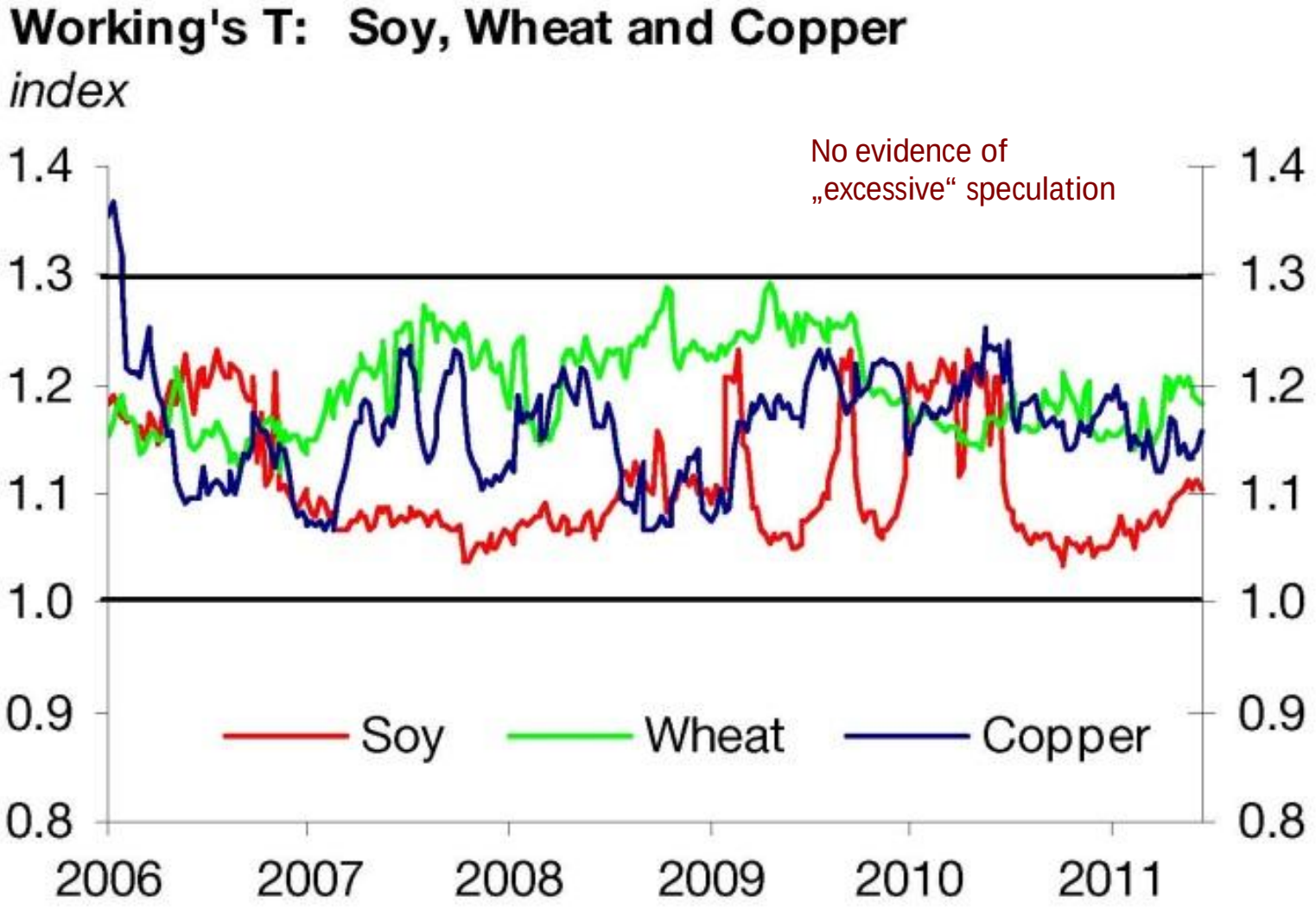
$$T = 1 + \frac{SL}{(HL+HS)} \quad \text{if} \quad (HL \geq HS)$$

SS = Speculation, Short $\qquad$ HS = Heding, Short

SL = Speculation, Long $\qquad$ HL = Hedging, Long

Speculative index reflects the extent by which the level of speculation exceeds the minimum necessary to absorb long and short hedging, recognizing that long and short hedging positions could not always be expected to offset each other even in markets where these positions were of comparable magnitudes.

Is speculation „excessive“?



BIS; IIF Commodities Task Force Submission to the G20 (2011)

Is speculation „excessive“?

Working‘s Speculative „T“ Index

Market	Working[a] 1954–1958	Labys & Granger[b] 1950–1965	Peck[c] 1947–1971
Corn	1.16	1.19	1.263–1.609
Soybeans	1.28	1.31	1.329–1.946
Soybean oil	1.14	1.18	
CBOT wheat	1.22	1.19	1.355–1.891
KCBOT wheat			1.081–1.264
Cotton	1.27		
Live cattle			
Feeder cattle			
Lean hogs			
Average	1.21	1.22	1.257–1.678

D.R. Sanders, S.H. Irwin, R.P. Merrin (2010), The Adequacy of Speculation in Agricultural Futures Markets: Too Much of a Good Thing?

Is speculation „excessive“?

Working‘s Speculative „T“ Index

No evidence of excessive“ speculation in 2006-08

Market	Peck[c] 1972–1977	Leuthold[d] 1969–1980	*CIT* Adjusted[e] 2006–‘08
Corn	1.045–1.204		1.06–1.34
Soybeans	1.061–1.310		1.10–1.45
Soybean oil			1.07–1.15
CBOT wheat	1.094–1.323		1.19–1.49
KCBOT wheat	1.009–1.045		1.05–1.36
Cotton			1.16–1.27
Live cattle	1.568–2.173	1.05–2.34	1.13–1.60
Feeder cattle		1.08–3.80	1.14–2.61
Lean hogs		1.10–8.69	1.18–1.68
Average	1.155–1.411	1.08–4.94	1.12–1.55

D.R. Sanders, S.H. Irwin, R.P. Merrin (2010), The Adequacy of Speculation in Agricultural Futures Markets: Too Much of a Good Thing?

Is speculation „excessive“?

Working‘s Speculative „T“ Index

No evidence of excessive“ speculation in 2006-08

Market	*COT* 1995–2001	*COT* 2002–2003	*COT* 2004–2005	*COT* 2006–2008	*CIT* Adjusted 2006–2008
Corn	1.06	1.09	1.10	1.07	1.13
Soybeans	1.08	1.08	1.10	1.09	1.21
Soybean oil	1.07	1.07	1.07	1.06	1.09
CBOT wheat	1.13	1.15	1.15	1.14	1.31
KCBOT wheat	1.05	1.05	1.09	1.09	1.14
Cotton	1.05	1.05	1.09	1.10	1.20
Live cattle	1.12	1.13	1.11	1.15	1.30
Feeder cattle	1.28	1.31	1.26	1.38	1.67
Lean hogs	1.23	1.15	1.13	1.16	1.39
Average	1.12	1.12	1.12	1.14	1.27

D.R. Sanders, S.H. Irwin, R.P. Merrin (2010), The Adequacy of Speculation in Agricultural Futures Markets: Too Much of a Good Thing?

Speculation in agricultural commodities?

"the balance of … available evidence does not support the speculative bubble theory. The most likely explanation of price increases since the beginning of 2007 to mid-2008 seems to be a combination of economic fundamentals in particular and factors specific to the financial markets, which might have amplified price changes."

Source: European Commission's papers (2009 & 2008): Commission Staff Working Document SEC(2009) 1447; Task Force on the role of speculation in agricultural commodities price movements. Is there a speculative bubble?

Derivatives: Speculation ↔ Hedging

"Efforts to reduce speculation in futures markets might even have unintended consequences."

...

"Commodity futures have become an integral part of food markets, and they perform an important role for many market participants. Adequate regulation should improve, not ban, speculative trading in order to foster market performance."

Source: Food and Agriculture Organization of the United Nations, Policy Brief 9, June 2010

Financialization of commodity (futures) markets

§ Promote conditions for markets to function smoothly

- Key drivers of commodity price developments are market fundamentals (including stock levels, production)
- Increase liquidity, efficiency, transparency (reliable data!): spot/physical & derivative
- Structural factors: reduce government interventions, barriers to trade; expand the role of private sector

§ Policy measures in discussion (evidence?)

- Higher margin requirements → more volatile markets?
- Position limits → detrimental to functioning of the market
- Taxing (short term) financial transaktions → *de facto* tax on risk management; → amplifies distortions

EVANGELII GAUDIUM

243. The Church has no wish to hold back the marvellous progress of science. On the contrary, she rejoices and even delights in acknowledging the enormous potential that God has given to the human mind. Whenever the sciences – rigorously focused on their specific field of inquiry – arrive at a conclusion which reason cannot refute, faith does not contradict it. Neither can believers claim that a scientific opinion which is attractive but not sufficiently verified has the same weight as a dogma of faith. At times some scientists have exceeded the limits of their scientific competence by making certain statements or claims. But here the problem is not with reason itself, but with the promotion of a particular ideology which blocks the path to authentic, serene and productive dialogue.

Conclusions / challenges

§ Financial innovation has improved access to credit, reduced costs, and increased choice.
But …

§ Private return of financial activities often (much) higher than percieved social return ® public dislike towards finance

§ Regulation & development of competitive financial markets – rule of law (to much government regulation can make problems worse):

- Systemic risks (macroprudential regulation) / single entities
- Incentives

§ Finance as a service: grown because of demand? Cost-to-benefit ratio?

Conclusions / challenges

- Theory: provides no basis for presumption that financial innovation increases welfare (by expanding financial opportunities)
- Empiric: *on average*, bigger financial sector correlates with higher growth (but *on the margin*?) ® optimal size?

® Tradeoff between the costs of financial innovation (systemic fragility, market volatility, risks to be managed carefully) and its significant benefits for the real economy (faster growth)