International Monetary System and Global Financial Cycles

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Paolo Baffi Lecture 2019

Based on work with Pierre-Olivier Gourinchas, Silvia Miranda-Agrippino, Nuno Coimbra, Jeremy Fouliard, Elena Gerko Michael Howell, Evgenia Passari, Richard Portes, Tsveti Nenova and Maxime Sauzet. The lecture does not represent in any way the views of the French macroprudential authority. Some of the research described was supported by the European Research Council.

Outline

- International Monetary System
  - Dollar Hegemony
  - The process of external adjustment

- Global Financial Cycles
  - Impact on domestic financial systems
  - Policy responses

- The New Triffin Dilemma and a Multipolar International Monetary System

- The challenger currencies: private or public, digital or crypto.

Dollar Hegemony

Dollar Hegemon at least since Bretton Woods

- Global trade is invoiced and settled in dollars
- Cross-border financial flows and security issuances are in dollars
- Dollar is the vehicle currency on foreign exchange markets
- Monetary authorities fix their exchange rates vis-a-vis the dollar
- International reserves are held in dollars

This has not changed since 1973…

Theory of Hegemonic Stability

"For the world economy to be stable, it needs a stabilizer, some country that would undertake to provide a market for distress goods, a steady if not countercyclical flow of capital, and a rediscount mechanism for providing liquidity when the monetary system is frozen in panic."

Kindleberger (1981)

Benefits of an international currency

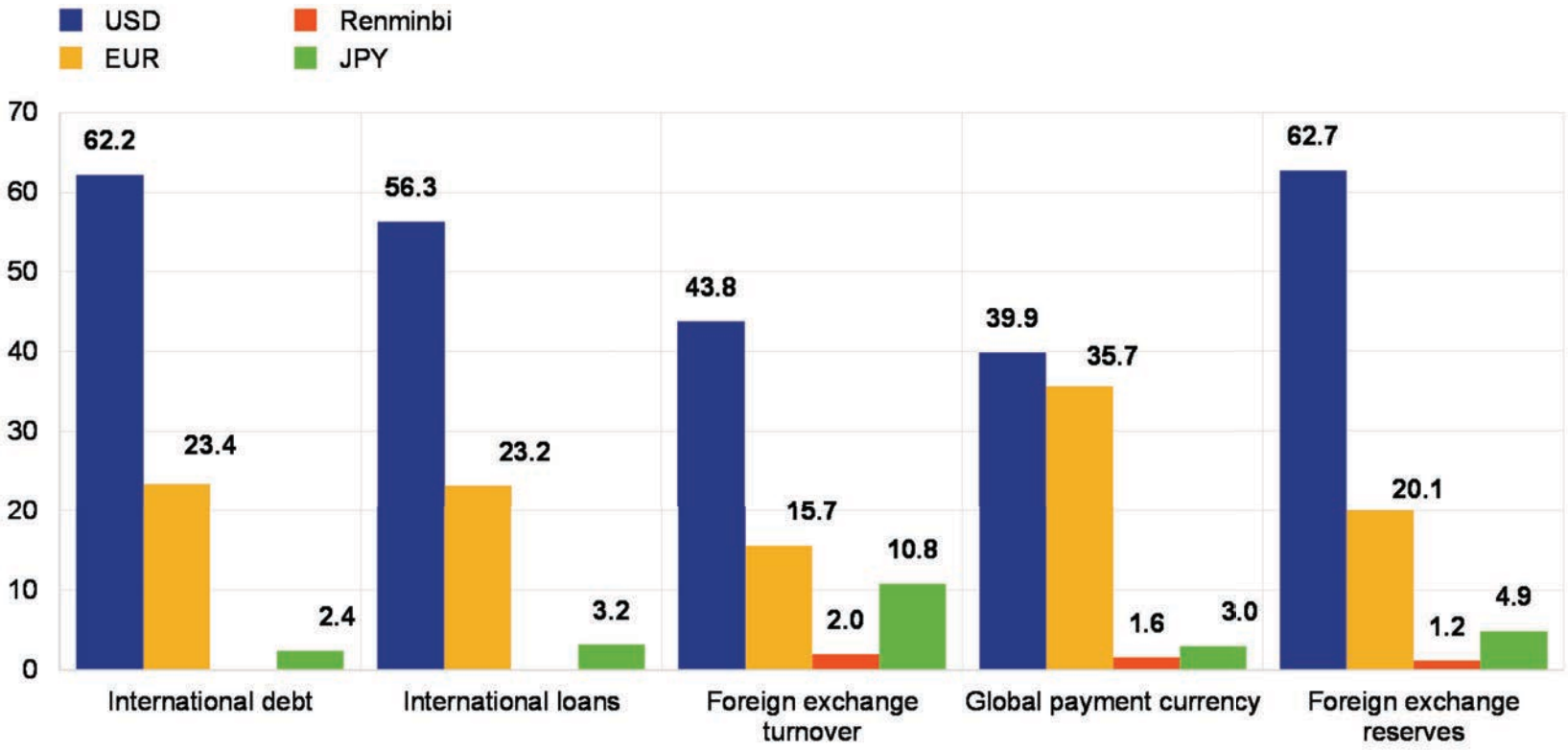
- International seigniorage
- Stabilisation of the terms of trade
- Geopolitical power (liquidity provider; extended jurisdiction)
- Soft budget constraint
- For the French: « Exorbitant privilege »

Some geopolitical frustrations

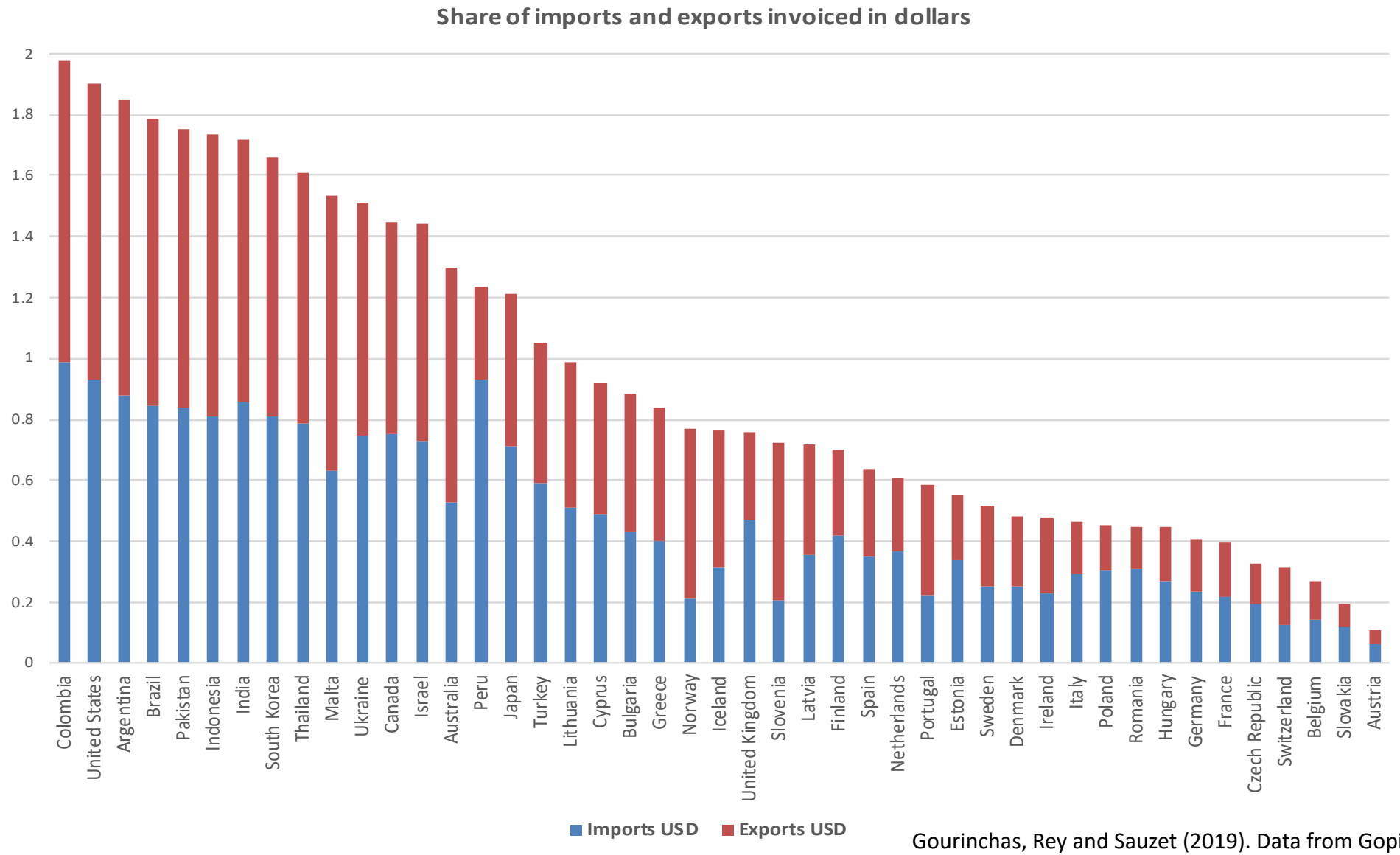
“ This unilateral facility that the United States has implies that the dollar is not an impartial means of international exchange, since it is a means of issuing credit for one state.”

De Gaulle (1965).

Snapshot of the International Monetary System



Source: ECB (2018)



Gourinchas, Rey and Sauzet (2019). Data from Gopinath (2015)

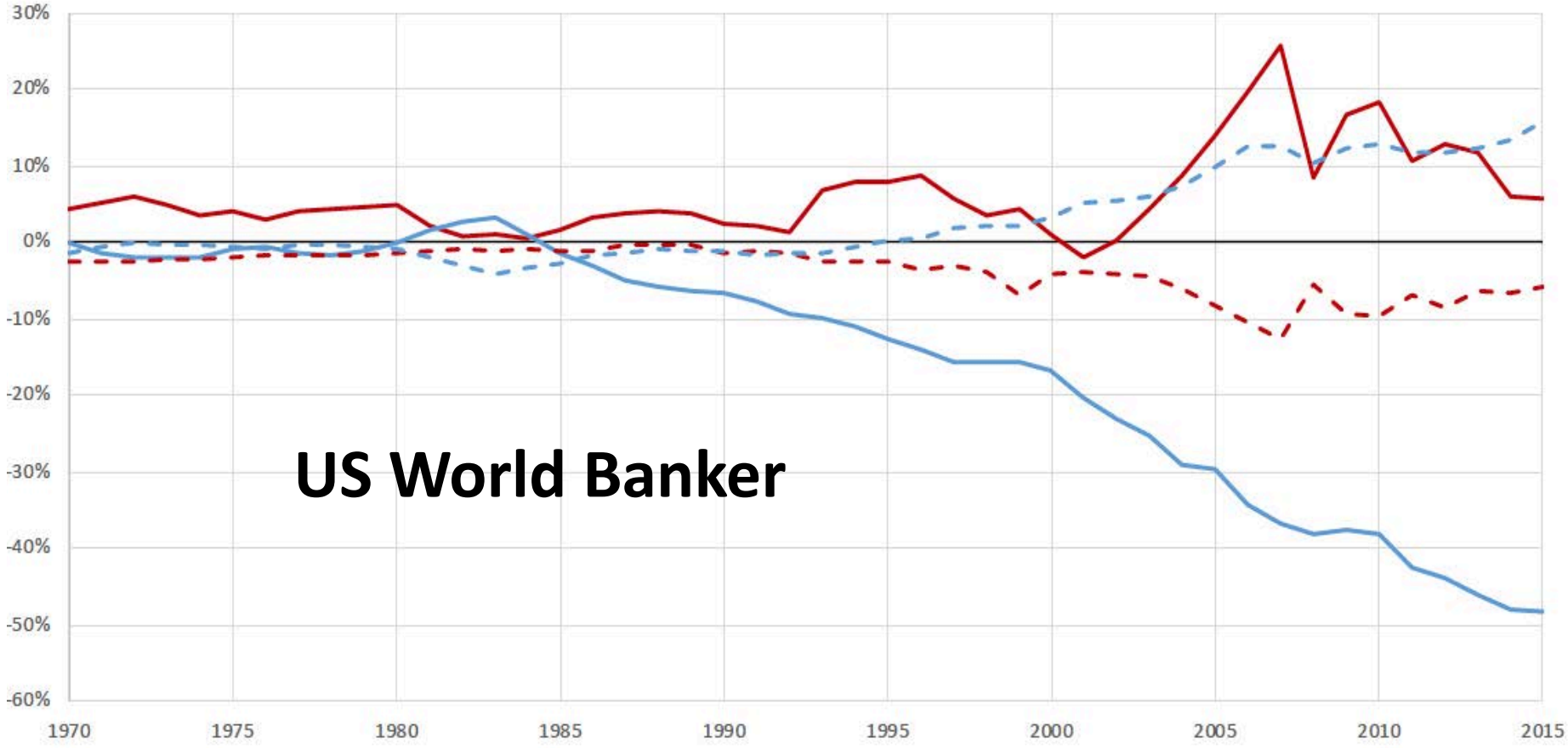
International Currency Roles

	Roles		
	Medium of exchange ⟷	Store of value ⟷	Unit of account
Private sector	Vehicle currency Liquid asset markets	Nominal securities issuance Banking, cash hoarding	Denomination of securities Trade invoicing
Official sector	Intervention currency Lender of last resort	Reserves	Exchange rate pegs

Adapted from Kenen (1983)

World Banker, World Insurer

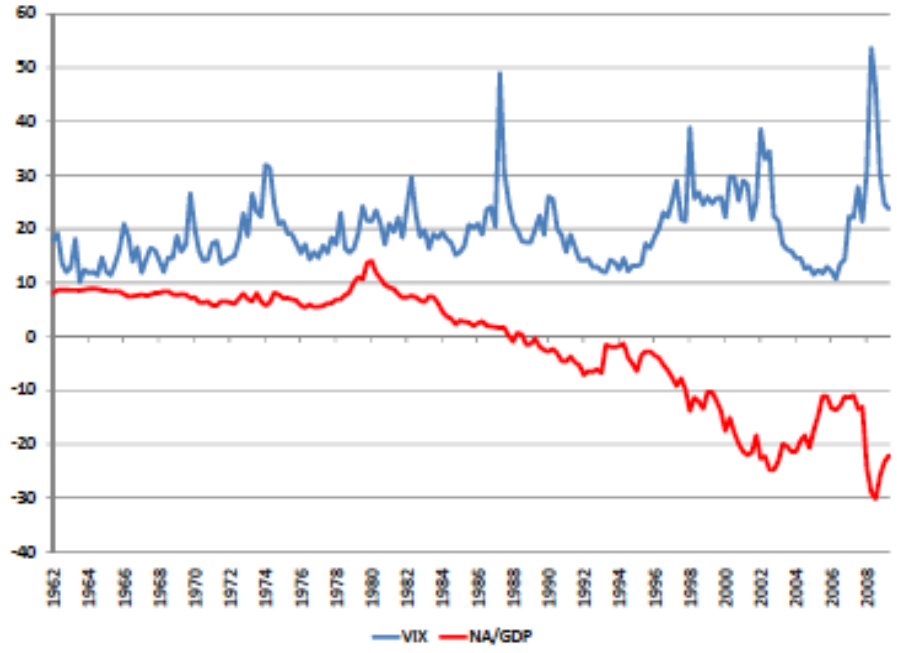
- Asymmetric external balance sheet of the United States:
  - In terms of class of assets: « long risk, short safe »
  - In terms of currencies: liabilities in dollars, assets in foreign currencies
- Excess returns of about 2% p.a. : *exorbitant privilege*
- Transfer in crisis times: *exorbitant duty*



Net risky (red) and net safe (blue) investments for the US [continous line] and the Rest of the World [dotted line] (% of GDP)

Gourinchas, Rey and Sauzet (2019)

VIX (blue) and Net Foreign Asset Position (red) (% GDP)



US World Insurer

When risk goes up:

- value of external assets collapses
- value of external liabilities goes up (flight to safety)

Hence:

- Net asset position deteriorates
- Positive wealth transfer to the rest of the world

Source: Gourinchas, Rey and Govillot (2018)

International Adjustment and the Dollar

How do external deficits get resolved?

- Expanding future net exports:

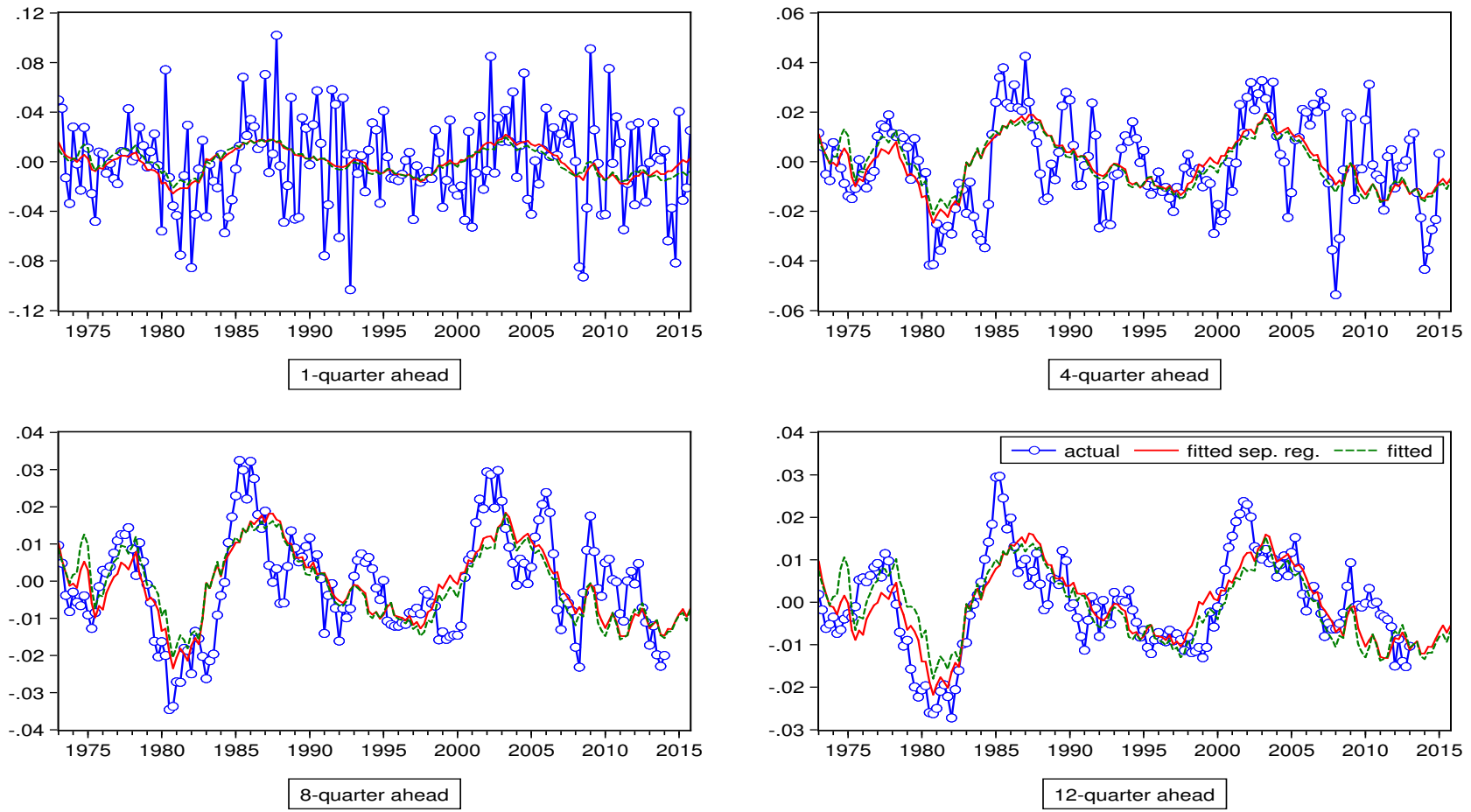
➢ *Trade Adjustment Channel*

- Positive returns on the net foreign asset position:

➢ *Valuation Adjustment Channel*

- *Both channels involve movements in the Dollar exchange rate*

US external imbalances predict the dollar in and out of sample especially at long horizons



Gourinchas, Rey and Sauzet (2019)

Predictability of external returns and convenience yields

- Gourinchas Rey and Sauzet (2019) show:

➢ predictability of returns of the net external asset position

➢ an increasingly large share of the US adjustment process occurs through convenience (safety or liquidity) yields on US external liabilities.

→ U.S. occupies a central place in the international financial system, despite the decline of the US economy relative to world GDP

Global Financial Cycles

Global Financial Cycles

- Defined by Rey (2013) as co-movements in:
  - gross capital flows
  - credit growth
  - leverage
  - risky asset prices

- Negative correlations with the VIX

Correlation across capital inflows (1990q1-2017q4)

Liabilities	Pfolio N. Am	Pfolio Asia	Pfolio EU	Pfolio Africa	Pfolio LatAm	Pfolio Em. As	FDI N. Am	FDI Asia	FDI EU	FDI Africa	FDI LatAm	FDI Em. As	Cred N. Am	Cred Asia	Cred EU	Cred Africa	Cred LatAm	Cred Em. As
Pfolio N. Am	1.0																	
Pfolio Asia	0.6	1.0																
Pfolio EU	0.7	0.5	1.0															
Pfolio Africa	0.6	0.6	0.4	1.0														
Pfolio LatAm	0.5	0.5	0.3	0.6	1.0													
Pfolio Em. As	0.7	0.7	0.5	0.7	0.7	1.0												
FDI N. Am	0.5	0.4	0.5	0.5	0.4	0.5	1.0											
FDI Asia	0.6	0.5	0.4	0.6	0.6	0.7	0.7	1.0										
FDI EU	0.6	0.4	0.5	0.3	0.4	0.3	0.6	0.7	1.0									
FDI Africa	0.4	0.5	0.2	0.5	0.6	0.6	0.6	0.9	0.6	1.0								
FDI LatAm	0.5	0.5	0.4	0.5	0.6	0.6	0.7	0.9	0.7	0.8	1.0							
FDI Em. As	0.5	0.5	0.4	0.5	0.6	0.6	0.6	1.0	0.7	0.9	0.9	1.0						
Credit N. Am	0.3	0.2	0.4	0.1	0.1	0.2	0.2	0.0	0.2	0.0	0.1	0.0	1.0					
Credit Asia	0.5	0.4	0.3	0.4	0.5	0.5	0.3	0.5	0.4	0.4	0.4	0.5	0.4	1.0				
Credit EU	0.4	0.2	0.4	0.1	0.1	0.2	0.2	0.0	0.3	0.0	0.1	0.0	0.6	0.4	1.0			
Credit Africa	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.4	0.6	0.7	0.7	0.0	0.4	0.0	1.0		
Credit LatAm	0.2	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.1	0.4	0.1	0.2	1.0	
Credit Em. As	0.4	0.5	0.3	0.4	0.5	0.5	0.1	0.4	0.2	0.4	0.3	0.4	0.2	0.7	0.2	0.2	0.3	1.0

Correlation across capital outflows (1990q1-2017q4)

Assets	Pfolio N. Am	Pfolio Asia	Pfolio EU	Pfolio Africa	Pfolio LatAm	Pfolio Em. As	FDI N. Am	FDI Asia	FDI EU	FDI Africa	FDI LatAm	FDI Em. As	Cred N. Am	Cred Asia	Cred EU	Cred Africa	Cred LatAm	Cred Em. As
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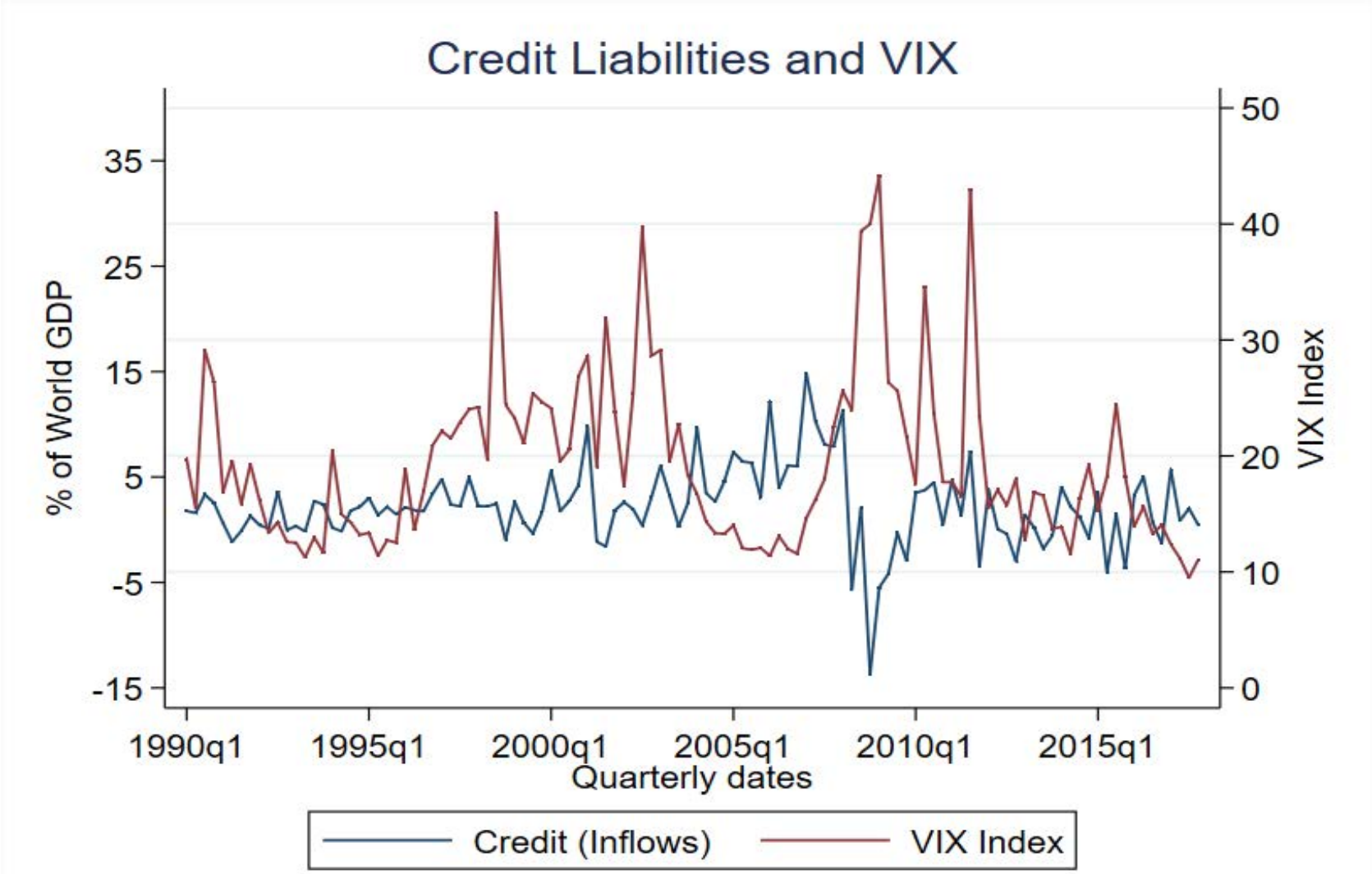
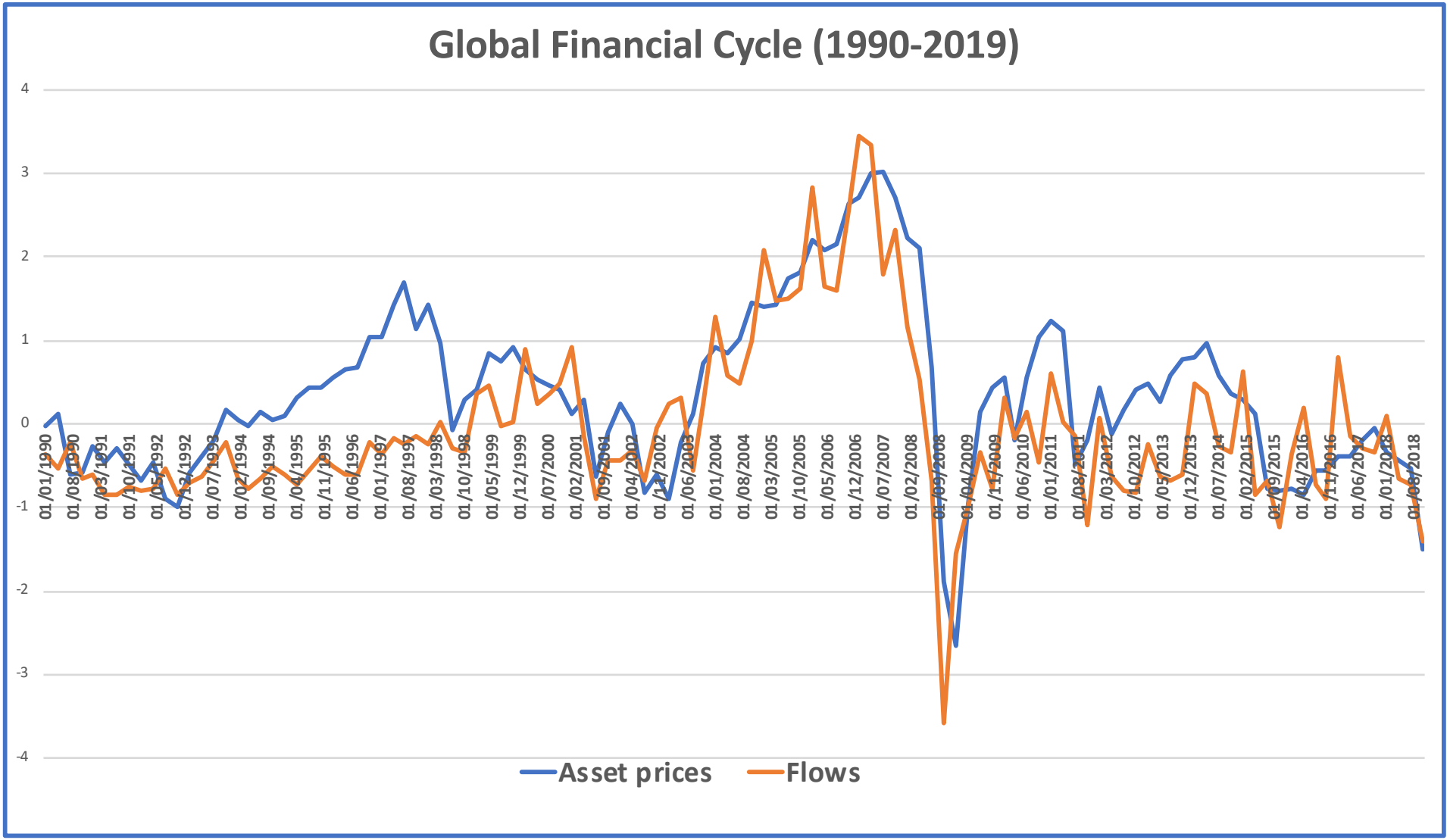
FDI Em. As	0.3	0.7	0.2	0.4	0.3	0.5	0.7	0.9	0.6	0.6	0.7	1.0						
Credit N. Am	0.2	0.1	0.4	0.0	0.0	0.0	0.1	-0.1	0.1	-0.1	-0.1	-0.1	1.0					
Credit Asia	0.4	0.3	0.3	0.2	0.2	0.3	0.5	0.6	0.5	0.5	0.6	0.5	0.1	1.0				
Credit EU	0.3	0.2	0.5	0.0	0.2	0.1	0.4	0.1	0.3	0.2	0.2	0.0	0.6	0.4	1.0			
Credit Africa	0.4	0.3	0.4	0.2	0.4	0.4	0.3	0.4	0.2	0.2	0.3	0.5	0.0	0.3	0.1	1.0		
Credit LatAm	0.3	0.4	0.1	0.4	0.1	0.2	0.6	0.6	0.5	0.5	0.5	0.5	0.0	0.5	0.2	0.2	1.0	
Credit Em. As	0.3	0.5	0.2	0.2	0.3	0.4	0.6	0.8	0.5	0.6	0.7	0.7	-0.2	0.7	0.1	0.4	0.4	1.0

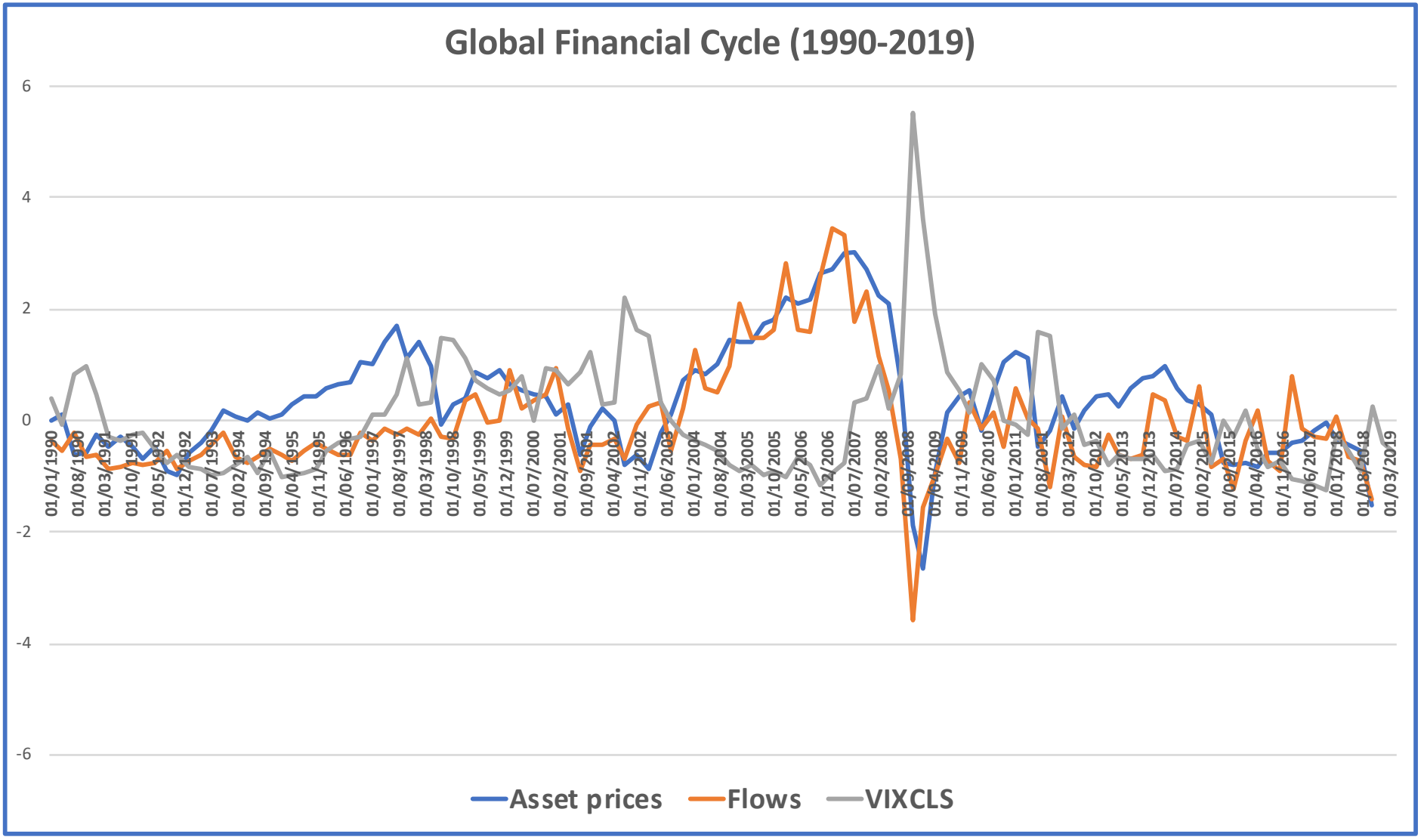

Credit Liabilities and VIX
% of World GDP
35
25
15
5
-5
-15
VIX Index
50
40
30
20
10
0
1990q1
1995q1
2000q1
2005q1
2010q1
2015q1
Quarterly dates
Credit (Inflows)
VIX Index

Global Financial Cycles

- One global factor in asset prices explains about 25%-30% of fluctuations in risky asset prices around the globe.
- One global factor explains about 20%-25% of fluctuations in gross capital outflows (or inflows).
- US monetary policy is an important driver of the global financial cycle (driver of risk appetite)



Source: Miranda-Agrippino, Nenova, Rey (2019)



Source: Miranda-Agrippino, Nenova, Rey (2019)

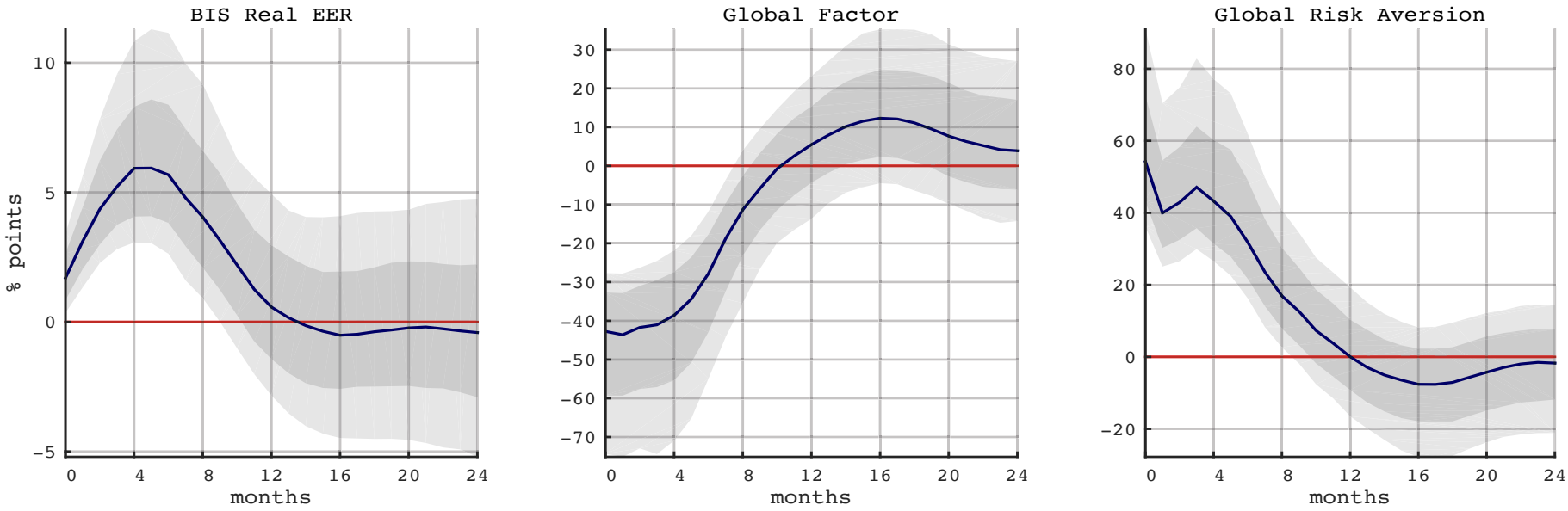
Economic Mechanisms

- "*In the financial sector, the price that falls when the supply of credit increases is the interest rate. This has the effect of pushing up asset values and appearing to strengthen the balance sheets of borrowers and intermediaries alike. Rising asset values encourage leverage and credit expansion contributing to further increases in credit growth*."

Andrew Crockett (2001)

Monetary policy driver of the Global Financial Cycle

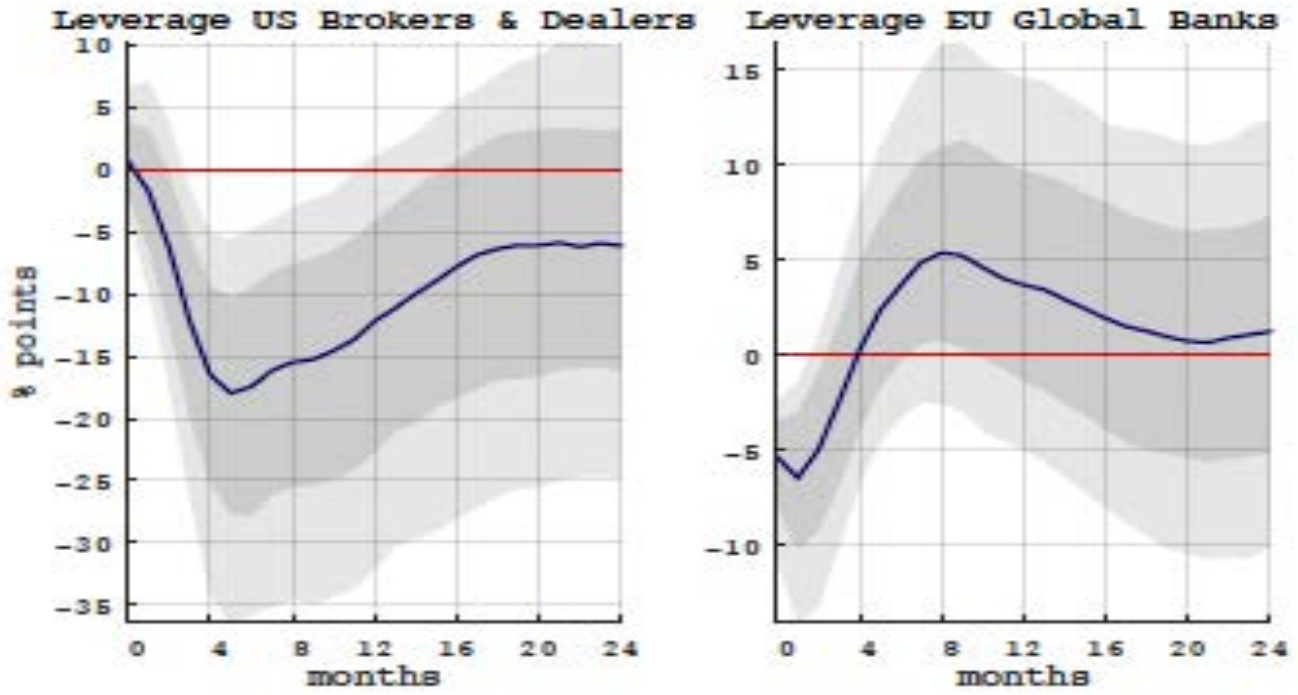
- US monetary policy is a key driver of the global financial cycle and of « **global risk aversion** ».



Source: Miranda-Agrippino and Rey (2015)

Effect of a 100 bp tightening of the Fed

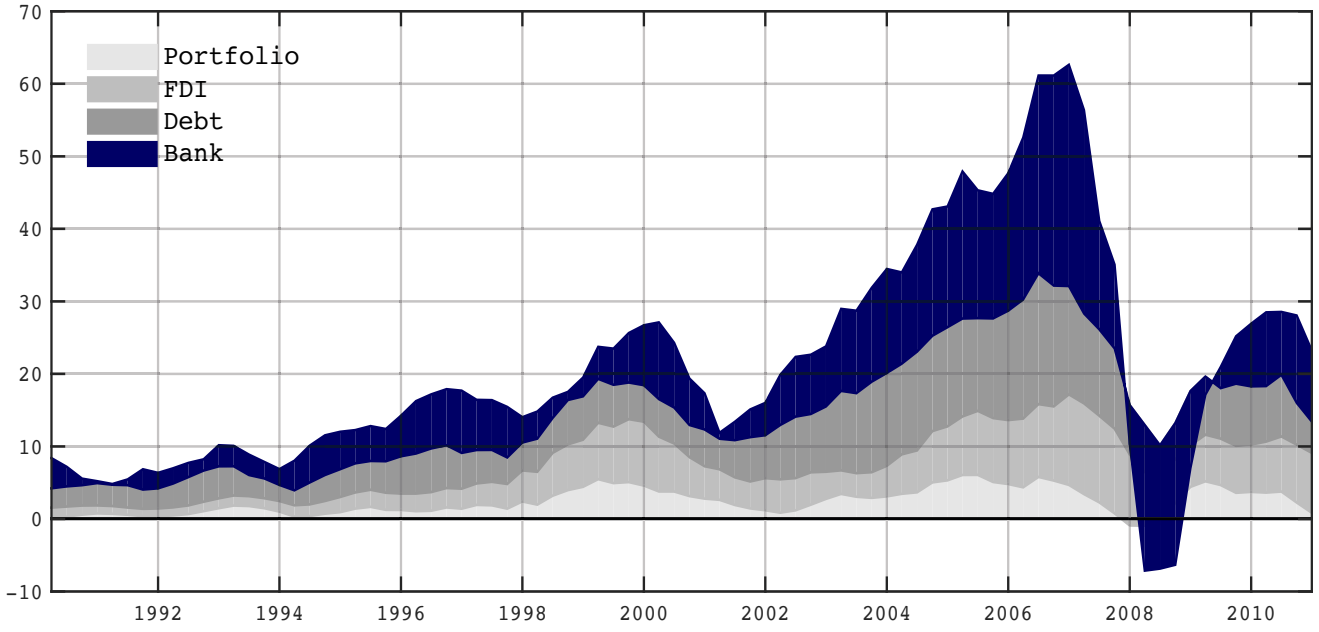
Global Financial Cycle: leverage



Source: Miranda-Agrippino and Rey (2015)

Risk on, Risk off

- Global risk aversion may be understood in the context of intermediaries asset pricing.
- It is the mix of financial intermediaries dominant in certain markets changing over time that affects global risk aversion.



Source: Miranda-Agrippino and Rey (2015)

Impact on Domestic Financial Systems

Insulating from the Global Financial Cycle: *Dilemma and not Trilemma*

- The Global Financial Cycle relaxes or tightens financing conditions of domestic intermediaries, banks or non-banks, irrespective of domestic cyclical conditions.

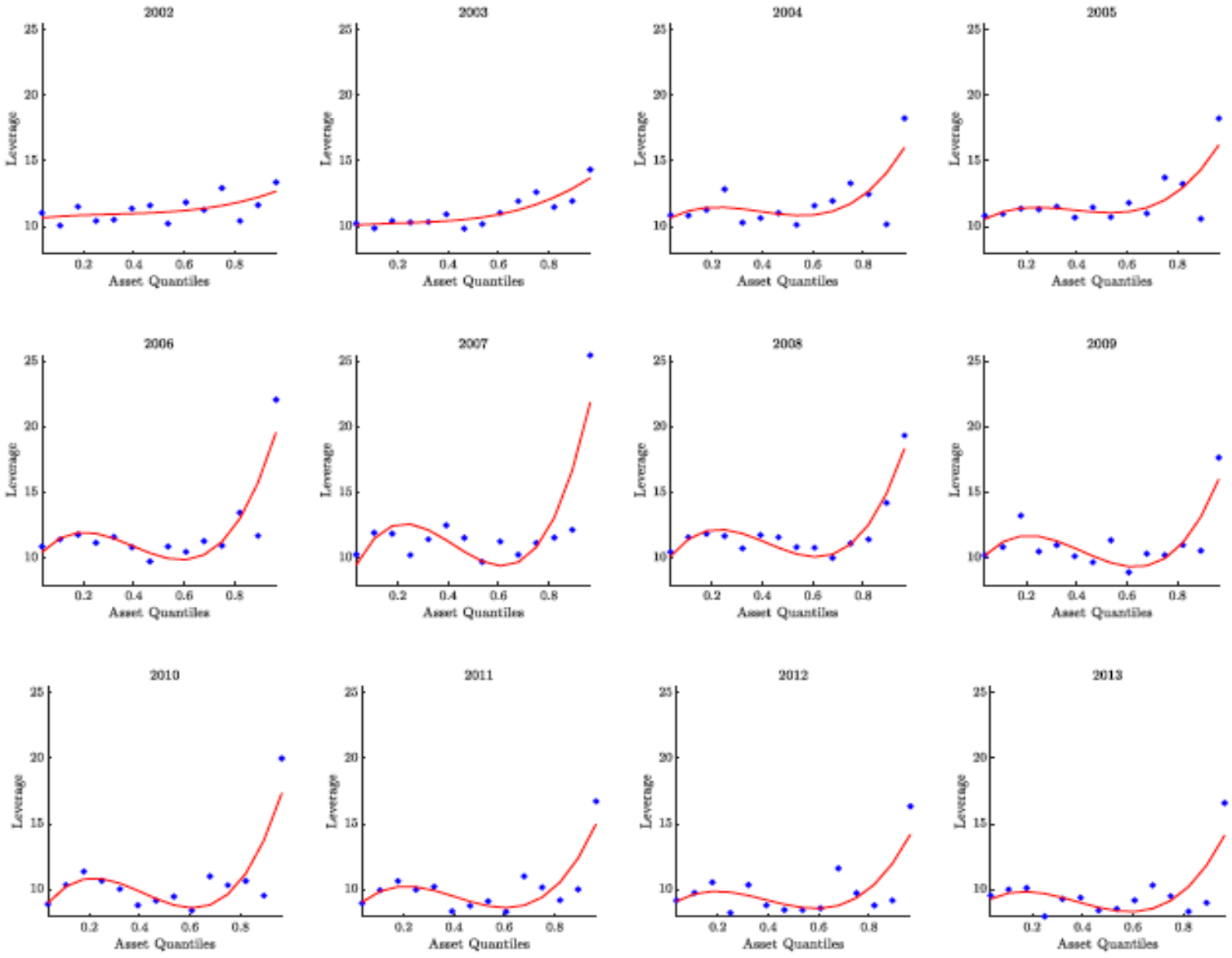
- Letting the exchange rate float is not enough to insulate the domestic economy and permit monetary policy independence. Also true for countries with a flexible exchange rate : *Dilemma and not Trilemma.*

- Does not mean that floats and pegs are equivalent.

- Requires adding tools besides monetary policy tools to tame the GFC.

Domestic Financial Systems

- The Global Financial Cycle affects the tightness of value-at-risk constraints (widely used in the banking sector and in the non-bank financial sector)
- In times of low funding costs or deregulation, agents with the most ability to take risk increase their balance sheet faster than the more conservative intermediaries
- Leads to concentration of macro risk on some large balance sheets (Coimbra and Rey (2018))

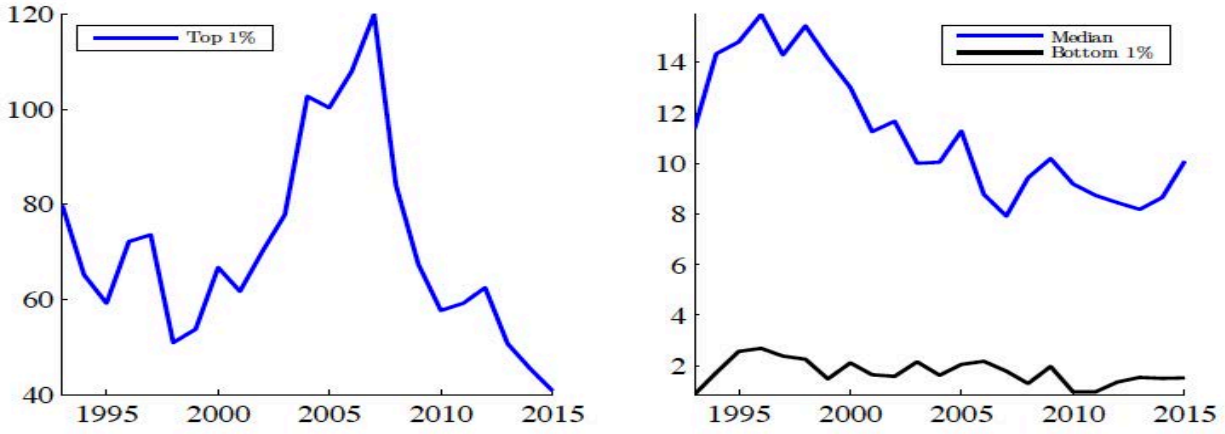


Time varying skewness

Leverage and size of banks (asset quantiles; each bin is 30 banks) year by year
(2002 -2013)

Source: Coimbra and Rey (2018) constructed from Bankscope data

Time series of leverage quantiles for all banks, 1993-2015



The more **positively skewed** the leverage distribution (the more risk is concentrated in large balance sheets), the more vulnerable the system.

Coimbra and Rey (2018)

Policy Responses

Policy Responses (1): Sources

- Act on the sources of the cycle: large currency areas should internalize to some extent the effect they have on *joint provision of liquidity* via *monetary policy* and also via the *changes in regulation* of their financial systems.

- Decrease procyclical fiscal incentives, which often encourage leverage and, when used in real estate markets drive up housing prices.

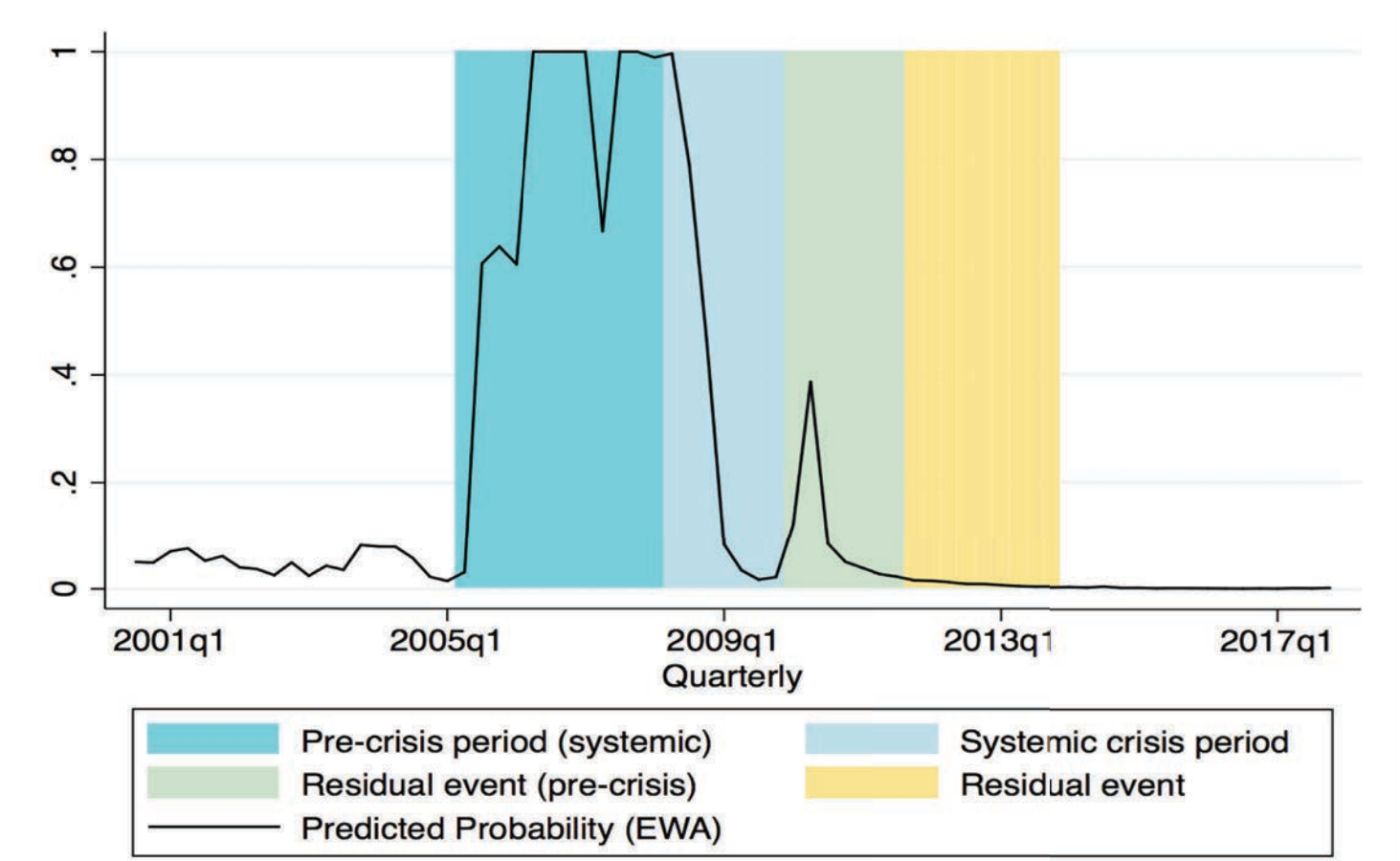
Policy Responses (2): Initiators and Transmission

- Act on the financial intermediaries who are the initiators of the cycle. Limit credit growth, leverage and risk-taking during the upturn of the cycle, using national macroprudential policies on banks and non-banks. Do the reverse in downturns to avoid credit crunches and retrenchment.
- Act on the transmission channel by imposing similar macro prudential policies, including possibly as well some capital flow management tools in the domestic economies who feel the influence of the global financial cycle.

Macroprudential Framework

- Should be as developed as our Inflation Targeting frameworks.
- Stress testing
- Timing: need for sophisticated early warning indicators.
- Use balance sheet data (time varying skewness)
- Use Machine Learning Techniques: for example model aggregation as in Fouliard, Howell and Rey (2019).
- For France models picked reflect, housing market, credit, real economy
- For Germany: models picked reflect asset prices and risk taking

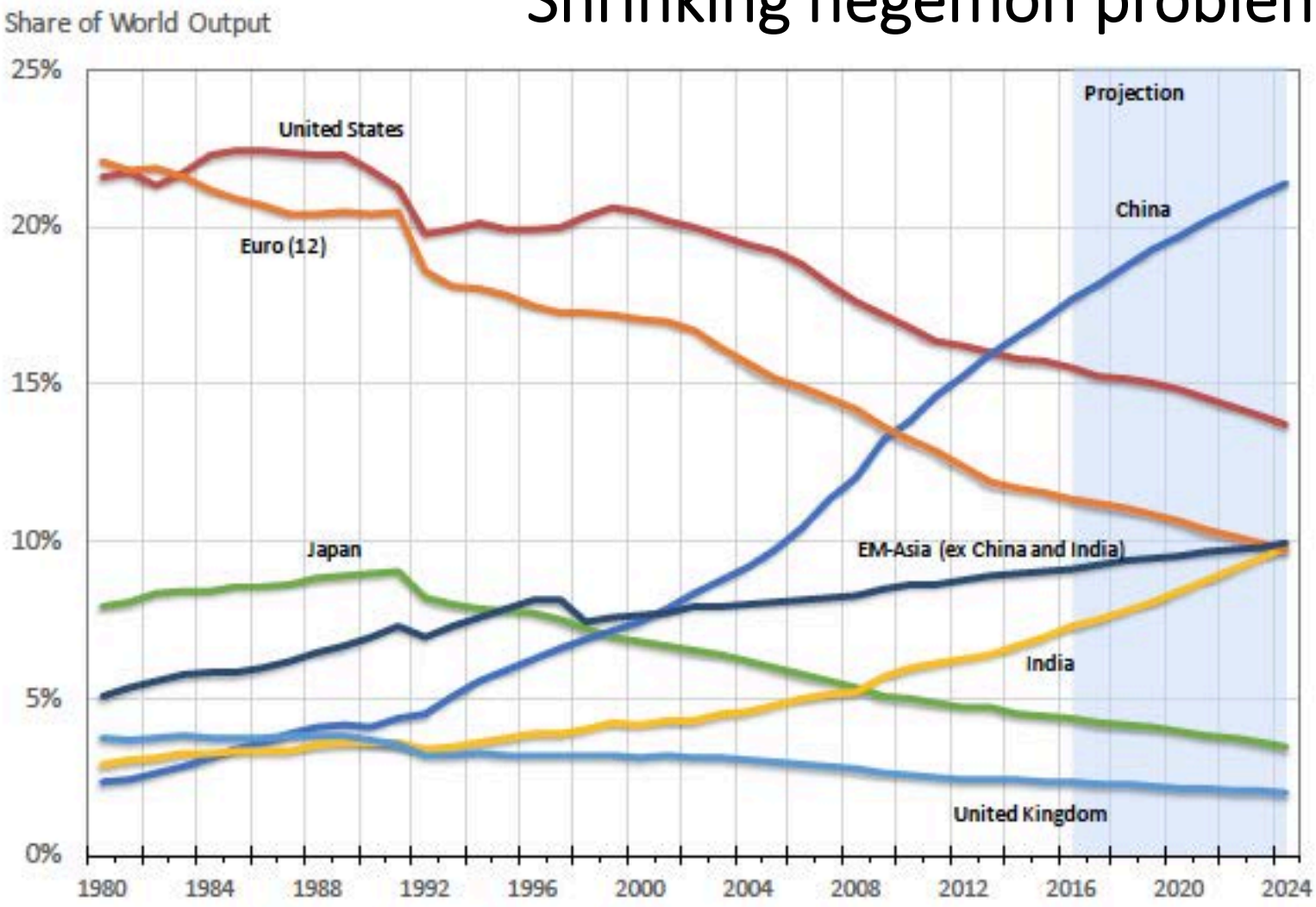
France probability of pre-crisis (3 years before) out-of-sample



Fouliard, Howell and Rey (2019).

New Triffin Dilemma

Shrinking hegemon problem



- Effect on real rate (Gourinchas, Rey, Govillot (2018))
- Effect on Stabiity

'New Triffin dilemma'

Source: Gourinchas and WEO 2019

Decline in real rate and shrinking hegemon

- The immediate implication is that, unless the supply of dollar safe assets rises in line with global demand, the global excess demand for safe assets is bound to increase, pushing down global real safe rates.

- There is also a cyclical deleveraging effect after the financial crisis pushing down real rates.

New Triffin Dilemma

- Old Triffin dilemma: fixed gold parity.

- growing foreign demand for reserve assets from the rest of the world,
- limited gold stock
- confidence crisis

- New Triffin dilemma: flexible exchange rate and fiat money.

-reserve assets embed the implicit promise that the corresponding reserve currencies will not be devalued in times of crisis.

- Fiscal backing and coordination of investors

Shrinking Hegemon: Towards a multipolar system

- Expanding US public debt in line with the growth of the world economy would eventually exhaust the fiscal capacity of the US. Confidence crisis.

- Dollar hegemon is not sustainable. *New Triffin dilemma*. The global economy will have to switch either to another single international currency or to a multipolar environment.

Challenger currencies

Switching into?

- Euro?
- RMB?
- Crypto currencies?
- Digital currencies (private or public)?
- Synthetic Hegemonic Currency?

Back in 1998

In ”The Emergence of the Euro as an International Currency”:

“The internationalisation of the euro therefore hinges critically on the speed of integration of euro financial markets, on the willingness of the ECB not to hinder internationalisation, and on the number of participants in the monetary union (*especially on UK participation*) “

Richard Portes and Hélène Rey (1998)

Switching into?

- Euro: Second main international currency. Financial architecture of the euro area is an issue

- RMB: convertibility issue, financial underdevelopment. But clear push from the authorities

- Decentralised blockchain cryptocurrencies (bitcoin etc…): Not clear which problems it solves. Clear which problems it creates: environment and fraud. No fundamental value.

Switching into? Digital currencies

- Digital: may allow better medium of exchange technology to be used (cross border). Safe asset?
- New transaction technologies do NOT need to be coupled with new currencies.
- Previous experiences with private monies: financial instability

Digital currencies: Private versus Public

- **Government issued currencies**: is used because it is the legal tender; public authorities provide public good in exchange (financial stability and macroeconomic stabilization, public expenditure)

- **Big Firm issued currency (Libra):** enforced via *existing* network, so could be widely adopted quickly if allowed by regulators (unlike historical experience). Provides profit and data to the big firm in exchange for better technology?

- **Synthetic Hegemonic Currency (SHC):** a digital SDR**.**

Conclusion

- International Monetary System
  - Dollar world for a while
  - Many implications !
- Global Financial Cycles
  - Impact on domestic financial systems
  - Macro prudential Policy Design
- The New Triffin Dilemma : multipolarity
- Digital currencies

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