



# Drilling down versus drilling up: taking a global perspective on financial conditions and economic activity

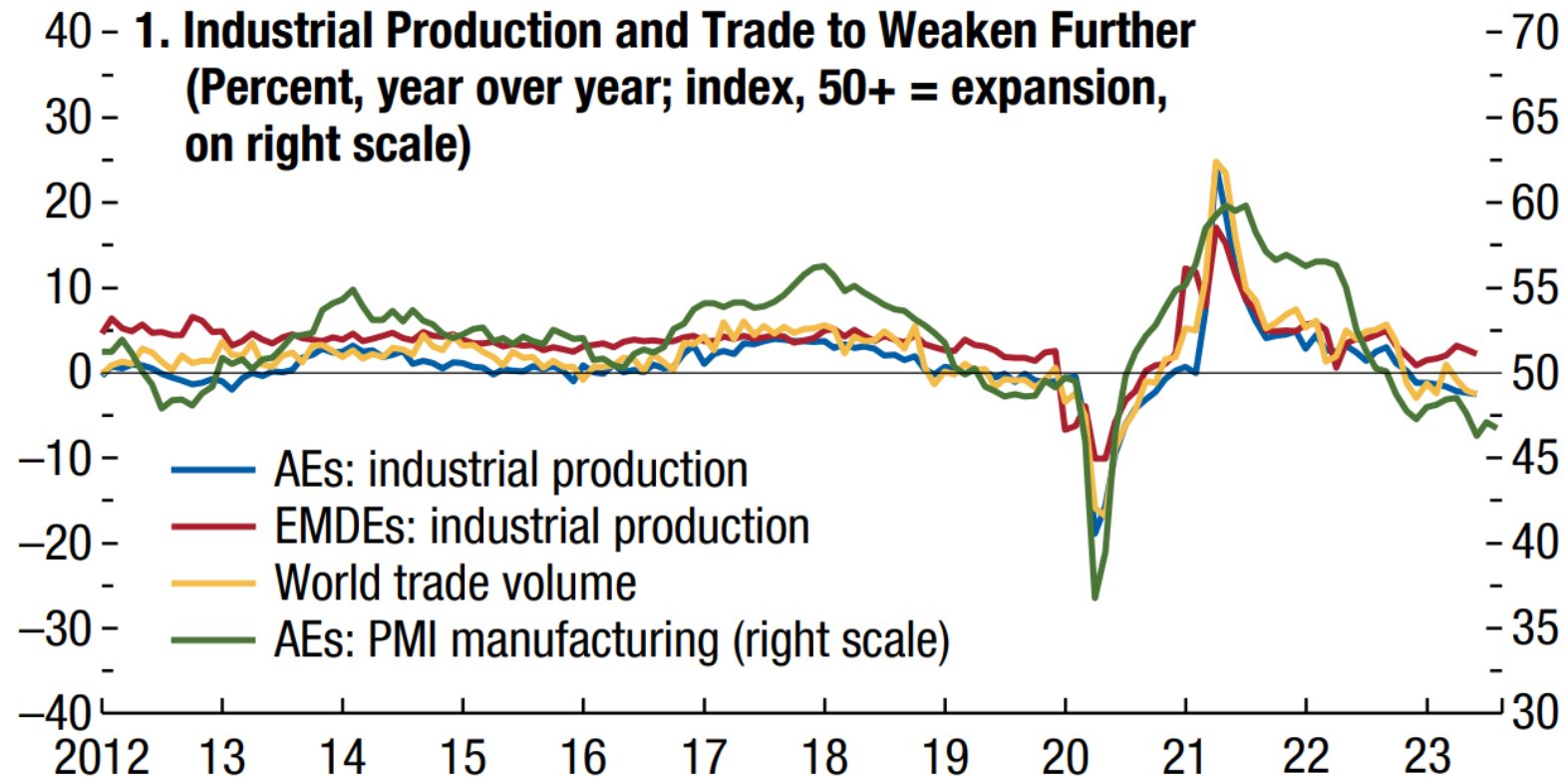
**Hyun Song Shin\***, Economic Adviser and Head of Research, BIS

NBER Asset Pricing Program meeting, Stanford University, 3 November 2023

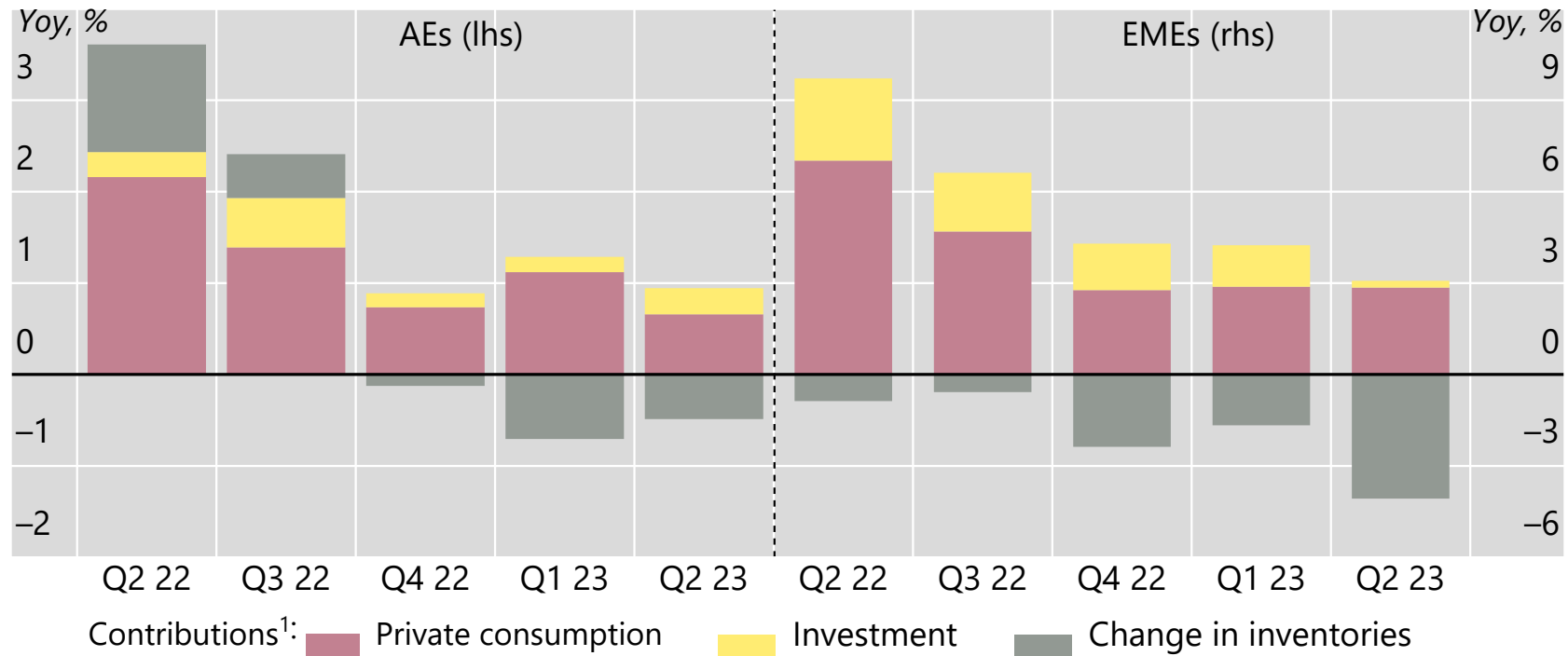
\*The views expressed here are mine and not necessarily those of the Bank for International Settlements

IMF World Economic Outlook, October 2023:  
"Resilient global economy is limping along, with growing divergences"

**Figure 1.5. Slower Growth Momentum Ahead**



## Inventories have turned decisively as a drag on global economic growth



<sup>1</sup> GDP-PPP-weighted averages for 11 AEs and 20 EMEs (CN not included). Based on seasonally adjusted series. Change in inventories includes also residual.

Sources: Refinitiv Datastream; national data; BIS.

## Valerie Ramey (AER 1989) "Inventories as factors of production and economic fluctuations"

*"[S]hocks [to inventories] are generally positively correlated across industries, and the correlation is relatively high."*

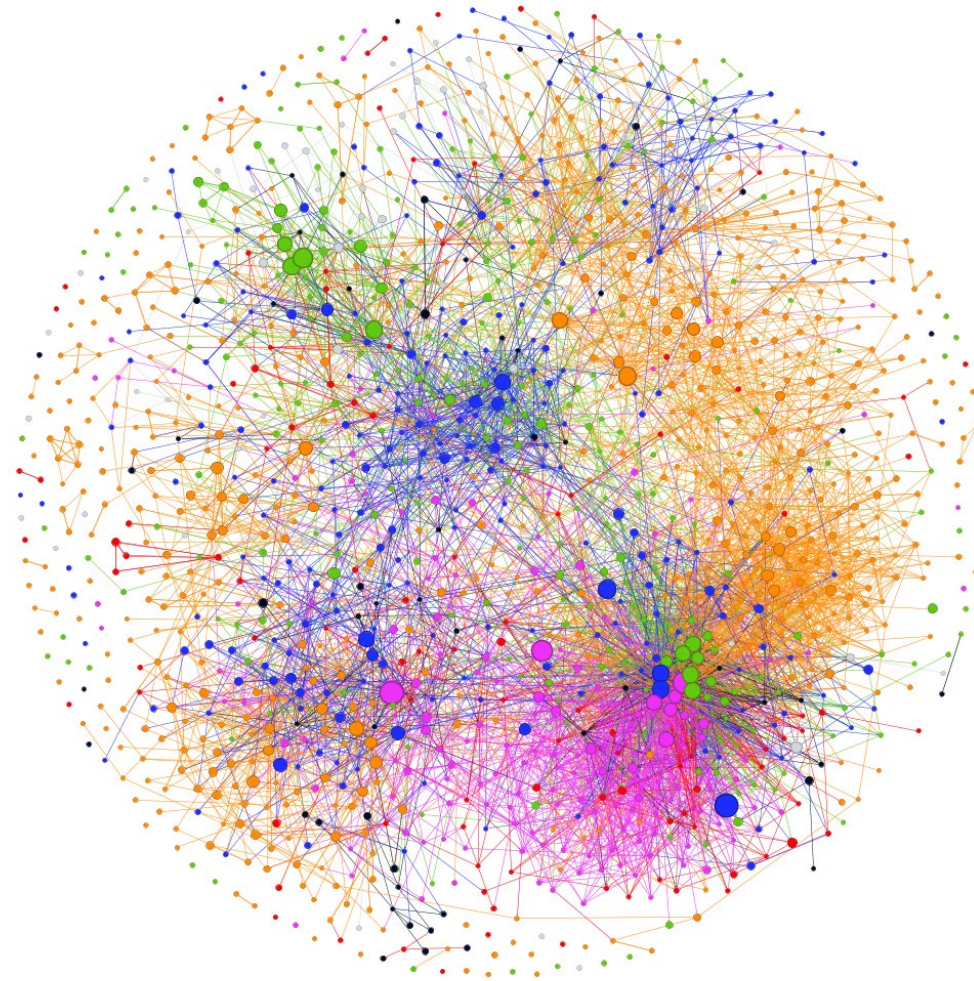
*"[T]he conclusion is truly striking: shifts in the demand for inventories are a major source of economic fluctuations."*

*"[S]ome of the unexplained declines in inventory investment during recessions could be caused by a shortage of working capital for businesses."*

We are accustomed to seeing the global economy in terms of the “island economy model”; international economics is then just a sub-field of macroeconomics



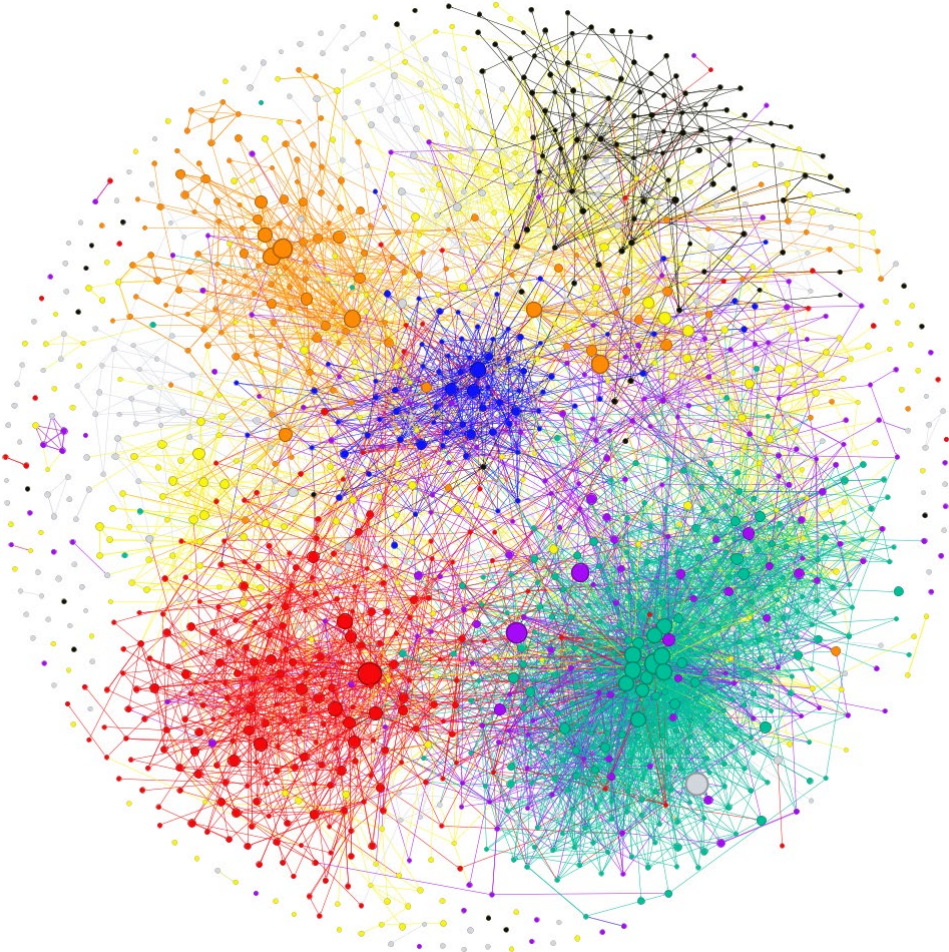
Alternative approach is to “drill up”, and see the global economy as a network of interlinked balance sheets (below is the supplier-to-customer linkages by location of supplier)



- CN
- Europe
- Japan and Korea
- US
- North America ex US
- Rest of Asia-Pacific
- Other

BIS Bulletin: “Mapping the realignment of global value chains” October 2023

# Supplier-to-customer linkages (by industry of supplier)



- Information technology
- Materials
- Automobile & components
- Capital goods ex aerospace & defense
- Energy
- Health care
- Aerospace & defense
- Other

BIS Bulletin: "Mapping the realignment of global value chains" October 2023

Date 1

Date 2

Date 3

Stage 1

Stage 2

Stage 3



Date 1

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Stage 1



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Date 1

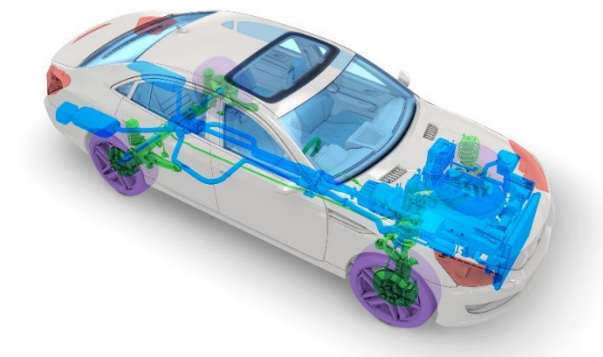
Date 2

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Stage 1

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Stage 3



Date 1

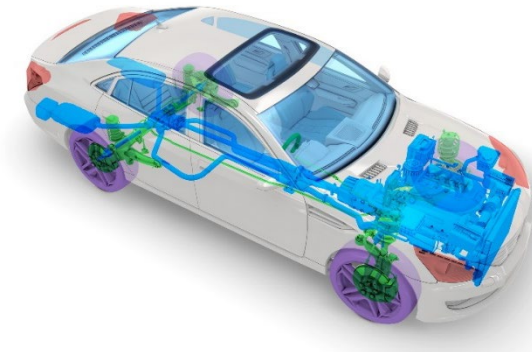
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Stage 1

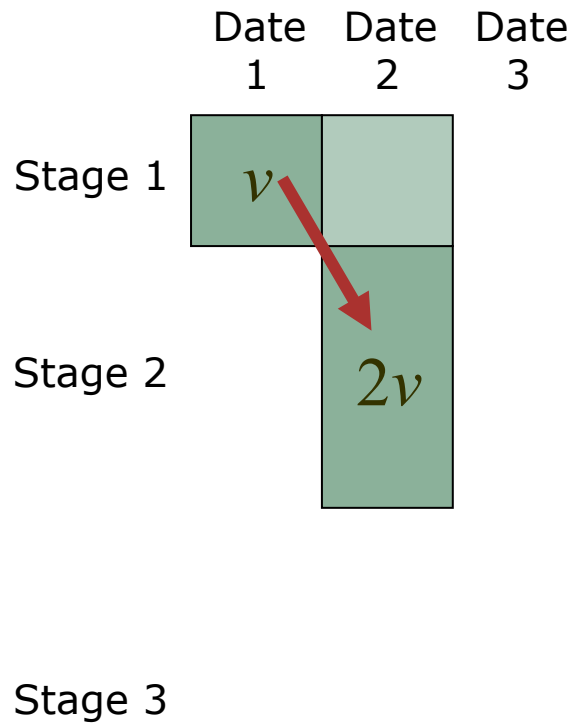
Stage 2

Stage 3

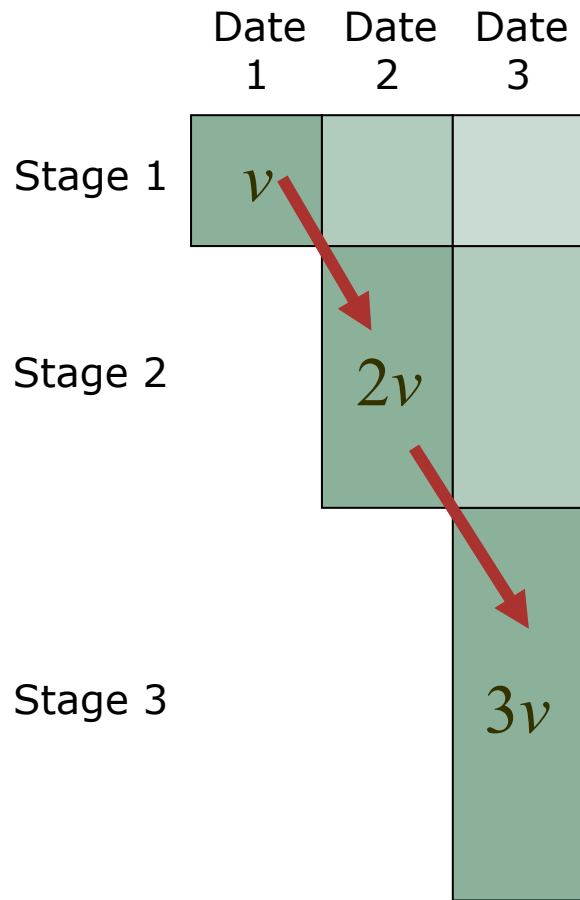
Assets	Liabilities
Cash	Equity
Receivables Long-term assets	Payables Long-term liabilities

Date 1    Date 2    Date 3  
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 Stage 3

Assets	Liabilities
Cash	Equity
(1 period old) (=v)	Short-term debt
Receivables Long-term assets	Payables Long-term liabilities

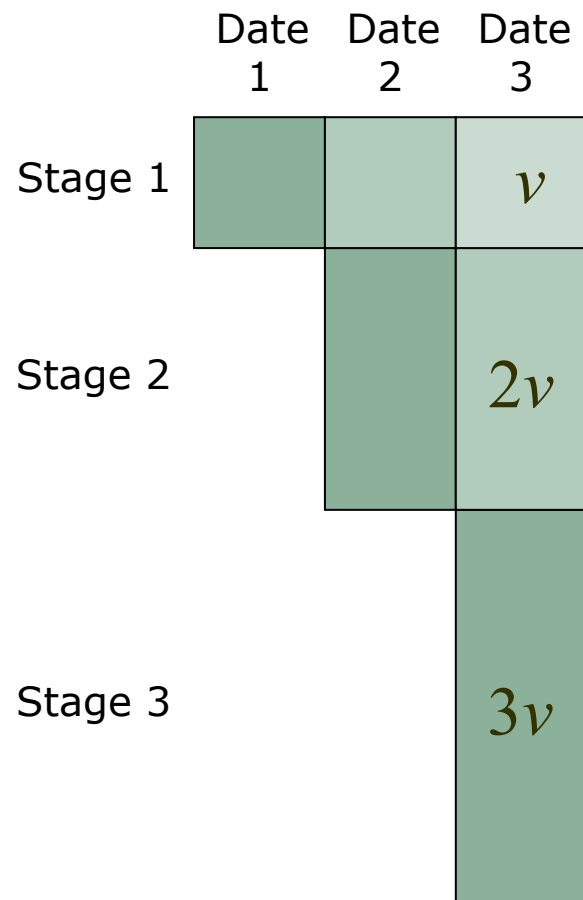


Assets	Liabilities
Cash	Equity
(1 period old) ( $=v$ )	Short-term debt
Inventories (2 periods old) ( $=2v$ )	
Receivables Long-term assets	Payables Long-term liabilities



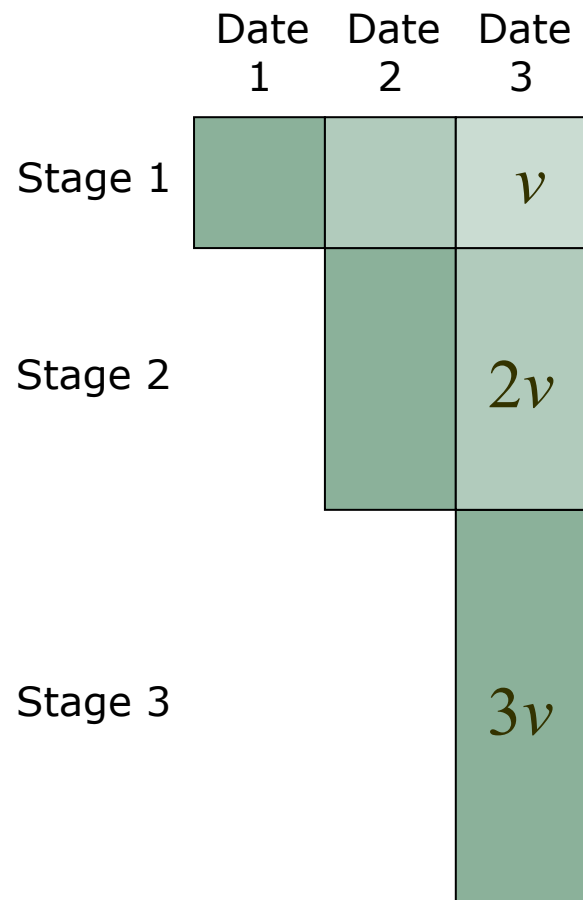
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Receivables Long-term assets	Payables Long-term liabilities





Assets	Liabilities
Cash	Equity
(1 period old) ( $=v$ )	
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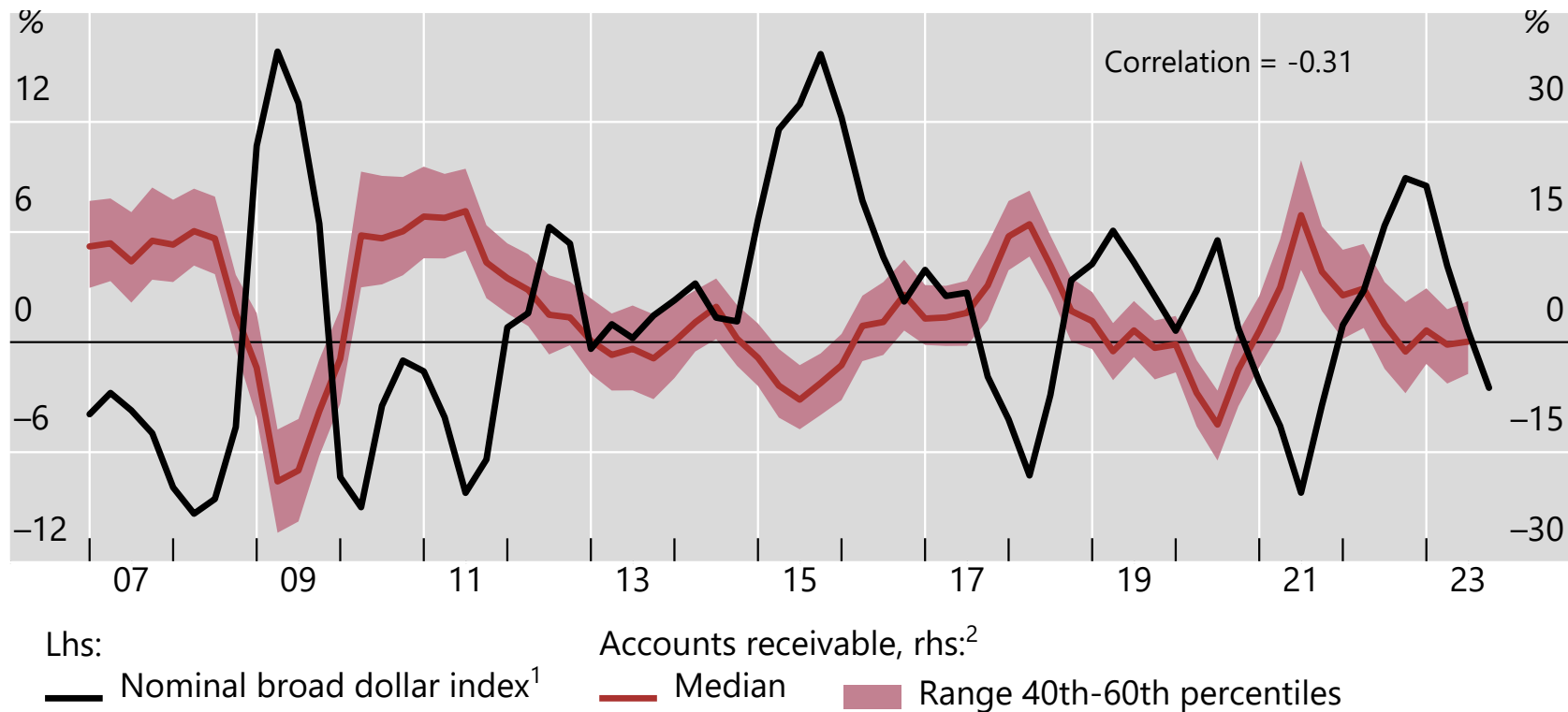
GVC of four links needs funding of  $4v + 3v + 2v + v$ .  
 Funding need grows rapidly – at rate of **square** of length of GVC.



Assets	Liabilities
Cash	Equity
(1 period old) ( $=v$ )	Short-term debt
Inventories (2 periods old) ( $=2v$ )	
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Kim and Shin (2023) "Theory of supply chains: a working capital approach"  
<https://www.bis.org/publ/work1070.htm>

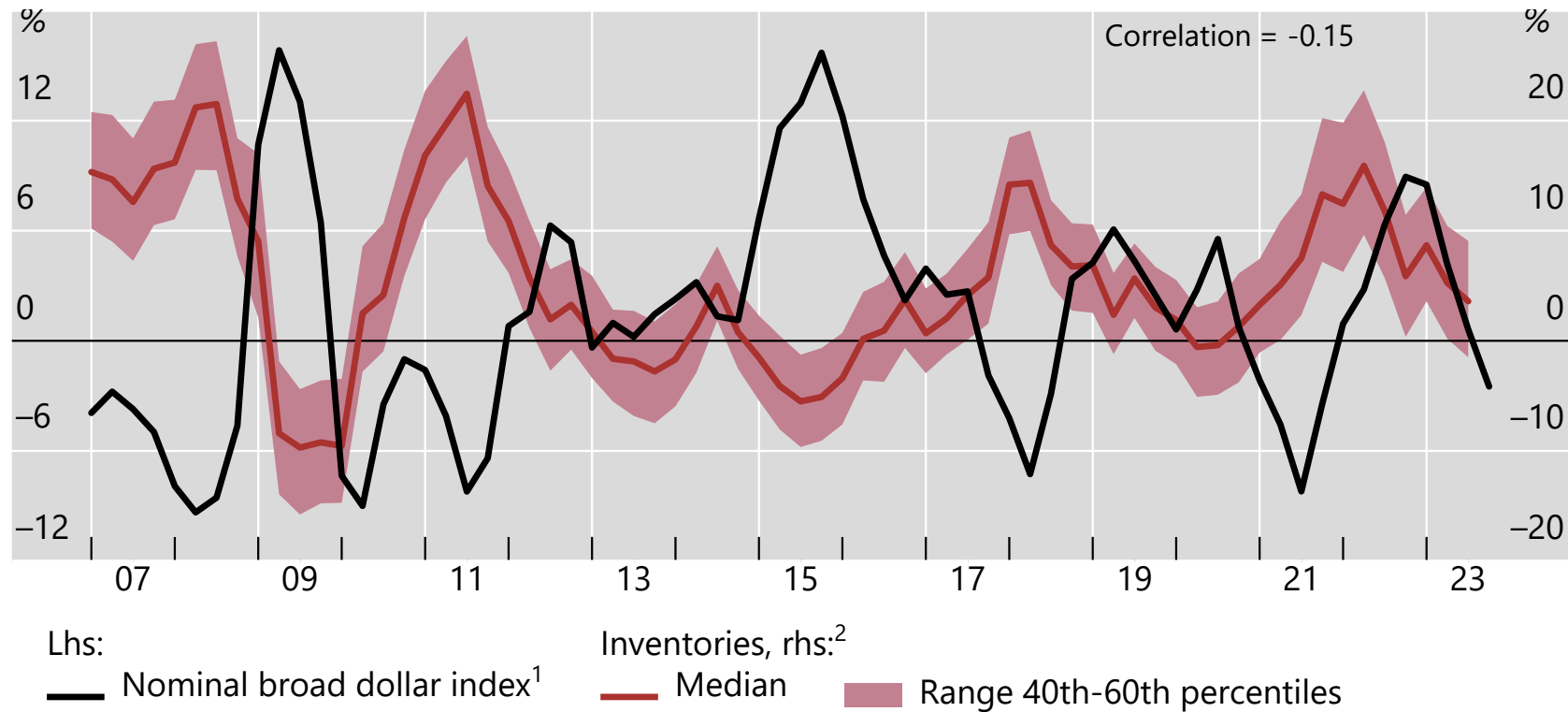
# Annual growth rate of global manufacturing accounts receivable and nominal broad dollar index



<sup>1</sup> Federal Reserve Board trade-weighted nominal dollar index, broad group of major trading partners of the US ("broad"), based on trade in goods and services. An increase indicates appreciation of the US dollar. <sup>2</sup> Based on a balanced sample of companies from all industries within manufacturing sector globally with quarterly data from Q1 2005 until Q2 2023.

Sources: Federal Reserve Bank of St Louis, FRED; S&P Capital IQ; BIS.

# Annual growth rate of global manufacturing inventories and nominal broad dollar index

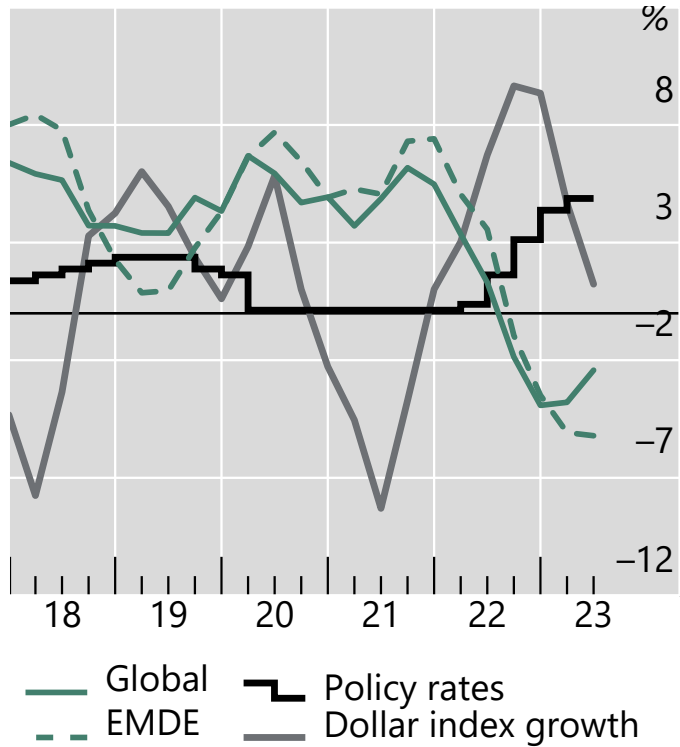


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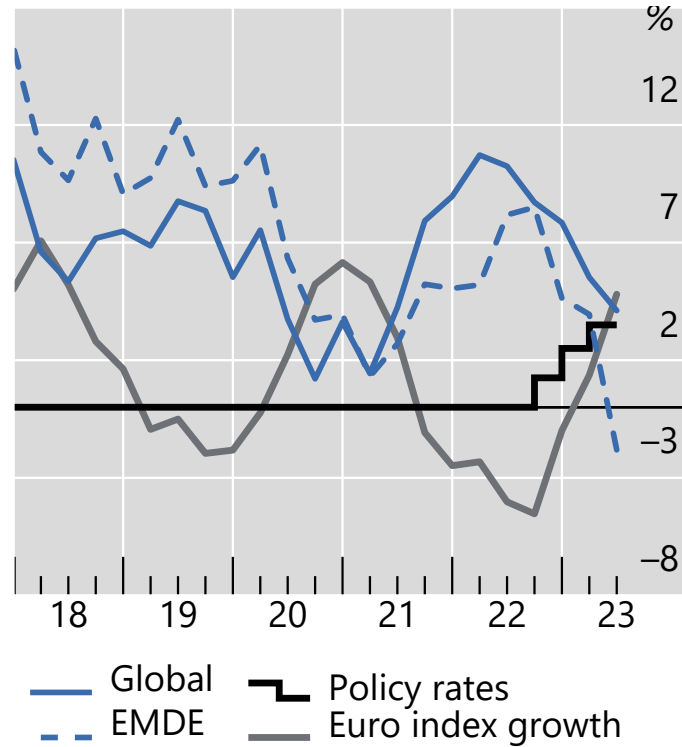
Sources: Federal Reserve Bank of St Louis, FRED; S&P Capital IQ; BIS.

# Foreign currency credit growth<sup>1</sup>, policy rates, and exchange rate movements<sup>2</sup>

## Dollar credit



## Euro credit



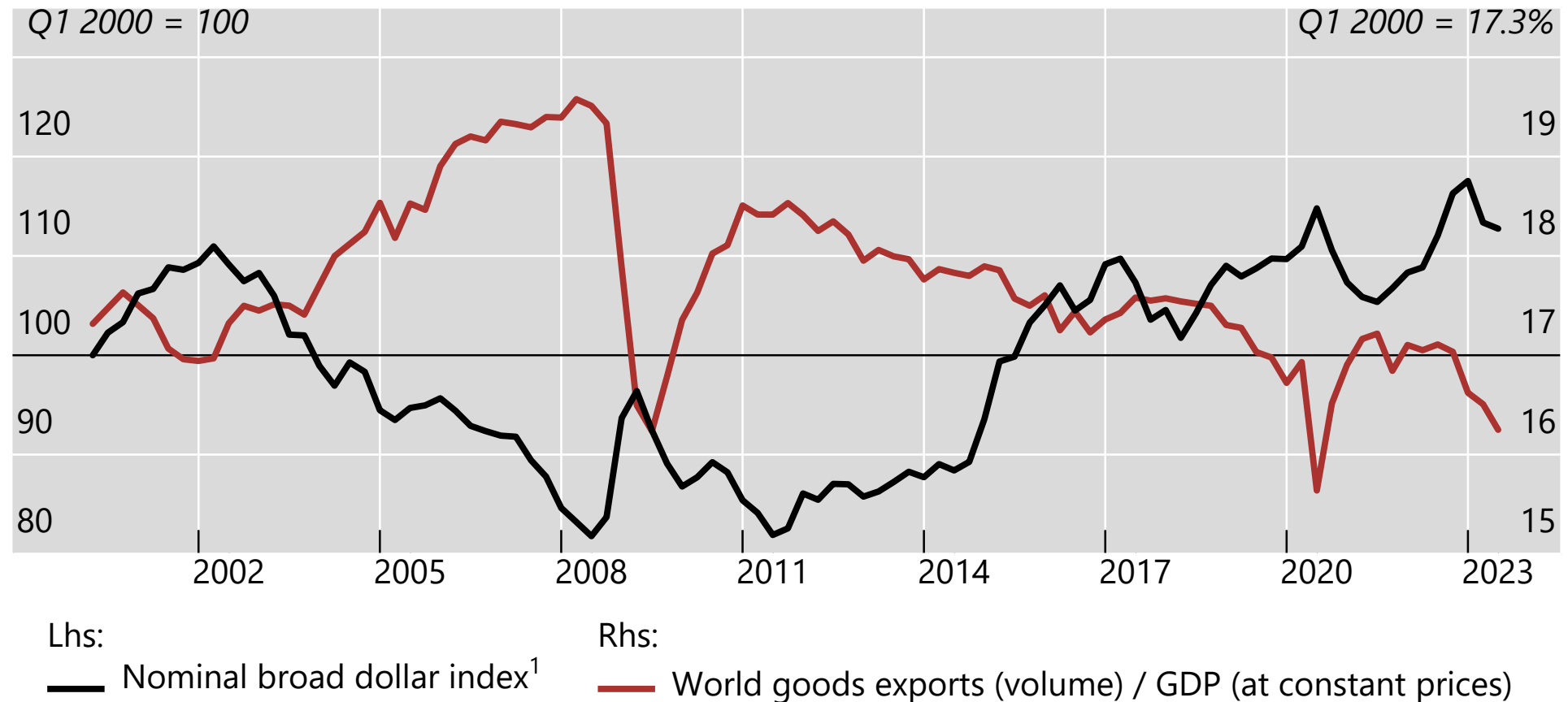
## Yen credit



<sup>1</sup> Growth in foreign currency credit shown separated into: 1) Global (solid lines) 2) EMDEs only (dashed lines). <sup>2</sup> Year-on-year growth in exchange rate index

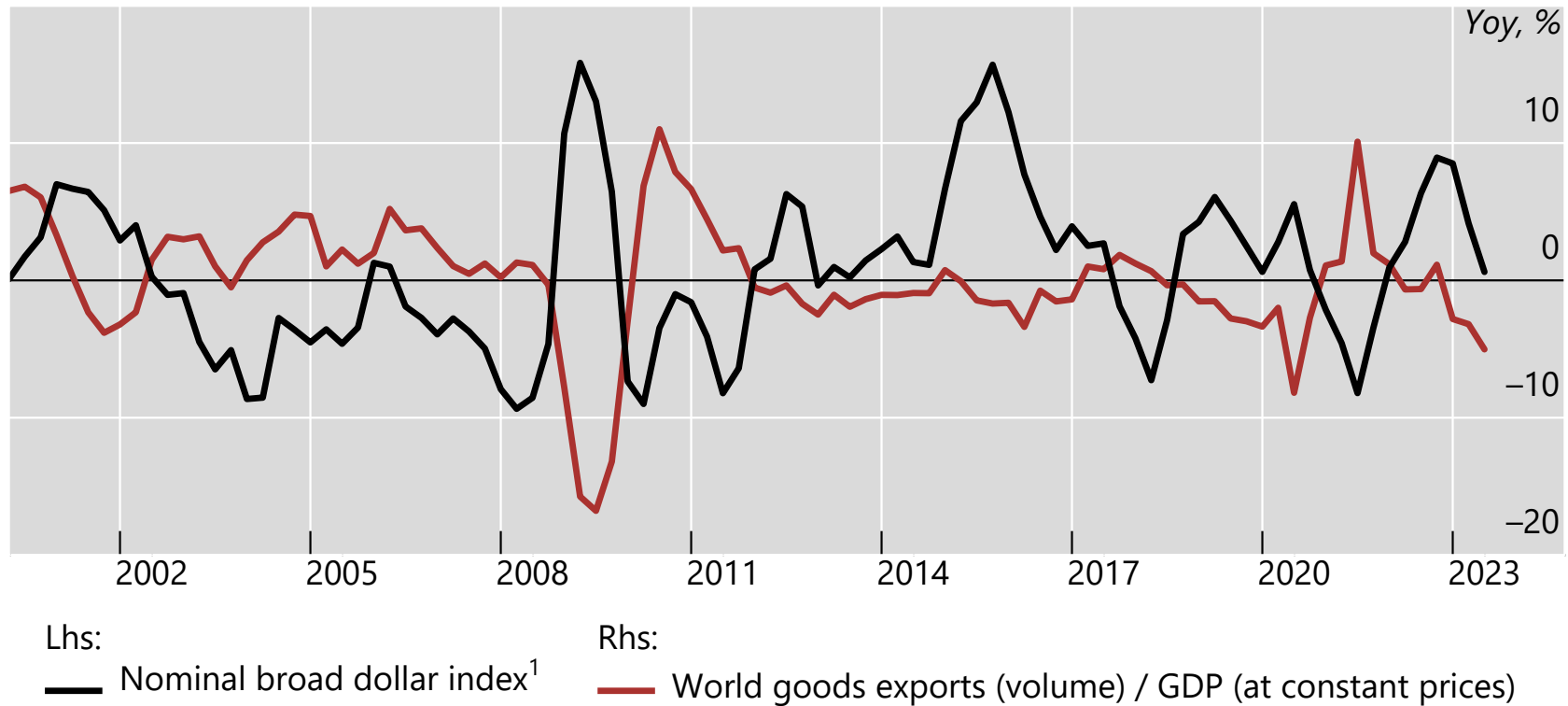
Sources: BIS global liquidity indicators; BIS effective exchange rates; BIS policy rates.

## Global trade relative to GDP has fluctuated with financial conditions, as measured by the broad dollar index



Source: Bruno and Shin (2023) "Dollar and exports" *Review of Financial Studies*

## Year-on-year growth rate of the trade-to-GDP ratio shows a similar pattern



<sup>1</sup> Federal Reserve Board trade-weighted nominal dollar index, broad group of major trading partners of the US ("broad"), based on trade in goods and services. An increase indicates appreciation of the US dollar.

Sources: Bruno and Shin (2020) "Dollar and exports" <https://www.bis.org/publ/work819.htm> ; Federal Reserve Bank of St Louis, FRED; IMF; World Bank; Global Financial Data; national data; BIS.

## Broader lessons for today's audience at the NBER Asset Pricing Program meeting

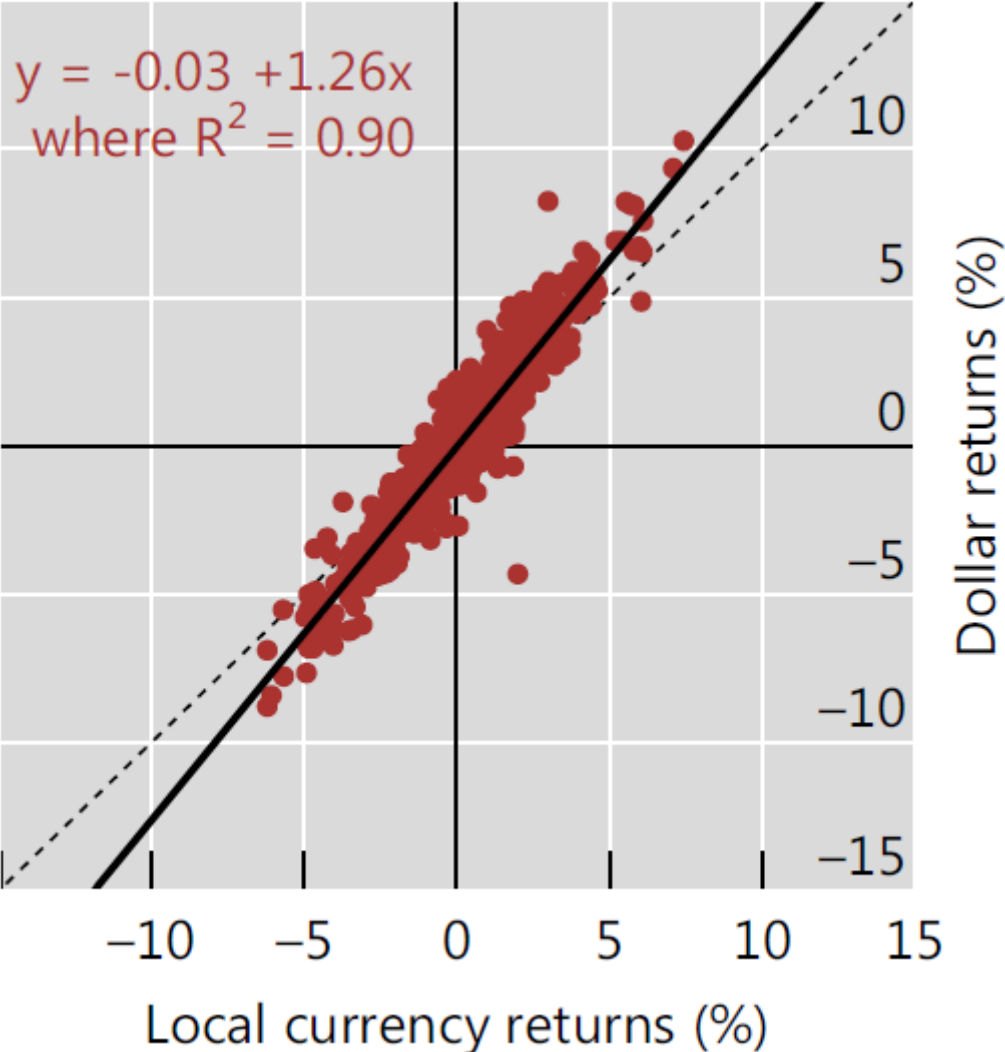
- The GFC was a watershed for the economics profession
  - Need for incorporating finance into macro is now uncontroversial
  - Message for today: financial perspective would shed much-needed light on macro fluctuations even outside crisis times
- Field of international economics is still largely reliant on an “island economy” perspective; international economics is then just an afterthought of macroeconomics
- Case for “drilling up” as well as “drilling down” to make international economics a subject of study in its own right
  - Balance sheets straddle GDP boundaries (Global Capital Allocation project)
  - From “island economy model” to network of interlinked balance sheets
  - Central role for finance in explaining economic fluctuations



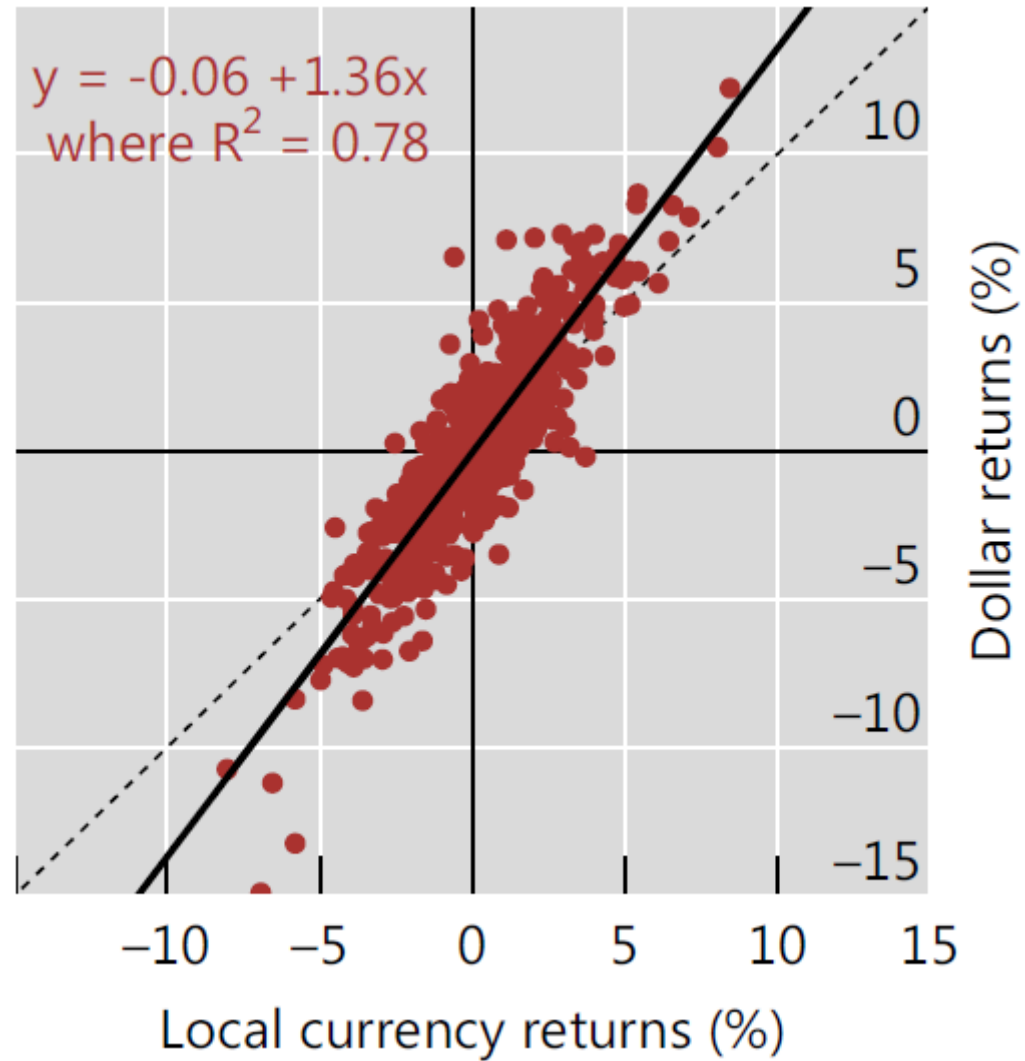


Additional slides

# MSCI Korea stock returns in local currency terms and dollar terms



## MSCI Mexico stock returns in local currency terms and dollar terms



## JPM Indonesia LC bond returns in local currency terms and dollar terms

