China's Slowdown:
Implications for International Trade*

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*Material in this presentation may not reflect the views of the IMF.
Results are preliminary – not for distribution.

Motivation

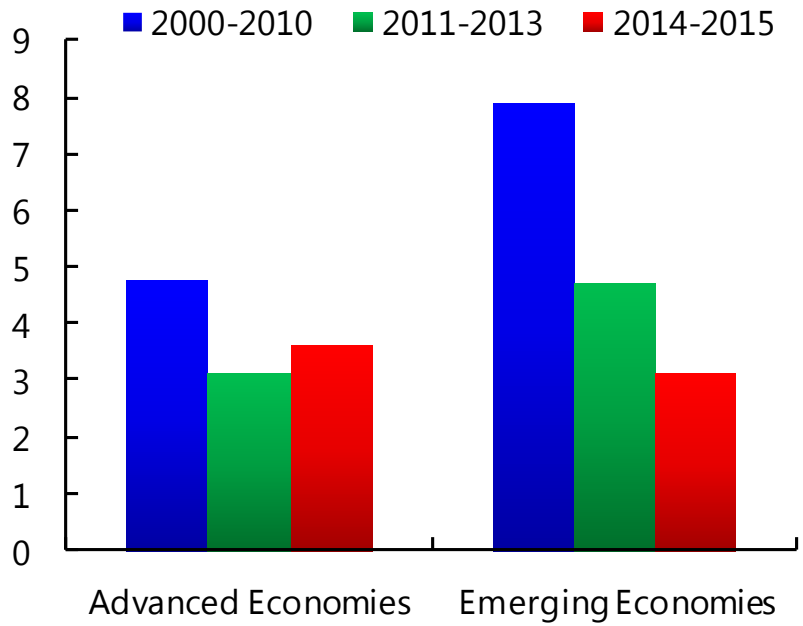
- Numerous studies have examined spillover implications of China's slowing…
- …but these generally overlook the **direct** impact on trade, focusing instead on 'GDP-to-GDP' spillovers
- The impact on trade is important given the recent global trade slowdown, and examining this impact is a 'cleaner' exercise than dealing with GDP-to-GDP spills which will reflect many other factors (including policy space, etc)

Key Questions

- What are the stylized facts surrounding recent export growth, and country exposure to China?
- What is the impact of a demand shock in China on trade partners' export growth?
- Does the relationship between China demand and trade differ by region?

Export-growth slowdown primarily in EMs…
…concentrated largely in EM Asia

Average Export Volume Growth
(percent; qoq saar)



Source: IMF WEO database; staff calculations.

Average Export Volume Growth
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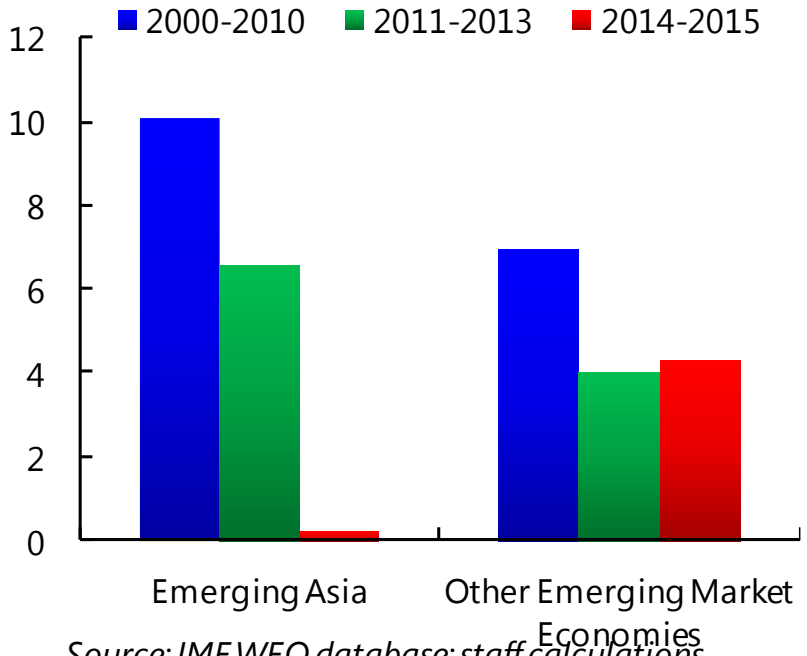
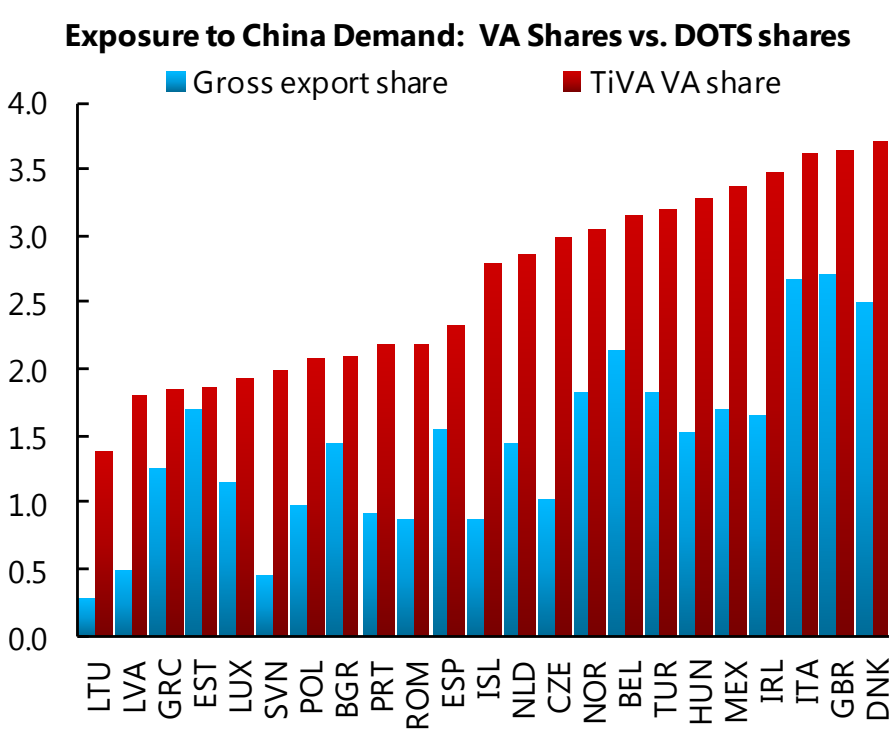
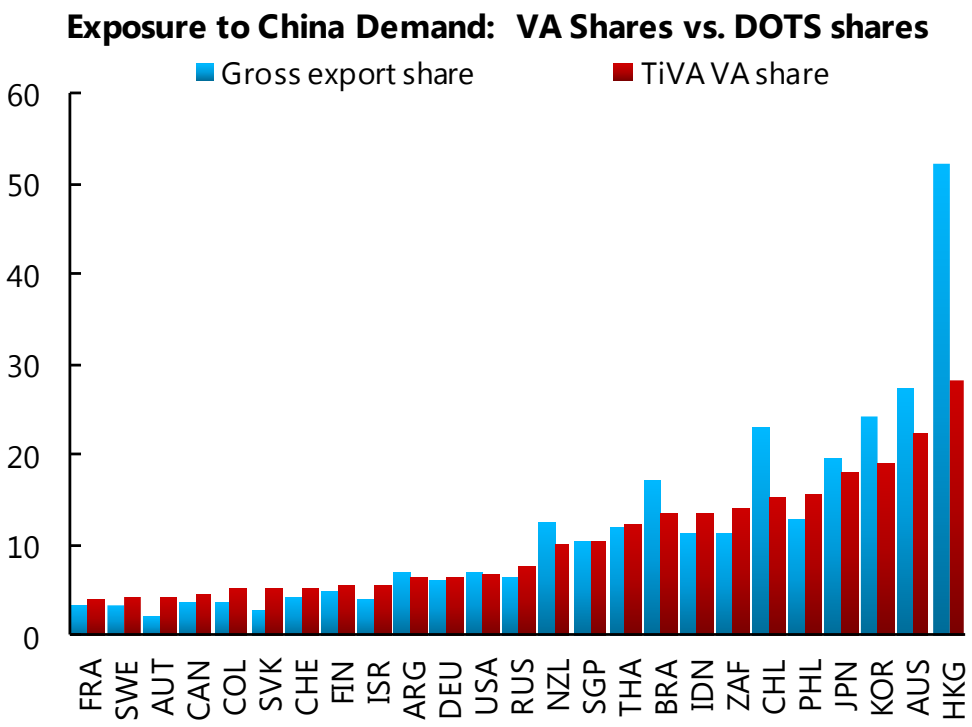


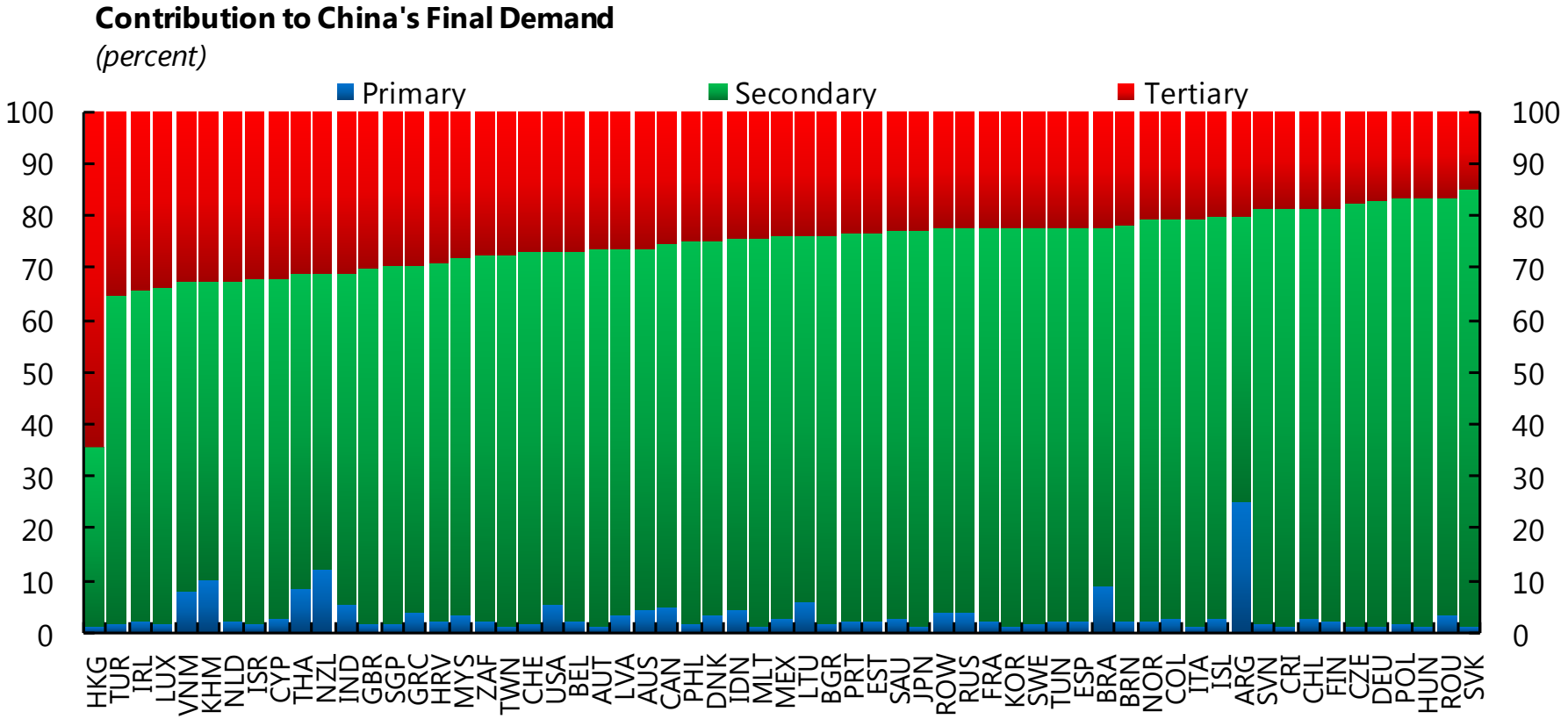
Source: IMF WEO database; staff calculations.

TiVA vs DOTS exposures





Contributions to China's final demand, by sector

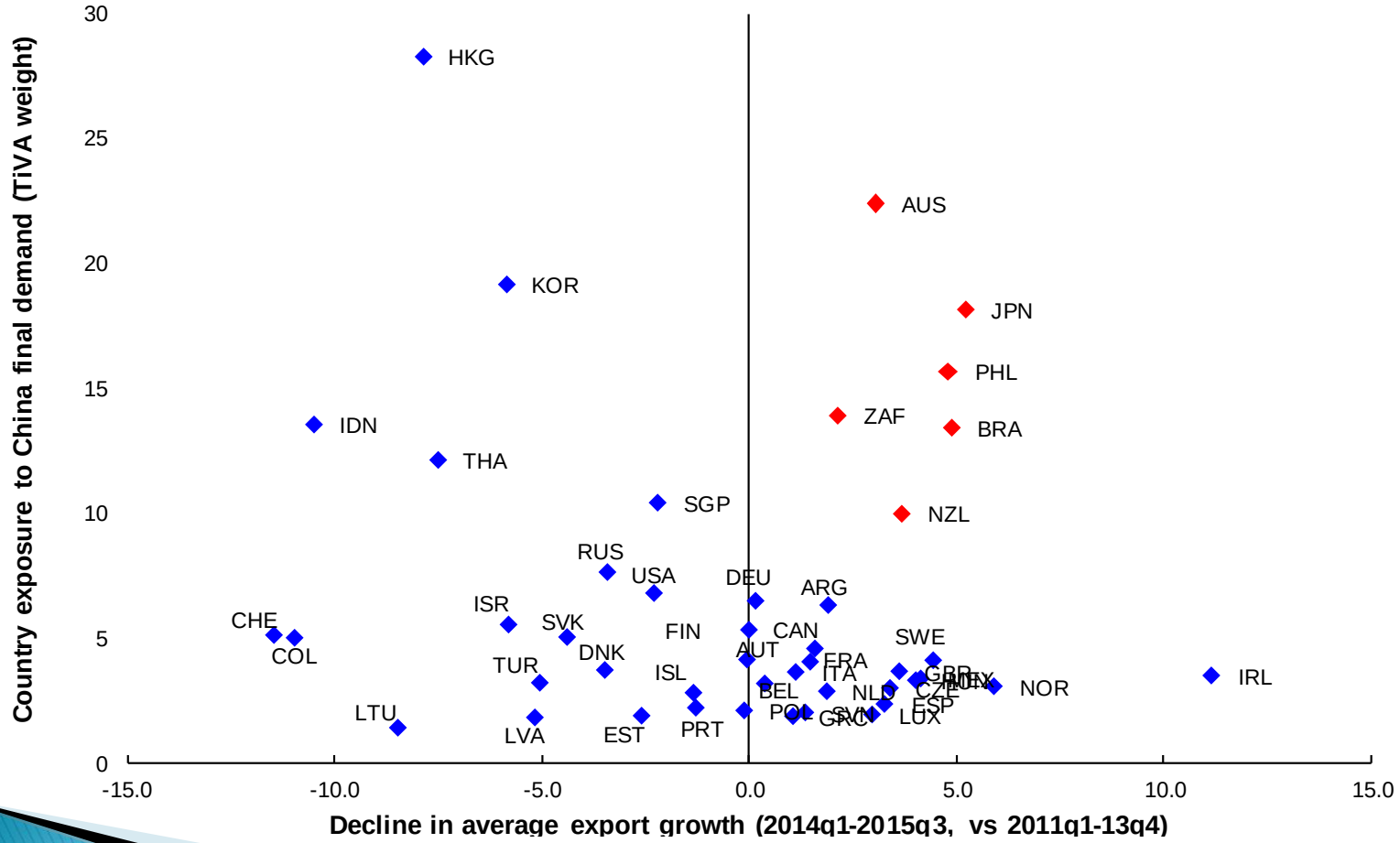


Source: OECD TiVA database.

China exposure vs. Export slowdown rx

Decline in Export Growth (vs. 2011-13) vs. Exposure to China

(percent)



Sources: IMF, *World Economic Outlook;* OECD TiVA database, IMF staff calculations.

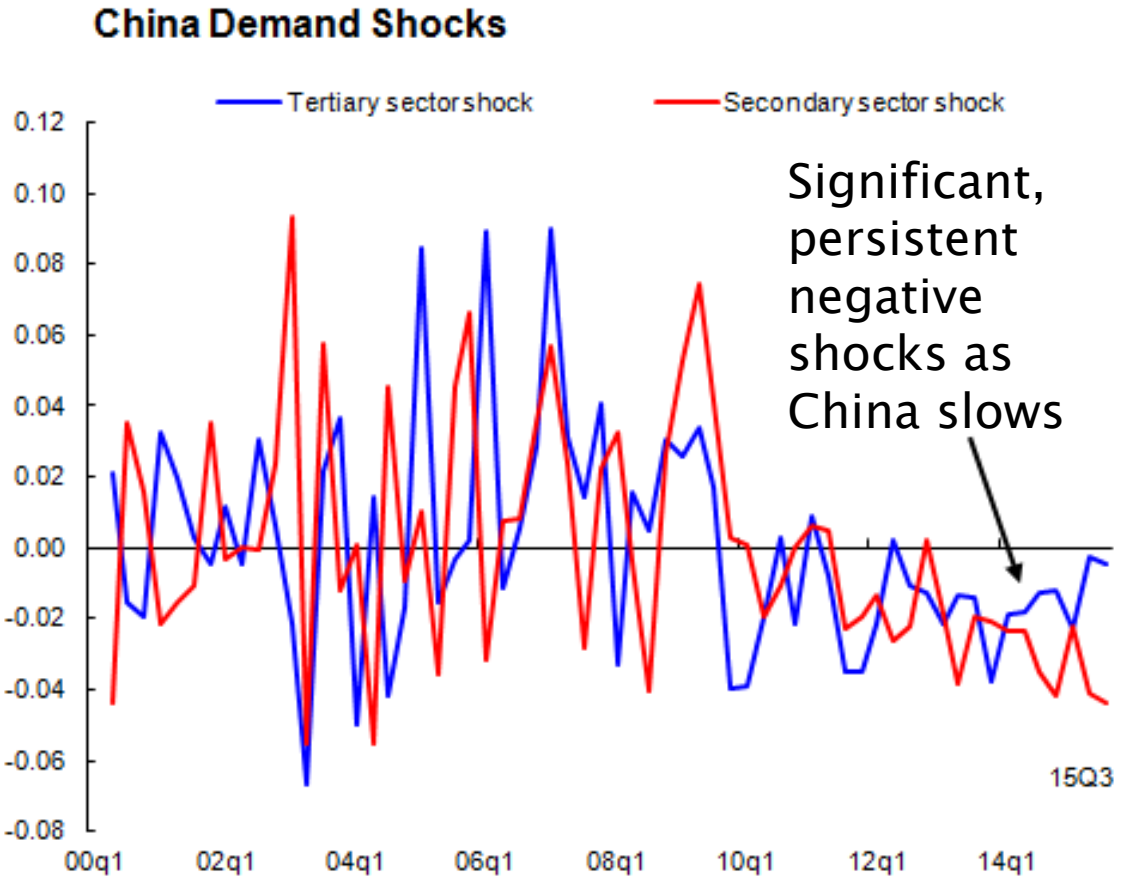
Methodology

- Estimate an export-intensity adjusted, China-demand shock
- Examine the implications of this shock for exports using a panel VAR (PVAR)
  - 4 variables: China shock; Effective demand; REER; Export volumes (qq saar growth rates)
  - IRFs gauge the 'typical' response of exports to a China demand shock
  - Growth-accounting exercise to estimate degree to which recent export-growth slowdown attributable to China's demand shock

Identify China demand shocks*

- Estimate shocks for secondary and tertiary sectors (Y) separately, using error term (ϵ) from:

$$Y_t = \alpha + \beta Global_t + \varepsilon_t$$



*Properties of this shock are robust to numerous alternative specifications (adding other control variables; including lags; adding time fixed effects)

Export-intensity adjusted shock

- Using China sector-specific shocks (ϵ) from the previous slide, we construct an export-intensity adjusted shock (ϕ) for each country. Use trade exposures of a given country to these sectors (ω), taken from the OECD's trade in value added (TiVA) database:

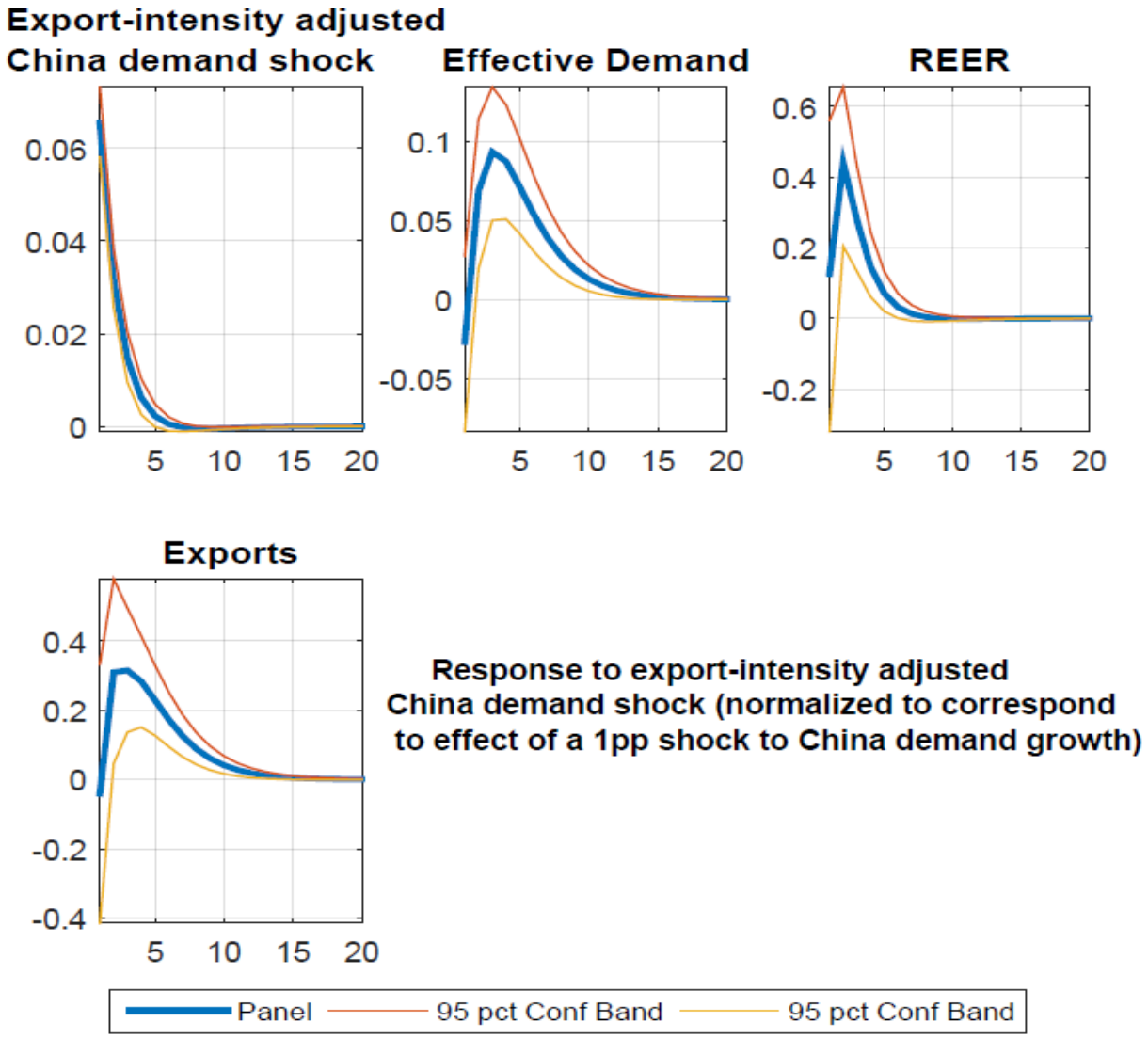
$$\emptyset^{i}{}_{t} = \omega_t{}^{i,S}(\varepsilon_t^S) + \omega_t{}^{i,T}(\varepsilon_t^T)$$

$$where\ \omega_t^{i,S} = \frac{VA_{t,i}^{China,S}}{VA_{t,i}^{Total}}$$

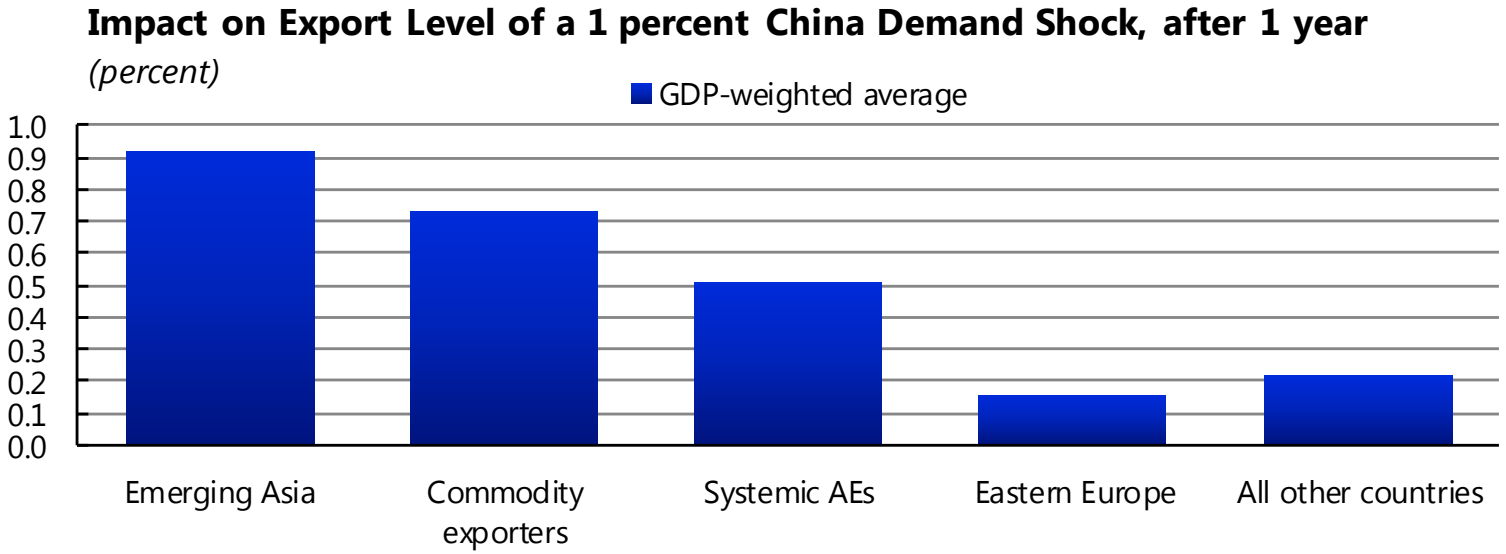
Estimating the panel VAR (PVAR)

- Using quarterly exports volume data, estimate relationship between exports and China shocks
- Work with a sample of 46 AE and EM countries
- Sample period 2003q1-2015q3
- Allow for country fixed effects

IRF: Response to an export-intensity adjusted China Shock



Regional details: significant heterogeneity



Source: IMF staff calculations.

Note: Emerging Asia = HKG, KOR, PHL, IDN, THA, SGP. Commodity exporters = AUS, CHL, BRA, ZAF, RUS, COL. Eastern Europe = LTU, LVA, EST, SVN, POL, CZE, TUR, HUN, SVK. Systemic AEs = JPN, USA, DEU. All other countries = NZL, ARG, ISR, FIN, CHE, CAN, AUT, SWE, FRA, DNK, GBR, ITA, IRL, MEX, BEL, NOR, NLD, ISL, ESP, PRT, LUX, GRC.

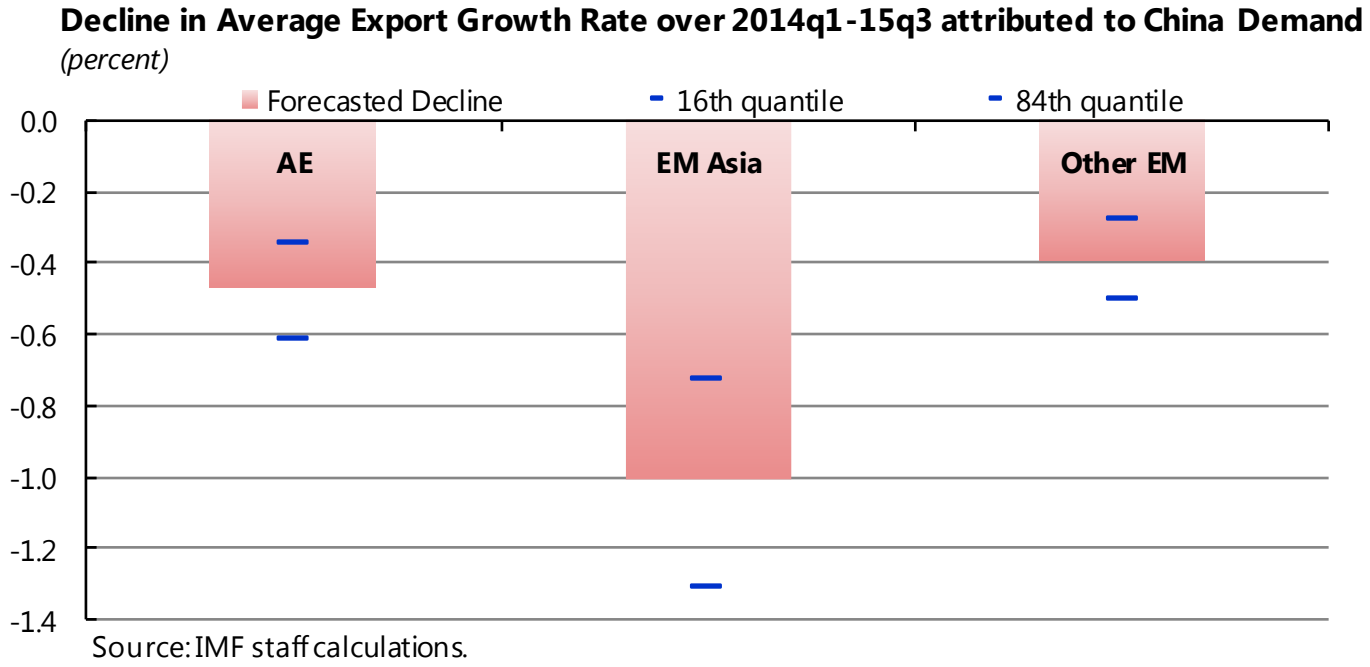
Growth-accounting exercise

- Construct 2 in-sample, rolling one-year ahead forecasts for exports:

- 1. **'Unconditional' forecast**: takes data at time t as given, and generates a one-year ahead (naïve) forecast
- 2. **'Conditional' forecast** takes data at time t as given and augments this with information on the actual China demand shock over the forecast horizon—generate one-year ahead forecast

- Take the difference between the naïve and the conditional forecast as the effect of China on export growth

Largest predicted export slowdown in EM Asia, due to China demand weakness



Notes: Red bars depict the marginal impact of weaker GDP growth in China (relative to the January 2012 WEO forecast) on average export growth rates from 2014q1 to 2015q3. They represent the difference between an unconditional forecast (with China's growth rates based on the January 2012 WEO baseline) and a conditional forecast with the same information set, but adding actual GDP growth rates in China.

Conclusions

- Relative to a recent historical period (2011-2013), export-growth slowdown most protracted in EM Asia, plausibly due to China slowing
- Estimated average impact of a 1pp shock to China demand growth: reduces average export growth rates by 0.1-0.2 pp over one year (for a country with the average TiVA exposure to China)
- Large variation across countries, depending on TiVA exposures to China's final demand
- **Direct** impact (through exports) of 1 percent shock to the level of China's GDP on global GDP (ex. China) is about 0.15, after one year

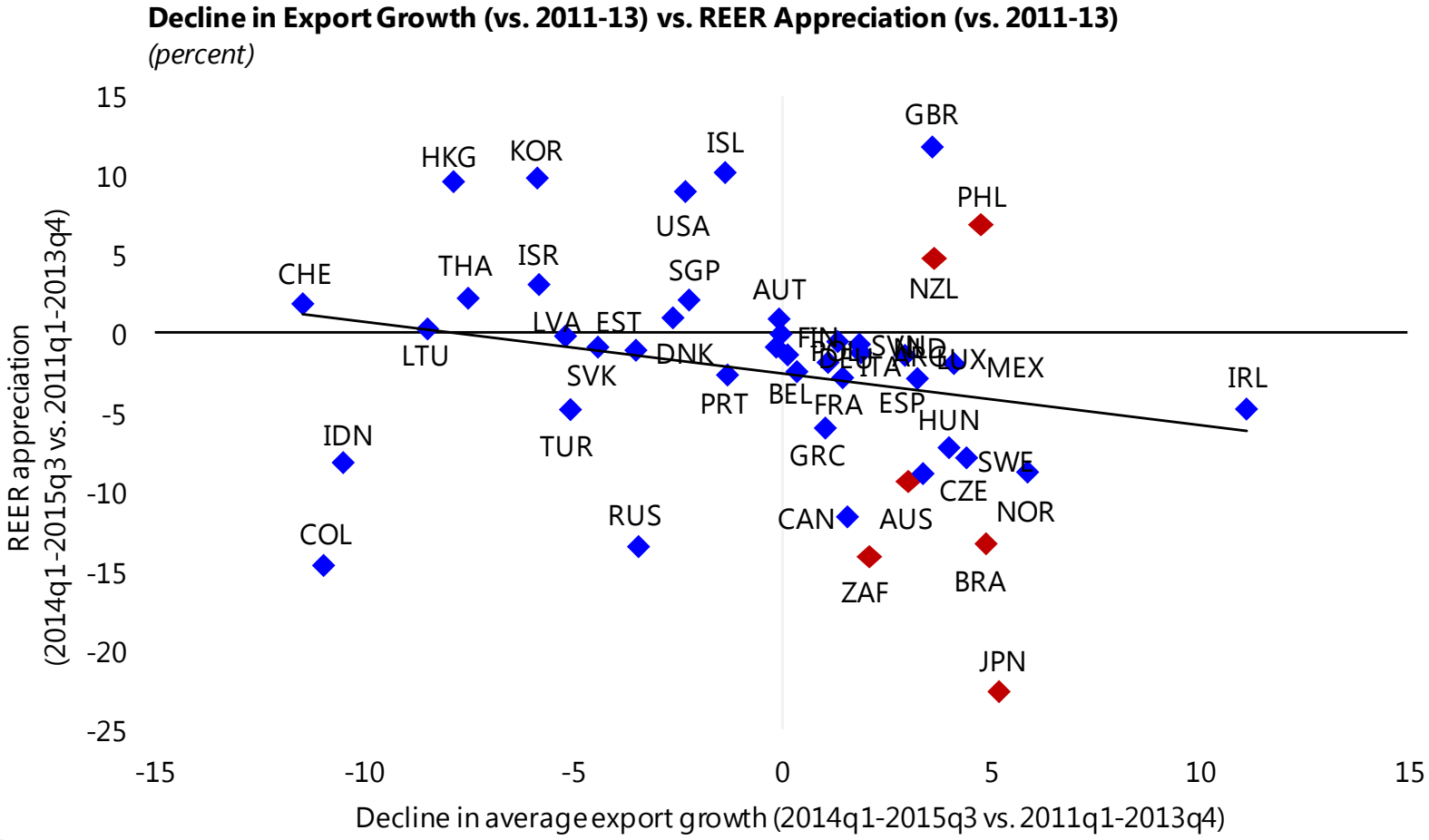
Thank you!

Background material

Regional aggregate groupings

- **EM Asia**: Korea, Hong Kong, Indonesia, Philippines, Singapore, Thailand
- **Other EMs**: Argentina, Brazil, Chile, Colombia, Hungary, Lithuania, Latvia, Mexico, Poland, Russia, Turkey, South Africa
- **Advanced Economies**: Austria, Australia, Belgium, Canada, Switzerland, Czech Republic, Germany, Denmark, Spain, Estonia, Finland, France, UK, Greece, Ireland, Iceland, Israel, Italy, Japan, Luxembourg, Netherlands, Norway, New Zealand, Portugal, Slovakia, Slovenia, Sweden, USA

Exchange rate dynamics partly explain behavior of outliers… b

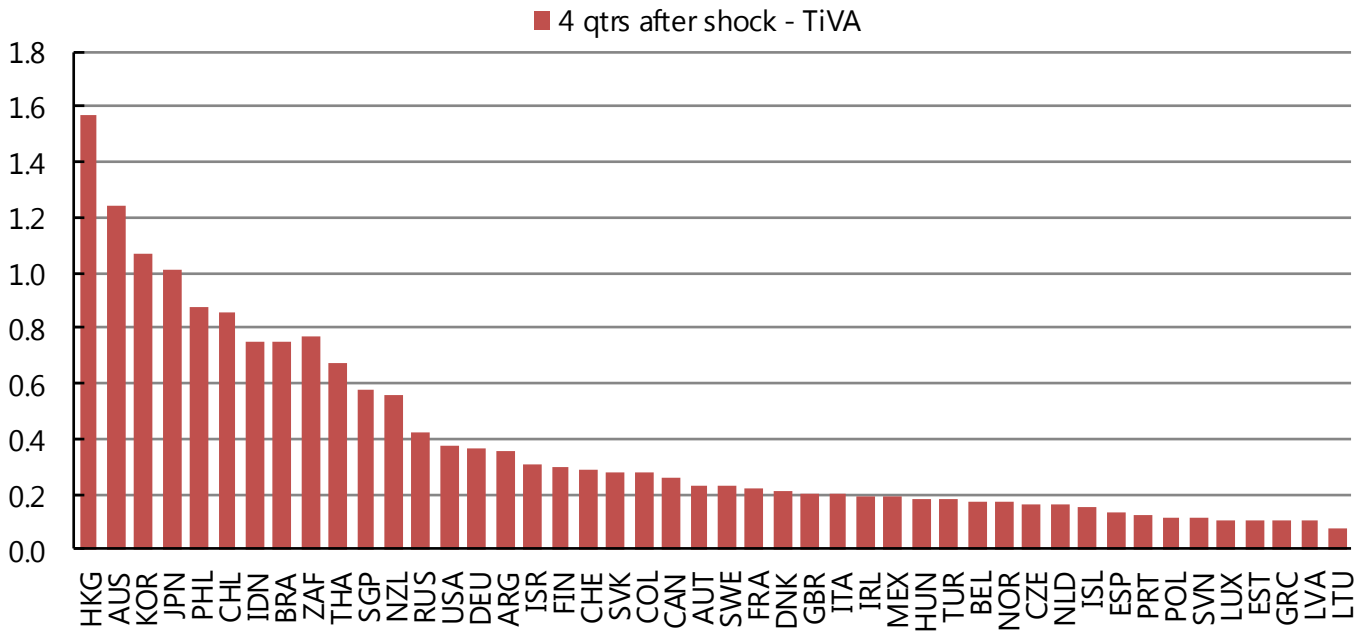


Sources: IMF, *Information Notice System;* and IMF, *World Economic Outlook*.

Country details: significant heterogeneity b

Impact on Export Level of a 1 percent China Demand Shock, after 1 year

(percent)



Source: IMF staff calculations.