



Weak Investment in Uncertain Times: *Causes, Implications, and Policy Responses*

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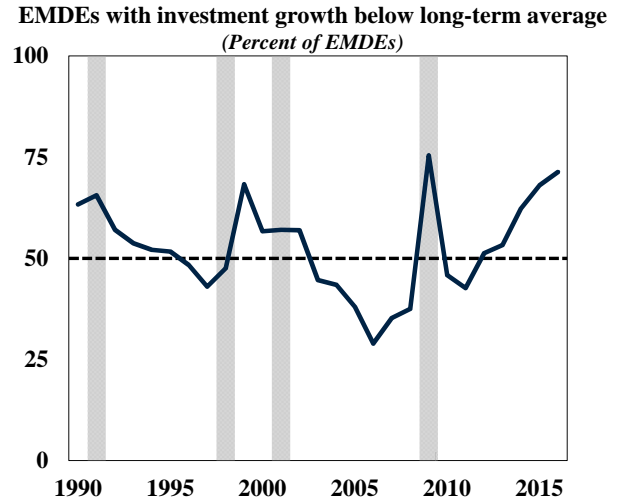
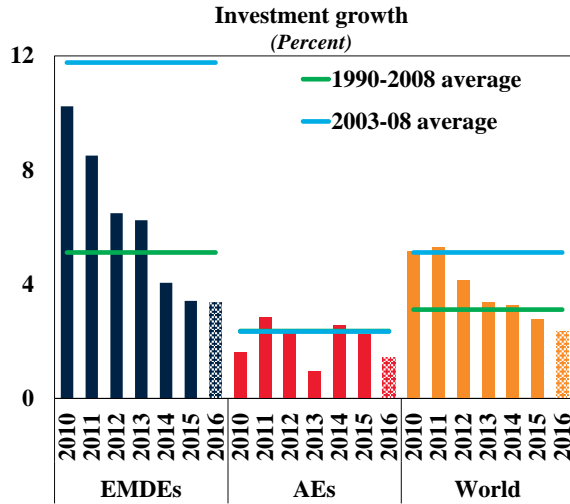


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Three Questions

- 1 What are the main features of the investment slowdown in Emerging Market and Developing Economies (EMDEs)? *Sharp; persistent; highly synchronized*
- 2 What are the correlates of weakness in investment growth in EMDEs? *No smoking gun: weak output growth, decline in FDI inflows, adverse terms of trade shocks, large private debt burden, elevated political risk and policy uncertainty, and adverse spillovers from major economies*
- 3 What are the potential implications of weak investment growth for productivity and income catch up? *Weaker productivity growth; slower catch up*

EMDE Investment Growth: *Sharp, Persistent and Highly Synchronized Slowdown since 2010*



Sources: Haver Analytics, World Bank, Oxford Economics, International Monetary Fund.
Left Panel. Weighted averages. Includes 120 EMDEs. Long-term average starts in 1991 for EMDEs due to the data availability. EMDEs and AEs refer to emerging market and developing economies and advanced economies, respectively. Right Panel. Long-term averages are country-specific and refer to 1991-2008. Based on 122 EMDEs. Dashed line shows 50 percent. Shaded areas refer to global recessions and slowdowns (1991, 1998, 2001 and 2009). Data for 2016 are forecasts.

Three Questions

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Methodology

- **Panel regressions.** To study correlates of investment growth (output growth, terms of trade growth, change in FDI inflows, debt, and political risk)
 - 73 EMDEs, annual data for 1998-2015
 - Fixed country effects; GMM; Bayesian Model Averaging; Private Investment

- **Bayesian vector autoregressions.** To study spillovers from activity and uncertainty in major economies (US, EU, and China)
 - 18 EMDEs, quarterly data for 1998:1-2016:2
 - Global financial market uncertainty (VIX), economic policy uncertainty, adverse spillovers from US and Euro Area output slowdown, adverse spillovers from China's investment growth slowdown

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Sources of Investment Weakness: *Many Culprits; No Smoking Gun*

Sluggish activity

Decline in FDI flows (for commodity importers)

Collapse in terms-of-trade (for commodity exporters)

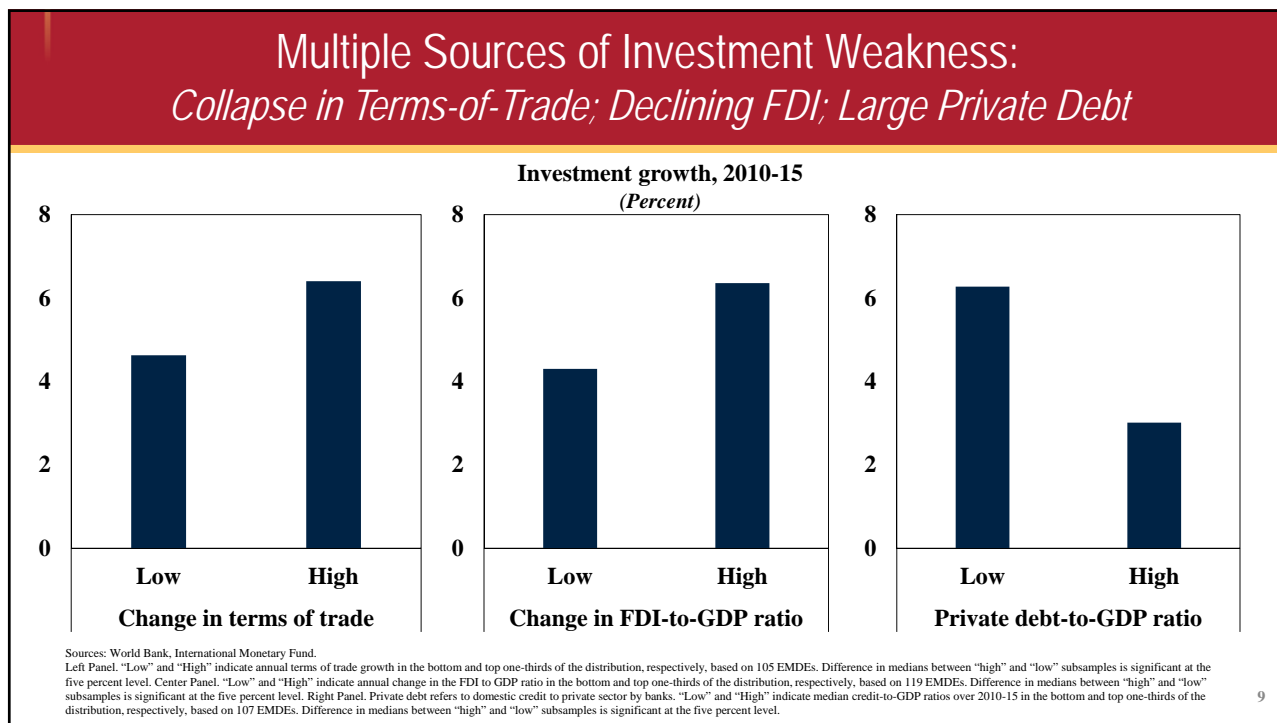
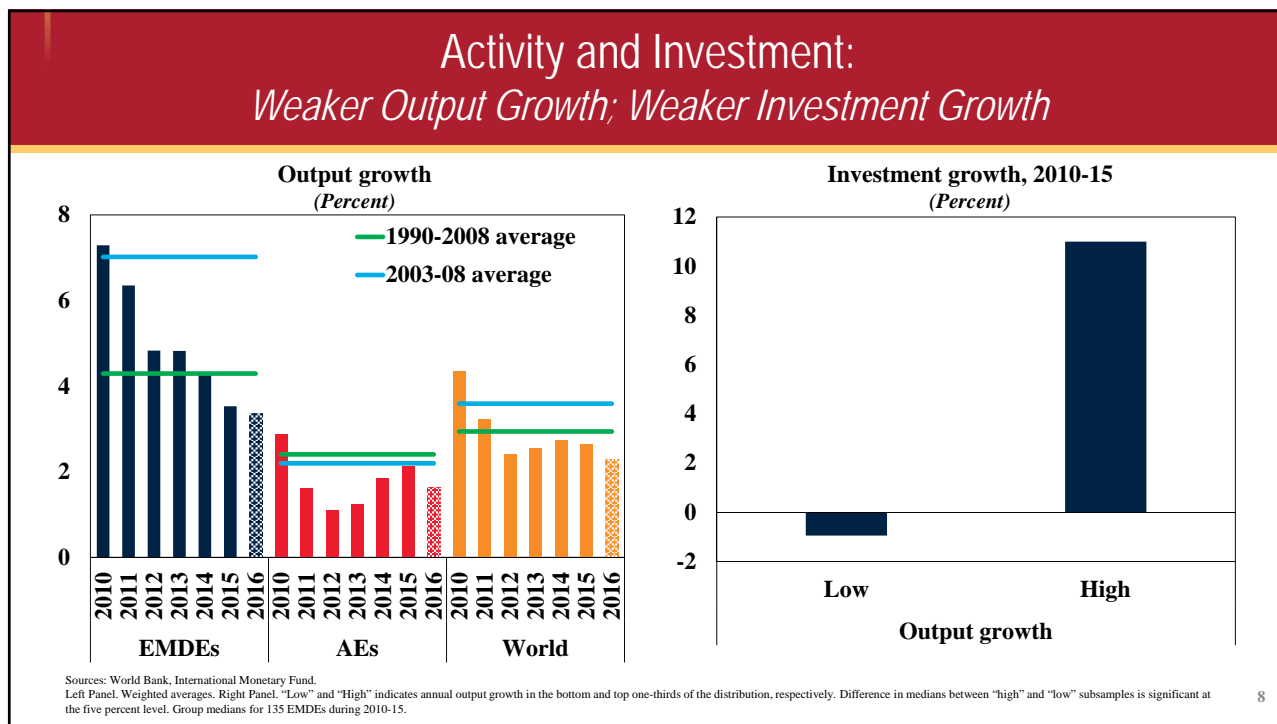
Large stock of private debt

Elevated political / policy uncertainty

Adverse spillovers from weakness in some major economies

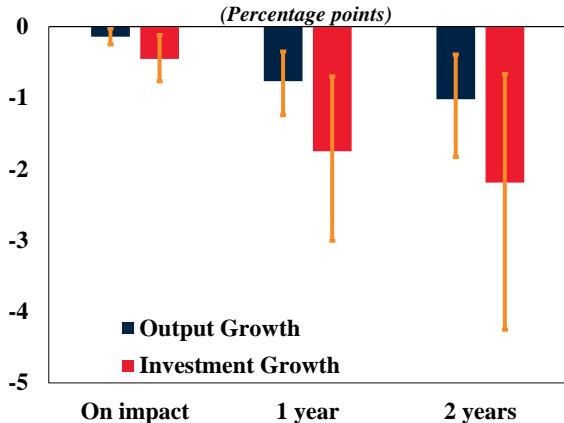
Source: World Bank.
Note: Based on a set of panel regressions with country fixed effects and VAR models.

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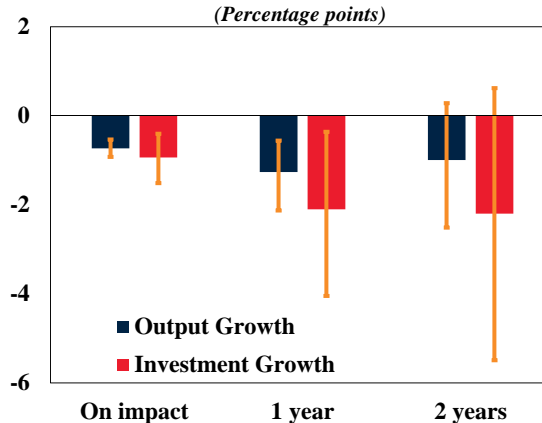


Spillovers from the US and EA: *Sizable Negative Impact on EMDE Activity*

Impact of 1-percentage-point decline in U.S. output growth on growth in EMDEs
(Percentage points)



Impact of 1-percentage-point decline in Euro Area output growth on growth in EMDEs
(Percentage points)

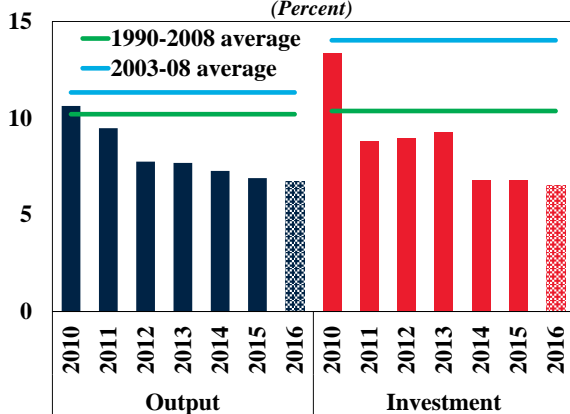


Sources: World Bank, Haver Analytics, Bloomberg, Baker, Bloom, and Davis (2016), ICRG.
 Note: Cumulative impulse response of weighted average EMDE output growth or investment growth to a 1-percentage-point decline in growth in real GDP in the United States (Left) and Euro Area (Right). Growth spillovers based on a Bayesian vector autoregression of world GDP growth (excluding the source country of spillovers), output growth in the source country of the shock, the U.S. 10-year sovereign bond yield, JP Morgan's EMBI index, investment or output in EMDEs excluding China. The oil price is exogenous. Orange lines denote 16-84 percent confidence intervals, blue and red bars denote median of posterior distributions. Sample includes 18 EMDEs (Brazil, Bulgaria, Chile, Costa Rica, Hungary, India, Indonesia, Malaysia, Mexico, Paraguay, Peru, the Philippines, Poland, Romania, Russia, South Africa, Thailand, and Turkey) from 1998Q1-2016Q2.

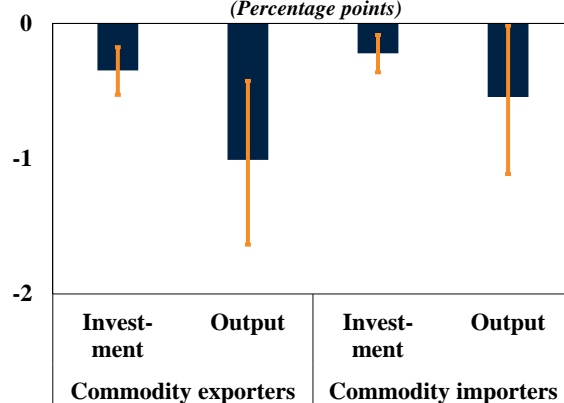
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Spillovers from China: *Sizable Negative Impact on EMDE Activity*

Output and investment growth in China
(Percent)



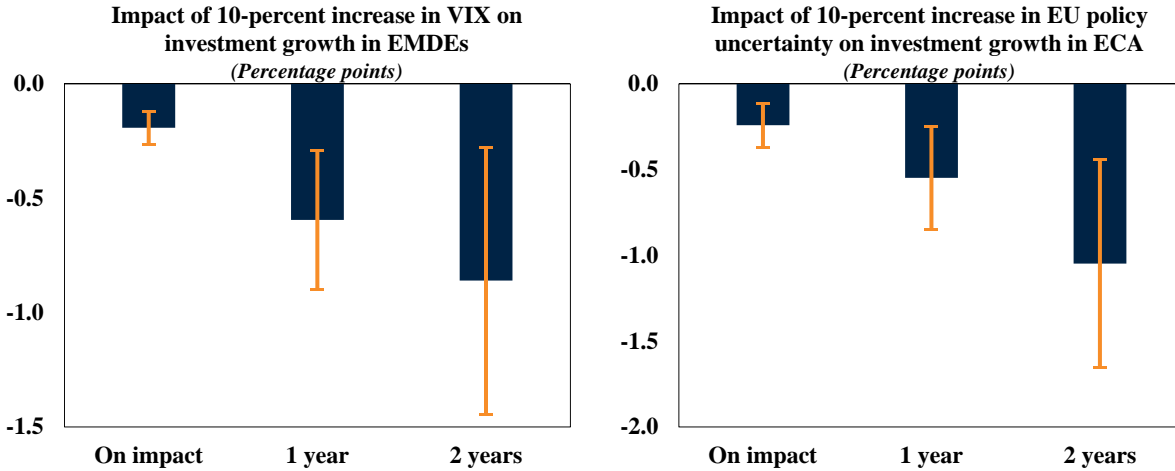
Responses of EMDE output growth to a decline in China's investment and output growth
(Percentage points)



Sources: World Bank, Haver Analytics, Bloomberg, International Monetary Fund.
 Right Panel: Cumulative impulse response of weighted average EMDE output growth after 1 year to a 1-percentage-point decline in growth in real investment and real GDP in China. Investment spillovers based on a Bayesian vector autoregression of world GDP growth (excluding China), the U.S. 10-year sovereign bond yield, JP Morgan's EMBI index, growth in the non-investment component of China's real GDP, China's real investment growth, and real GDP growth in the spillover destination group. Oil price is exogenous. Real GDP replaces real investment in models that estimate spillovers from output. Sample includes 18 EMDEs from 1998Q1-2016Q2. Orange lines denote 16-84 percent confidence interval, blue bars denote median of posterior distribution.

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Uncertainty and Investment Growth: *Higher Uncertainty; Weaker Investment Growth*



Sources: World Bank, Haver Analytics, Bloomberg, Baker, Bloom, and Davis (2016), ICRG.
 Left Panel. Vector autoregressions are estimated with sample for 1998Q1-2016Q2. The model includes, in this order, VIX, MSCI Emerging Markets Index, J.P. Morgan's EMBI Index, aggregate real output and investment growth in 20 EMDEs, with G7 real GDP growth, U.S. 10-year government bond yields and MSCI World Index as exogenous regressors and estimated with two lags. Bars show median cumulative responses of EMDE investment to a 10-percent increase in VIX, and error bars 16-84 percent confidence bands. Right Panel. Vector autoregressions are used for estimation on a sample of aggregate variables for ECA over the period of 1998Q1-2016Q2. The model includes EPU for the Euro Area, emerging market stock price (Euro Area) index, emerging market bond index, aggregate real output and investment growth in 7 ECA countries, with G7 real GDP growth, U.S. 10-year bond yields and MSCI World Index as exogenous regressors and estimated with two lags. Bars show cumulative median responses of investment to a 10-percent policy uncertainty shock in Europe, and error bars 16-84 percent confidence bands. 12

Three Questions

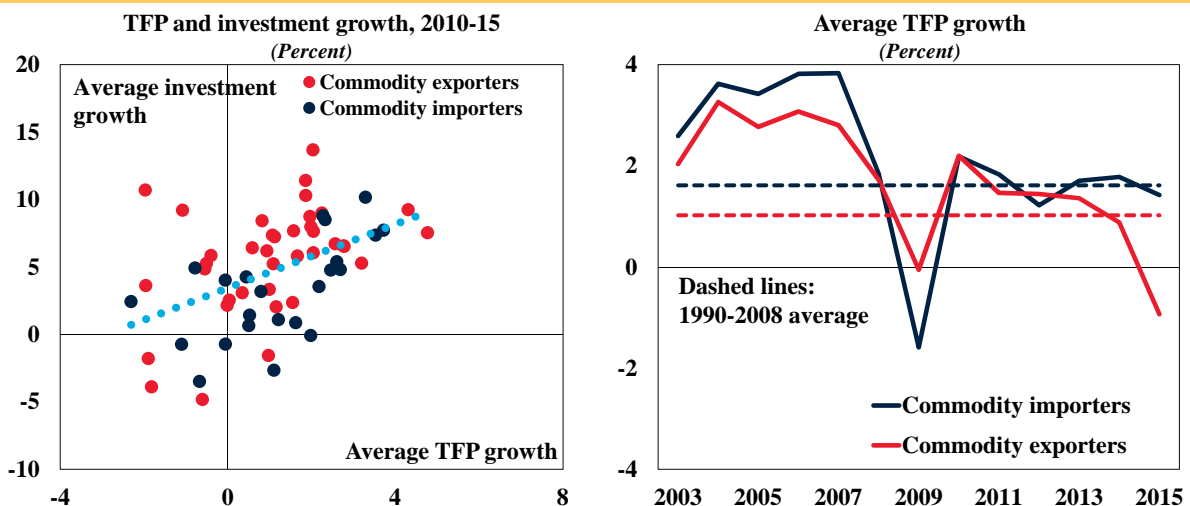
- 3 What are the potential implications of weak investment growth for productivity and income catch up? *Weaker productivity growth; slower catch up*

Weak Investment and Slower Productivity: *Linkages and Evidence*

- Weak investment can account for as much as two-thirds of the below average labor productivity growth in OECD countries (Furman 2015, Ollivaud et al. 2016)
- Weak investment is often associated with less R&D investment, especially when firms face credit constraints or lower cash flows (Aghion et al. 2012).
- Investment is import-intensive and investment weakness is associated with trade slowdown (Bussiere et al. 2013). Trade openness positively correlated with TFP growth (Kose et al. 2009; Alcalá and Ciccone 2004)
 - Capital goods imports embody efficiency-enhancing technology transfers (Alfaro and Hammel 2007)
 - Trade facilitates more efficient allocation of capital goods improving aggregate productivity (Mitreja et al. 2014)

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Investment and TFP Growth: *Weaker Investment Growth; Lower TFP Growth*



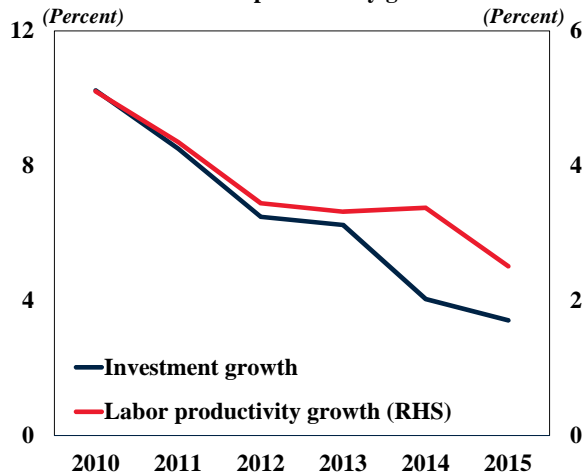
Sources: World Bank, Haver Analytics.

Left Panel. Correlation between average investment growth over 2010-15 and average TFP growth over the same period. Blue dotted line denotes linear regression line with all samples. Right Panel. TFP is calculated as residual from the growth-accounting framework in Didier et al. (2015). Unweighted averages. Dashed lines indicate long-term average for 1990-2008 for each group.

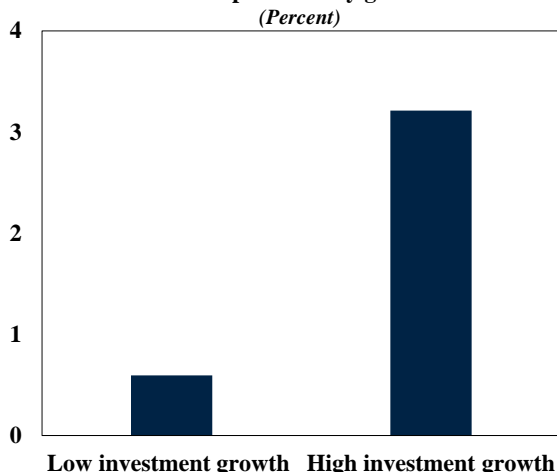
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Investment and Labor Productivity Growth: *Weaker Investment Growth; Lower Labor Productivity Growth*

Investment and labor productivity growth in EMDEs



Labor productivity growth

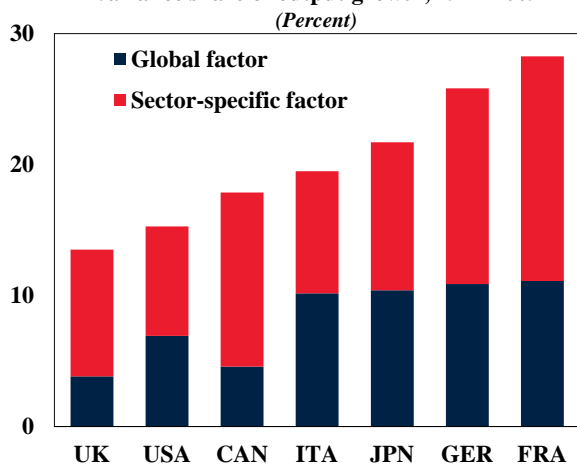


Sources: World Bank, World Trade Organization, Haver Analytics, Penn World Tables, International Labour Organization.
 Left Panel. Weighted averages. Labor productivity is defined as real output per person engaged. Right Panel. "Low" and "High" indicate annual growth rates in real investment in the bottom and top one-thirds of the distribution, respectively. Difference in medians between "high" and "low" subsamples is significant at the five percent level. Group medians for 123 EMDEs during 2010-15.

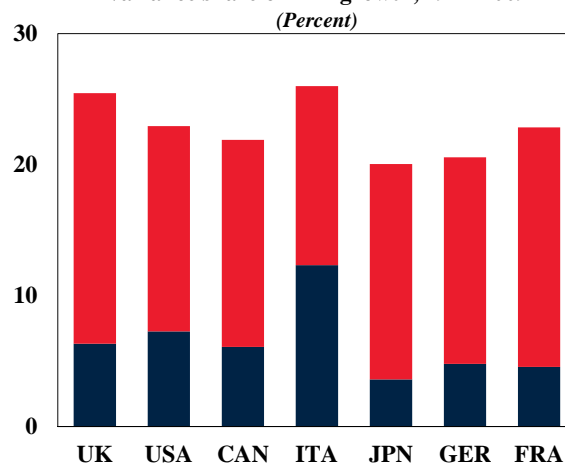
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A Global Productivity Cycle? *Sizeable Variation of TFP Fluctuations Explained by Common Factors*

Variance share of output growth, 1974-2009



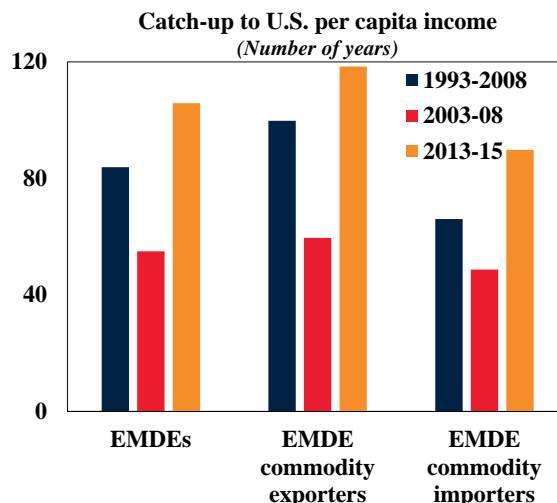
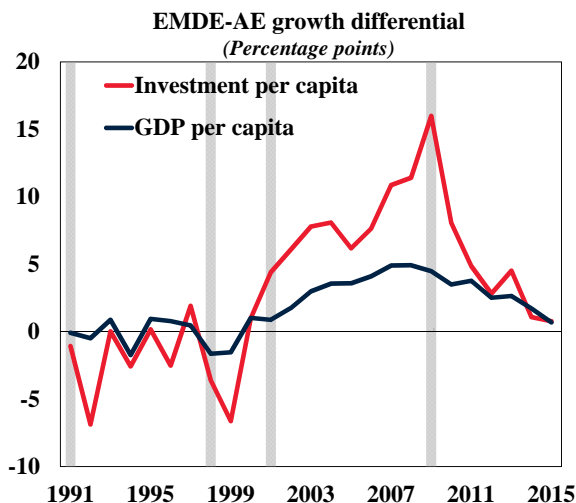
Variance share of TFP growth, 1974-2009



Sources: World KLEMS, REV 4, 1974-2009, World Bank.
 Note: Bars show the unweighted average across sectors of the percent of output (Left Panel) or TFP (Right Panel) growth fluctuations explained by each factor estimated using a dynamic factor model for G7 countries and 25 sectors, of the form $z_{j,k,t} = \alpha_{j,k}^* f_{t,t}^* + \beta_{j,k}^* f_{t,t}^* + \gamma_{j,k}^* f_{t,t}^* + \epsilon_{j,k,t}^*$, where $z_{j,k,t}$ refers to output/TFP growth of sector k in country j at time t ; $f_{t,t}^*$, $f_{t,t}^*$, $f_{t,t}^*$ refer to the global-, sector- and country-specific factor, respectively, and the error terms, $\epsilon_{j,k,t}^*$ follow an autoregressive process of order p .

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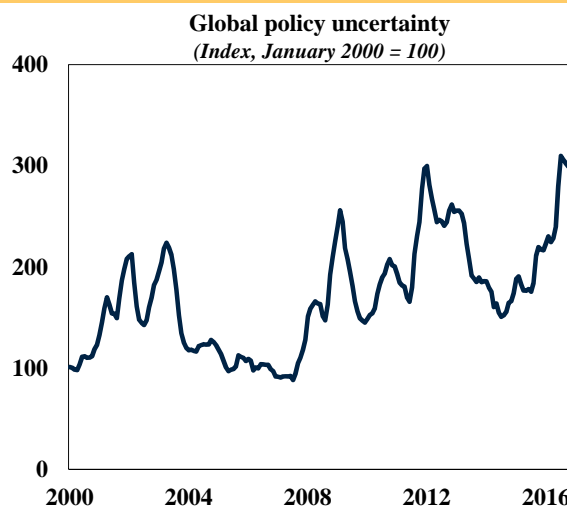
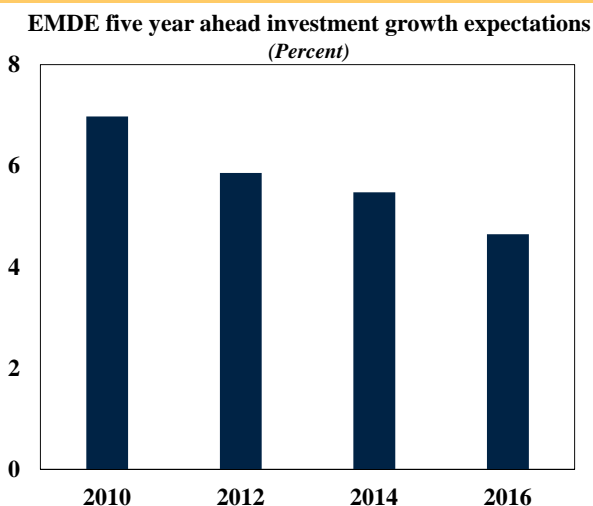
Growth Differential and Income Catch Up *Declining Growth Differential; Slowing Pace of Catch Up*



Source: World Bank.
Left Panel. Weighted averages. Difference between EMDEs (emerging market and developing economies) and AEs (advanced economies). The shaded areas are global recessions and slowdowns. Right Panel. Number of years needed to catch-up with 2015 real per capita GDP level in the United States, assuming average growth rates over each period denoted for each group.

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Investment Growth Expectations and Policy Uncertainty: *Subdued Growth Prospects; Highly Uncertain Policy Environment*



Sources: Consensus Economics, Davis (2016), World Bank.
Left Panel. Each column shows five-year ahead consensus forecasts as of the latest available month in the year denoted. Unweighted averages of 21 EMDEs. Last observation is October 2016. Right Panel. Global policy uncertainty as measured in Davis (2016). Based on the frequency of articles in domestic newspapers mentioning economic policy uncertainty. 6-month moving average. EMDEs refer to emerging market and developing economies.

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Questions & Comments
Thanks!

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