

The Global Role of the United States and China

M. Ayhan Kose, Csilla Lakatos, Franziska Ohnsorge and Marc Stocker

Economic developments in the United States and China, the world's two largest economies, can have effects far beyond their shores. A slowdown in these economies would result in considerably lower global growth transmitted through trade, financial, and commodity market channels. Changing U.S. financial conditions could reverberate across global financial markets, with pronounced effects on emerging market and developing economies (EMDEs) that rely heavily on external financing. China's continued deceleration and rebalancing toward domestic consumption and services will likely put downward pressure on commodity prices worldwide and is expected to adversely affect commodity exporters.

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JEL Classification: C15, E32, E52, F13, H30, O51

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I. Introduction

The United States and China, the world's two largest economies, together account for close to 40 percent of global GDP and more than one-fifth of global trade and the world population. Because of their size and international linkages, developments in these two economies are bound to have significant implications for the rest of the world. For example, the United States, the world's single-largest economy (at market exchange rates), accounts for almost one-quarter of global output, about one-tenth of trade flows, close to one-fifth of remittances, and over one-third of global stock market capitalization. The United States plays a prominent role in virtually every global market, in international trade, financial and labor flows, and commodities.

China, the world's second-largest economy, accounts for about one-tenth of global output, one-sixth of global trade and close to one-fifth of the world's population. China plays an important role in global commodity markets, accounting for virtually all of the increase in global consumption of metals and half of primary energy since 2000. China currently accounts for more than half of global consumption of coal and metals.

This paper examines the role of the United States and China in the global economy by addressing three questions. First, what are the main economic linkages between the United States and the world? Second, what are the main economic linkages between China and the world? Third, how large are global spillovers from shocks originating in the United States and China?

This paper's contribution is to bring together a comprehensive assessment of the role of the United States and China in the global economy—and to directly compare these two economies' roles. Earlier work focused on each economy individually (*e.g.*, Kose *et al.* 2017 for the United States), on groups of countries (*e.g.*, Huidrom, Kose and Ohnsorge 2017; Huidrom *et al.* 2019 for the largest emerging markets), on specific aspects of spillovers (*e.g.*, advanced-economy monetary policy spillovers in IMF 2015a or China's financial market spillovers in Mwase *et al.* 2016). These various strands of existing work are updated and brought together in this paper, to allow a direct comparison between spillovers from the United States and China to emerging market and developing economies (EMDEs).

The paper offers the following findings. First, both the United States

and China affect the global economy through trade, financial, and commodity market channels. That said, the U.S.' role is particularly prominent in financial markets while China's role is particularly prominent in commodity markets. Second, growth spillovers from the United States and China to EMDE growth are broadly comparable but the impact of U.S. growth shocks on global growth is larger than a similarly sized growth shock in China.

The next two sections discuss linkages between the United States and China, respectively, and the global economy. The subsequent two sections discuss and quantify spillovers from these two economies to other EMDEs. The conclusion offers some avenues for future research.

II. Linkages between the United States and the world economy

The United States is the world's single-largest economy and has the world's third-largest population. The United States accounts for around one-quarter of global GDP, about one-tenth of global trade, one-tenth of bank foreign claims, and over one-third of global stock market capitalization.¹ The U.S. share of global output and trade has remained broadly stable since the 1980s, whereas the share of other major advanced economies has declined gradually. The United States is also the single largest international creditor and debtor: it holds both the world's largest amount of foreign assets and liabilities and the largest net foreign asset position by a wide margin.

U.S. trade and financial integration with other advanced economies and EMDEs—especially in Latin America and the Caribbean—runs deep. The countries most affected by developments in the U.S. economy are, directly, those whose trade and financial ties are predominantly with the United States and, indirectly, those that are in general highly open to global trade and finance.

A. Trade linkages

Trade accounted for just over one-quarter of U.S. GDP in 2018,

¹ At purchasing power exchange rates, the United States is the world's second largest economy (preceded by China as the world's largest), accounting for 15 percent of global GDP in 2018.

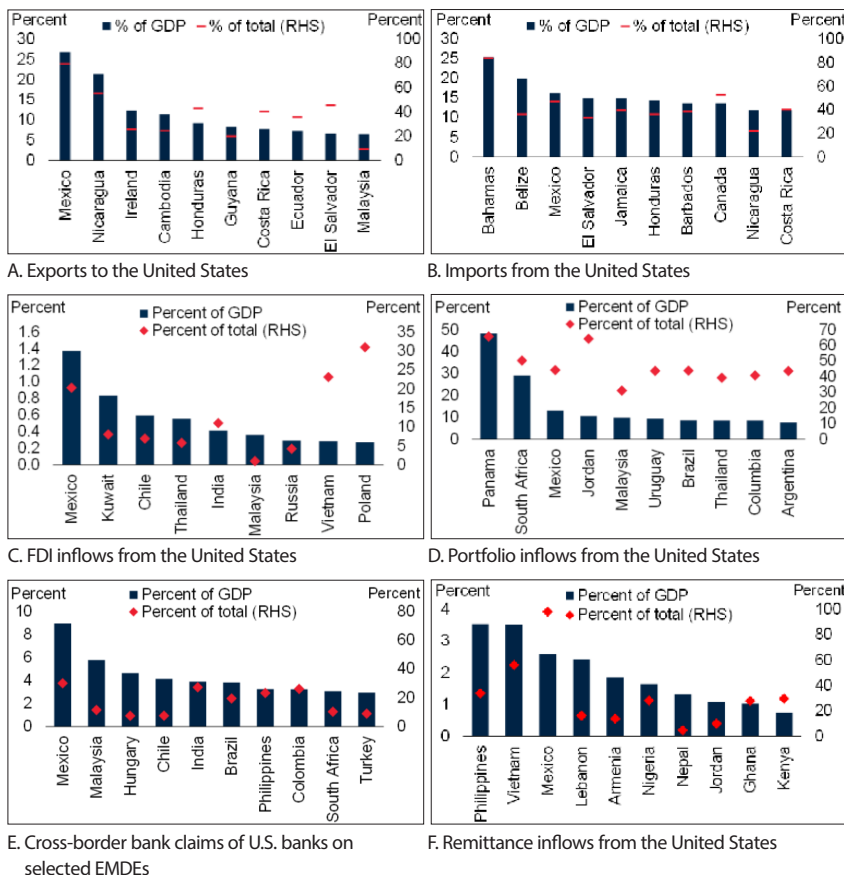
considerably less than the average for other advanced economies but 10 percentage points of GDP more than in the 1980s. The United States is the world's single largest importer of goods and services, and the largest exporter and importer of business services (Figure 1). It accounts for about one-tenth of global goods imports and global services imports.

Three-quarters of U.S. good imports are manufactured goods, with the remainder accounted for by oil imports despite a steady decline since 2000. Among manufactured goods imports, the most prominent are motor vehicles, data processing machines, and drugs. Until 2018, close to one-quarter of U.S. imports of goods came from China, but this share is likely to have declined as a result of the increase in U.S.-China bilateral tariffs implemented during 2018-19. By the end of 2019, close to all U.S.-China bilateral trade flows were subject to additional tariffs. After China, the main sources of U.S. imports are the European Union, Mexico and Canada.

The United States is the single-largest export destination for one-sixth of the world's countries and is the primary export destination for countries in Latin America and the Caribbean, as well as a number of countries in other EMDE regions, especially those in East Asia Pacific and South Asia. Mexico, Vietnam, Colombia, and many smaller Central American EMDEs rely particularly heavily on exports to the United States.

The growth of trade linkages between the United States and other countries has been partly driven by its membership of the General Agreement on Trade and Tariffs (GATT) since 1948 and the World Trade Organization (WTO) since 1995, as well as 14 bilateral or regional trade agreements with 20 partner countries, which cover 18 percent of its imports.² The largest of these regional agreements is the North American Free Trade Agreement (NAFTA), in force since 1994. In 2018, NAFTA was renegotiated to be replaced by the United States-Mexico-Canada Agreement (USMCA). Imports from Sub-Saharan Africa have

² For discussions of the implications of the NAFTA and CAFTA-DR, see Kose, Meredith, and Towe (2005); Kose, Rebucci, and Schipke (2005); and Romalis (2007). The majority of U.S. trade is conducted under the Most Favored Nation (MFN) regime, with average tariffs at 3.5 percent, higher for agricultural products at 5.2 percent. The United States also grants unilateral preferences to a number of EMDEs through its Generalized System of Preferences (GSP) and African Growth Opportunity Act (AGOA), which cover about 3.3 percent of U.S. imports.



Notes:

- A. Exports to the United States in percent of total exports or in percent of GDP of each EMDE economy.
- B. Imports from the United States in percent of total imports or in percent of GDP of each EMDE economy.
- C. Share of FDI inward stocks from United States in total FDI inward stocks into and as share of GDP of each country, average of 2013-2017.
- D. Share of portfolio investment from United States in total portfolio inflows into and as share of GDP of each EMDE in 2018.
- E. Share of consolidated U.S.-headquartered BIS-reporting banks' claims on each EMDE region in total consolidated BIS-reporting banks' claims on and as share of GDP of each EMDE region, average of 2010-2015.
- F. Share of remittances inflows from United States in total remittances inflows into and as share of GDP of each country in 2017.

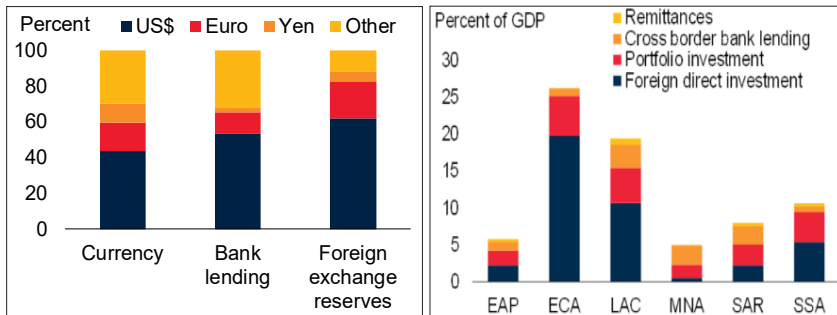
Source: Bank for International Settlements, International Monetary Fund, World Bank.

FIGURE 1
SELECTED EMDEs: MAIN ECONOMIC AND FINANCIAL PARTNERS

also grown rapidly following the preferential tariff scheme granted by the United States in 2000 to 34 African economies (“Africa Growth and Opportunities Act”; Frazer and Van Biesebroeck 2010; Mattoo, Roy, and Subramanian 2003).

B. Financial linkages

U.S. financial markets are highly integrated with global markets. Its international assets and liabilities were on average more than three times larger than its GDP over 2010-18. The United States remains the world’s largest source and recipient of foreign direct investment (FDI), accounting for about one-sixth of the world’s FDI assets and FDI liabilities in 2018. The European Union (EU), United Kingdom, and Canada hold just under two-thirds of the world’s FDI assets invested in the United States and are also the largest recipients of U.S. FDI. EMDEs in Latin America and the Caribbean, in particular, Brazil, Chile and Mexico, are the most exposed to FDI inflows originating in the United



A. U.S. dollar-denominated transactions in financial markets, 2018

B. Capital inflows from the United States, 2014-18

Notes:

- A. In the left bar on Currency, totals sum to 100 percent because each foreign exchange transaction involves two different currencies. “Euro” includes all legacy currencies of the euro as well as the European Currency Unit. Data for the center and right bars are for June 2016.
- B. Capital flows refer to stocks of foreign direct investment (FDI), portfolio investment, and cross-border bank lending from the United States to EMDE regions. Country coverage varies by capital flow component.

Source: Bank for International Settlements, International Monetary Fund, Lane and Milesi-Ferretti (2007), World Bank, World Federation of Exchange.

FIGURE 2
ROLE OF THE UNITED STATES IN GLOBAL FINANCIAL MARKETS

States. Reflecting the size and depth of its financial markets, the United States accounts for the largest share of portfolio liabilities of one-third of EMDEs.

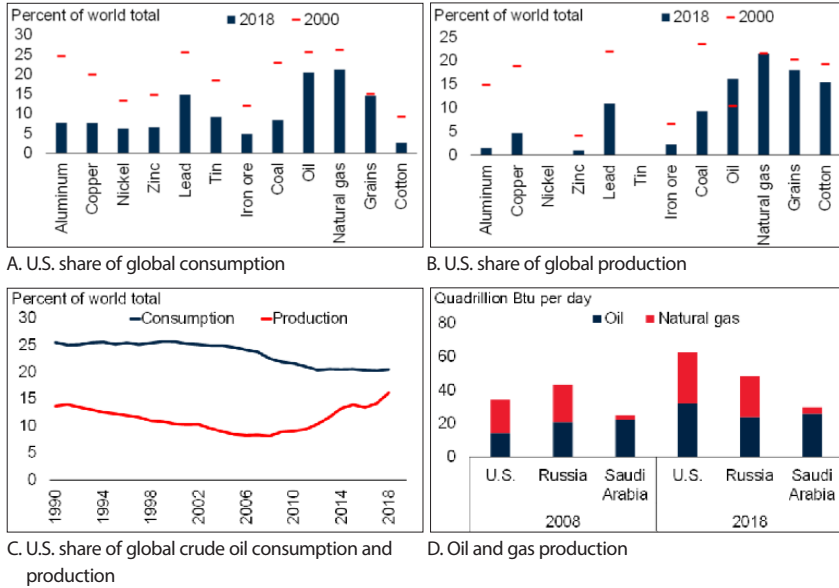
The U.S. dollar is the most widely used currency in international trade and financial markets and is the world's preeminent reserve currency (Figure 2). Europe and Central Asia is the only EMDE region where the U.S. dollar is surpassed by the euro as a currency of denomination for cross-border bank flows. A number of EMDEs use the U.S. dollar as their official currency (Ecuador, El Salvador, Panama), while 31 other EMDEs maintain exchange rate pegs against the U.S. dollar. A large share of foreign exchange reserves, deposits, and bonds held by central banks are dollar-denominated. The U.S. dollar is widely used in international trade transactions for invoicing of import and export transactions, accounting for about one-third of invoicing in Europe and two-thirds of invoicing in Asia (Goldberg and Tille 2008).

C. Commodity market linkages

The United States plays a significant role in global commodity markets as both a producer and consumer of commodities (Figure 3). For example, in global energy markets, the United States has become the largest producer of oil since 2017 and natural gas since 2014. The United States now accounts for one-sixth of global oil production, exceeding the share in the early 1990s. Its oil and gas production is almost evenly split between natural gas and petroleum, in contrast to the predominantly petroleum-based production of other major hydrocarbon producers such as Russia and Saudi Arabia (EIA 2016). Since U.S. shale oil production, which tripled during 2009-14, requires little capital investment and can be brought onstream rapidly, it has become one of the most flexible sources of additional global oil supply that responds quickly to price changes (Baffes *et al.* 2015).

The United States is also the world's largest biofuel producer. U.S. biofuels account for almost half of global biofuel production and one-third of maize production. Rapid growth in maize-based U.S. biofuel production was encouraged by the Renewable Fuel Standard, mandated by the Energy Policy Act of 2005 and Energy Independence and Security Act of 2007, which requires transportation fuel sold in the U.S. to contain a minimum volume of renewable fuels.

Historically, the United States has been a major consumer of



Note: Data for metals all represent refined consumption and production. Iron ore consumption is estimated with crude steel production. Grains include wheat, maize, and rice; edible oils include coconut oil, cottonseed oil, palm oil, palm kernel oil, peanut oil, rapeseed oil, and soybean oil. Oil includes inland demand plus international aviation and marine bunkers and refinery fuel and loss. Coal includes commercial solid fuels only, *i.e.*, bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Natural gas excludes natural gas converted to liquid fuels but includes derivatives of coal as well as natural gas consumed in Gas-to-Liquids transformation.

D. Oil and natural gas production in British thermal units (Btu), assuming that 1 barrel of crude oil is equivalent to 5,729,000 Btu and 1 cubic foot of natural gas is equivalent to 1,032 Btu.

Source: Haver Analytics, BP Statistical Review of World Energy Efficiency, U.S. Energy Information Administration, World Bank.

FIGURE 3
U.S. ROLE IN COMMODITY MARKETS

agricultural, energy, and metals commodities. With the rise of large EMDEs, such as China and India, this role has diminished (World Bank 2015). However, the United States is still the largest consumer of natural gas and oil, accounting for more than one-fifth of global oil and natural gas consumption and the second-largest consumer of a wide range of commodities, including aluminum, copper, lead, and coffee.

III. Linkages between China and the world economy

Following a ten-fold increase in its share in global GDP and in world trade over the past four decades, China is now the world's second-largest economy at one-sixth of global GDP (in market exchange rates) and one-tenth of global trade in 2018. It has accounted for about one-third of global economic growth over the last seven years.

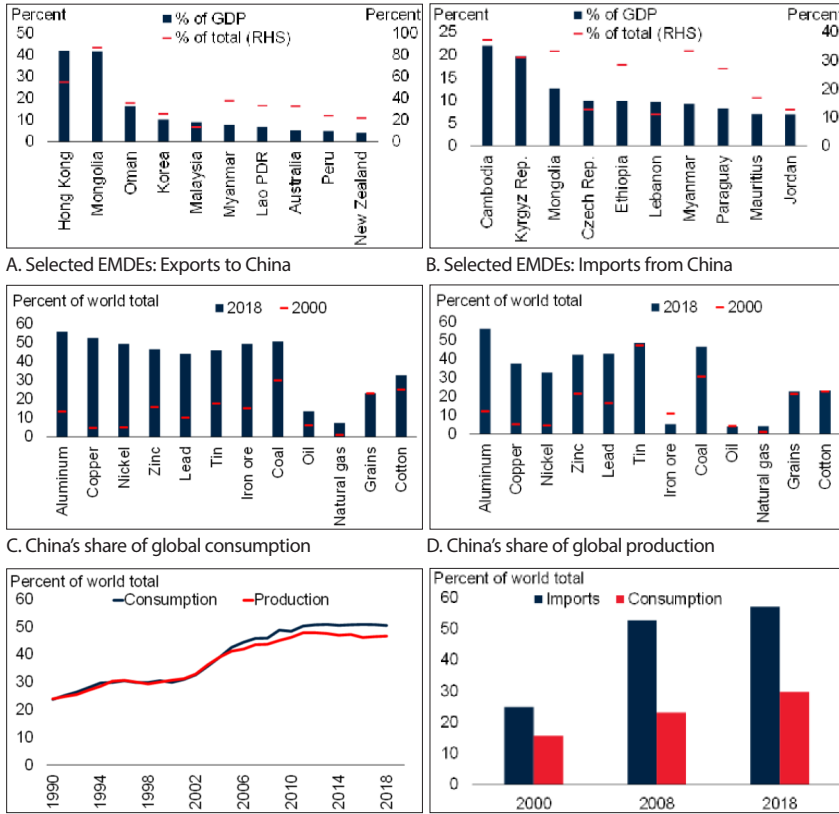
A. Trade linkages

With trade accounting for two-fifths of GDP in 2018, China's economy is now nearly twice as open as in the 1980s and considerably more open than the U.S. economy. China's rising importance in international trade significantly benefitted from its accession to the WTO in 2001. In addition, China currently has 15 free trade agreements (FTAs) in force with a wide range of countries, including with ASEAN countries, Australia, New Zealand, Korea, and Peru. Partly as a result of intra-regional trade liberalization, China is especially highly integrated into production processes in countries in East Asia and the Pacific (Figure 4).

China is the destination of more than one-tenth of total exports of EMDEs in East Asia and Sub-Saharan Africa. It accounts for more than one-third of exports in about a dozen EMDEs. As for the United States, around three-quarters of China's goods imports—which are four-fifths of China's total imports—are manufactured goods, with oil and agricultural imports making up the remainder. Until 2018, close to one-tenth of China's imports came from the United States but this share is likely to have declined as a result of the increase in U.S.-China bilateral tariffs in 2018-19. Other main sources of imports are Korea, Japan, Germany, Australia, and Malaysia.

B. Commodity market linkages

The rapid industrialization of China and its investment- and manufacturing-driven growth model resulted in a surge in demand for commodities from 2000. The expansion in demand contributed to a rapid increase in real energy and metals prices that marked a commodity "super cycle." China accounted for virtually all of the increase in global consumption of metals and half of primary energy over 2000-08, and again during 2010-2018. It now accounts for around half of global consumption of coal and metals (Figure 4).



Notes:

A, B. Averages for 2014-18 unless otherwise specified.

A. Exports to China in percent of total exports or in percent of GDP of each EMDE economy.

B. Imports from China in percent of total imports or in percent of GDP of each EMDE economy.

C.-F. Data for metals all represent refined consumption and production. Iron ore consumption is estimated with crude steel production. Grains include wheat, maize, and rice; edible oils include coconut oil, cottonseed oil, palm oil, palm kernel oil, peanut oil, rapeseed oil, and soybean oil. Oil includes inland demand plus international aviation and marine bunkers and refinery fuel and loss. Coal includes commercial solid fuels only, *i.e.*, bituminous coal and anthracite (hard coal), and lignite and brown (sub-bituminous) coal, and other commercial solid fuels. Natural gas excludes natural gas converted to liquid fuels but includes derivatives of coal as well as natural gas consumed in Gas-to-Liquids transformation.

Source: Haver Analytics, World Bank, BP Statistical Review of World Energy Efficiency, U.S. Energy Information Administration.

FIGURE 4

CHINA'S ROLE IN GLOBAL TRADE AND GLOBAL COMMODITY MARKETS

China's production of commodities has also risen sharply, with production of metals increasing eleven-fold over the past two decades. China now accounts for around half of global coal and metals production, and is particularly dominant in aluminum production. Commodity markets are highly sensitive to changes in China's growth. A 1 percent change in China's industrial production has been associated with a 5-7 percent change in metal and energy prices over the following year (Kolerus, N'Diaye, and Saborowski 2016).

C. Financial linkages

Although its financial ties are still limited, China is increasingly investing in other countries. China's combined international assets and liabilities doubled to reach about 4 percent of the world total between 2007 and 2018. China's FDI assets abroad increased more than ten-fold between 2007 and 2018 to 4 percent of the world's total FDI assets.

IV. Spillovers from the United States and China to the world economy

Economic developments in the United States and China can have significant impacts on the global economy, as shocks from these economies can be transmitted to the rest of the world through the wide range of channels documented above. An acceleration in growth in the two economies can lift growth in its trading partners directly, through an increase in import demand, and indirectly, by strengthening productivity spillovers embedded in trade (Eickmeier 2007; Jansen and Stockman 2004; Kose, Prasad, and Terrones 2004).³ Given their sizeable role in global commodity markets, an acceleration in growth could lift global commodity demand and raise prices, support activity, and ease balance of payments pressures in commodity exporters. Financial market developments in the United States can also have global implications. In addition, monetary and fiscal stimulus in the United States could boost domestic activity and generate cross-border spillovers through real and financial channels.

³ For a discussion of these channels, see Hirata, Kose, and Otrók (2013), Jansen and Stockman (2004), and Eickmeier (2007).

In addition to growth shocks, policy or financial market developments, shocks to confidence in the United States and China can reverberate across borders and be sources of business cycle fluctuations elsewhere (Levchenko and Pandalai-Nayar 2018). Elevated uncertainty about changes in U.S. and Chinese policies can reduce incentives to commit to capital investment at home and abroad, and this in turn could adversely affect long-term global growth prospects (Kose and Terrones 2015).

A. Spillovers from the U.S. economy

a) Growth spillovers

U.S. growth shocks—including those driven by fiscal stimulus—can have sizable effects on activity in the rest of the world (World Bank 2016a).⁴ For example, a 1 percentage point decrease in U.S. growth could reduce global growth and growth in EMDEs excluding China by about 1 percentage point within two years (Table 1).⁵ The impact of such a U.S. growth shock on investment could be approximately twice as large (World Bank 2017). NAFTA members (Canada and Mexico) would particularly benefit from trade spillovers (Yifan and Abeyasinghe 2016). Commodity markets could be another transmission channel of a U.S. growth shock to EMDEs since it could raise global oil prices given that the U.S. remains the world's largest consumer of crude oil (World Bank 2016b).

b) Financial market spillovers

The role of the United States in global financial markets goes well beyond direct capital flows to and from the United States (Berkmen *et al.* 2012; de Grauwe and Yi 2016; Frankel and Saravelos 2012). U.S. sovereign bond and equity markets are the largest and most liquid in the world (IMF 2007). Swings in U.S. sovereign bond yields—whether

⁴ If U.S. fiscal stimulus leads to a higher U.S. public debt in the long-term, it could also raise global interest rates and be a source of adverse cross-border spillovers by tightening financial conditions (Cardarelli and Kose 2004).

⁵ This estimate for advanced economies is in line with other estimates for Canada (Bayoumi and Swiston 2009). For Caribbean economies and Mexico with strong economic ties to the United States, considerably larger spillovers in excess of 1 percentage point have been estimated (Sun and Samuel 2009; Swiston and Bayoumi 2008).

TABLE 1
 SPILLOVERS FROM U.S. AND CHINA
 (PERCENTAGE POINT CHANGE IN GROWTH
 IN RESPONSE TO 1 PERCENTAGE POINT DECLINE IN U.S. OR CHINA'S GROWTH)

	United States		China	
EMDEs excluding China				
1 year	-1.0	[-0.5, -1.5]	-0.3	[-0.2, -0.5]
2 years	-0.9	[-0.3, -1.7]	-0.5	[-0.2, -0.6]
3 years	-0.9	[-0.2, -1.8]	-0.5	[-0.2, -0.6]
Commodity-importing EMDEs ex. China				
1 year	-0.7	[-0.3, -1.2]	-0.5	[-0.2, -0.7]
2 years	-0.7	[-0.2, -1.3]	-0.5	[-0.2, -0.8]
3 years	-0.7	[-0.2, -1.3]	-0.5	[-0.2, -0.7]
Commodity-exporting EMDEs				
1 year	-0.9	[-0.5, -1.4]	-0.7	[-0.4, -1.0]
2 years	-0.9	[-0.3, -1.6]	-0.9	[-0.6, -1.2]
3 years	-0.9	[-0.3, -1.7]	-0.9	[-0.6, -1.3]
Global				
1 year	-1.0	[-0.6, -1.3]	-0.4	[-0.3, -0.5]
2 years	-1.0	[-0.5, -1.6]	-0.5	[-0.3, -0.7]
3 years	-1.0	[-0.5, -1.7]	-0.5	[-0.3, -0.7]

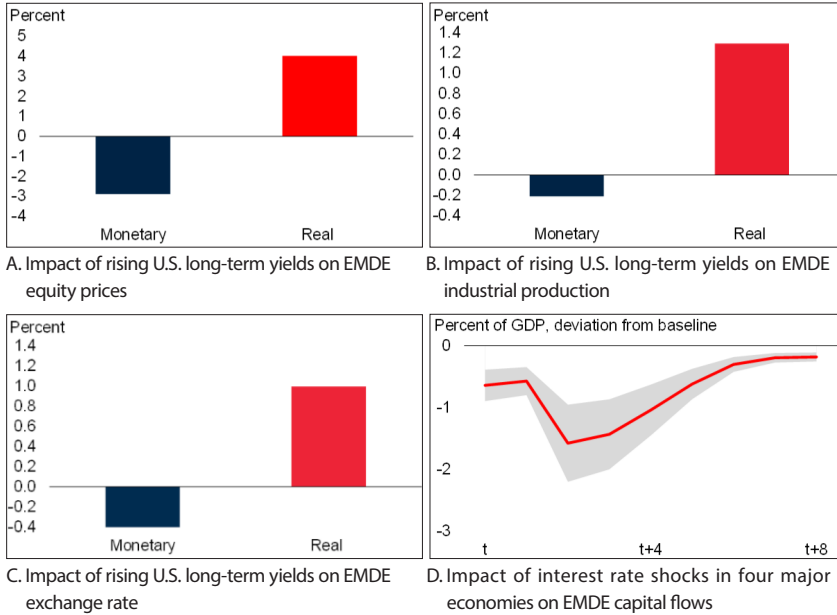
Note: Cumulative response to a 1 percentage point shock. Confidence intervals are 16th and 84th percentiles. Estimates for EMDEs excluding China are based on a Bayesian vector autoregressive model in the following order: U.S. growth, 10-year U.S. government bond interest rate, JP Morgan EMBI index, EM7 excluding China growth, China growth, oil price, and other EMDEs growth. Estimates for commodity-importing and commodity-exporting EMDEs are based on a Bayesian vector autoregressive model in the following order: G7 excluding U.S. growth, U.S. growth, 10-year U.S. government bond interest rate, JP Morgan EMBI index, China growth, oil price, and commodity-importing or commodity-exporting EMDEs growth. Global growth based on the aggregate model from Huidrom et al. (2019). All models have four lags over a sample of 2000Q1 to 2019Q1. Weighted using GDP at 2010 market exchange rates or purchasing power parity.

Source: World Bank.

because of changing expectations of U.S. monetary policy or because of shifting risk sentiment—are often closely mirrored by sovereign bond yields in other large financial markets, including the euro area.

The implications for EMDEs of actual or expected changes in U.S. monetary policy would likely depend on underlying drivers (Figure 5; Arteta *et al.* 2015).⁶ Financial stress associated with such a change

⁶ If a rise in long-term U.S. yields is supported by prospects of a strengthening



Note: Impulse responses after 12 months from a PVAR model, including EMDE industrial production, long-term bond yields, stock prices, nominal effective exchange rates and bilateral exchange rates against the U.S. dollar, and inflation, with monetary and real shocks as exogenous regressors. Monetary and real shocks are defined as in Box 1 of Arteta *et al.* (2015). All data are monthly or monthly averages of daily data, for January 2013-September 2015 for 23 EMDEs. For comparability, the size of the U.S. real and monetary shocks is normalized such that each shock raises EMDE bond yields by 100 basis points on impact.

Source: Bloomberg, Haver Analytics, World Bank estimates.

FIGURE 5
SPILLOVERS FROM U.S. INTEREST RATE SHOCKS TO EMDEs

could combine with domestic fragilities and increase the risks of sudden stops in capital flows among more vulnerable EMDEs.⁷ Similarly, cross-

U.S. economy (a favorable “real shock”), the net effect for EMDEs could be positive. In particular, it could bolster equity valuations and activity, and lead to less pronounced currency pressures. Alternatively, if financial markets are surprised by prospects of a less accommodative stance of U.S. monetary policy that is not supported by strengthening growth, this could have adverse consequences for EMDEs through asset price and capital flow channels (an adverse “monetary shock”).

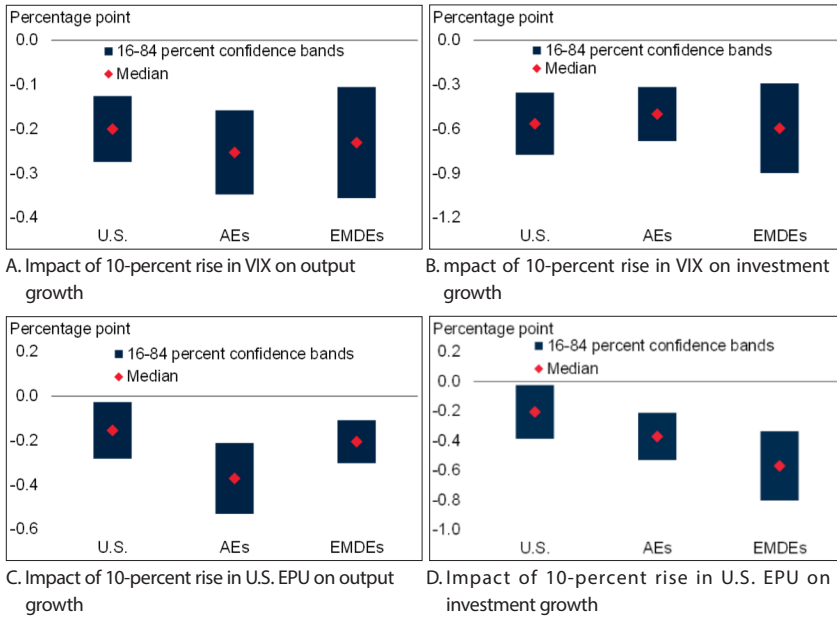
⁷ Borio and Zhu (2012); Bowman, Londono, and Sapriza (2015); Bruno and

border spillovers from U.S. equity markets are large, regardless of the size of bilateral portfolio flows, and instead depending on openness to the global economy (Ehrmann, Fratzscher, and Rigobon 2011; Rose and Spiegel 2011). This makes U.S. monetary policy and investor confidence an important driver of global financial conditions (Ehrmann and Fratzscher 2009; Arteta *et al.* 2015; Rey 2015).

Because of its predominant use in global trade and financial transactions, broad-based U.S. dollar exchange rate movements have global implications. Episodes of U.S. dollar appreciation tend to coincide with bank deleveraging, tighter global financial conditions, greater incidence of financial crises, and subdued EMDE growth (Bruno and Shin 2015a and 2015b; IMF 2015a and 2015b; Druck, Magud, and Mariscal 2015; Abbate *et al.* 2016). Although the average share of private and public debt denominated in foreign currency has declined since the 1990s, the exposure of some EMDEs to foreign currency movements is still high, especially in commodity exporters, and importers that have received large capital inflows after the global financial crisis (Arteta *et al.* 2016). As has happened in the past, if the U.S. dollar goes through a period of significant appreciation, EMDEs with substantial short-term dollar-denominated debt could become particularly vulnerable to rollover and interest rate risks and a drying up of foreign exchange liquidity (Chow *et al.* 2015; Chui, Fender, and Sushko 2014; McCauley, McGuire, and Sushko 2015).

c) Uncertainty spillovers

Increased uncertainty, driven by financial market volatility or ambiguity about the direction and scope of policies, could discourage investors—in the United States and elsewhere—that base their decisions about long-term investments on stable financing conditions and predictable policies. Sustained increases in financial market uncertainty would set back output and investment growth in the United States, other advanced economies, and EMDEs (Carrière-Swallow and Céspedes 2013; Bloom 2009). A 10 percent increase in the implied volatility of the U.S. stock market (VIX) would reduce average EMDE output growth by about 0.2 percentage point and EMDE investment growth by about



Note: Cumulative impulse responses after one year on output growth (A.C.) or investment growth (B.D.) in the United States, 23 other AEs (advanced economies), and 20 EMDEs to a 10-percent increase in the VIX (A.B.) or in the U.S. EPU (C.D.). Vector autoregressions are estimated for 1998Q1-2016Q2 with two lags. The model for the U.S. includes, in this order, uncertainty index (VIX or U.S. EPU), U.S. stock price index (S&P 500), U.S. 10-year bond yields, U.S. real GDP and investment growth. The model for AEs includes uncertainty index (VIX or U.S. EPU), MSCI index for advanced economies (MXGS), U.S. 10-year bond yields, aggregate real output and investment growth in 23 other AEs. The model for EMDEs includes uncertainty indexes (VIX or U.S. EPU), the MSCI emerging market equity price index, J.P. Morgan emerging market bond spreads (EMBIG), aggregate real output and investment growth in 20 EMDEs. G7 real GDP growth, U.S. 10-year bond yields, and the MSCI world equity price index are added as exogenous regressors.

Source: Haver Analytics, OECD, World Bank estimates.

FIGURE 6
SPILLOVERS FROM U.S. UNCERTAINTY SHOCKS TO EMDEs

0.6 percentage point after one year (Figure 6). The impact on other advanced economies would be broadly comparable.

Financial market volatility does not necessarily coincide with policy uncertainty, yet both appear to be detrimental to investment. Policy uncertainty is measured by the Economic Policy Uncertainty Index (EPU, a news-based measure of policy uncertainty; Baker, Bloom, and Davies 2016). A sustained 10 percent increase in the index of U.S. economic

policy uncertainty could reduce U.S. output growth by 0.15 percentage point, EMDE output growth by 0.2 percentage point, and EMDE investment growth by 0.6 percentage point after one year (Figure 6).

B. Spillovers from China

Global growth spillovers from China are sizeable and, in part because of China's larger economic size, much larger than those from other BRICS (Brazil, Russia, India, China, South Africa) economies (Huidrom *et al.* 2019). China's economy is twice as large as the other BRICS combined and five times as large as the next-largest BRICS economy (India); it has six times the trade of the next most open BRICS economy (Russia); and accounts for 2 times the commodity imports of the next-largest BRICS commodity importer (India).

A 1 percentage point decrease in growth in China is estimated to reduce growth in other EMDEs by 0.5 percentage point within two years and global growth by 0.5 percentage point (Table 1). The impact on commodity-exporting EMDEs would be almost twice as large as on other commodity-importing EMDEs.

Spillovers from economic uncertainty in China could be significant. For example, variation in the macroeconomic uncertainty index in China constructed following Jurado, Ludvigson, and Ng (2015) explains 1.7 percent, 3.8 percent, 13 percent, and 4.3 percent of the fluctuations in U.S. CPI, PPI, EEP, and M2, respectively (Huang *et al.* 2018).

As China's economy slows, rebalances, and shifts toward less commodity-intensive activities, its demand for commodities is likely to plateau. For example, China's and other EMDEs' rising per capita incomes and slowing growth are expected to slow global consumption growth for metals, which are among the commodities most sensitive to the business cycle, by one-third over the next decade (Baffes *et al.* 2018; World Bank 2018a). Based on current levels of consumption of commodities and expected growth rates elsewhere, there is no country or group of countries that is expected to come close to replicating China's growth in metals demand, which in turn will provide less support to commodity prices (World Bank 2015 and 2018b).

V. Conclusion

The United States and China, the world's two largest economies, together account for close to 40 percent of global GDP and more than one-fifth of global trade and world population. Because of their size and international linkages, developments in these two economies are bound to have significant implications for the rest of the world.

The United States is the world's single largest economy: it accounts for almost one-quarter of global output and about one-tenth of total trade flows. It is also the single largest international creditor and debtor economy. China, the world's second-largest economy accounts for about one-sixth of global output, one-tenth of global trade and close to one-fifth of the world's population. China plays an important role in global commodity markets, currently accounting for around half of global consumption of coal and metals.

Shocks to U.S. growth, changes in U.S. fiscal and monetary policies, or uncertainty in U.S. financial markets or policies all could have sizeable global spillovers. The impact is likely to be broad-based and most severe for more financially open economies with stronger trade ties to the United States. A shock to growth in China would also reverberate around EMDEs, with particularly strong impacts on commodity exporting EMDEs. For now, shocks to China's growth may have somewhat more modest global impacts than shocks to U.S. growth. However, policy uncertainty, especially adverse developments, about these two countries' future economic relationship would hit many countries doubly.

This paper documents in detail the channels of transmission of shocks in these two economies to the global economy and provides econometric estimates of the size of these shocks. Future research could deepen this analysis in two directions. First, it could aim to show quantitatively in a general equilibrium framework how China's integration into the global economy has increased the impact of economic developments in China on the global economy over time. Second, it could quantify in greater detail, and more systematically than done here, the country characteristics that are associated with a stronger domestic impact of shocks in China or the United States.

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