



SPECIAL FOCUS 1.1

Investment: Subdued Prospects,
Strong Needs

Investment: Subdued Prospects, Strong Needs

Investment growth in emerging market and developing economies (EMDEs) over the next three years is expected to be subdued and below historical averages. This continues a prolonged, broad-based slowdown after the global financial crisis, notwithstanding a modest recovery between 2016 and 2018. During the forecast period, EMDE investment growth is expected to be held back by weak global growth, limited fiscal space against the backdrop of elevated debt, and the presence of several structural constraints. Weak investment is a concern because it will further dampen potential growth, and make achieving the Sustainable Development Goals more difficult. Depending on country circumstances, the use of appropriate fiscal and structural reforms could generate upside potential for investment in the medium and long term. For EMDEs with limited fiscal space, institutional reforms to improve business conditions could help attract private investment. In light of elevated debt levels, policymakers should also ensure resources are allocated to high quality investment projects and improve the transparency and efficiency of public investment management systems where necessary.

Recent developments and prospects

Investment growth in emerging market and developing economies (EMDEs) is below historical averages and is expected to remain weak over the forecast horizon (Figure SF1.1.1.A).¹ In absolute terms, EMDE investment amounted to \$9.7 trillion (nearly one-third of GDP) in 2018. This Special Focus updates previous work analyzing the drivers and implications of post-crisis investment weakness in EMDEs (World Bank 2017; Kose et al. 2017; Vashakmadze et al. 2017).

EMDE investment growth reached a modest 4.7 percent in 2018 and is expected to slow (to 3.9 percent) in 2019, before advancing modestly in 2020 and 2021. A modest cyclical recovery in commodity exporters is expected to support the investment recovery in 2020-21. The outlook for EMDE investment has been downgraded since 2018, however, amid weaker-than-expected global activity and softening investor confidence. Moreover, EMDE investment growth is projected to remain below historical averages during the forecast period.

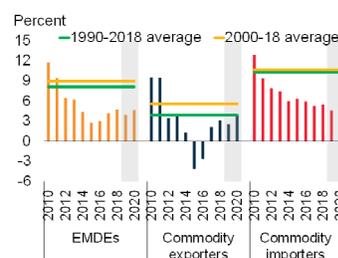
Note: This Special Focus was prepared by Dana Vorisek, Naotaka Sugawara, and Lei Sandy Ye. Research assistance was provided by Liu Cui and Mengyi Li.

¹ Investment is defined as real gross fixed capital formation. Table SF1.1.1 lists the countries in the investment sample. Together, the 65 EMDEs and 34 advanced economies represent 96 percent of global GDP in 2018. The 65 EMDEs represent 92 percent of total EMDE GDP in 2018.

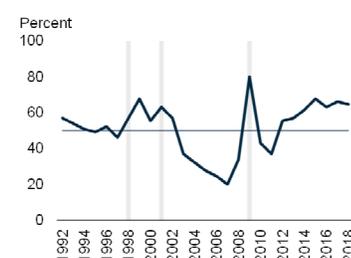
FIGURE SF1.1.1 Investment trends and prospects

Notwithstanding a modest recovery from its 2015 low, EMDE investment growth remains weak and below historical averages—in the aggregate as well as in the majority of countries. Investment growth in EMDEs is projected to advance modestly in the medium term, reflecting a pickup in commodity exporters, but to a rate still below historical averages. The sluggishness of investment is expected to persist in the long term.

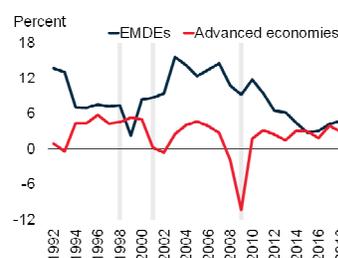
A. EMDE investment growth



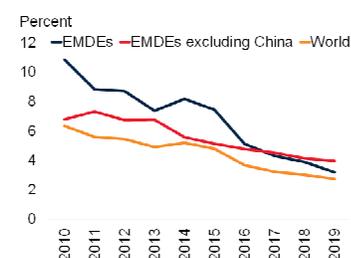
B. Share of EMDEs with investment growth below 2000-18 average



C. Investment growth



D. Long-term investment growth forecasts



Source: Consensus Economics, Haver Analytics, Oxford Economics, World Bank.

A.-C. Investment refers to real gross fixed capital formation (public and private combined). 2010 investment-weighted averages. Sample includes 65 EMDEs and 34 advanced economies (listed in Table SF1.1.1). Due to limited data availability, this special focus covers a smaller set of EMDEs than those for which the WBG projects GDP growth in *Global Economic Prospects*.

A. Shaded areas indicate forecasts.

B.C. Shaded areas indicate global recessions and slowdowns.

D. 10-year-ahead forecasts surveyed in indicated year. Constant 2010 U.S. dollar investment-weighted averages. Sample includes 23 advanced economies and 20 EMDEs (indicated by † in Table SF1.1.1). For 2010-18, the average of four projections during the year is shown; for 2019, the average of two projections during the first half of the year is shown.

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The recent modest recovery in EMDE investment growth follows a prolonged, broad-based slowdown following the global financial crisis. Investment growth in these economies fell from 11.8 percent in 2010 to a low of 2.8 percent in 2015. In well over half of EMDEs, investment growth has been below country-specific long-term averages since 2012 (Figure SF1.1.1.B). This differs from the experience in advanced economies, where investment growth recovered rapidly after the global financial crisis and has since been around its long-term average of 2.3 percent (Figure SF1.1.1.C). For the world, investment growth is expected to decelerate to 2.7 percent in 2019, from 3.7 percent in 2018, and to remain subdued through 2021, held back by persistent sluggishness in investment growth in advanced economies.

The long-term investment outlook is subdued. The private sector's 10-year-ahead outlook for investment has steadily weakened over the past decade, for both EMDEs and the world (Figure SF1.1.1.D; Kose, Ohnsorge, and Sugawara, forthcoming).² In early 2019, the 10-year-ahead outlook for EMDE investment growth was 3.2 percent, nearly 8 percentage points below the most recent high in 2010, and more than half a percentage point lower than projected in 2018. The long-term outlook for EMDEs excluding China has also been downgraded relative to 2018.

Against this backdrop, this Special Focus examines the following questions.

- What were the main drivers of weak post-crisis investment growth in EMDEs?
- What are the implications of weak investment growth in EMDEs and what policy responses are available?

This Special Focus extends previous analysis of investment in EMDEs in several dimensions (World Bank 2017; Kose et al. 2017). First, it updates the investment data and provides revised projections of investment growth. Second, the study examines how the drivers of investment

growth have changed during the past decade—comparing the drivers in the immediate post-crisis years to the most recent years, when investment growth began to recover. Third, it discusses the medium- and long-term consequences of weak investment growth.

The Special Focus presents the following main findings. First, investment growth in EMDEs has risen modestly since bottoming out in 2015, reflecting a cyclical recovery among commodity-exporting EMDEs and a fading of country-specific factors holding back investment in some large economies. In the medium term, investment growth is expected to continue to gain ground, although only modestly, and at a pace still below long-term historical averages. Second, empirical estimates suggest that during 2015-18, the main driver of the acceleration in EMDE investment growth was the terms of trade improvement in commodity-exporting economies. This contrasts with the multiple cyclical drivers depressing investment growth in a large number of EMDEs during 2011-15. Third, weak investment growth has contributed to weaker potential growth and will make meeting the Sustainable Development Goals (SDGs) more challenging. A sustained improvement in investment growth in EMDEs requires the use of fiscal, monetary, and structural policy tools, with specific priorities depending on country circumstances.

Drivers of investment growth

Post-crisis slowdown

The slowdown in EMDE investment growth from 2010 to 2015 reflected external and domestic factors.³ For commodity exporters, a steep drop in oil and metals prices between mid-2014 and early 2016 and associated adverse terms-of-trade shocks

²The world sample includes 23 advanced economies and 20 EMDEs that together represent 87 percent of global GDP in 2018. The 20 EMDEs represent 78 percent of total EMDE GDP in 2018.

³Studying the trends in investment growth is relevant for short-term analysis. Trends in investment ratios (i.e., investment relative to GDP) are an important complement to trends in investment growth, and are more relevant for long-term analysis on investment and savings. For the sample of 65 EMDEs used in this note, the investment ratio has moderated somewhat, from a post-2000 high of 34.8 percent in 2013 to 33.4 percent in 2018. Excluding China, the investment ratio in EMDEs is substantially lower, but it has also fallen, from a high of 25.4 percent in 2012 to 23.8 percent in 2018.

were key factors behind their investment slowdown (Islamaj et al. 2019; Kose et al. 2017; World Bank 2017; Stocker et al. 2018; Vashakmadze et al. 2017). Policy uncertainty, weak activity in advanced economies, and high corporate leverage also dampened investment in EMDEs during this period.

Slowing investment growth in EMDEs reflected decelerations in both public and private investment growth during the post-crisis period (Figure SF1.1.2.A).⁴ The two largest commodity-exporting economies, Brazil and Russia, suffered double-digit investment contractions in 2015 amid deep economic recessions. Investment growth in commodity-importing economies has been less volatile, but also moderated after 2010. An economic policy shift in China toward more sustainable and balanced growth (i.e., more reliance on consumption and less reliance on investment) contributed significantly to the EMDE investment growth slowdown (Figure SF1.1.2.B). Slowing investment growth in China may also have dampened investment growth in other EMDEs (World Bank 2017). Yet even excluding China, investment growth in EMDEs has slowed since 2010 (Figure SF1.1.2.C).

Moderate recovery since 2016

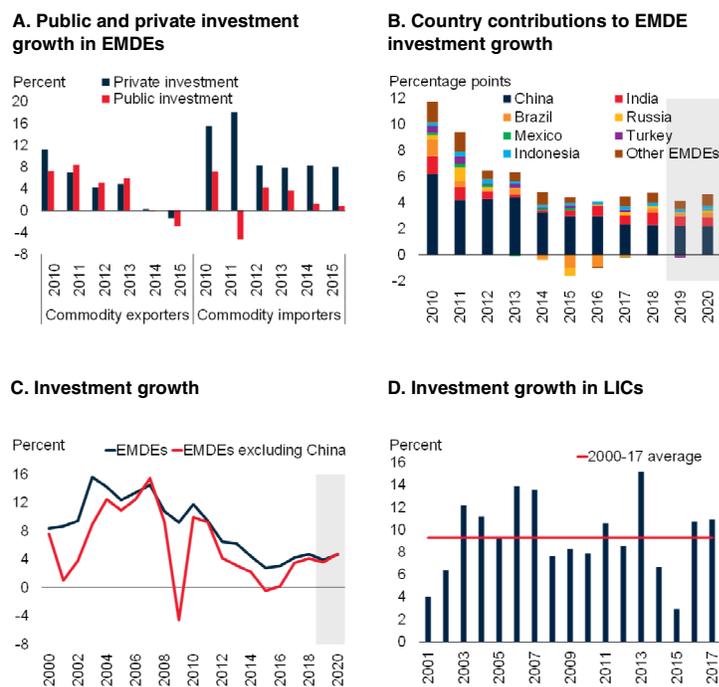
The moderate recovery in investment growth since 2016 reflects in part a pickup in global manufacturing and trade that began in mid-2016 and peaked in late 2017. The recovery has been further supported by a rebound in oil and metals prices in 2017-18, which encouraged capital expenditures in the commodity-dependent regions of Latin America and Sub-Saharan Africa.

Commodity exporters. Investment growth in EMDE commodity exporters accelerated to 2.2 percent in 2017 and 3.2 percent in 2018, after two years of contraction. In Russia, investment

⁴Among the 11 EMDEs that disaggregate private and public investment in their national accounts, private investment growth outpaced public investment growth in 2016-18 in some (Bahrain, Malaysia, Mexico, South Africa, Thailand), while public investment growth has been faster in others (Bangladesh, Peru). In still other countries, the trend is less clear. Private investment has accounted for about three-quarters of total investment, on average, since 2010, in the EMDEs that disaggregate the two components.

FIGURE SF1.1.2 Decomposition of EMDE investment trends

Slowing investment growth in EMDEs after 2010 reflected decelerations in both public and private investment growth. By country composition, China accounts for a large portion of the investment slowdown in EMDEs after 2010, but commodity-exporting economies also contributed. LICs for which data is available showed above-trend investment growth in 2016 and 2017, after a slowdown in 2014-15.



Source: Haver Analytics, International Monetary Fund, World Bank.
 A. 2010 investment-weighted averages. Investment refers to real gross fixed capital formation. EMDE sample includes 63 economies (listed in Table SF1.1.1, except Jamaica and West Bank and Gaza).
 B. C. 2010 investment-weighted averages. Investment refers to real gross fixed capital formation. Shaded areas indicate forecasts. EMDE sample includes 65 economies (listed in Table SF1.1.1).
 D. 2010 investment-weighted averages. Sample includes eight LICs: Benin, Burkina Faso, Mali, Mozambique, Nepal, Senegal, Tanzania, and Uganda.
[Click here to download data and charts.](#)

growth rebounded in 2016 and 2017 from a low associated with sharply declining oil prices and international sanctions in 2015. In Brazil, investment growth accelerated in 2018 as the economy slowly recovered from a multiyear recession. Large infrastructure projects are supporting solid investment in Indonesia. Improvements in these countries more than offset deteriorating investment growth in 2018 in other large economies, such as Argentina, where investment contracted due to financial turmoil, policy uncertainty, and a severe drought—and the Islamic Republic of Iran, where U.S. economic sanctions are inhibiting investment.

Commodity importers. Investment growth in commodity-importing EMDEs also picked up in 2018, to 5.5 percent. In China, private investment improved in response to policies, which offset weakness in public investment. In India, investment firmed as temporary disruptions, such as those related to the implementation of a goods and services tax in 2017, faded and credit growth picked up. Investment in Mexico recovered modestly in 2018 as trade uncertainty receded with the announcement of the United States-Mexico-Canada Agreement. In Turkey, however, investment slumped last year, as the country experienced high market volatility and economic stress.

Low-income countries. Low-income countries (LICs) with available data initially (during 2010-13) did not share the investment slowdown of the broader group of EMDEs (Figure SF1.1.2.D). However, investment appears to have fallen sharply, in line with other EMDEs, during the global financial crisis and the most recent commodity price bust starting in 2014. The 2014-15 slowdown was followed by two years of above-trend growth. In Nepal and Tanzania, two of the largest LIC economies, investment expanded rapidly in 2016-17, on post-earthquake reconstruction and robust construction sector activity, respectively. All LICs with available data reported solid investment growth in 2017.

Modest medium-term acceleration

Investment growth in EMDEs is expected to dip slightly in 2019, to 3.9 percent, reflecting the resumption of a trend slowdown in investment growth in China as it rebalances its economy, as well as temporary factors in several other large commodity importers. These factors include policy uncertainty in Mexico (including for the domestic oil and gas sector) and a challenging post-crisis investment environment in Argentina and Turkey.

In 2020 and 2021, investment growth is projected to accelerate moderately, supported by faster growth in commodity exporters, but still fall short of trend rates. In Brazil, for instance, investment growth is expected to recover as confidence

improves and credit conditions become gradually less tight. In Russia, investment is expected to accelerate moderately as public spending on infrastructure picks up. The acceleration will not be universal among the largest economies, however. Through 2021, investment growth in China is expected to continue its gradual moderation, to rates well below those of recent decades. In India, it is expected to grow a slower pace than in 2018, although investment growth is expected to remain robust as benefits of recent policy reforms further materialize.

In addition to country-specific drivers of the EMDE investment outlook, several broad factors are expected to influence EMDE investment growth in the short and medium term.

Easier financing conditions. In the context of an increasingly dovish stance by the U.S. Federal Reserve and the European Central Bank, external financing conditions for EMDEs have improved since late 2018.⁵ Sovereign bond spreads have fallen, bond issuance has picked up, and recent data indicate that capital inflows to EMDEs are recovering. The easier financing environment may provide a boost to still sluggish investment, at least in the short term. However, additional financing must be channeled toward productive uses, so that it does not simply add to already high government and corporate leverage in many EMDEs.

Limited fiscal space and rising debt. Elevated and rising debt levels in EMDEs, including corporate debt, will weigh on investment growth, especially if global financing conditions tighten unexpectedly. Government finances in many EMDEs are in a fragile position, with deteriorating debt dynamics and limited fiscal space (Figure SF1.1.3.A). In some cases, reforms to improve fiscal space have stalled, while funding of new or increasing liabilities, such as public sector wage bills, has put further strain on domestic revenues

⁵Many studies have found strong linkages between the U.S. monetary policy stance and credit cycles in EMDEs. A recent study finds that the spillovers between accommodative U.S. monetary policy and foreign bank lending to emerging markets is strongest for the most risky countries, and within countries, strongest for the most risky firms (Bräuning and Ivashina 2018).

(Brazil, South Africa). Oil exporters continue to face fiscal sustainability challenges. In metals and agricultural producers, weaker-than-expected commodity prices could put further pressure on already fragile public finances (South Africa, Zambia). The relationship between limited fiscal space and sluggish investment may be particularly strong for countries, including many LICs, where debt levels have increased in recent years and interest payments are absorbing a rising share of government revenues (World Bank 2019a). Inefficient management of public finances may also constrain investment growth in EMDEs.

Unfavorable external economic outlook. External conditions for EMDE investment are expected to become less favorable in the medium term (World Bank 2019a). Growth is projected to ease in major economies (China, the Euro Area, the United States) in 2019-21, which may slow investment and exports in closely-linked EMDEs. Commodity prices—both energy and non-energy—are projected to weaken somewhat in 2019 (World Bank 2019b). In addition, global policy uncertainty, including trade policy uncertainty, remains elevated. Persistent investor concerns about possible further protectionist trade actions could reduce the attractiveness of new investment projects. Generalized market-related uncertainty could also reduce capital flows to EMDEs, potentially hindering investment (Figure SF1.1.3.B).⁶

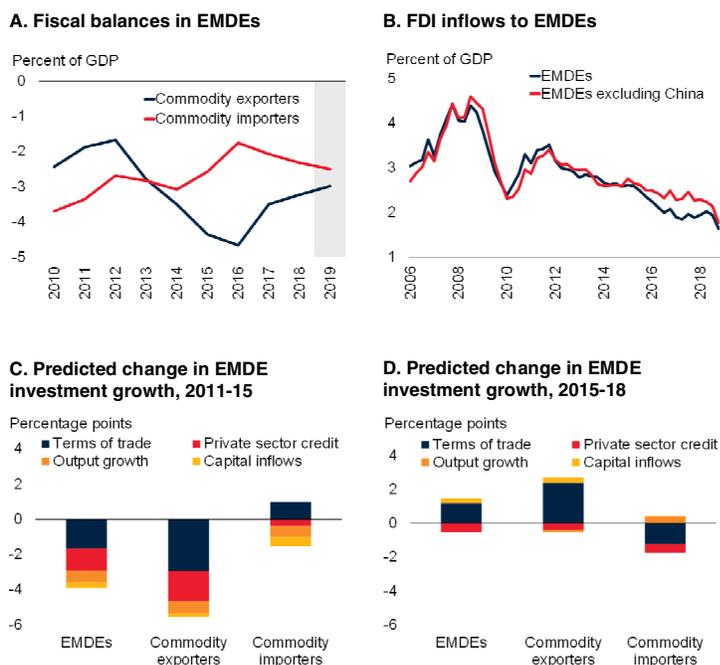
Structural factors. In addition to macroeconomic factors, institutional and structural factors play a role in determining investment growth and investment ratios in EMDEs. These factors include financial sector development and oversight, trade policy, demographic change, and economic diversification, among others (World Bank 2017).

The economic landscape described above suggests that drivers of investment growth in EMDEs are

⁶ FDI is a key channel through which fixed investment is financed in EMDEs. For the EMDEs included in this Special Focus, FDI inflows dropped from about 3.3 percent of GDP in 2011 to 1.7 percent of GDP in 2017. The trend is similar when China is excluded. FDI inflows to EMDEs are estimated to have picked up moderately in 2018, although to a level below historical averages.

FIGURE SF1.1.3 Drivers of investment growth in EMDEs

Unfavorable external conditions and weak fiscal positions are expected to continue weighing on investment growth. Econometric estimates suggest that the pronounced investment growth slowdown in 2011-15 was, in almost equal measure, a reflection of weakening domestic output growth, a sharp deterioration in terms of trade for commodity exporters, and elevated private debt burdens. The subsequent moderate recovery largely reflected improving terms of trade for commodity exporters.



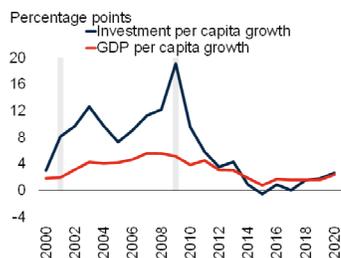
Source: Haver Analytics, International Monetary Fund, International Country Risk Guide, World Bank. A. Medians within groups. Shaded area indicates forecast. Sample includes 151 EMDEs. B. Four-quarter (from t-3 to t) moving sum of FDI inflows, divided by annual GDP. Sample includes 54 EMDEs. Last observation is 2018Q4. C.D. Unweighted averages for 56 EMDEs. Charts show change in contribution of each explanatory variable to predicted investment growth (defined as coefficient estimate times the realization of the variable), based on the regression specification in first column of Annex Table SF1.1.1.1. For presentational clarity, the charts show only the four explanatory variables with the largest contributions to the predicted change in investment growth. [Click here to download data and charts.](#)

diverse. An econometric exercise using panel data for 57 EMDEs suggests that over the past two decades, higher EMDE investment growth was associated with macroeconomic factors including higher output growth, stronger capital inflows, high political stability, stronger terms of trade growth, and lower private sector debt burdens (Annex SF1.1.1, Annex Table SF1.1.1.1). The regression results suggest that the pronounced investment growth slowdown in 2011-15 was, in almost equal measure, a reflection of weakening domestic output growth, a sharp deterioration in terms of trade for commodity exporters, and elevated private debt burdens (Figure SF1.1.3.C).

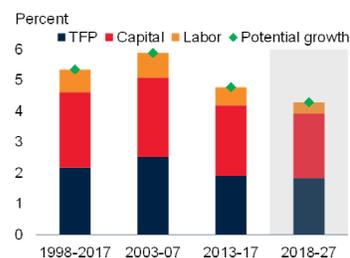
FIGURE SF1.1.4 Implications of weak investment growth in EMDEs

Decelerating investment growth during the post-crisis period has dampened the pace of convergence in per capita GDP between EMDEs and advanced economies and has slowed capital accumulation. Slowing capital accumulation, together with decelerating productivity and changing demographic conditions, has contributed to weaker potential growth in EMDEs. Continued weak investment growth will make filling large investment gaps in EMDEs more challenging.

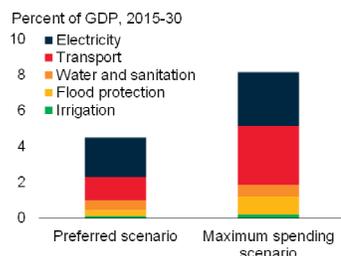
A. Difference, EMDE and advanced-economy per capita growth



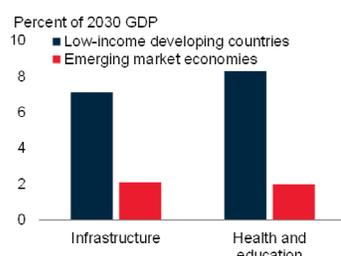
B. Contribution to potential growth, EMDEs



C. Spending needs in infrastructure sectors related to SDGs, World Bank estimates



D. Additional spending needs in sectors related to SDGs, IMF estimates



Source: Gaspar et al. (2019), Penn World Tables, Rozenberg and Fay (2019), UN Population Prospects, World Bank.

A. 2010 investment-weighted averages. Investment refers to real gross fixed capital formation (public and private combined). Shaded areas indicate global recessions and slowdowns. Sample includes 65 EMDEs and 34 advanced economies (listed in Table SF.1.1.1).

B. GDP-weighted averages. TFP = total factor productivity. Shaded area indicates forecasts. Sample includes 50 EMDEs.

C. D. SDGs = Sustainable Development Goals.

C. Bars show average annual spending needs during 2015-30. "Preferred scenario" is constructed using ambitious goals and high spending efficiency, and "maximum spending scenario" using ambitious goals and low spending efficiency. Country sample includes low- and middle-income countries. Country sample includes low- and middle-income countries, as defined by the World Bank. The technical appendix of Rozenberg and Fay (2019) provides information on the country sample. D. For health and education, estimates are the difference between the share of GDP in spending consistent with high performance and the current level of spending as a share of GDP. For infrastructure, estimates show spending needed to close the infrastructure gap (roads, electricity, and water and sanitation) between 2019 and 2030. Gaspar et al. (2019) and IMF (2018) provide more information on the low-income developing country sample.

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Although commodity importers benefited from the decline in commodity prices, slowing capital inflows weighed on investment growth. The subsequent moderate recovery of investment growth in 2016-18 largely reflected improving terms of trade for commodity exporters (Figure SF1.1.3.D).

Implications and policy responses

Weak investment to weigh on potential growth

The prospect that weak investment growth will remain weak over the longer-term, on the heels of the sharp slowdown in the first half of this decade, raises fundamental concerns about the economic health of EMDEs. The earlier period of weak investment growth in EMDEs dampened the pace of convergence in per capita GDP with advanced economies (Figure SF1.1.4.A). Slowing capital accumulation also contributed to a deceleration in potential growth in EMDEs during the past five years, and capital is expected to continue detracting from potential growth during the next decade (Figure SF1.1.4.B; World Bank 2018). In addition, sluggish investment may have slowed potential growth indirectly, by eroding productivity gains embedded in new equipment and technologies, or in research and development.

Sustained investment pickup needed to meet the SDGs

Despite weak investment prospects, EMDEs have large investment needs. Recent analysis by the World Bank finds that achieving the SDGs related to infrastructure (electricity, transport, water supply and sanitation) and infrastructure-related climate change costs (flood protection, irrigation) in low- and middle-income countries will require an average of investment of \$1.5–\$2.7 trillion per year during 2015–30, or 4.5 to 8.2 percent of these countries' combined GDP, depending on policy choices and the quality and quantity of infrastructure services (Figure SF1.1.4.C; Rozenberg and Fay 2019). The results highlight the importance of spending efficiency (i.e., the quality of spending) in achieving the infrastructure-related SDGs. An IMF study of additional annual spending needed in sectors related to the SDGs (i.e., health, education, roads, electricity, and water and sanitation) arrives at estimate of approximately \$2.5 trillion per year. This figure represents about 4 percent of emerging market economies' 2030 GDP and more than 15 percent of low-income developing countries' 2030 GDP

TABLE SF.1.1.1 Economies in sample

Emerging market and developing economies (65)			Advanced economies (34)
East Asia and Pacific	Latin America and the Caribbean	Middle East and North Africa	Australia †
Cambodia *	Argentina †	Algeria	Austria
China *†	Belize	Bahrain	Belgium
Indonesia †	Bolivia	Iran	Canada †
Malaysia †	Brazil †	Kuwait	Cyprus
Mongolia	Chile †	Lebanon *	Czech Republic †
Philippines *†	Colombia †	Morocco	Denmark
Thailand *†	Costa Rica	Oman	Estonia †
Vietnam *	Dominican Republic *	Saudi Arabia	Finland
	Ecuador	United Arab Emirates	France †
Europe and Central Asia	El Salvador *	West Bank and Gaza	Germany †
Albania	Guatemala		Greece
Armenia	Honduras	South Asia	Hong Kong SAR, China †
Belarus *	Jamaica	India *†	Iceland
Bosnia and Herzegovina	Mexico *†	Sri Lanka *	Ireland
Bulgaria *†	Nicaragua		Israel
Croatia *†	Paraguay	Sub-Saharan Africa	Italy †
Hungary *†	Peru †	Benin	Japan †
Poland *†	Uruguay	Botswana	Korea, Rep. †
Romania *†		Burkina Faso	Latvia †
Russia †		Cameroon	Lithuania †
Turkey *†		Côte d'Ivoire	Malta
Ukraine †		Ghana	Netherlands †
		Kenya	New Zealand †
		Mali	Norway †
		Mauritius *	Portugal
		Mozambique	Singapore †
		Namibia	Slovak Republic †
		Nigeria	Slovenia †
		Senegal	Spain †
		South Africa	Sweden †
		Uganda	Switzerland †
			United Kingdom †
			United States †

* Commodity importers. Each EMDE is classified as a commodity importer or commodity exporter. An economy is classified as a commodity exporter when, on average in 2012-14, either (i) total commodities exports accounted for 30 percent or more of total goods exports or (ii) exports of any single commodity accounted for 20 percent or more of total goods exports. Economies for which these thresholds were met as a result of re-exports were excluded. When data were not available, judgment was used. This taxonomy results in the classification of some well-diversified economies as importers, even if they are exporters of certain commodities (e.g., Mexico).

† Countries in Consensus Economics' long-term forecast sample in Figure SF1.1.1.D.

(Figure SF1.1.4.D; Gaspar et al. 2019).⁸ Mobilization of sufficient financing to close investment gaps in EMDEs has been challenging (United Nations Inter-Agency Task Force on Financing for Development 2019).

⁸ In addition, UNCTAD (2014) estimates that additional spending of \$1.5–2.7 trillion per year between 2015 and 2030 is needed to achieve the infrastructure-related goals in developing countries, plus about \$400 billion for infrastructure investment related to the health and education goals. The cost estimates provided by the World Bank, IMF, and UN studies are not comparable, however. They reflect differences in country samples, subsectors (e.g., the World Bank study focuses on low-carbon transportation systems—rail and bus rapid transit—while the IMF study looks at roads), and inclusion of operation and maintenance costs, among other factors.

Policy responses

The use of a range of policies—counter-cyclical stimulus measures as well as structural reforms—could generate upside potential for investment growth. A multi-pronged approach could simultaneously boost both public and private investment.

Fiscal policy measures could help by directly expanding public investment, where fiscal space is available, by reallocating resources from relatively unproductive areas, and by increasing spending efficiency. Addressing shortcomings in fiscal processes, such as inefficient public investment

management systems and weak fiscal transparency, could also boost public investment.

Institutional reforms play a key role in creating conditions conducive to attracting investment (Vashakmadze et al. 2017). Relevant reforms could address country-specific impediments such as business environment constraints, high business startup costs, labor and product market inefficiencies, and weak corporate governance. In countries where financial development is weak, financial deepening could boost investment, although risk indicators must be monitored to avoid financial instability (Kiyotaki and Moore 2005; Sahay et al. 2015). For policymakers, providing clarity about the direction of policy and refraining from adopting policies with highly uncertain outcomes could help support private investment. Membership in trade and integration agreements could help improve the business and investment climate and boost investment growth in some EMDEs, perhaps particularly so if such agreements boost integration in global value chains and help lower the cost of tradable investment goods (i.e., machinery and equipment), for which EMDEs still face significantly higher costs than advanced economies (IMF 2019; UNCTAD 2013).

In the long term, many commodity-exporting EMDEs need to diversify their economies in order to reduce the vulnerability of private investment to natural resource price volatility. EMDEs will also need to develop policies to offset the long-term investment dampening effects of population aging (Aksoy et al. 2019).

Annex SF1.1.1 Empirical analysis

Framework

A fixed effects panel regression that includes an array of explanatory variables as proxies for the cost and returns to capital is used to estimate the correlates of investment growth in EMDEs. The framework is consistent with an investment model such that the marginal return on capital equals the cost of capital (e.g., Hall and Jorgenson 1967). Higher costs of capital—whether due to higher

risk premia or higher risk-free real interest rates—would reduce investment, whereas higher productivity would raise it. The returns to capital are proxied by output growth and terms of trade growth. The risk premium is proxied by measures of political uncertainty. The cost of financing investment is proxied by capital inflows, private credit, and the business climate.

The weakness in investment growth has coincided with weakness in output growth and a deteriorating growth outlook for EMDEs (Didier et al. 2015). Weak growth prospects signal reduced opportunities for firms selling their goods and services and thus lead to lower investment. This is captured in the “accelerator model,” which assumes that firms aim to maintain a constant capital-to-output ratio, in line with their expectations of future output growth (Jorgenson 1963). Recent work on advanced economies has shown that output growth captures broad trends in investment, but actual investment often falls short of the model predictions (Leboeuf and Fay 2016). In the regression framework used in this special focus, weak growth prospects are proxied by lagged output growth to reduce concerns about endogeneity.

Sharp decreases in commodity prices may have caused large post-crisis swings in terms of trade (Baffes et al. 2015). Terms of trade developments shape growth prospects for both commodity exporters and importers, and help control for the effects of commodity prices. In commodity-exporting economies, terms of trade movements are dominated by commodity price fluctuations. Weaker terms of trade decreases return to investment, especially in commodity-related projects. It also reduces firms’ net worth, tightening their financial constraints.

Elevated private debt may have an adverse impact on firms’ investment for two reasons. First, since the benefits from investment are shared between the owners and creditors of leveraged firms, high debt can discourage investment. Second, high debt may reflect misallocation of capital to less innovative firms. This is particularly pronounced for investment in an environment of weak growth prospects and investment in long-lived assets, including real estate.¹ The regression includes the

lagged private sector credit-to-GDP ratio to proxy for household and firm debt burdens and the adverse effects of debt overhang. Although the flow of debt may be used to finance investment, the level of debt is a measure of leverage and is expected to be negatively correlated with investment. For EMDEs, Borensztein and Ye (2018), Magud and Sosa (2015), and Das and Tulin (2017) show that lower debt service capacity or higher leverage are associated with weaker investment.

Capital inflows, including foreign direct investment, can lift growth both by financing investment and by acting as a catalyst for additional domestically financed investment. FDI may also have indirect, productivity-enhancing collateral benefits (Kose et al. 2009). These include pressures for better institutions, financial development, and more stabilizing macroeconomic policies. The absorption by domestic firms of the new technology or managerial practices introduced by FDI can stimulate domestic investment, provided financing is available. Forays into new export markets by domestic firms, encouraged by FDI, may require up-front investment. Foreign portfolio inflows may be associated with higher physical investment by way of risk diversification and lower cost of capital (Henry 2007). Although capital flows often fund purposes other than investment, the regression includes the change in capital inflows into the reporting economy (in percentage points of GDP) as a proxy for external financing sources, among several other financing sources, of investment.

A number of studies have highlighted the importance of the institutional environment for investment (e.g., Lim 2014; Qureshi, Diaz-Sanchez, and Varoudakis 2015). Post-crisis, private investment recovered faster in countries with more developed financial market infrastructure, and higher institutional quality (e.g., governance quality) has been associated with higher investment. To capture the business climate, a dummy variable is included for large

reforms (two standard deviation improvements) captured by one of four governance indicators (regulatory quality, government effectiveness, rule of law, and control of corruption).

When firms are uncertain about future demand and future policies, their expected risk-adjusted returns may not exceed the costs of capital or the returns on liquid financial assets, holding back investment (Bloom, Bond, and Van Reenen 2007). In macroeconomic studies, the uncertainty generated by political risk has been shown to weigh on investment (Julio and Yook 2012). The regression includes, as a proxy for political stability, Political Risk Services' International Country Risk Guide (ICRG) political stability rating. A higher index indicates greater political stability. The ICRG political risk index is a weighted average of ratings of government stability, socioeconomic conditions, investment profile, corruption, the role of military in politics, law and order, external and internal conflict, religious and ethnic tensions, democratic accountability, and bureaucratic quality. Lastly, the regressions control for sudden stops in capital inflows and for country-fixed effects. Since several sudden stops occurred during global recessions and slowdowns, they also capture the impact of these episodes.

Data

Investment data are drawn from Haver Analytics and the World Bank. Investment growth denotes the annual growth rate of real gross fixed capital formation. Data on political risk ratings come from the ICRG. Data on governance come from the World Bank's Worldwide Governance Indicators. Other macroeconomic data used in the econometric analysis are drawn from the World Bank and the International Monetary Fund.

Methodology

A fixed effects panel regression is used to estimate the correlates of investment growth in 57 EMDEs for the period 1998-2018. The econometric framework is similar to that of Nabar and Joyce (2009). However, the emphasis in this Special Focus is on investment growth, as a critical component of overall output growth (ultimately,

¹ For related studies, see Hennessy (2004) and Borio et al. (2015).

ANNEX TABLE SF.1.1.1.1 Correlates of investment growth

Dependent variable: investment growth	(1) EMDEs	(2) EMDEs: including political risk events	(3) GMM	(4) Advanced economies	(5) Private investment
Lagged real GDP growth (percent)	0.453*** [0.128]	0.466*** [0.126]	0.792*** [0.179]	1.074*** [0.232]	0.440** [0.198]
Change in capital inflows (percentage points of GDP)	0.122*** [0.043]	0.115** [0.044]	0.116** [0.044]	0.041 [0.031]	0.192*** [0.046]
Political stability	0.279** [0.107]	0.218** [0.100]	0.294* [0.138]	-0.118 [0.099]	0.402** [0.190]
Lagged credit-to-GDP ratio (percent of GDP)	-0.284*** [0.038]	-0.288*** [0.037]	-0.049 [0.037]	-0.051*** [0.015]	-0.358*** [0.055]
Terms of trade growth (percent)	0.233*** [0.065]	0.229*** [0.066]	0.255*** [0.036]	0.188 [0.113]	0.336*** [0.080]
Large reform spurt	6.493** [2.447]	6.276** [2.468]	5.847** [1.757]	-1.191 [1.176]	5.148** [2.244]
Large deterioration in political stability		-3.819*** [1.348]			
Sudden stop dummy	-3.553** [1.383]	-3.662*** [1.351]	-3.266** [1.075]	-3.922** [1.564]	-3.165* [1.728]
Constant	-2.575 [7.216]	1.837 [6.857]	-14.381 [9.339]	15.443* [8.233]	-7.254 [11.901]
Number of observations	1,057	1,057	1,057	548	878
R-squared	0.187	0.195		0.197	0.132
Number of economies	57	57	57	34	56

Note: Results of a panel regression with country fixed effects for 57 EMDEs during 1998-2018. Dependent variable is real investment growth. Lagged output growth, capital inflows, political stability, and terms of trade growth are expected to be positively associated with investment growth, and conversely the case for lagged credit to GDP and sudden stops. Column (1) denotes the baseline regression. Column (2) controls for episodes of large deterioration in political stability, as defined by standard deviation below the historical mean. Column (3) shows results using a generalized methods of moments (GMM) regression method. The Wald chi square statistic is 103.4. Column (4) runs the same baseline regression for advanced economies. Column (5) replaces dependent variable with private investment growth. All regressions control for sudden stops in capital inflows and country fixed effects. The regressions exclude 8 EMDEs in this Special Focus due to data availability. Capital inflows are defined as the sum of FDI, portfolio flows, and other investment (including banking) flows. Reforms in governance are based on the Worldwide Governance Indicators (WGI). Political stability denotes the International Country Risk Guide's (ICRG) political risk rating. 2018 data for capital inflows where not available, terms of trade, and governance are assumed to be same as previous year due to data availability. Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1

the source of rising living standards), rather than changes in the investment-to-GDP ratio, which would only capture changes in investment growth relative to output growth. This is in line with recent studies on advanced economies (Banerjee, Kearns, and Lombardi 2015; Barkbu et al. 2015; Kothari, Lewellen, and Warner 2015) or for

individual EMDEs (Anand and Tulin 2014). The results are robust to adding dummies for periods of high political risk events, using the generalized-method-of-moments estimator, and using private investment growth as a dependent variable. The results for advanced economies are shown as well.

References

- Aksoy, Y., H. S. Basso, R. P. Smith, and T. Grasl. 2019. "Demographic Structure and Macroeconomic Trends." *American Economic Journal: Macroeconomics* 11 (1): 193-222.
- Anand, R. and V. Tulin. 2014. "Disentangling India's Investment Slowdown." Working Paper 14/47, International Monetary Fund, Washington, DC.
- Baffes, J., M. A. Kose, F. Ohnsorge, and M. Stocker. 2015. "The Great Plunge in Oil Prices: Causes, Consequences, and Policy Responses." Policy Research Note 1, World Bank, Washington DC.
- Banerjee, R., J. Kearns, and M. Lombardi. 2015. "(Why) Is Investment Weak?" BIS Quarterly Review, March. Bank for International Settlements, Geneva.
- Barkbu, B., S. P. Berkmen, P. Lukyantsau, S. Saksonovs, and H. Schoelermann. 2015. "Investment in the Euro Area: Why Has It Been Weak?" Working Paper 15/32, International Monetary Fund, Washington, DC.
- Bloom, N., S. Bond, and J. van Reenen. 2007. "Uncertainty and Investment Dynamics." *Review of Economic Studies* 74: 391-415.
- Borensztein, E., and L.S. Ye. 2018. "Corporate Debt Overhang and Investment: Firm-Level Evidence." Policy Research Working Paper 8553, World Bank, Washington, DC.
- Borio, C., E. Karroubi, C. Upper, and F. Zampolli. 2015. "Labour Reallocation and Productivity Dynamics: Financial Causes, Real Consequences." Working Paper 534, Bank for International Settlements, Basel.
- Bräuning, F., and V. Ivashina. 2018. "U.S. Monetary Policy and Emerging Market Credit Cycles." Working Paper 25185, National Bureau of Economic Research, Cambridge, MA.
- Das, S., and V. Tulin. 2017. "Financial Frictions, Underinvestment, and Investment Composition: Evidence from Indian Corporates." Working Paper 17/134, International Monetary Fund, Washington, DC.
- Didier, T., M. A. Kose, F. Ohnsorge, and L. S. Ye. 2015. "Slowdown in Emerging Markets: Rough Patch or Prolonged Weakness?" Policy Research Note 4, World Bank, Washington, DC.
- Gaspar, V., D. Amaglobi, M. Garcia-Escribano, D. Prady, and M. Soto. 2019. "Fiscal Policy and Development: Human, Social, and Physical Investment in SDGs." IMF Staff Discussion Note 19/03, International Monetary Fund, Washington, DC.
- Hall, R. E., and D. W. Jorgenson. 1967. "Tax Policy and Investment Behavior." *The American Economic Review* 57 (3): 391-414.
- Hennessy, C. 2004. "Tobin's Q, Debt Overhang, and Investment." *Journal of Finance* 59 (4): 1717-1742.
- Henry, P. 2007. "Capital Account Liberalization: Theory, Evidence, and Speculation." *Journal of Economic Literature* 45 (4): 887-935.
- IMF (International Monetary Fund). 2015. "Private Investment: What's the Holdup?" Chapter 4, *World Economic Outlook*, April. Washington, DC: International Monetary Fund.
- . 2018. "Macroeconomic Developments and Prospects in Low-Income Developing Countries." IMF Policy Paper, International Monetary Fund, Washington, DC.
- . 2019. *World Economic Outlook: Growth Slowdown, Precarious Recovery*. April. Washington, DC: International Monetary Fund.
- Islamaj, E., M. A. Kose, F. Ohnsorge, and L. S. Ye. 2019. "Explaining Recent Investment Weakness: Causes and Implications." *Emerging Markets Finance and Trade* 55 (8): 1709-1721.
- Jorgenson, D. 1963. "Capital Theory and Investment Behavior." *The American Economic Review* 53 (2): 247-259.
- Julio, B., and Y. Yook. 2012. "Political Uncertainty and Corporate Investment Cycles." *Journal of Finance* 67 (1): 45-83.
- Kiyotaki, N., and J. Moore. 2005. "Financial Deepening." *Journal of the European Economic Association* 3 (2-3): 701-13.
- Kothari, S. P., J. Lewellen, and J. B. Warner. 2015. "The Behavior of Aggregate Corporate Investment." MIT Sloan Research Paper 5112-14, MIT, Cambridge.
- Kose, M. A., F. Ohnsorge, and N. Sugawara. Forthcoming. "Global Growth Next Decade: Optimistic Expectations, Disappointing Outcomes." Working Paper, World Bank, Washington, DC.
- Kose, M. A., F. Ohnsorge, L. S. Ye, and E. Islamaj. 2017. "Weakness in Investment Growth: Causes,

- Implications and Policy Responses.” Working Paper 7990, World Bank, Washington, DC.
- Kose, M. A., E. Prasad, K. Rogoff, and S. Wei. 2009. “Financial Globalization: A Reappraisal.” *IMF Staff Papers* 56 (1): 8-62.
- Leboeuf, M., and B. Fay. 2016. “What Is Behind the Weakness in Global Investment?” Staff Discussion Paper 5, Bank of Canada, Ottawa.
- Lim, J. 2014. “Institutional and Structural Determinants of Investment Worldwide.” *Journal of Macroeconomics* 41 (C): 160-177.
- Magud, N., and S. Sosa. 2015. “Investment in Emerging Markets. We Are Not in Kansas Anymore...Or Are We?” Working Paper 15/77, International Monetary Fund, Washington DC.
- Nabar, N., and J. Joyce. 2009. “Sudden Stops, Banking Crises, and Investment Collapses.” *Journal of Development Economics* 90 (2): 163-189.
- Qureshi, Z., J. L. Diaz-Sanchez, and A. Varoudakis. 2015. “The Post-Crisis Growth Slowdown in Emerging Economies and the Role of Structural Reforms.” *Global Journal of Emerging Market Economies* 7 (2): 179-200.
- Rozenberg, J., and M. Fay, eds. 2019. *Beyond the Gap: How Countries Can Afford the Infrastructure They Need while Protecting the Planet*. Washington, DC: World Bank.
- Sahay, R., M. Cihak, P. M. N'Diaye, A. Barajas, D. B. Ayala Pena, R. Bi, Y. Gao, et al. 2015. “Rethinking Financial Deepening: Stability and Growth in Emerging Markets.” Staff Discussion Note 15/08, International Monetary Fund, Washington, DC.
- Stocker, M., J. Baffes, M. Some, D. Vorisek, and C. Wheeler. 2018. “The 2014–16 Oil Price Collapse in Retrospect: Sources and Implications.” Working Paper 8419, World Bank, Washington, DC.
- UNCTAD (United Nations Conference on Trade and Development). 2013. *World Investment Report 2013: Global Value Chains: Investment for Trade and Development*. Geneva: UNCTAD.
- . 2014. *World Investment Report, Investing in the SDGs: An Action Plan*. Geneva: UNCTAD.
- United Nations Inter-Agency Task Force on Financing for Development. 2019. *Financing for Sustainable Development Report 2019*. New York: United Nations.
- Vashakmadze, E., G. Kambou, D. Chen, B. Nandwa, Y. Okawa, and D. Vorisek. 2017. “Regional Dimensions of Recent Weakness in Investment: Drivers, Investment Needs and Policy Responses.” Working Paper 7991, World Bank, Washington, D.C.
- World Bank. 2017. *Global Economic Prospects: Weak Investment in Uncertain Times*. January. Washington, DC: World Bank.
- . 2018. *Global Economic Prospects: Broad-Based Upturn, but for How Long?* January. Washington, DC: World Bank.
- . 2019a. *Global Economic Prospects: Darkening Skies*. January. Washington, DC: World Bank.
- . 2019b. *Commodity Markets Outlook. Food Price Shocks: Channels and Implications*. Washington, DC: World Bank.