Longer Term Investments

Emerging market infrastructure – update

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Carl Berrisford, analyst; **Soledad Lopez**, strategist, soledad.lopez@ubs.com; **Ronaldo Patah**, analyst

- Growing urbanization and the expansion of megacities in emerging markets, as well as high economic growth rates, are driving demand for infrastructure investment. Emerging markets are forecast to account for almost two-thirds of global infrastructure spending by 2025.
- Emerging markets are in better fiscal shape than developed markets to grow their infrastructure despite ongoing pressures. There is clear evidence of growth in private and foreign direct investment in economies with a historically lower share of public infrastructure investment.
- We recommend gaining diversified exposure and focusing on the MSCI Emerging Markets Transportation Infrastructure index. This index is geographically diverse, has a low correlation to US dollar trends, and has a strong record of outperforming broader emerging market infrastructure indices.

Our view

Growth in infrastructure investments will outpace broader GDP growth in emerging markets over the next decade, in our view. We also think emerging markets will become the key driver of global infrastructure growth, especially as developed markets' share of global spending is forecast to fall from one-half to one-third over the next 10 years. Rising urban migration and the continued expansion of megacities in emerging markets are driving growth in demand for infrastructure investment.

In many countries, inadequate urban and nationwide infrastructure is holding back economic growth. Pressure to improve and upgrade infrastructure is also coming from another direction: emerging markets are increasingly competing against one another in freer global trade regimes, forcing investments in trade and transport networks to raise their export competitiveness and productivity. In our view, this is a key reason why overall infrastructure investment continues to grow in emerging markets despite recent pressure on government finances from weaker currencies and falling oil and commodity revenues.

Emerging markets are also increasingly being targeted to host major international events. Recent examples include the 2008 Olympic Games in China, the 2010 FIFA World Cup in South Africa, and the 2016 Olympic Games in Brazil. The 2018 and 2022 FIFA World Cup tournaments will be hosted by Russia and Qatar, respectively. Such events can be important catalysts for infrastructure spending.

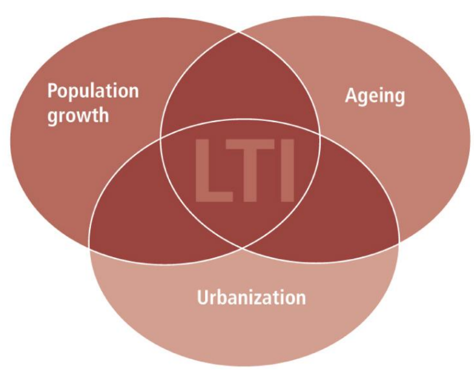
Source: Martin Ruetschi

Introduction to the Longer Term Investments (LTI) series

› **The Longer Term Investments (LTI)** series contains thematic investment ideas based on long term structural developments.

› Secular trends such as population growth, ageing, and increased urbanization create a variety of longer term investment opportunities.

› Investors willing to invest over multiple business cycles can benefit from potential mispricings created by the typically shorter term focus of stock markets.



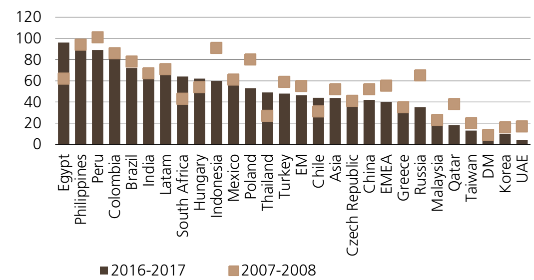
Emerging markets will account for two-thirds of spending by 2025

We forecast emerging markets' infrastructure spending to increase from USD 3trn in 2015 to around USD 5.5trn by 2025, bringing their share of the total global spending on the sector to around two-thirds, up from one-half currently. Our forecast translates into a compound annual growth rate (CAGR) of 6.3%, which outpaces our 5% GDP growth forecast for emerging markets over the same period. A key trend we see is a shift in spending from West to East, with emerging Asia contributing close to 50% of global infrastructure spending by 2025. According to the Asian Development Bank, the region needs to invest close to USD 8trn in infrastructure from 2010 to 2020 to maintain current GDP growth rates.

Meanwhile, the World Economic Forum's competitiveness survey shows that emerging markets have plenty of catching up to do compared with developed markets in terms of infrastructure. In the last decade, the biggest improvement in the rankings came from Indonesia, Russia, Qatar, and China, while the greatest deterioration was recorded in South Africa. In terms of transportation infrastructure, for example, the three metrics in which emerging markets lag the most are the number of air passengers flown, railway networks as a percentage of land area, and quality of port infrastructure (see Fig. 2). In terms of railway buildout, the EMEA region (Europe, the Middle East, and Africa) leads Asia and Latin America. With regard to port infrastructure quality, Latin America scores lowest.

Fig. 1: World Economic Forum competitiveness rankings

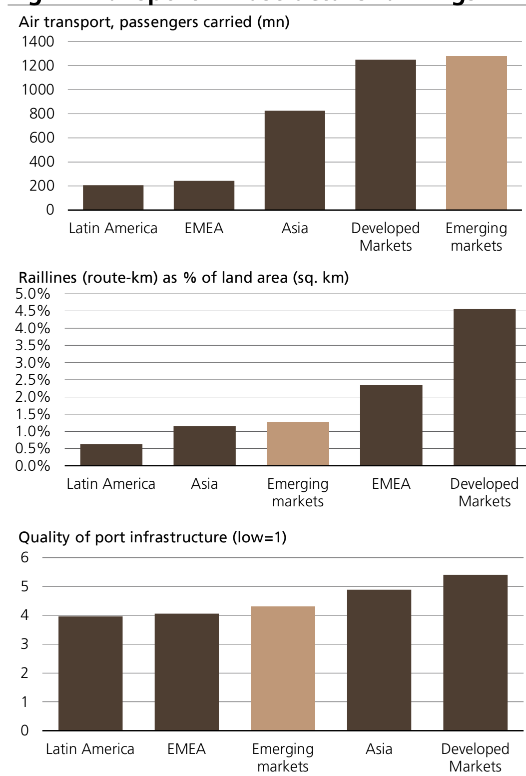
Lower score implies higher ranking



Note: EM = emerging markets, DM = developed markets

Source: The Global Competitiveness Index Historical Dataset, 2006-2017 World Economic Forum, UBS, as of February 2017

Fig. 2: Transport infrastructure rankings



Source: World Development Indicators (2015-2016), World Economic Forum, UBS, as of February 2017

Urbanization and inefficiencies

Urban migration is a key growth driver

According to the United Nations, the share of the emerging market population living in urban areas has risen from 46% in 1990 to 63% in 2015, and will reach 72% by 2030. The UN also forecasts urban population growth in emerging markets of 12% over the next five years, with Chinese and Indian cities alone set to receive 95m and 52m urban migrants, respectively. Similar trends are evident in Mexico, Turkey, and South Africa. Rising urbanization is fueling the growth of megacities with high population densities, especially in Asia. The UN forecasts that the number of Asians living in cities with more than 10m inhabitants will double by 2025.

Urban migration is a key driver of infrastructure spending in emerging markets, as it strains public transportation, water supplies, and sanitation services, and creates demand for affordable housing and utilities. As megacities become key drivers of national economic growth, infrastructure bottlenecks tend to impact the domestic economy if they are not addressed through adequate investment.

Income growth correlates to car ownership and aviation services

Income growth driven by urbanization raises demand for transportation infrastructure through the consumption of goods like cars (see Fig. 4) and services like travel and aviation. In emerging markets, the sharp rise in car ownership has been a major demand driver for road infrastructure buildout – a trend that should continue given that, despite the recent dynamic growth, emerging markets substantially lag developed markets in terms of car ownership.

The International Monetary Fund forecasts GDP per capita growth in emerging markets of 7% over the next five years, which should continue to drive the growth in car ownership. Higher GDP per capita implies higher car ownership, though this relationship diminishes marginally as countries have higher incomes.

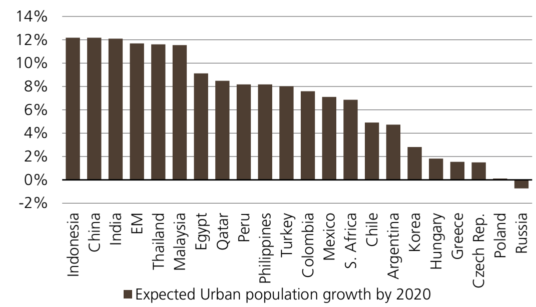
Thus, for emerging markets, a rise in per capita income translates into higher demand for cars than it does in developed markets. We also see a similar high correlation between income growth and air travel, which is driving sharp growth in aviation infrastructure in emerging markets worldwide.

Logistic efficiencies and competitiveness

Globalization is lowering trade barriers and driving the creation of free-trade partnerships in and including emerging markets, such as the Regional Comprehensive Economic Partnership (RCEP) and the ASEAN Economic Community (AEC). These agreements force emerging economies to be more competitive or risk losing their share of export trade to peers. The World Bank's Logistic Performance Index gives a broad comparison of the quality of trade and transport, reflecting the respective emerging markets' competitiveness. The emerging markets are ranked at an average of 55 versus developed markets' 14, proving they have plenty of room to improve.

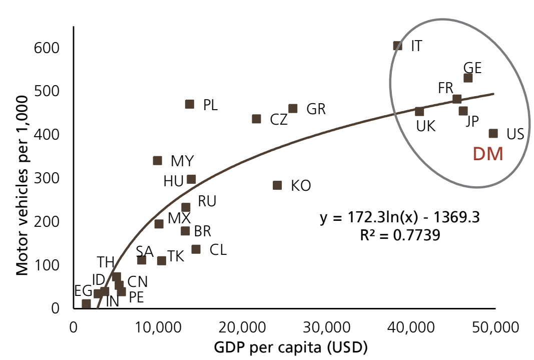
Inadequate infrastructure leads to high logistic costs and is a key area requiring investment. Within emerging markets, Russia, Brazil, and Mexico display low efficiency relative to income, especially when compared to Asian peers. That said, there is plenty of room for all emerging economies to grow efficiencies relative to the US, Japan, and the UK. Emerging markets still face several hurdles in terms of trade openness, as most of them have higher export and import costs than developed markets (see Fig. 6). There is still room to improve in countries like India, Brazil, and even China, notwithstanding the more intense historical investment in infrastructure.

Fig. 3: Urbanization
Expected urban population growth by 2020



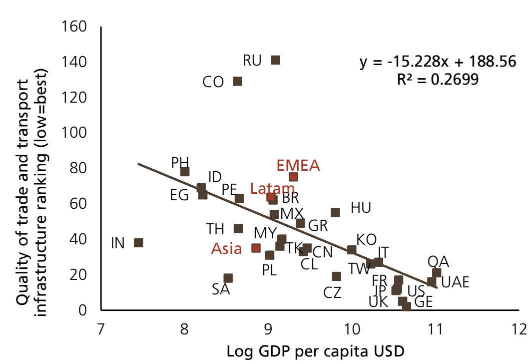
Source: United Nations World Urbanization Prospects (2014 revision), UBS, as of 19 August 2015

Fig. 4: Car ownership and GDP per capita
Motor vehicles per 1,000 people and GDP per capita



Source: World Bank World Development Indicators (2011), UBS, as of 15 August 2015

Fig. 5: Logistics performance index and GDP
Log of GDP per capita (USD) and quality of trade transport infrastructure ranking



Source: Logistics Performance Index World Bank(as of 2014), World Economic Outlook IMF, as of October 2016, UBS

Infrastructure spending

Emerging market public finances in better shape

Infrastructure spending in emerging markets has largely been government-driven, although private participation has risen sharply in recent years. That said, although most emerging economies suffer fiscal deficits, they are generally better positioned than developed economies to finance infrastructure spending: the aggregate fiscal deficit in emerging markets is 3.5% of GDP, in line with developed markets with 3% (see Fig. 7). Given the IMF's GDP growth forecasts of 5% and 1.75%, respectively, for these regions over the next five years, we believe emerging market governments are in a comparatively stronger position to invest in infrastructure (see Fig. 8). For countries with weak fiscal balances, we anticipate a rising share of private infrastructure investment.

Private infrastructure spending rising sharply

According to the World Bank's Private Participation in Infrastructure database, private infrastructure investment projects in developing countries totaled USD 1.8trn in 2015 (see Fig. 9), up 5% from 2014 and 3.5 times greater than in 2000. Latin America (Brazil and Mexico) and Asia (in particular India and China) were the targets of almost 80% of private spending. Private investment in China, India, and Brazil has grown at a CAGR of 5%, 20%, and 11%, respectively, in the last 10 years. EMEA has seen the smallest amount of private investment benefiting emerging markets. However, private investment has been growing at a CAGR of 18% in Russia and 18% in Turkey. Transportation accounts for 25% of private infrastructure investments, totaling almost USD 460bn in 2015 (Asia: USD 206bn; Latin America: USD 162bn).

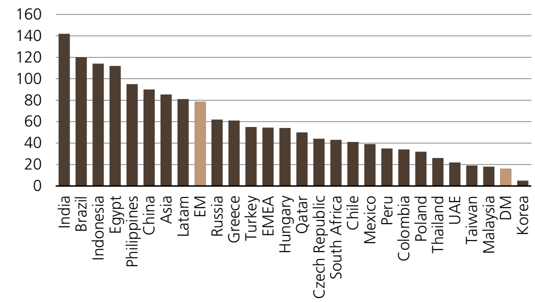
Foreign investment in infrastructure on the rise

Foreign direct investment (FDI) declined slightly from 2% to 1.7% of GDP in emerging markets from 2010 to 2015. However, we believe this is likely to rise over the next decade. FDI as a percentage of GDP has historically been higher for Latin America and EMEA (see Fig. 10). The correlation between infrastructure-spending-to-GDP and FDI-to-GDP stands at a low 42% in Asia, according to a study by CLSA.

We believe FDI flows as a share of GDP could rise in many emerging market regions for a number of reasons: 1) current infrastructure investments have attractive long-term returns relative to historical levels; 2) projected economic returns are attractive due to low inflation, which lowers capital equipment and material costs, and low financial expenses with zero interest rates in many parts of the world; and 3) China and Japan continue to compete globally to secure energy and natural resources, driving aggressive infrastructure investment across regions including Southeast Asia, Africa, and Latin America. In 2013, China launched an infrastructure investment initiative – One Belt, One Road – focused on establishing connectivity with countries across its western borders.

Fig. 6: Trade openness – emerging markets lag developed markets

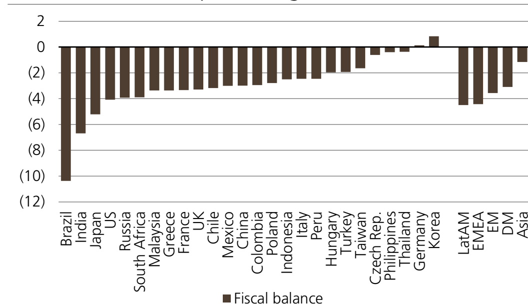
Ranking for Trading Across Borders (lower is better)



Source: World Bank Doing Business Indicators, UBS, as of February 2017

Fig. 7: Fiscal balances in emerging markets in line with developed markets

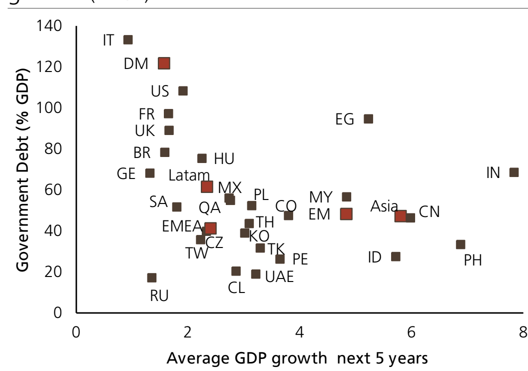
Fiscal balance as a percentage of GDP



Source: IMF, World Economic Outlook, UBS, as of October 2016

Fig. 8: Emerging markets have lower debt levels and higher expected GDP growth in next five years

Government debt (% of GDP) and average GDP growth (in %)



Source: World Economic Outlook, IMF , UBS, as of October 2016

Asia

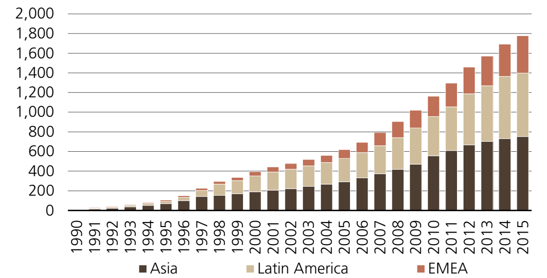
China: Infrastructure spending to grow 10% a year until 2025
The Chinese government's fixed asset investment in infrastructure has grown at a CAGR of 19% over the last decade, although growth has slowed to the mid-teens in recent years. We forecast China's infrastructure spending to grow at an average of 10% a year from 2015 to 2025, driven primarily by continued urbanization. Approximately two-thirds of China's population will live in cities in 10 years, compared to around 50% currently. Reflecting this rapid urbanization is the exponential rise in car ownership, which is doubling every two to three years in first-tier cities. This has made "transport infrastructure" the second-largest outlay within infrastructure spending, with two-thirds invested in roads. The fastest area of infrastructure-spending growth in China is carbon-emission reduction and water-pollution controls, driven by ambitious government targets set for 2020. Unfortunately, direct public investment exposure to this sector is limited. Moreover, we expect the growth of carbon-emission and transport infrastructure to remain closely interlinked given the increase of 250m cars in China from 2010 to 2025, according to World Bank forecasts.

One Belt, One Road
"One Belt, One Road" is a Chinese government overseas-investment strategy that seeks to develop the historic Silk Road trade route that runs from Western China through Central Asia to Eastern Europe. The strategy involves investing in and financing infrastructure in countries along this route in exchange for market access for its goods and services. This is transforming China into a major catalyst for infrastructure investment in emerging markets. UBS estimates that outward Chinese investment linked to One Belt, One Road could reach USD 200bn in the next three years, representing an annual growth of 30% – double the growth of the past six years. Investments associated with One Belt, One Road include high-speed rail buildout in Indonesia and energy and port investments in Pakistan. The recent cancellation of the Trans-Pacific Partnership (TPP) by US President Donald Trump will also likely give way for a more Asian-focused RCEP to replace it. We believe this framework could potentially become an effective platform for One-Belt, One Road infrastructure investment in member states.

Latin America

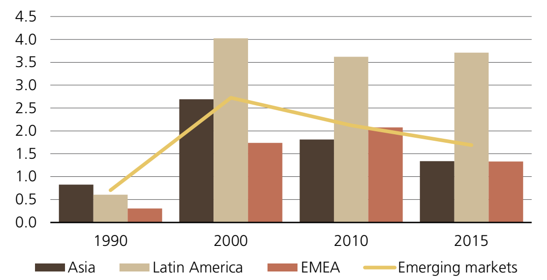
Brazil: Road concession expected in coming years
The administration of Michel Temer in Brazil has announced an extensive infrastructure investment program, named "Projeto Crescer" (Project Growth), which is based on public-private partnerships. The program includes projects in ports, airports, railroads, highways, hydroelectric plants, electricity, and mining. In Brazil, further implementation of structural reforms will be positive for infrastructure. Moreover, an accommodative monetary policy will likely be supportive of growth-boosting new projects in infrastructure.

Fig. 9: Total investment projects
in USD bn



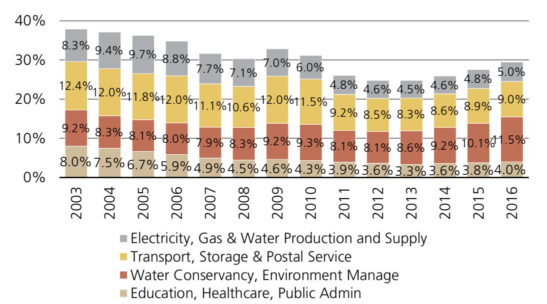
Source: World Bank Private Participation in Infrastructure (latest available 2015), UBS, as of February 2017

Fig. 10: FDI as a percentage of GDP



Source: UNCTAD (2014), UBS, as of February 2017

Fig. 11: China's fixed asset investment has grown at a CAGR of 20% (1998 to 2014)
Infrastructure fixed asset investment breakdown (%)



Source: CEIC, UBS, as of February 2017

Mexico: Airport operators benefit from tourism
Mexico is one of the world's leading tourist destinations. In 2014, the country received 29m visitors, close to 10% of the total number of tourist arrivals in emerging markets. The tourist industry has been recovering since the 2008–2009 collapse caused by the global financial crisis and the swine-flu outbreak, and has grown at a CAGR of 6% in the last five years. We maintain a constructive outlook on the Mexican aviation and transportation sectors, which benefit from the US economic recovery and Mexican peso devaluation. Some 60% of Mexico's international passenger traffic is derived from the US.

Impact investing and the UN Sustainable Development Goals

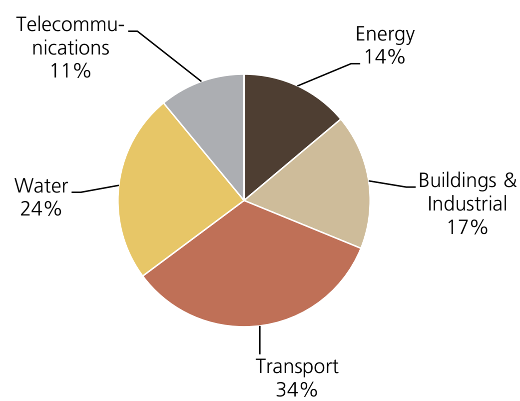
In our view, many of the United Nation's Sustainable Development Goals (SDGs) are unachievable without a significant increase in infrastructure investment in emerging and developing countries. Over 1.3bn people – nearly 20% of the world's population – lack access to electricity; 768m do not have access to clean drinking water; and over 2.5bn lack basic sanitation. This inadequacy of critical infrastructure comes at enormous economic and social costs.

Improving access to infrastructure in developing and emerging markets would go a long way toward alleviating poverty (SDG 1), improving health through access to clean water and sanitation (SDGs 3 and 6), and stimulating economic growth (SDG 9). Specifically:

- Infrastructure investments can generate demand for labor, providing the stimulus that developing economies desperately need. According to a study by the London School of Economics, a USD 1m investment in infrastructure can generate up to 50,000 jobs (annualized) when including indirect employment opportunities.
- Improving access to infrastructure increases the efficiency of manufacturing, agriculture, and logistics. This, in turn, can increase productivity and competitiveness, fostering domestic drivers of growth.
- Of the forecast increase in emissions from developing countries, 70% is expected to come from infrastructure that has yet to be built. As costs for critical green technologies – from solar power to clean transport – continue to drop, investing in green infrastructure now can help ensure long-term sustainable growth potential. Fig. 12 provides an overview of green infrastructure investment needs by infrastructure type.
- Improved access to water and sanitation would help decrease the spread of water-borne diseases like diarrhea, a leading cause of childhood mortality in developing countries.

However, investments in infrastructure all too often focus too narrowly on meeting immediate social and/or economic needs, while ignoring the need to make infrastructure investments sustainable. This can have enormous long-term consequences. Power plants can

Fig. 12: Green investment needs by infrastructure type
Total dollar investment needs by infrastructure type, 2010–2030



Sources: OECD, IEA, FAO, UNEP; data presented in USD 2010 rates operate for half a century or more once constructed, and investments in coal or other fossil-fuel-burning facilities can result in millions of tons of future locked-in emissions. Even in the short term, investments in infrastructure may have serious adverse consequences for local wildlife and communities. The construction of large hydropower plants can, for example, result in the forced displacement of local populations, while improving access to remote areas might result in unsustainable resource exploitation. To have a positive impact, investors in this sector must be aware of – and carefully manage – these risks.

In our view, the critical role that emerging market infrastructure can play in achieving the SDGs, combined with high growth potential, makes this an attractive investment theme for *impact investors* who seek to achieve a measurable social impact alongside an economic return. Public-private partnerships and other innovative financing models have gone a long way in reducing many of the risks that have traditionally held back investments in this theme. Consequently, an increasing number of fixed income funds have emerged with a focus on improving access to infrastructure in developing and emerging countries. Direct investments in transportation infrastructure (including railroads, highways, airports, or port facilities), renewable energy, electric grids, telecommunications, and water and sewage utilities are also possible and could help achieve impact at scale. Direct investors, however, may face challenges when it comes to finding investable opportunities. As with any theme, impact investors seeking to access this theme via non-impact-specific vehicles must assess on their own whether individual investments meet impact criteria, including intent, measurability, verification, and additionality.

Andrew Lee, Head Impact Investing and Private Markets
James Gifford, Senior Impact Investing Strategist
Nicole Neghaiwi, Impact Investing Analyst

Link to sustainable investing

As mentioned in the above section, infrastructure is built for the long term and crucial for achieving the SDGs. However, to evaluate whether infrastructure is truly sustainable, we have to evaluate the potential negative environmental and social impacts during construction, as well as the potential positive versus negative environmental, social, and economic impacts that may accrue in the longer term when the infrastructure is in use. Companies active in these areas must therefore be scrutinized with regard to how they manage these impacts during construction and use. This includes areas such as: policies and programs for minimizing impact on local communities and ecosystems, restoring habitat or offsetting activities; health and safety management systems; and effective anti-corruption policies and programs. MSCI ESG Ratings can give guidance on performance on such areas by rating companies within each industry from AAA (best) to CCC (worst) based on a selection of the most important environmental, social, and governance (ESG) issues in each industry.

Sustainable investment opportunities in liquid stocks exposed to emerging market infrastructure are available in several industries such as transportation, environmental and facilities services, utilities, telecommunication services, and electrical equipment, as well as "soft infrastructure" such as education services and healthcare facilities. Several of these opportunities feature in other CIO Longer Term Investments such as mass transit rail and emerging market healthcare (emerging market focus), and clean air and carbon-reduction, waste management and recycling, and education services (global focus).

How to implement this theme

Investors need to be selective when investing in emerging market infrastructure because of the impact that low oil and mineral prices are having on spending in energy and extraction industry infrastructure. We favor transportation infrastructure, where we believe the growth drivers are structural and investment is less volatile. Transportation infrastructure stocks make up only 8% of the MSCI Emerging Markets (EM) Infrastructure index. A comparative study of earnings growth of MSCI EM Transportation Infrastructure versus the broader MSCI EM Infrastructure shows that the former has consistently outpaced the latter since 2013. This is also reflected in a consistent relative share-price outperformance since the global financial crisis (see Fig. 13).

MSCI EM Transportation Infrastructure index

We recommend a diversified approach to investing in the emerging market infrastructure theme due to the specific country or sector risks highlighted below. In this respect, we favor the MSCI EM Transportation Infrastructure index. The index comprises airport service stocks (34%), marine ports and service stocks (34%), and highways and rail stocks (32%). It provides access to liquid stocks and exposure across several regional markets: Asia 56%, Latin America (Mexico and Brazil) 34%, and EMEA (Turkey and UAE) 10% (see Fig. 14).

Attractive valuations

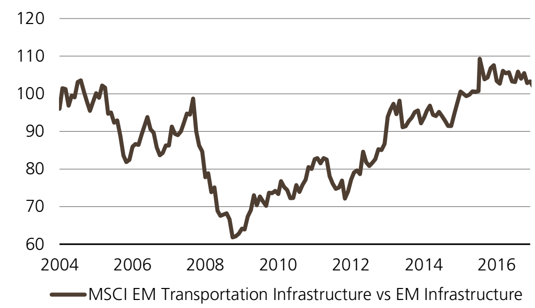
We favor the MSCI EM Transportation Infrastructure index (its constituents are listed in Table 1 for reference) as a preferred means of gaining exposure to our theme. Valuations of this index are at 16.4x forward price-to-earnings (P/E) ratio, in line with the 10-year average of 16.2x (see Fig. 15). Based on average annual 10-year earnings per share (EPS) growth of 9%, we believe index valuations are attractive to the long-term investor. We also note that, historically, the EPS growth of this index has a low correlation to the DXY US dollar index.

Risks

The main risk to our emerging market infrastructure theme is weaker GDP growth in developing economies due to slower global growth or lower commodity prices. Lower growth, combined with a rise in public deficits and weak currencies, could distract emerging market governments from focusing on infrastructure reforms. However, this is not our base case; there is evidence that emerging market governments prioritize public infrastructure spending when economic growth is weak, as China did in 2009. In some developing countries,

Fig. 13: Relative share price performance

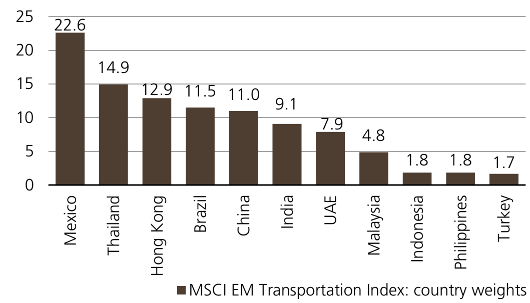
MSCI EM Transportation Infrastructure vs MSCI EM Infrastructure, December 2013=100



Source: Factset, UBS, as of February 2017

Fig. 14: Asia accounts for 54% of MSCI EM Transportation index, LatAm 36%, EMEA 10%

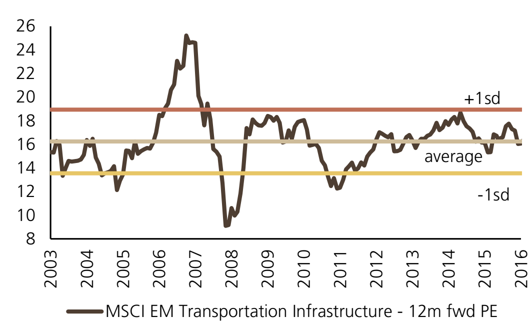
MSCI EM Transportation composition



Source: Bloomberg, UBS, as of February 2017

Fig. 15: Valuations

MSCI EM Transportation Infrastructure forward P/E trends



Source: Factset, UBS, as of February 2017 investigations into cases of corruption in public project tenders may increase the risk of delays, as has been the case recently in Brazil and Thailand. A recovery of energy and commodity prices and rising GDP growth per capita should spur infrastructure spending; however, our base case is that urbanization as a long-term structural driver across emerging markets will ensure stable demand growth for infrastructure investment across the economic cycle.

Appendix

Emerging Market Investments
Investors should be aware that Emerging Market assets are subject to, amongst others, potential risks linked to currency volatility, abrupt changes in the cost of capital and the economic growth outlook, as well as regulatory and socio-political risk, interest rate risk and higher credit risk. Assets can sometimes be very illiquid and liquidity conditions can abruptly worsen. WMR generally recommends only those securities it believes have been registered under Federal U.S. registration rules (Section 12 of the Securities Exchange Act of 1934) and individual State registration rules (commonly known as "Blue Sky" laws). Prospective investors should be aware that to the extent permitted under US law, WMR may from time to time recommend bonds that are not registered under US or State securities laws. These bonds may be issued in jurisdictions where the level of required disclosures to be made by issuers is not as frequent or complete as that required by US laws.
For more background on emerging markets generally, see the WMR Education Notes, "Emerging Market Bonds: Understanding Emerging Market Bonds," 12 August 2009 and "Emerging Markets Bonds: Understanding Sovereign Risk," 17 December 2009.
Investors interested in holding bonds for a longer period are advised to select the bonds of those sovereigns with the highest credit ratings (in the investment grade band). Such an approach should decrease the risk that an investor could end up holding bonds on which the sovereign has defaulted. Sub-investment grade bonds are recommended only for clients with a higher risk tolerance and who seek to hold higher yielding bonds for shorter periods only.

Terms and Abbreviations

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
A	actual i.e. 2010A	bn	Billion
CAGR	Compound annual growth rate	COM	Common shares
E	expected i.e. 2011E	EPS	Earnings per share
GDP	Gross domestic product	Shares o/s	Shares outstanding
UP	Underperform: The stock is expected to underperform the sector benchmark	CIO	UBS WM Chief Investment Office