



A Blueprint for Investing in Infrastructure Themes

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In many developed countries, well-constructed roads and bridges are showing signs of decay.

EXECUTIVE SUMMARY

With roads and bridges requiring repair and transit routes ripe for expansion, some investors are constructing portfolios to profit from these global needs. James A. Lydotes, CFA, portfolio manager of The Boston Company's Global Infrastructure Dividend Focus strategy, Jason L. Gibson and Brock A. Campbell, CFA, analysts on The Boston Company's Global Research team, outline some potential ways that investors can get in on the ground floor.

After years of neglect stemming from government austerity and inattention, the world's infrastructure is in dire need of an upgrade. A joint report issued by the World Economic Forum and PricewaterhouseCoopers, estimates the global infrastructure gap—the difference between infrastructure needs and infrastructure spending—to be about \$1 trillion, or 1.25% of global GDP.¹ We believe this level of underinvestment is not sustainable over the long term. In fact, PwC estimates that global capital project and infrastructure spending is expected to grow to more than \$9 trillion annually by 2025, up from \$4 trillion in 2012.² While infrastructure build-out is unquestionably a global theme, it may require different approaches across different parts of the world.

In many developed countries, well-constructed roads and bridges are showing signs of decay. In Germany, for instance, home to what is widely considered to be the strongest economy in the eurozone,

¹ Gregory Vaughan-Morris et al, "Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently," World Economic Forum, September 2012. http://www.pwc.com/es_MX/mx/industrias/infraestructura/archivo/2013-06-estudio-world-economic-forum.pdf.

² "Infrastructure spending to more than double to \$9 trillion annually by 2025," PricewaterhouseCoopers press release, June 22, 2014. <http://press.pwc.com/global/infrastructure-spending-to-more-than-double-to-9-trillion-annually-by-2025/s/e4ea4334-fdfc-4504-9273-c2e545faeb8e>.

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Opportunities extend
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a federal commission advised the country to spend an additional \$9.7 billion annually just to maintain its current infrastructure. Almost half of the country's municipal bridges and one-fifth of its highways are in poor condition, according to federal data and a study by the German Institute for Urban Affairs.³

The US fares little better by comparison. The American Society of Civil Engineers assigned a grade of D+ to America's infrastructure in 2013, noting that \$3.6 trillion of estimated investments are needed by 2020 to get infrastructure systems to a state of good repair (a grade of B).⁴ However, lawmakers have struggled to reach an agreement on a long-term solution to the challenges of infrastructure spending, particularly in the wake of the 2008 global financial crisis. Of course, it's not just the nation's roads that are facing problems. Other well-publicized events, such as the widespread blackout across the Northeast in 2003 and the deadly natural-gas explosion in San Bruno, Calif., in 2010, have served as reminders of neglected infrastructure.

Emerging markets are also central to this theme, as many of these economies are constrained by infrastructure limitations. For example, the city of Varanasi, India, situated on the Ganges River, contends with electricity outages of up to 10 hours a day as well as shallow ditches containing raw sewage, which overflow into the streets during monsoon season.⁵ Newly elected Prime Minister Narendra Modi has pledged to revitalize the city, recently committing millions to improve the electrical system, the river and railway stations. Elsewhere, needs are even more basic, as a lack of clean water in parts of South Africa have led to riots.

As infrastructure needs rise, so do the investment opportunities in stocks that would benefit from increased expenditures. These opportunities extend beyond the construction and engineering segment, and we have identified compelling ideas within utilities, construction materials, railway construction, toll-road operators and telecommunications providers. We have also been examining the several related themes that would affect investments tied to greater global infrastructure spending.

3 Michael Birnbaum, "German road, railway infrastructure is decaying, with harsh economic consequences," The Washington Post, Dec. 31, 2013. http://www.washingtonpost.com/world/german-road-railway-infrastructure-is-decaying-with-harsh-economic-consequences/2013/12/30/2eda2bdc-68ab-11e3-ae56-22de072140a2_story.html.

4 "Grade Sheet: America's Infrastructure Investment Needs," American Society of Civil Engineers, 2013. <http://www.infrastructurereportcard.org/a/#p/grade-sheet/americas-infrastructure-investment-needs>.

5 Stephanie Strom, "India Aims to Make Forlorn City a Model for Revival," New York Times, July 17, 2014. http://www.nytimes.com/2014/07/18/business/international/cleaning-up-varanasi-is-a-test-for-narendra-modi.html?_r=0.

A FRAMEWORK FOR INVESTING IN INFRASTRUCTURE

Given the rich set of investment opportunities, we utilize a framework to gain a better understanding of an investment theme's risks and rewards. The key questions to answer are:

- Is the business exposed to cyclical or structural growth?
- What are the barriers to entry to doing business?
- What is the potential for cash flow and dividend growth?
- What is the nature of the regulatory predictability?
- What ability does the company have to pass along higher costs?

Using this framework as a guide, we have selected four infrastructure themes to explore.

TOLL ROADS AND PUBLIC-PRIVATE PARTNERSHIPS

Governments around the world increasingly struggle to foot the entire bill for infrastructure projects. Public-Private Partnerships, commonly called P3s or PPPs, are increasingly popular structures in which governments partner with public and private industry to fulfill infrastructure needs. The aim is to complete a project that benefits the public in an efficient manner. In this arrangement, the private enterprise designs, builds, assists with financing, and operates the project for a specified period of time, which can provide a return on the enterprise's capital, resulting in a win-win solution for all stakeholders. P3s have been widely used in Europe for some time. Britain, for example, financed a total of \$50 billion of PPPs for transportation infrastructure between 1990 and 2006.⁶ The US represents a secular growth opportunity for P3s in our view, as the P3 structure has been used sparingly in the past but is gaining wider acceptance, as Figure 1 shows.

President Obama signed The Moving Ahead for Progress in the 21st Century Act – also known as MAP-21 – into law in 2012, which designated \$1.75 billion of general funds for use in the Transportation Infrastructure Finance and Innovation Act (TIFIA) program. Under the program, the federal government can approve grants to fund state infrastructure projects. The money from its general fund can then be levered up to 10 times at Treasury interest rates, with the government securing the loan. In return, 51 to 70 percent of the project must be financed by the state or private investors.

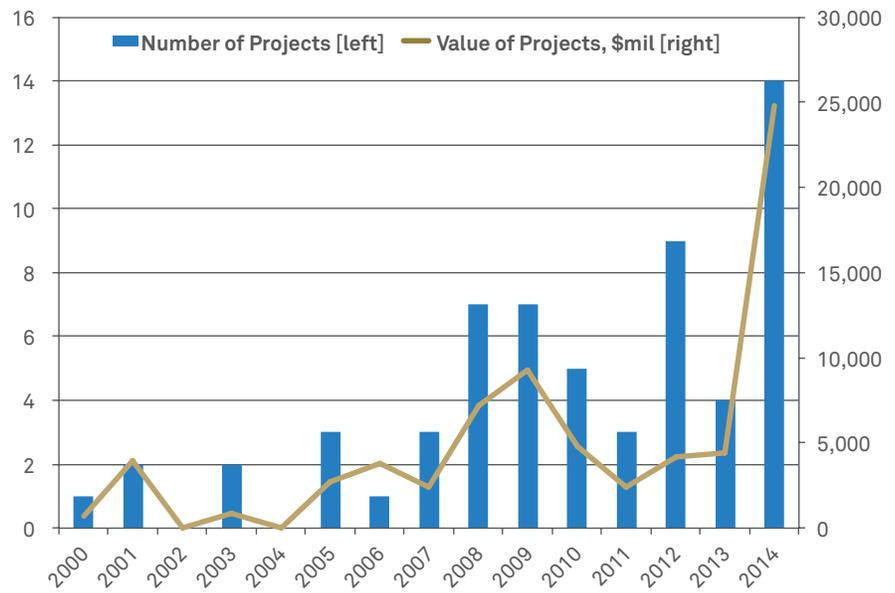
The US government has estimated that this could fund \$30 to \$50 billion of additional infrastructure spending over the next four to five years. While TIFIA was an avenue for infrastructure funding in the past, the increase in the overall level of funding has led to an explosion in P3 activity. Figure 1 shows the growth of P3s, both in the number of projects and the amount of money being spent per year.

Governments around the world increasingly struggle to foot the entire bill for infrastructure projects.

⁶ "A river runs through it," The Economist, March 2, 2013. <http://www.economist.com/news/united-states/21572794-natural-experiment-infrastructure-river-runs-through-it>.

There are a few ways investors can participate in P3s through the equity markets.

Figure 1: P3 Projects in the US

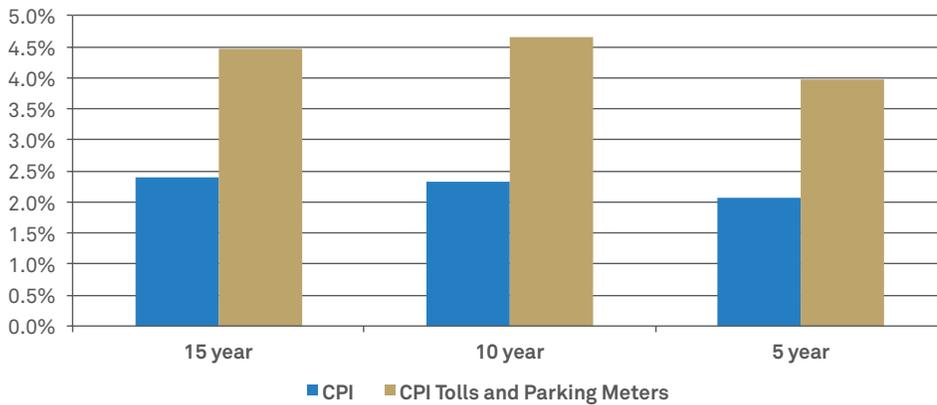


Source: US Department of Transportation, The National Council for Public-Private Partnerships, et.al.

If \$40 billion of incremental spending is ultimately realized from TIFIA funds set aside by MAP-21, this would represent 50 percent of the amount that is spent annually on highways. By our calculation, this should raise overall highway spending roughly 6 percent over the next five years.

There are a few ways investors can participate in P3s through the equity markets. The more common route is through global engineering & construction (E&C) companies, which are contracted to design and build these large projects. It is becoming increasingly common for P3s to be structured so that the E&Cs participate in project financing by providing some equity. Another route is to own companies that operate and maintain infrastructure projects after they are built, such as toll-road operators. Provided the companies operating toll roads have done the proper due diligence, toll roads in the US appear to be attractive investments, as P3 activity leasing agreements are generally for long durations (20 years or more) and should provide fairly steady cash flow. In addition, as illustrated by Figure 2, our analysis shows that tolls collected on roads in the US have grown at twice the rate of the consumer price index (CPI), suggesting that toll-road operators have a measure of pricing power.

Figure 2: Pricing Power for Toll Roads



Source: Bureau of Labor Statistics via Bloomberg. Data as of 12/31/13.

PRIVATIZATION

As governments of developed countries find themselves less able to meet infrastructure demands, we are seeing a growing trend toward privatization. In the US, the prison system provides a prime example of this shift. Growth in the prison population over the past decade, combined with a lack of new government-owned facilities, has led to severe overcrowding, as the federal prison system is now operating at 37 percent overcapacity. According to a Bureau of Justice Statistics report, between 1992 and 2001, 32 states spent at least 20 percent of their total corrections budgets on capital outlays. Between 2002 and 2010, only two states spent more than 20 percent of their total corrections budgets on capital outlays, indicating how few dollars were being spent on upgrading existing facilities or building new ones. As of the end of 2012, 18.6 percent of federal inmates in the US were held in private prisons, up from 10.7 percent just a decade earlier.⁷ Private entities are able to control costs more effectively than government agencies because of their leaner cost structure, economics-driven facility design and national purchasing power, so we see this trend continuing. In addition, the largest private prison operator in the US is currently soliciting interested government sellers, which would free up capital to be put into roads, bridges, airports or schools.

Water privatization is another trend that has developed to varying degrees across the globe. Much of the existing water infrastructure currently supporting the developed world was put into place more than a century ago. Concerns about water safety have forced the need for increased infrastructure investment, often by governments that are unable to meet these demands. The sale of water assets to non-government entities is a trend that we expect to continue, as it not only allows local governments to avoid financing costly upgrades, but also lets them monetize existing assets.

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⁷ US Securities and Exchange Commission, Form 10-K, Corrections Corp. of America, 2012 and 2002.

We believe the US is greatly under-consuming cement relative to history.

Across the Atlantic, another prime example is the privatization of postal delivery. In many cases, this has allowed governments to monetize existing assets while removing future potential financial liabilities. These are often legally protected industries. The prospects for each private mail company will be very specific to the country in which it operates, so detailed analysis of the regulatory backdrop is critical to the investment process in publicly traded mail companies.

As the global population ages, the world will require infrastructure to support greater demand for health care. Japan's single-payer health care system has been increasingly supportive of non-government entities building nursing and acute-care facilities. We see similar opportunities arising in France, the UK and other parts of the world, as governments rely more on the private sector to build and operate facilities to support the aging global population.

CONSTRUCTION MATERIALS AND THE GULF COAST

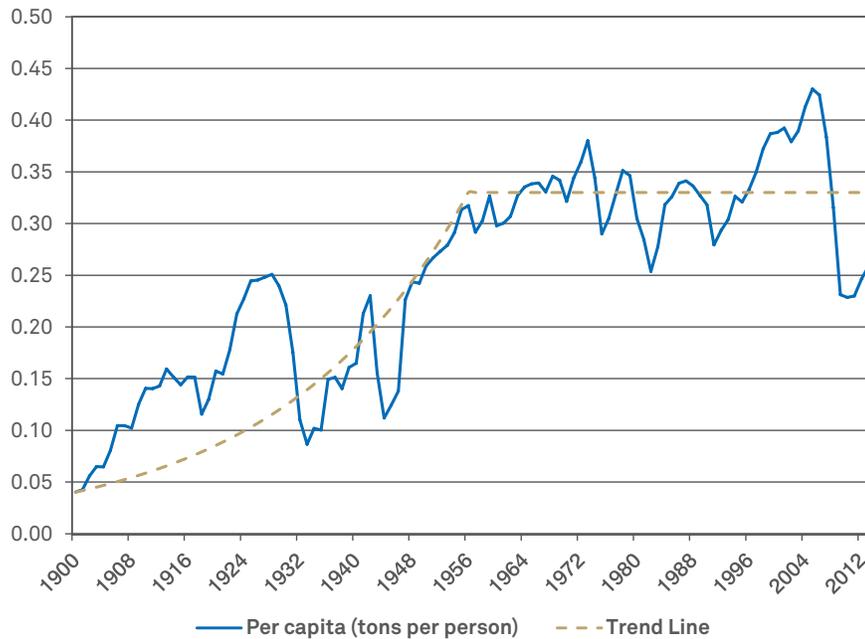
Based on an analysis of US Geological Survey data on US cement and aggregate consumption, we believe the US is greatly under-consuming cement relative to history. Since the mid-1950s, the average amount of cement consumed per person has been 0.33 tons per year.⁸ In 2013, per-capita cement consumption only recovered to 0.26 tons, as shown in Figure 3.

The prime culprit, in our view, is a drop in housing starts, which reached 2 million in 2006 but fell to 1 million by July 2014.⁹ According to our analysis, housing starts are a good leading indicator of cement consumption in nonresidential construction. Assuming a normalized level of housing starts is 1.5 million, we expect cement consumption to return to its historic per-capita average of 0.33 tons, which represents a 38 percent improvement from current levels.

8 US Geological Survey, 2014, Cement statistics, in Kelly, T.D., and Matos, G.R., comps., Historical statistics for mineral and material commodities in the United States: US Geological Survey Data Series 140, accessed 05 September 2014, at <http://minerals.usgs.gov/minerals/pubs/historical-statistics/>.

9 United States Census Bureau. New Residential Construction. 19 August 2014. Accessed 05 September 2014, at <http://www.census.gov/construction/nrc/>.

Figure 3: US Cement Consumption (1900-2013)



We are bullish on construction materials in general, given the potential recovery in the cycle.

Source: USGS and IMF

We are bullish on construction materials in general, given the potential recovery in the cycle. However, demand in certain geographies could be even greater than in previous cycles. For example, the shale boom is generating a significant amount of proposal activity in petrochemical, liquefied natural gas and oil and gas projects. Based on estimates provided by Macquarie Securities, approximately \$250 billion worth of petrochemical-related projects are planned in the US.¹⁰ Under conservative assumptions, we anticipate that half of these, or about \$125 billion, will end up being built along the Gulf coast due to the location of carbon resources, the presence of existing infrastructure and the pool of knowledgeable workers. We estimate that petrochemical-related investment could boost annual construction-material spending by 3 to 4 percent in the Gulf coast.

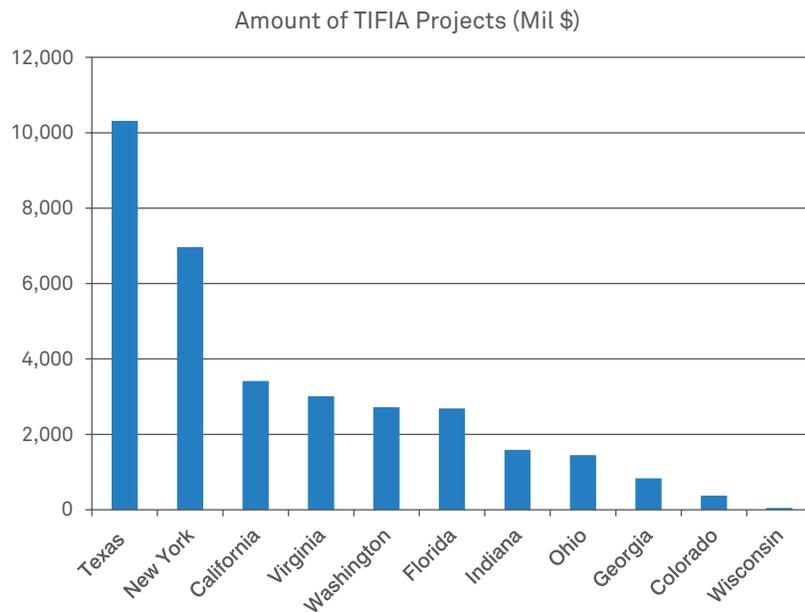
¹⁰ Estimates from Macquarie Securities, January 2014.

It is unlikely that new cement capacity will be built for a period of time because of the cost of compliance.

Additionally, our analysis of the P3 boom revealed that roughly a third of the value of P3 highway projects proposed in the past three years are in Texas, as shown in Figure 4. Given the construction-material-heavy nature of these projects, we estimate that could add another 3 percent in annual spending due to the state's proximity to the Gulf coast.

The barriers to entry for heavy construction materials are very high, providing an attractive industry backdrop. Due to the weight of the materials and low relative price, markets tend to be regional with construction materials generally transported within 200 miles of quarries and plants. However, the ideal location is close to municipalities, which makes opening new facilities challenging as people are generally unwilling to live near these kinds of facilities. Regulation on cement plants will also get tougher with the enforcement of the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations in 2015. Therefore, it is unlikely that new cement capacity will be built for a period of time because of the cost of compliance.

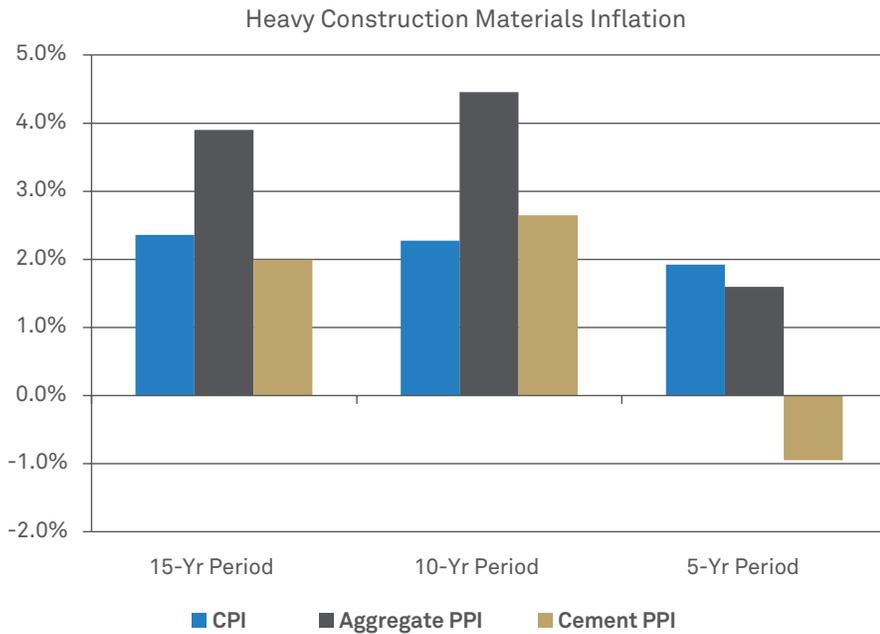
Figure 4: TIFIA Projects, State by State



Source: Department of Transportation via Bloomberg. Data as of 12/31/13.

We believe these barriers to entry have created pricing power in these industries, although aggregates appear to have the better pricing dynamic, as shown in Figure 5. In our view, the story on cement was hurt by excess capacity in 2009 that resulted from tight markets in 2005 and 2006. We anticipate capacity utilization will reach a healthier level in the next couple of years, and a return to stronger pricing power will continue.

Figure 5: Pricing Power in Construction Materials



We anticipate capacity utilization will reach a healthier level in the next couple of years.

Source: Bureau of Labor Statistics via Bloomberg. Data as of 12/31/13.

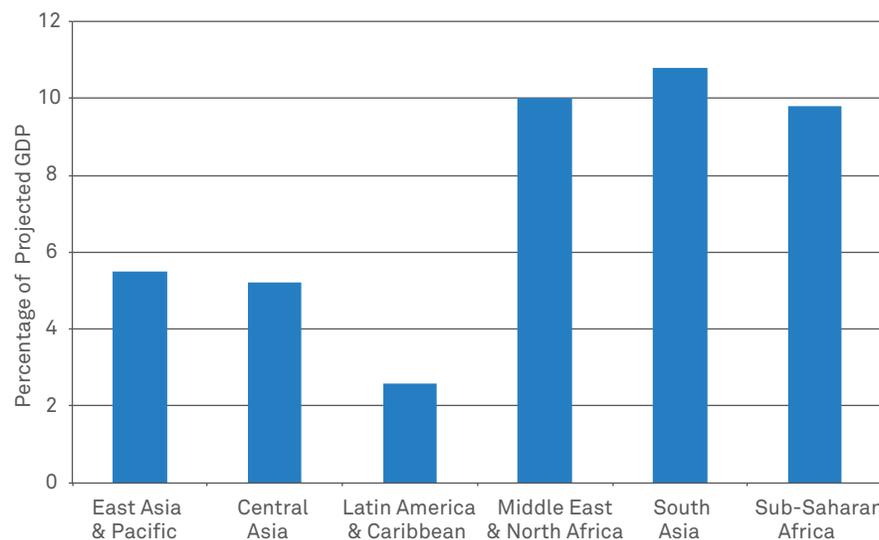
Several emerging market countries have recently elected leaders whose campaigns included pledges of reform and infrastructure improvements.

EMERGING MARKETS

Several emerging market countries have recently elected leaders whose campaigns included pledges of reform and infrastructure improvements. Prime Minister Narendra Modi of India recently won the general election on a platform of infrastructure improvements, including the build-out of 100 “smart cities,” outfitted with high-tech communications capabilities.

Emerging-market economies are seeing a greater need to establish and improve road, rail and telecommunications infrastructure systems as they move along the development continuum. Contributing factors include a burgeoning middle class and limited exposure to the recent global recession. One consultancy study estimated that emerging countries will need roughly \$851 billion in infrastructure spending each year to facilitate economic growth.¹¹ Separately, Morgan Stanley has estimated that emerging markets will spend approximately \$21.7 trillion on infrastructure over the next decade, with Asia representing 67 percent of the total.¹² As Figure 6 shows, infrastructure funding needs may require a notable portion of some countries’ GDP.

Figure 6: Estimated Infrastructure Spending Needs



Source: African Development Bank, Asian Development Bank, European Investment Bank, Inter American Development Bank, Islamic Development Bank, and the World Bank Group. Note: Includes investment and maintenance. Needs as share of GDP in Africa were estimated using data from 2008.

11 “Emerging Nations Need USD 851 Billion for Infrastructure Annually for Infrastructure Annually to Secure Further Growth – Private Investors Wanted,” Roland Berger Strategy Consultants, June 20, 2012. http://www.rolandberger.com/press_releases/512-press_archive2012_sc_content/Privatinvestoren_fuer_wichtige_Infrastrukturen.html.

12 “Emerging Markets Infrastructure: Just Getting Started,” Morgan Stanley Perspectives, July 16, 2008. <http://www.morganstanley.com/views/perspectives/articles/11203698-41a0-11de-a1b3-c771ef8db296.html>.

Because of their explosive economic growth, emerging markets are demanding better roads, data networks and other infrastructure, providing ample investment opportunities with attractive yields. The aforementioned toll road operators are beneficiaries of this theme, as are telecommunications companies, utilities, global engineering and construction firms and Chinese railway construction companies.

CONCLUSION

Across the globe, the world's population will need safe travel routes, clean water and reliable power delivery for many years to come. Despite a lengthy period of relative neglect, leaders will have to refocus their attention on providing these basic services, regardless of budgetary constraints, perhaps drawing on the more expansive resources of the private sector in the process.

We have identified several burgeoning themes in the infrastructure space, including public-private partnerships, privatization, construction materials and the Gulf coast and emerging markets. All of these provide potential opportunities for investors to get in at the ground floor of the pending —and necessary — uptick in infrastructure spending, given the appropriate framework.

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