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SPECIAL REPORT

GLOBAL INFRASTRUCTURE INVESTMENT

Timing Is Everything (p. 12)

How Europe Plans To Spend €315 Billion In Three Years

The State Of Global Project Finance Bank Lending

Global Toll Road Operators Have Turned A Corner

The U.K.'s Infrastructure Investment Deficit

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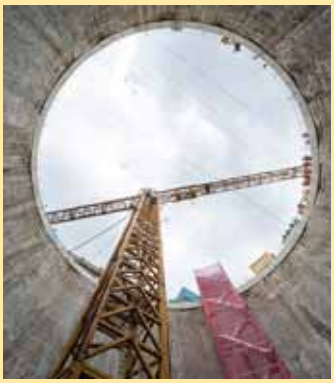

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SPECIAL REPORT

When the G20 countries met in Brisbane, Australia, in November 2014, the representative members agreed to create a Global Infrastructure Hub. In broad terms, the mandate of the hub will be to coordinate the infrastructure plans of participating governments; enhance governments' knowledge of how their public sectors work, what they need, and how they are developing their funding practices; and standardize procurement processes.

Although the U.K. was one of the pioneers of infrastructure development, in recent decades its investment has lagged behind that of other countries in the Organisation for Economic Co-operation and Development. This has put the country's infrastructure under strain: the World Economic Forum cites inadequate supply of infrastructure as an obstacle to doing business in the U.K. We estimate the U.K.'s infrastructure investment deficit exceeds £60 billion.

Global Infrastructure Investment

Timing Is Everything (And Now Is The Time)

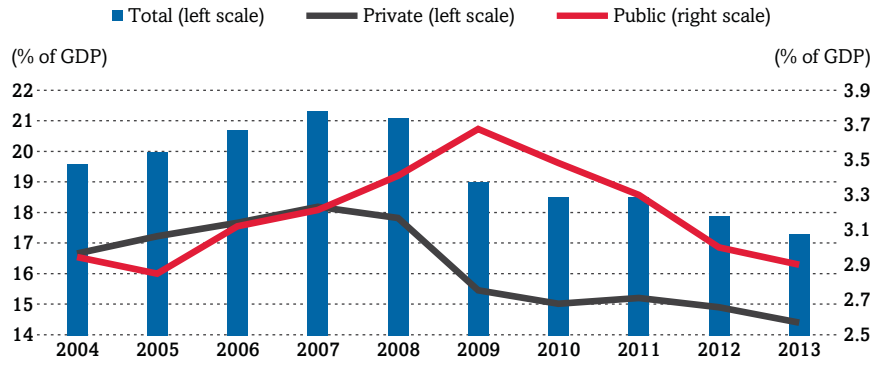
Overview

- Standard & Poor's sees clear economic benefits to G20 countries' increased public spending on infrastructure—with the so-called "multiplier effect" of an increase in spending of 1% of real GDP running as high as 2.5 in a three-year period.
- The multiplier effect is generally greater in developing economies than for more developed countries; for example, China, India, and Brazil would all enjoy a boost to GDP of at least double the increase in investment.
- For Europe, it's clear that a concerted effort across the region would have a greater effect than country-specific increases in spending.
- For developed nations, the increase would boost employment substantially—adding more than 700,000 jobs in the U.S. and about a million in the EU.

With global infrastructure investment needs now in the tens of trillions of dollars—figures that are essentially incomprehensible to most of us—it's easy to see the problem as insurmountable. The result is that too often, we forget that even a relatively small increase in spending on infrastructure can yield outsized returns—especially if investments are executed in a wise, targeted way.

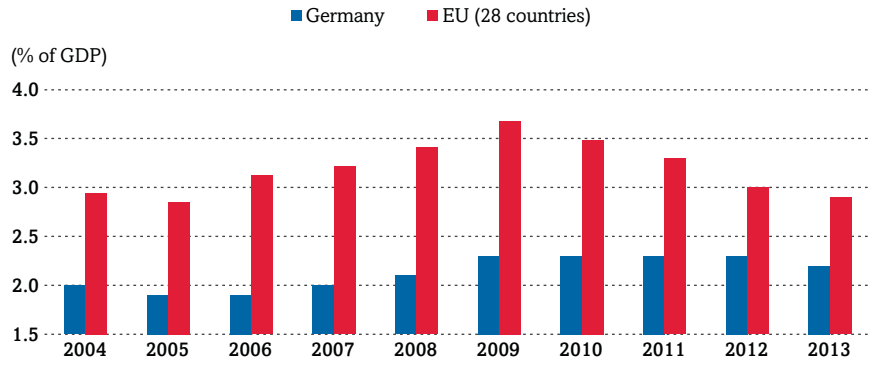
And these returns aren't just for lenders, who often enjoy lower default rates and higher yields for infrastructure projects than they might reap from similarly rated corporate debt—especially in developed markets. Economies will also generally benefit from the so-called "multiplier effect" when they promote such investments, with each dollar of spending (again, when deployed judiciously) translating into much greater gains in terms of GDP.

Chart 1 | Investment In The EU



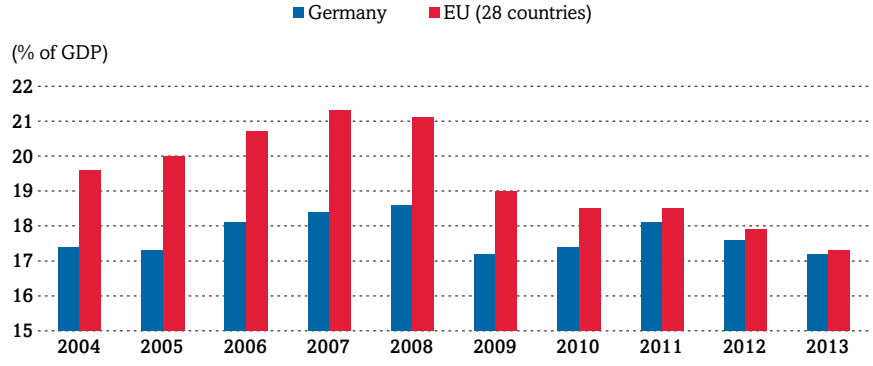
Sources: European Commission, OECD, and Standard & Poor's estimates.

Chart 2 | Public Investment: Germany Versus The EU



Sources: Eurostat, OECD, and Standard & Poor's estimates.

Chart 3 | Total Investment: Germany Versus The EU



Source: Eurostat.

In addition to the short-term boost to jobs and aggregate demand, infrastructure investment often yields long-term benefits by enhancing efficiency, for instance by allowing goods and services to be transported more quickly and at lower costs. There's no shortage of examples around the world in which a large infrastructure project has had a transformative effect. The 48-mile-long Panama Canal—which is in the final stages of a massive expansion, a century after its opening—instantly facilitated international maritime trade. Similarly, the Channel Tunnel connecting France and the U.K., which opened in 1994, now ushers an estimated 20 million passengers (and almost that many tons of freight) each year between the two countries.

However, while a clear correlation exists between the size of a project and the ensuing economic benefits, increased spending on projects doesn't always lead to commensurate effects, according to a 2011 study of U.S. infrastructure investment by the Economic Development Research Group. Additionally, a 2013 study by management consultant McKinsey & Co. suggested that if a given country's infrastructure projects are evaluated, planned, and executed more carefully, they could generally be completed at two-thirds of current costs—a significant savings, especially as governments around the globe look to maximize their returns on investment.

Some governments, notably in the U.K. and Australia, have extensive experience using public-private partnerships (P3s) to finance infrastructure projects. Private-sector participation can allow governments to tap into design and engineering expertise, better manage construction timelines, reduce costs, and improve the delivery of services to the public. The track records for the U.K. and Australia suggest P3 projects generally suffer fewer construction delays and smaller cost overruns. However, these results can vary, and savings may not accrue to smaller projects where economies of scale can't be achieved. Nonetheless, we see P3s as an appealing alternative to relying solely on public spending.

At any rate, the causal link between prudent infrastructure spending, whether public or private, and the benefits to an economy is undeniable, in our view. In large part, this is especially true for transportation projects, which can boost an economy in many ways, including adding jobs (and not just during a project's construction), increasing income, and raising property values. But "infrastructure" entails much more than a country's transportation system. In addition to roads and bridges—as well as other transport-related projects such as rail systems, ports, and airports—we consider a country's essential infrastructure to include water and waste management facilities, power grids, telecommunications networks, and social infrastructure, such as schools, courthouses, and hospitals.

Table 1 | The Effects Of An Increase In Spending Of 1% Of GDP

(Ranked by multiplier effect, highest to lowest)

Country	Multiplier effect (2015 to 2017)	Projected job gains (maximum above baseline)
U.K.	2.5	343,000
Brazil	2.5	418,000
China	2.2	2,400,000
India	2.0	1,360,000
Argentina	1.8	68,000
U.S.	1.7	730,000
Japan	1.5	211,000
Canada	1.4	61,000
Italy	1.4	136,000
France	1.3	109,000
Mexico	1.3	193,000
South Korea	1.3	95,400
Germany	1.2	157,000
Indonesia	1.0	320,000
Australia	1.0	38,680
Eurozone	1.4	627,000

Note: Most of the results in this table are from our simulations for an increase in infrastructure investment of 1% of GDP in year one, using Oxford Economics' Global Economic Model. However, for projected job gains in emerging regions, we used the empirically based rule known as Okun's Law, which states that unemployment falls by 1% when GDP rises by 3%. Specifically, we used this for Asia-Pacific (Australia, China, India, Indonesia, Japan, and South Korea) and Latin America (Argentina, Brazil, and Mexico) since the structure of the labor markets in these regions typically differs significantly and renders most general equilibrium modeling techniques less useful.

Clearly, infrastructure needs vary greatly from country to country, depending, among other things, on where an economy is on its developmental timeline. In more developed economies, where transportation systems are sometimes more than a century old, refurbishment and replacement will eat up a larger share of necessary financing. In developing nations such as China and India, systems and networks must be built from scratch to keep pace with population growth and enhance economic expansion. Given that the U.N. projects the global population to rise to 9 billion by 2050—with most of that in the developing world, where the population could surge by almost one-half, to 7.8 billion—there's a clear need for substantial investment in new infrastructure in the areas of energy, water, transportation, telecommunications, and social facilities.

Getting It Right

Standard & Poor's believes private investors around the world have an opportunity to fill some of the giant gap created by public-funding shortfalls *(see "Global Infrastructure: How To Fill A $500 Billion Hole," published Jan. 16, 2014, on RatingsDirect)*. This is especially true as regulatory requirements limit banks' long-term lending, and governments face budgetary constraints. Infrastructure deals can be attractive to nontraditional lenders such as insurers and pension funds, which need to match long-term assets and liabilities. Additionally, such projects generally offer higher yields than lenders might get from more traditional assets such as investment-grade sovereign and corporate debt.

Whether the money comes from public coffers or private interests, it's crucial that spending is managed reasonably. Too often the primary criteria for a project's approval are political support and visibility, rather than more prudent cost-benefit analyses. Planners around the world and at all levels tend to try to address congestion and bottlenecks by pushing through new construction instead of considering upgrades to existing infrastructure. We believe that focusing on projects with the most advantageous returns is critical.

Along these lines, in a research paper published in December, Emil H. Frankel, a senior fellow at the nonpartisan think tank the Eno Center for Transportation and former assistant secretary for Transportation Policy under President George W. Bush, suggests that it's essential for any investment in U.S. transportation infrastructure to go toward projects that offer the highest economic returns. Toward this end, increased leadership at the federal level is crucial, Mr. Frankel says, adding that Congress could substantially improve this process by requiring the agencies responsible for projects and programs to conduct transparent economic analyses as part of state and regional transportation improvement plans. Additionally, the Transportation Department should have the authority to reject plans that don't follow this path, he says.

Meanwhile, in an October report, the International Monetary Fund (IMF) said that increased infrastructure investment could provide a much-needed boost to demand in advanced economies—and called it "one of the few remaining policy levers available to support growth, given already accommodative monetary policy." In developing regions, such investment could help alleviate existing and nascent infrastructure bottlenecks. And for all economies, it would boost productive capacity and medium-term output.

G20 finance ministers and central bank governors themselves have said that raising infrastructure investment is crucial to promoting growth in the global economy. As the IMF report pointed out, while increased public investment raises output in both the short and long terms, the effects vary with a number of factors, including the degree of slack in an economy and the efficiency of investment. Not surprisingly, if the selection and execution of a project are poor—and only a fraction of the money spent is converted into productive public capital stock—long-term output gains would be limited. Increasing investment efficiency is key to mitigating the potential trade-off between higher output and the increase in public debt.

The Multiplier Effect

Although the figures vary considerably, governments generally have spent less, as a percentage of GDP, on infrastructure in recent years. In the U.S., for example, government spending on projects as a percentage of GDP has dropped to a two-decade low of about 1.7%, according to the Federal Reserve Bank of St. Louis. In the eurozone, the austerity measures that many governments implemented in response to the recent debt crisis have significantly constrained spending on infrastructure development and repair.

By contrast, government allocation is notably higher in the developing economies of Asia. China, for example, is now the world's largest investor in infrastructure, with the government earmarking roughly 8.5% of GDP for projects (a large chunk of which, it should be noted, is outside its borders). India, meanwhile, has been allocating roughly 4.7% of GDP in recent years. And not only are these countries spending more than developed nations, but their already-fast-growing economies stand to benefit comparatively more if spending were to rise, according to our estimates of the multiplier effects for the majority of G20 countries.

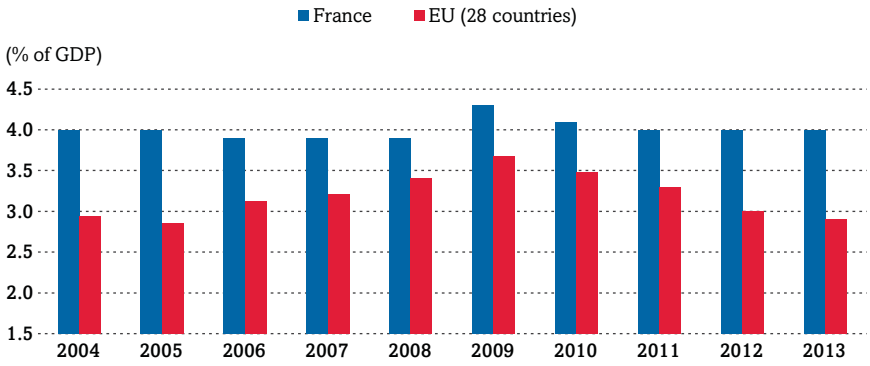
In our analysis, Standard & Poor's economists estimated the benefit to various economies over a three-year period (2015-2017) of an increase in infrastructure spending of 1% of real GDP in the first year. Because disaggregated measures of infrastructure investment aren't widely available, our analysis looked at total public-sector investment as a proxy. This may include investment in non-infrastructure items, but to the extent that infrastructure investments are generally found to have greater productivity-enhancing effects than other kinds of public investment, our multiplier estimates are conservative.

Generally speaking, we found the multiplier effect to be greater in developing economies than for more developed countries (with the notable exception of the U.K., which we determined to have the highest potential multiplier effect of the countries we looked at, for reasons detailed below). China, India, and Brazil would all enjoy a boost to GDP of at least double the increase in investment, while the multiplier effect for countries such as Australia, Germany, and Canada would be far smaller *(see table 1)*.

The U.S.

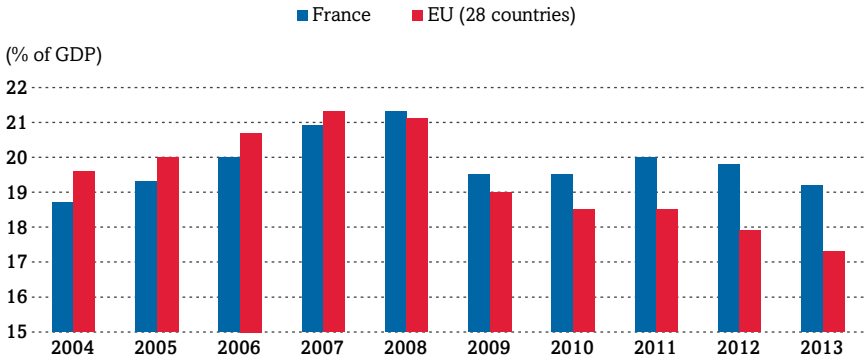
For the U.S., we estimate that an increase in spending of 1% of real GDP—or about $160 billion, spread out over four quarters—would boost economic output by

Chart 4 | Public Investment: France Versus The EU



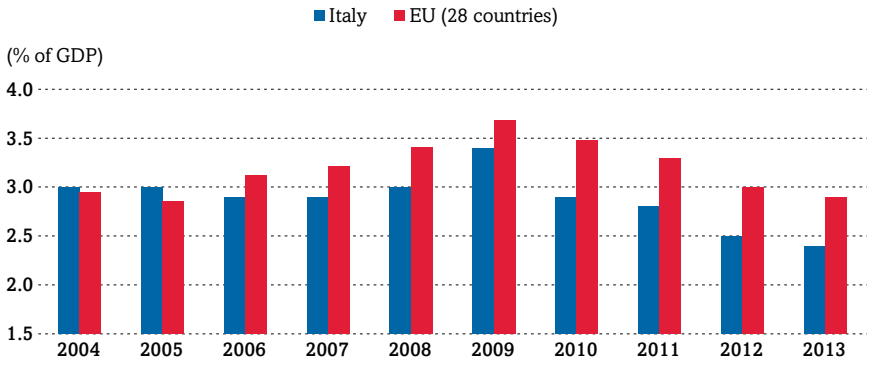
Sources: Eurostat, OECD, and Standard & Poor's estimates.

Chart 5 | Total Investment: France Versus The EU



Source: Eurostat.

Chart 6 | Public Investment: Italy Versus The EU



Sources: Eurostat, OECD, and Standard & Poor's estimates.

$270 billion over the three-year period. In other words, for each additional $1 allocated for public-sector investment in 2015, about $1.70 would be added to real GDP over the three years.

This jibes with our estimate in May, when we found that $1.3 billion of public-sector investment would boost real GDP an additional $2 billion in 2015. On top of that, such an increase would add 29,000 jobs to the U.S. construction sector, and even more to the broader economy when we counted positions in infrastructure-related industries. This is in line with estimates from the Federal Highway Administration, which has determined that a $1.25 billion highway capital expenditure supports 34,779 jobs related to the project. *(See "U.S. Infrastructure Investment: A Chance To Reap More Than We Sow," published May 5, 2014.)*

In our latest analysis, we estimate that an increase in spending of 1% of real GDP could add as many as 730,000 jobs to the U.S. economy in 2015. Put differently, it would provide average monthly job gains of 61,000—pushing overall monthly payroll gains to 272,000 (compared with our baseline forecast of 211,000).

To be sure, time and place play key roles in how many jobs a project actually creates. During recessions or weak recoveries, private construction activity is soft and unemployment in related job markets is high. Therefore, many of the jobs that an infrastructure project creates and supports would be in those areas. However, the economy's productive capacity and output would also likely increase once the infrastructure is built—and so the investment would likely result in even more jobs long after the project ended. In other words, the bump in employment comes from the creation of direct jobs (in construction and immediate construction supporting sectors) and indirect jobs, following stronger demand and enhanced competitiveness in the area.

Additionally, a 2012 report from trade group Associated Equipment Distributors found that every dollar invested in highways and streets returns about $0.35 in tax revenue to government coffers (with $0.23 of that going to the federal government). And U.S. states stand to benefit from infrastructure spending—typically much more than through other government expenditures. In a study of the effects of revisions to infrastructure grants on gross state products (GSPs) from 1990 to 2010, San Francisco Fed economists Sylvain Leduc and Daniel Wilson found that, on average, each dollar of federal highway grants translated into an increase to a state's GSP of at least twice that.

The study also suggests that the effects of increased spending may depend on the utilization of existing infrastructure. In particular, Mr. Leduc and Mr. Wilson looked at whether highway spending would have more beneficial effects in states that are growing fast—and thus more likely to suffer transportation congestion—than in slower-growing states where road capacity is underutilized. Their findings broadly support the notion that transportation infrastructure improvements have more beneficial effects in regions that are already growing rapidly—which implies that, in general, infrastructure spending may be more effective, at least in the short run, as a facilitator of strong economic growth rather than as a boost to weak growth.

At any rate, highlighting the beneficial economic effects of increased public-sector spending on projects in the U.S. is especially important given that the country's infrastructure is in desperate need of repair. In its most recent report card in 2013, trade group the American Society of Civil Engineers (ASCE) gave the U.S. a grade of D+, which marked the first improvement (from D) since the group began grading the condition of U.S. infrastructure in 1998. According to ASCE estimates, investment of $3.6 trillion would be needed by 2020 to rectify the situation, and the group added that unless things change, the backlog of projects and deferred maintenance could

Table 2 | Perceived Quality Of Infrastructure, The Global Competitiveness Report, 2014 To 2015

Country	Quality of overall infrastructure	Quality of roads	Quality of railroad infrastructure	Quality of port infrastructure	Quality of air transport infrastructure	Quality of electricity supply
Austria	7	3	11	60	33	7
Belgium	17	27	14	6	15	16
France	10	4	6	32	17	14
Germany	11	13	8	14	13	33
Ireland	36	25	31	29	23	17
Italy	56	57	29	55	70	35
Netherlands	6	5	9	1	4	9
Spain	13	11	4	9	10	21
Sweden	18	20	19	18	21	22
U.K.	27	30	16	16	28	12

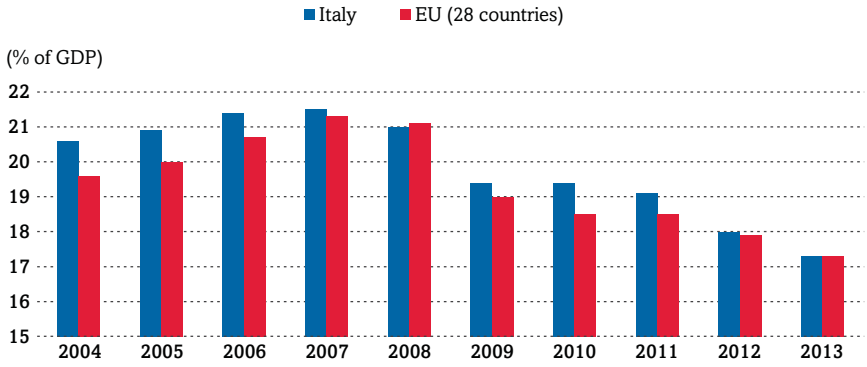
Source: World Economic Forum.

Table 3 | EU Simulation: 1% Increase In Public Investment In 2015

Country	Multiplier	Maximum gain in employment
Germany	1.2	157,000
France	1.3	109,000
Italy	1.4	136,000
Spain	2.0	107,000
Eurozone	1.4	627,000
Netherlands	1.8	34,000
Austria	1.3	18,000
Belgium	1.1	24,000
Ireland	1.6	12,000
U.K.	2.5	343,000
Sweden	1.1	20,000
EU		1,068,000

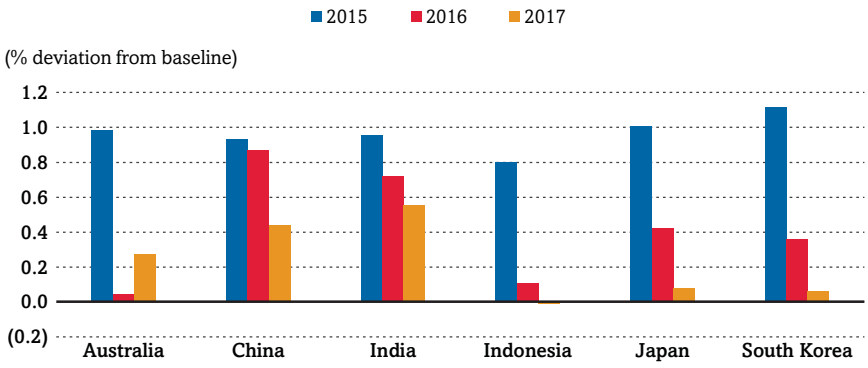
cost each American family $3,100 a year in personal disposable income. If more evidence is needed that U.S. infrastructure is in sorry shape, the World Economic Forum (WEF), in its *Global Competitiveness Report* for 2012-2013, ranked it 25th in the world (out of 144). The country's roads came in at No. 20.

Chart 7 | Total Investment: Italy Versus The EU



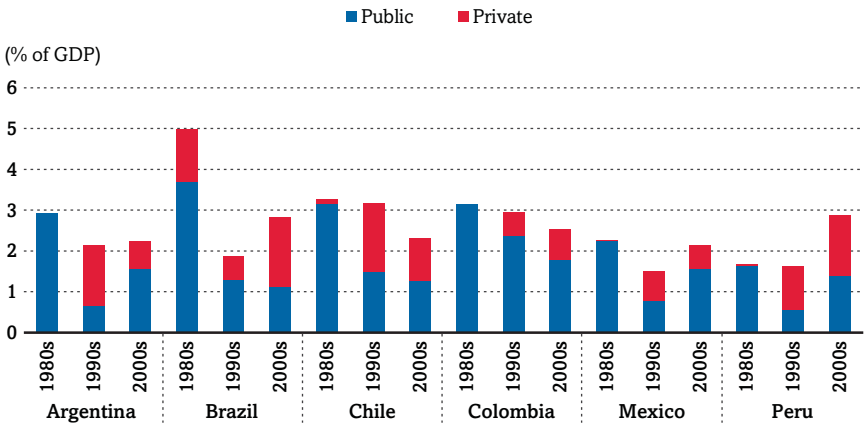
Source: Eurostat.

Chart 8 | Asia-Pacific: Real GDP Impact Of A 1% Increase In Public Investment



Source: Standard & Poor's.

Chart 9 | Total Spending On Infrastructure: Cross-Country Comparison



Sources: Standard & Poor's calculations based on data from World Bank and ECLAC (UN's Economic Commission for Latin America and the Caribbean).

Canada

For Canada (which came in slightly higher in the WEF report, with an overall infrastructure ranking of 15th), we estimate that each additional C$1 spent by Canadian governments in 2015 would increase real GDP by C$1.40 by 2017. With a government spending increase of 1% of real GDP totaling C$17.3 billion (US$14.8 billion), this would add C$25 billion to GDP. On top of that, we assume governments would use P3s for a portion of the increase, lifting businesses' fixed investment in the three years and adding to the multiplier effect on real GDP. Most of the increase (0.6%) would come in 2015.

In this scenario, Canada's real GDP growth for 2015-2017 would average 2.7% annually, versus 2.5% in our base case, and the cumulative increase in real GDP would be C$141.6 billion.

At the same time, the increase in investment would lift employment by an additional 45,000 jobs, beyond the 575,000 increase we expect for the Canadian economy over the years, and hourly wages would increase 3%, on average, versus 2.7% in our baseline scenario—not a significant improvement to consumers' ability to pay off their debt.

Notably, because Canadian governments were relatively early adopters of outsourcing investment in infrastructure through P3s, increased government investment in infrastructure also mobilizes private spending—obviously, an important aspect of economic expansion.

As it stands, Canada's three levels of government—federal, provincial, and municipal—share responsibilities for maintaining the country's public infrastructure. After a period of elevated investment in public projects in the 1950s and 1960s, governments reduced their spending, and it wasn't until recently, in the wake of the 2008 to 2009 recession, that they again focused on infrastructure funding. While government investment in infrastructure is again close to 3% of GDP (from a low of

1.4% in 2000), decades of underinvestment have opened up a funding gap that the Canadian Centre for Policy Alternatives estimated to be as much as C$145 billion in 2011. Other estimates of the gap, for example from the Federation of Canadian Municipalities, include the cost of repairs that extend the service life of existing infrastructure plus new spending to keep up with projected population growth—according to these measures, Canada will need to invest more than C$200 billion in the country's public infrastructure in the coming decade.

Europe

In Europe, fixed investment has failed to recover fully from the declines during the global economic and financial crisis. In fact, total fixed investment as a share of the region's GDP is now four percentage points below its pre-crisis peak *(see chart 1)*. Private investment fell sharply during the crisis, which was partially offset by the spike in public investment as part of the stimulus measures implemented by the EU governments. Public investment has since been declining rapidly as governments consolidate their budgets.

Still, a sizable chunk of government spending—about one-third on average—is earmarked for infrastructure in the EU, according to estimates by economists at the European Investment Bank (EIB). However, in the majority of the region's countries, investment (both public and private) in transportation infrastructure as a percentage of GDP is lower than a decade ago. Meanwhile, the perceived quality of overall infrastructure in some EU countries, such as Italy, is low. And others, including Germany, have lost their previously high competitive position *(see table 2)*.

EU infrastructure investment needs are approaching €1 trillion (US$1.2 trillion) in the next three years, according to European Commission (EC) estimates, including annual spending of more than €200 billion to meet agreed energy objectives. The EC also estimates that €1.5 trillion is required for transportation infrastructure through 2030, with the financing gap for broadband networks in the area of €30 billion a year until 2020.

Low investment has been a major cause for the slow recovery in the EU economy. Moreover, chronically weak capital spending endangers future growth. To address this, EC President Jean-Claude Juncker in November outlined the European Investment Plan that would increase spending by €315 billion from 2015 to 2017.

The commission has identified about 2,000 projects, with a potential investment of €1.3 trillion, that would help rejuvenate the eurozone's faltering economy through infrastructure spending, financed primarily by the capital markets. We think the key to raising the €315 billion is the newly created European Fund for Strategic Investments, which will have €21 billion of capital at its disposal—€8 billion of new EU cash, €8 billion of existing EU budget funds, and €5 billion from the EIB.

a whole has suffered two recessions since 2008. There are, however, differences across countries with respect to their positions in the cycle. Of all eurozone countries, Germany is closest to full employment, and we estimate its output gap to be about 1.2 percentage points of GDP, compared with 3.8 percentage points for the eurozone as a whole.

Another important dimension to keep in mind is the strong trade links between EU countries. On average, 60% of European exports/imports remain within the union. Our research has shown that boosting spending in one country would have few effects on its own growth and on that of its neighbors. *(See "A Stimulus Package From Germany Alone Would Have Little Effect On The Rest Of The Eurozone," published Oct. 21, 2014.)* This is because the leakage through imports reduces the direct impact on Germany's GDP but is diluted across its major trading partners.

In Europe, fixed investment has failed to recover fully from the declines during the global economic and financial crisis.

Economic research shows that infrastructure spending boosts output growth through demand in the short term and supply in the long term. The demand-driven effect depends on where an economy stands in its economic cycle; it's stronger at the low point in a cycle. For instance, during the depressions of 1837-1842 and 1931-1935, investments in transportation infrastructure played a major role in lifting Europe's economies out of the trough. At the same time, the supply-driven effects depend on how productive investments are, which, in turn, could be linked to how they're financed.

Most economies in the region are at or near low points in their cycles, as shown by each country's output gap—the difference between potential and actual GDP—and the fact that the eurozone as

In this light, it makes more sense to look at the region as a whole. For our model, we assumed that public investment (coordinated across the EU) would increase by 1% of GDP in 2015. We also assumed that monetary policy in Europe would remain accommodative, with neither the Bank of England, the European Central Bank, nor Sweden's Riksbank raising benchmark interest rates above what we assume in our baseline scenario. The results we got were in sharp contrast to those from our "boost in a single country" simulation. In fact, for the eurozone as a whole, the multiplier effect is quite strong: Each additional euro spent on infrastructure would add €1.4 to real GDP over three years *(see table 3)*.

At the same time, such an increase would add an estimated 627,000 jobs in

the eurozone, and more than 1 million in the EU (with the U.K. accounting for 343,000). All told, a concerted plan encompassing the EU as a whole would, in our view, have a much more meaningful effect on growth and employment than would isolated, country-specific increases.

The U.K.

Inadequate investment in infrastructure has become a significant obstacle to doing business in the U.K., and the WEF's *Global Competitiveness Report* ranks the quality of the country's overall infrastructure 27th in the world. Output per hour in the U.K. is below the average for the rest of the G7 industrialized economies; last year, one hour of work in the U.S. produced 40% more than one hour of work in Britain. In our view, insufficient investment in infrastructure has been one of the key factors explaining weak productivity performance in the U.K.

Road congestion is a fact of life in the U.K., hurting the economy and the environment, and diminishing Britons' quality of life. According to INRIX, a road traffic and driver services company, the U.K. is the third-most-congested country among major developed economies in Europe and North America. The average U.K. driver spends approximately 30 hours a year in traffic jams—and that figure rises to 84 hours in the London commuting area. To address this, Prime Minister David Cameron has announced that the government will earmark £15 billion in the next 10 years to improve the country's major roads. At the same time, we expect spending to increase in the next decade, which will create significant opportunities for private capital investment in the sector. In our view, this could boost the country's economic growth, both in the short term and over time. *(See "Building For Growth: Can The U.K. Close Its Infrastructure Investment Deficit?" on p. 55.)*

With an accumulated infrastructure investment deficit of more than £60 billion (US$95 billion), a clear opportunity exists. We estimate that an increase in public spending in one year of 1% of GDP (coordinated across the EU) would result in a multiplier effect for the U.K. of 2.5 over three years. This is a higher effect compared with the boost to spending in the U.K. alone, which we estimated at 1.9. The main reason is the additional boost to U.K. GDP due to increased demand from its European trade partners. We also project that such investment would add more than 300,000 jobs in the same year as the increase occurred.

Germany

In Germany, the region's biggest national economy, total capital spending has been low, by international comparison, and has decreased over time—plummeting to just above 17% of GDP in 2013, from 21.5% in 2000. Public investment has slipped below 3% of GDP *(see charts 2 and 3)*. In fact, public investment in the country has continuously been 1 percentage point lower than the EU average for the past decade, and this trend continued even as numerous European countries trimmed public spending amid fiscal consolidation.

Underinvestment in Germany's transportation infrastructure investment alone has led to an accumulated shortfall of €60 billion since 2004, according to our calculations. The deteriorating quality of German roads is reflected in the WEF's rankings: Germany ranked 13th in those terms in 2014, down from fourth in 2008.

Meanwhile, investments are needed in renewable energy systems for electricity and heat supply, and for power grids. Significant funding is also needed to improve energy efficiency—to insulate buildings, for instance. This energy transition will require €31 billion to €38 billion per year until 2020, according to the Deutsches Institut für Wirtschaftsforschung (the German institute for economic research).

On the bright side, we estimate that an increase in public spending in one year of 1% of GDP (coordinated across the EU) would result in a multiplier effect of 1.2 for Germany over three years.

France

In France, public investment has been comparatively high, remaining constant at 4% of GDP over the past decade despite fiscal consolidation constraints *(see charts 4 and 5)*. However, a reduction in state transfers to local and regional governments, which account for the bulk of public investments, could soon curb infrastructure spending.

The country, with the region's second-largest economy, ranks fourth and sixth in the quality of its roads and railways infrastructure, respectively, in the WEF's assessment—when investing 0.9% of GDP in transportation infrastructure, in line with the Organisation for Economic Co-operation and Development (OECD) average. However, demographic changes in some metropolitan areas, Paris in particular, have made the existing public transport network inadequate to meet the growing needs of mobility. Meanwhile, the high-speed broadband coverage rate was only 41% in France in 2013, compared with 62% across Europe. To reach 100% coverage, the country may need to spend an estimated €20 billion through 2022.

At any rate, we estimate that an increase in public spending in one year of 1% of GDP (coordinated across the EU) would result in a multiplier effect of 1.3 for France over three years.

Italy

Similarly, an increase in public spending in one year of 1% of GDP across the EU would result in a multiplier of 1.4 for neighboring Italy. This is especially noteworthy, given that the country's infrastructure is regarded as poor by international standards, ranking 56th in the quality of overall infrastructure, according to the WEF.

Italy's public investment averaged 3% in the decade preceding the global economic and financial crisis. After a temporary boost as part of stimulus measures during the crisis, public investment has been trending down, and was just 2.4% of GDP in 2013 *(see charts 6 and 7)*.

At the same time, transportation-infrastructure spending amounted to an average of 1.3% of GDP annually from 2004 to 2008 (above the OECD average of 0.9%) and dropped to 0.5% in 2010, according to the International Transport Forum. Meanwhile, the perceived quality of Italy's transportation infrastructure is

poor, with rankings of 57th for the quality of roads, 29th for rail, 55th for ports, and 70th for air transport, according to the WEF report. And Italy is the fourth-most-congested country among major developed economies in Europe and North America (after Belgium, the U.K., and the Netherlands), according to INRIX.

Asia-Pacific

The six G20 countries in the Asia-Pacific region offer a mixed bag in terms of the multiplier effect that we estimate would result from an increase in infrastructure spending of 1% of GDP. For those countries whose economies are running at close to potential GDP—i.e., Australia and Indonesia—the increased spending wouldn't generate additional output since it would crowd out other investment and spur inflation. On the other side of the coin, the fast-growing economies of China and India have a lot of upside in terms of investment opportunities (although China's capacity for credit financing is now more binding), which explains their multipliers of 2.2 and 2.0, respectively. Japan and South Korea—with respective multipliers of 1.5 and 1.3—fall somewhere in the middle *(see chart 8)*.

In many ways, developing economies are at an advantage since crumbling legacy systems and structures aren't the burden they sometimes are in more developed areas, and these countries can capitalize on technological advancements to build from scratch. A prime example can be seen in India, where the estimated 1 billion mobile phones is approximately 30x the number of landlines in use—and growing fast, with service providers free of the need to run cable to rural areas, where just one-third of the population now has telephone service, according to mobile provider Telecom India. (Still, we note that India ranks 116th out of 144 countries with regard to per capita mobile-phone subscriptions; the U.S., for comparison, ranks 72nd.)

In this light, infrastructure investment is a hot topic in Asia-Pacific, given the immense funding needs and with investors showing a great deal of interest. As part of the recent G20 meeting in Brisbane, Australia, members expressed their commitment to achieving incremental global GDP growth of 2.1% over the next five years, and leaders said increased investment in infrastructure was one of the ways to deliver on that. Toward this end, G20 members agreed to create a global infrastructure hub in Sydney, recognizing the need for greater coordination and simplification. In other words, paramount to achieving this goal is making private investment in infrastructure more attractive. According to the group's estimate, an additional US$2 trillion of private money could find its way into infrastructure in the next 15 years. With Asia becoming the global economic growth engine but suffering from a material deficit in infrastructure, the region could capture a significant part of that additional investment, in our view.

…infrastructure investment is a hot topic in Asia-Pacific, given the immense funding needs and with investors showing a great deal of interest.

Broadly speaking, the mandate of the hub is to help coordinate participating governments' infrastructure plans, to develop public knowledge and expertise, and to standardize project-procurement processes. By precisely quantifying the risks that private investors can expect, this would allow all countries to establish a common contractual framework for projects. We see this as key to drawing any significant amount of private money to infrastructure.

Latin America

As a share of GDP, infrastructure investment in Latin America is below the global average of 3.8% *(see chart 9)*. From 2008 to 2012, the region as a whole allocated 3% of GDP for projects—or about $150 billion per year, given that GDP averaged $5 trillion during the five-year period. Broken out by country, spending was close to the average in Argentina, Brazil, Colombia, and Mexico, while lower in Chile (2% of GDP), and higher in Peru (4%). These intraregional differences are likely the result of the fact that Chile had already invested more aggressively than its neighbors before 2008, and its infrastructure needs were therefore lower, while the opposite situation existed in Peru. Another reason may be that Chile uses better criteria to evaluate projects and invests more efficiently than its peers.

To catch up to countries such as South Korea and China, Latin America would need to earmark 6% of GDP for infrastructure in the next 20 years, according to studies by the World Bank and the Economic Commission for Latin America and the Caribbean. But while more investment is needed, perhaps a better way to close the infrastructure gap is to improve efficiency. To be sure, public infrastructure is notoriously wasteful and inefficient not only in Latin America, but in other regions, including Asia-Pacific. As per the McKinsey study that suggested that projects currently under way could be built at two-thirds the cost if evaluated, planned, and executed more carefully, this means that Latin America could close the gap between actual and needed infrastructure at the same speed either by simply doubling investment to 6% of GDP or by hiking investment from 3% to 4% and adopting "best practices." Certainly, the second alternative is better, and more fiscally realistic, since it reduces undesirable income transfers and deadweight losses.

Using this criterion, we estimate the infrastructure gap for Latin America and six of its seven largest economies (excluding Venezuela due to data constraints) at 1% of GDP—or about $336 billion over five years. In calculating the effect that a regional investment

increase of this magnitude would have on countries' real GDP by 2017, we found multipliers ranging from 1.3 in Mexico to 2.5 in Brazil.

It's important to note that these results capture only the boost to GDP from an increase in effective demand, and not the supply-side effects that would accrue more slowly as the stock of infrastructure capital increases. That said, the effect on aggregate demand is critical to a region suffering not only a likely decline in potential growth due to external factors, but also a negative and expanding output gap, which has resulted in a virtual halt in job creation in some areas. To measure the effect that higher infrastructure spending would have on the labor markets, we combined our GDP multipliers with Okun's law (which attempts to quantify the relationship between employment and economic output) and found that an increase in infrastructure spending equivalent to 1% of GDP in the region would generate 900,000 jobs in Brazil and 250,000 in Mexico over the three-year period.

Meanwhile, the composition of infrastructure investment in Latin America, with regard to public and private spending, has been changing dramatically in the past three decades. In the 1980s, most, if not all, infrastructure was built, financed, and maintained using public funds. In the 1990s, private-sector participation grew significantly through privatization and concessions—and not just in telecommunications, but in sectors such as power generation, transmission, and distribution, especially in Chile and Argentina. Concessions (or P3s) occurred in water and transportation services, including roads, ports, and airports.

Contrary to a common view, private-sector involvement in infrastructure—both P3 and privatization—continued through the 2000s, except in Mexico and Argentina. In the former, problems related to the privatization of Telmex and road concessions, in which poor planning and execution on the part of the government resulted in the public having to pay more for mediocre services, contributed to its falling out of favor. But in Argentina, the quantity and quality of infrastructure services improved in all the sectors in which the private sector participated. This was true for power generation, transmission, and distribution; natural gas transportation and distribution; water and sanitation; and even road building and maintenance. In all of these sectors, service was adequate, tariffs affordable, and investment commitments honored. Yet during the financial crisis in 2002, the Argentinian government intervened in many of these markets, freezing tariffs and revising or revoking contracts. The result was the retrenchment of the private sector from infrastructure investment.

…the composition of infrastructure investment in Latin America, with regard to public and private spending, has been changing dramatically in the past three decades.

Outside of Mexico and Argentina, private-sector participation is alive and well in Latin America. For example, in Brazil, the region's biggest economy, the share of private participation in total infrastructure investment doubled to about 60% since the 1990s. In other words, more than half of public infrastructure in Brazil is currently being run by private interests. The role of the private sector is growing in Colombia, too, where one of every three dollars spent on infrastructure comes from private direct investment. Meanwhile, in Chile and Peru, the share has stayed more or less constant at about 50%.

Keys To Success

Standard & Poor's believes it's vitally important for countries to improve the quality of their infrastructure investments in addition to simply increasing spending—regardless of where economies stand in their development. Among other things, this could entail better project appraisal and selection, perhaps through independent assessment, comprehensive cost-benefit analyses, and improved project execution.

This is especially important given that governments are spending a much smaller portion of their budgets on infrastructure—particularly in the West. In the U.S., government spending on projects as a percentage of GDP has tumbled to the lowest in more than 20 years, and in the eurozone, governments' austerity measures have significantly eaten into spending on infrastructure development and repair.

To be sure, while there's a demonstrable relationship between a project's size and the resultant boost to an economy, more spending doesn't always make for commensurate benefits. In this light, it's crucial that countries more carefully evaluate, plan, and execute their infrastructure projects. This would result in significant cost savings on the front end, and bigger boosts to the economy down the road. **cw**

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Lessons Learned From 20 Years Of Rating Global Project Finance Debt

It has often been said that those who fail to learn from history are doomed to repeat it. The global project finance sector can perhaps be included among those who have learned from experience. The sector learned some hard lessons in its pioneering days, such as how to counter market exposure risk—the biggest cause of default—and how to strengthen a project's structure to provide the necessary resilience to withstand external shocks and counterparty risk. Based on Standard & Poor's Ratings Services' experience over two decades with more than 500 projects—encompassing nearly 600 project debt issues—we have often seen the sector absorb lessons from the past by enhancing transaction structures, mitigating construction risks, reducing counterparty exposure, and enacting many other credit-protective features to become one of the most robust and stable sectors today.

Overview

- Many projects that fail experience problems in more than one area.
- The causes of default can be grouped broadly into technology or operations, market exposure, parent structure and counterparties, and regulation.
- We believe differentiating risk factors under our revised criteria will provide better insight into potential weaknesses in future project financings.
- We expect to continue rating projects from the 'A' category, for some availability projects, down to the 'BB' or 'B' category, for more speculative projects with contractual exposures.

A Retrospective Look At Rated Project Finance

Twenty years ago, some industry observers were skeptical about whether nonrecourse debt supported by a single asset could be robust enough to garner an investment-grade rating. Projects can be as diverse as power generation, refining or industrial plants, transportation infrastructure, lodging, entertainment venues, and mining. We have seen that a properly structured and economically well-conceived project can achieve long-term rating stability when the project is aligned with sound, creditworthy counterparties and operates under predictable legal environments and stable sovereign jurisdictions.

Historically, project finance debt has often been structured to earn a low-investment-grade rating ('BBB' or 'BBB-'). However, the number of projects rated below investment grade has grown to about 33% of all currently rated project debt and includes tranches initially rated as low as 'B' or even 'CCC'. Project debt originally rated speculative grade has an aggregate default rate of 13.4%, while project debt initially rated investment grade has about a 3.6% aggregate default rate. Rated project finance debt covers at most 5% of the total project debt worldwide, so the rated debt may not accurately represent the larger set of all project financings.

Institutional investors have traditionally had little financial capacity for speculative-grade debt in their portfolios and have tended to invest in projects that were already operational rather than those just commencing construction. However, we have seen an increase in both low-rated projects and bonds issued prior to construction, indicating that the market for project finance debt has broadened over the years.

Why Projects Fail

Projects can fail for reasons ranging from simple and easily identifiable to varied and complex. Standard & Poor's recently redesigned its methodology for analyzing project finance debt *(see "Project Finance Framework Methodology," published Sept. 16, 2014, on RatingsDirect)* by dividing the criteria into five distinct areas: construction, operations, transaction structure, counterparty risk, and the overarching framework that ties them all together. Many of the projects that failed experienced problems in one or two of these areas, and we believe differentiating the risk factors under the revised criteria will provide better insight into potential weaknesses in future project financings. For example, a common characteristic among defaults is having a parent that is not completely separate, or a counterparty that cannot be replaced. Our revised criteria describe in more detail some of the risks common in single-asset, limited-purpose entities, and we have placed a new emphasis on transaction structure.

Standard & Poor's has rated 513 projects in the past 20 years, covering more than 573 separate debt issues (some projects have both senior and subordinate debt). Of these 573 issuances, 39 have defaulted. In the context of our revised criteria, we have examined the causes and what they may mean for the future of project finance credit quality. The causes of defaults can be broken down into the following broad groupings *(see table 1)*:

- Technology or design problems during construction and initial ramp-up;
- Ongoing operational underperformance;
- Exposure to market prices or lack of raw materials or project output;
- Failure of a parent company;
- Counterparty problems; and
- Imposition of new regulations.

Technology or design problems

Problems during construction or operational ramp-up related to technology (at some power plants and a wastewater facility) or cost overruns (a number of transportation projects and a mining project in Western Australia) would seem inherent to a single-asset project. But it is interesting that only about 20% of defaults resulted primarily from technology or operational failure. Projects that we rate are usually well-structured and commonly try to mitigate this type of risk by using proven technologies and experienced construction firms.

The EnerTech Environmental California LLC biosolids processing plant is an example of technology failure. The facility simply did not scale up as planned and was unable to achieve expected volumes in testing or declare operational status before running out of funds. Another example of technology

How A Project Financing Qualifies For A Rating

For us to assign a project finance rating, an entity must have a minimum number of attributes. These are defined in paragraph 15 of the revised criteria *(see "Project Finance Framework Methodology," published Sept. 16, 2014, on RatingsDirect)*. But in summary, the project must be structured as follows:

- As a limited-purpose entity with relevant covenants to limit project activities, a cash management waterfall, and a perfected security interest on assets;
- With limited or no recourse to sponsors or shareholders of the project, and full recourse to project cash flow and assets;
- With both revenue and operating risks, so future debt service is dependent on cash flows generated by project operations;
- With a limited asset life;
- With a minimum set of covenants and controls applicable to senior debt; and
- With clear allocation of risks and responsibilities between the project entity and counterparties through the project's life.

If an entity does not meet this minimum set of attributes, we would not rate it under our project finance criteria. So for example, we would rate a company with a single power station asset but no limitations on activities or future debt issuances as a corporate entity, not as a project financing.

failure is Bulong Operations Pty. Ltd., a nickel and cobalt mine in Western Australia. It relied on cash flow from operations to meet debt service costs during start-up. Initial problems with design changes, increased construction costs, and difficulties with commissioning delayed revenues andquickly depleted available reserves. A financially weak parent was unable to inject more equity, so the project was forced to raise more debt, increasing the burden on subsequent cash flow and leading to a downward spiral.

Cost overruns were the downfall for several transportation projects. Metronet Rail BCV and SSL Finance PLC, concessions for the London Underground, had a complex construction schedule covering line upgrades and station improvements to several primary underground lines, along with new rolling stock. The schedule was tight and had to work around continued full operation of the network. The project defaulted after substantial cost overruns and delays that reduced revenues. Eurotunnel S.A. is another example of construction cost overruns, which led to extreme leverage at the end of construction. The project failed because low passenger and freight volumes during operation could not make up for the additional debt.

The Lane Cove Tunnel project in Sydney, Australia defaulted after a problematic construction effort went way over budget, mainly because a collapse in a ventilation tunnel damaged buildings and the highway above. The project then opened to traffic volumes substantially below projections.

The construction section of our revised criteria seeks to clearly define the types of risks in such situations. In particular, we assign assessments for the degree to which the technology is proven, the extent of design completion, the difficulty of the schedule, the availability of cash set aside for contingencies, and the experience of the construction management team. Although the collapse in the Lane Cove Tunnel was hard to foresee, our new criteria highlight some of the other common risk factors. Similarly, the Metronet and Eurotunnel projects would receive a higher assessment for construction difficulty under the new criteria. And Bulong's reliance on operating revenues would have been more apparent in our calculation of the certainty of funding sources during construction. Although we discussed these risks under our previous criteria, the revised criteria provide consistent assessments for each of these types of risk.

Operational underperformance

Three power projects in the U.S. defaulted because of extended operational problems. Although such problems are often related to technology and design, we consider this type of default as different from those directly related to construction. For example, a power station could underperform if its heat rate remains consistently high, maintenance costs are higher than projected, or plant availability is not meeting targets.

LSP Batesville Funding Corp. defaulted in January 2012 because of chronic operational issues that caused the plant to underperform and eventually use up project liquidity. Choctaw Generation L.P. defaulted at the end of 2012 after underperforming for an extended period because of a turbine design flaw and a series of equipment failures. The project did not achieve its contracted heat rate, and extended outages hurt revenues.

In the operational section of the revised criteria, we spend a lot of time identifying the potential volatility of cash flows (described as an operating period business assessment, or OPBA). Key factors include project technology, leverage, contract terms, raw material prices, and output market prices. Minimum debt service coverage under an expected base case and a reasonably stressful ("once in 20 years") downside scenario then lead to an operating period standalone credit profile. In a project like Batesville or Choctaw that uses market-proven technology, it is unlikely that we could identify the ultimate cause of default up front. But, as we conduct surveillance on a project, our projections incorporate actual performance history, and once a poor performance history starts to build, the project's vulnerability would be more apparent. Although we have not changed this philosophical tack, our revised criteria define a consistent approach for the downside scenarios that aids in comparisons between projects.

Hedging/commodity price exposure

A number of projects failed primarily because of changes in raw material or resource prices or volumes. Renewable projects usually have volume risk, i.e., water volumes at hydro plants, and wind or solar resources at other plants (although we usually have sufficient information about the latter and run base-case scenarios at a very high confidence level, so lower resources than we expect may lead to a downgrade but not usually a default).

Table 1 | **Breakdown Of Project Finance Issue Defaults**

	No. of debt issues	% of defaults	Aggregates	% of defaults
Technology or design (during construction/ramp-up)	7	20.59	Technology and operations	29.41
Operational (underperformance, higher capital expenditures, etc.)	3	8.82		
Hedging/commodity exposure	2	5.88	Market for input or output	32.35
Market exposure (price or volume)	9	26.47		
Structural weakness at the parent	6	17.65	Structure/counterparties	35.30
Counterparty failure	6	17.65		
Regulation	1	2.94	Regulation	2.94
Total	**34**	**100.00**		**100.00**

The other type of risk in this category is the input price, including the cost of transportation to the project site. Many power or industrial projects pass on the risk of fuel supply to their offtaker, but some projects are responsible for their own fuel supply. Some are poorly hedged or not hedged at all. Problems arise from fuel hedge mismatches (using fuel oil and hedging through a more liquid derivative that referenced natural gas) and hedges that do not last through the debt term, resulting in a large increase in cost when the hedge expires. Sometimes projects are limited in the types of hedging that are even available to them. The Northampton Generating Co. L.P. waste coal plant is a classic example of this. Fuel prices were higher than project expectations and were particularly affected by rising diesel costs for transporting waste coal from surrounding areas.

In the new operational section in our criteria, a project that is vulnerable to raw material risk would have a higher OPBA than an otherwise similar project and would, therefore, require higher debt service coverage for a given rating. Again, the intention behind the revised criteria is to better highlight such risks through our more detailed scoring approach and identify potential vulnerabilities among otherwise similar projects.

Table 2 | Number Of Defaults And Non-Defaults By Issuer And Issue

	Issuer	Issue
Total defaults	34	39
Non-defaults	479	534
Total ratings	**513**	**573**

Table 3 | Issue Defaults By Initial Rating

Initial rating	Number	% of total	Defaults	% of defaults	% chance of default
AAA	0	0.00	0	0.00	0.00
AA	1	0.17	0	0.00	0.00
A	51	8.90	1	2.56	1.96
BBB	334	58.29	13	33.33	3.89
BB	114	19.90	14	35.90	12.28
B	63	10.99	10	25.64	15.87
CCC/C	10	1.75	1	2.56	10.00
Category					
Investment grade	386	67.36	14	35.90	3.63
Speculative grade	187	32.64	25	64.10	13.37
Total	**573**	**100.00**	**39**	**100.00**	**6.81**

Table 4 | Project Finance Rating Changes By Category

Original rating	Upgrades	Downgrades	Unchanged	Defaults
AA	0	1	0	0
A	1	15	34	1
BBB	16	75	230	13
BB	12	21	68	14
B	7	6	40	10
CCC/C	3	0	5	1
Category				
Investment grade	17	91	264	14
Speculative grade	22	27	113	25
Total	**39**	**118**	**377**	**39**

Market exposure

Some projects sell their output through fixed-price contracts at known volumes, but many are exposed to volume risk (such as traffic volumes on toll roads) or price risk (for example, a merchant power plant selling electricity at local hub prices).

A number of volume-based road projects in Australia, Argentina, and China defaulted for this reason (Lane Cove Tunnel, Autopistas del Sol S.A., and Greater Beijing First Expressways Ltd., discussed below); others in Portugal and Spain had reductions in volumes and were downgraded (BRISA Auto-Estradas de Portugal S.A. and Abertis Infraestructuras S.A. were two parent companies with exposure to multiple toll roads across the Iberian peninsula that faced the possibility of downgrades but remained low investment grade). Although we attributed the defaults at the Eurotunnel and the Lane Cove Tunnel projects to construction problems, low traffic volumes were also to blame.

The collapse in natural gas prices and reduced energy demand after the 2007 economic downturn caused problems at many power projects and led to several defaults. Bicent Power LLC had a small portfolio of projects, high leverage, and an interest rate hedge that locked the company into high fixed debt service, making the project vulnerable. Low market prices for its output and a court judgment against the construction subsidiary led to a default. Bicent suffered from a number of problems and had a questionable hedging strategy, but the primary cause of the default was lower energy prices than forecasted.

AES Eastern Energy L.P., an operator of four coal plants in western New York, sold 100% of its energy at spot prices and had hedged most energy and capacity sales on a three-year rolling basis. Management reduced its hedging when forward prices began to fall and derivative market liquidity contracted. The project's increased exposure to falling wholesale power prices was due in part to record low natural gas prices. With leverage of $500 per kilowatt, the project could not

meet its debt service requirements and defaulted in January 2012.

Astoria Generating Co. Acquisitions LLC had a shortage of liquidity and tripped its leverage covenants. Its liquidity crisis stemmed from reduced power demand and regulatory changes in the New York capacity market, which together led to a collapse in capacity prices.

AES Drax Energy Ltd. owned the largest power station in the U.K., producing 10% of the country's electricity. But it defaulted in 2003 after struggling to cope with a collapse in wholesale electricity prices. The killing blow was the bankruptcy of its largest offtaker.

Market exposure is not limited to power projects. Murrin Murrin Holdings Pty. Ltd. and part-owner Glencore Nickel Pty. Ltd. both defaulted primarily because of low prices for their output products. Windsor Petroleum Transport Corp. is another interesting—and recent—default (it entered restructuring this year). The project operates four large crude carriers and defaulted because of a glut of tankers (leading to the worst shipping rates since 1999) and a drop in oil exports from OPEC due to decreased demand in the U.S.

Failure of a parent company or counterparty

We see quite a few projects that are not completely bankruptcy-remote from their parent companies. Usually, a parent's bankruptcy would encompass the project, but failure of the project would not necessarily hurt the parent. The entities have some link, such as parent control of the project entity board, or parent funding of reserves. Companies rated higher than the project rating may have structures like this. Generally, this is not a problem—unless the parent gets into distress.

A good example of this was the failure of Enron Corp. and the domino effect that had on a number of Enron-sponsored subsidiary power project financings such as Teesside Power Financing Ltd. in the U.K., which relied on Enron as the main revenue counterparty. Similarly, the default of unrated parent York Research Corp. hurt York Power Funding Ltd., a project financing that included four power stations in Texas, New York, and Trinidad & Tobago. And the default of unrated Calpine Rumford Inc. took down RockGen Energy LLC, Tiverton Power Associates L.P., and Broad River Energy LLC with it.

Projects face regulatory and legal risks, and we have seen projects get into financial distress after tariff or regulatory changes.

The revised criteria delineate the extent of separation from parents and sponsors in greater detail.

Counterparty problems

Counterparty problems are more common than some projects expect. Some projects cannot replace their counterparties, such as a sewage plant that is unable to find a new concession provider if the local government water utility terminates its contract with the project. In other cases, a project could find an alternative offtaker but may not be able to get a new contract that makes economic sense. An example would be a project that could sell at spot prices but would not be able to cover operating costs and debt service at those prices.

A few examples include the Mobile Energy Services Co. LLC, which lost revenue after its offtaker entered bankruptcy. The offtaker for the TermoEmcali Funding Corp. power project in Colombia defaulted on its power purchase agreement (PPA) obligations, resulting in that project's default as well. AES Drax Holdings Ltd. also faced the bankruptcy of its largest customer, TXU Europe, which provided partial credit support to counter its merchant risk exposure.

A similar problem is when local government entities do not support projects as expected. The Lombard Public Facilities Corp. project, in Illinois, has not yet defaulted, but it has been operating with debt service coverage below 1x for an extended period. The initial project rating ('BB-') was based partly on a guarantee from the local government if required. However, when the Village of Lombard was called on to support the project, it chose not to. Consequently, we lowered the ratings on both the project and the village to 'CCC-' and 'B', respectively.

The Greater Beijing First Expressways Ltd. failed after the local government did not support the project because traffic volumes were below expectations.

Our revised criteria include a rating assessment of all economically meaningful counterparties and a section on how we view counterparties throughout a project's life. With new tables for assessing liquidity and replaceability, we are able to provide more transparency regarding the risk created by individual counterparties. Although the default of a counterparty is often hard to forecast, our goal is to provide transparency on how such a default could affect a project.

Regulation

Projects face regulatory and legal risks, and we have seen projects get into financial distress after tariff or regulatory changes. Examples of regulatory risks include a local government not approving expected tariff increases, and the recent regulations in the U.S. covering particulates, mercury, sulfur, and planned carbon emissions, all of which led to additional capital expenditures for the affected projects. The Panda Global Energy Co. project failed after disagreement with the local government in China about tariff rates. Homer City Funding LLC owned a 1.8-gigawatt coal-fired power station near Homer City, Pa. New regulations forced the plant to make large capital expenditures to install required pollution-

control equipment. That, combined with lower-than-expected cash flow from low energy prices, resulted in a default.

Overall Project Finance Performance

Of the 513 different projects we have rated in the past 20 years, 34 issuers (or 6.8%) have defaulted *(see table 2)*.

As of September 2014, we had active ratings on 277 distinct issuances, and another 296 ratings had been withdrawn, either at the issuer's request, upon maturity of the debt, after refinancing and early payment in full, or upon default of the project.

About two-thirds of project debt tranches were rated investment grade initially, most were low-investment-grade, but they accounted for one-third of the project defaults *(see table 3)*. A growing portion is rated in the 'BB' category.

One of the guiding principles of Standard & Poor's analysis of project debt risk is that the initial rating should assess default risk through the debt's maturity, rather than the more limited timeframe for typical corporate entities. There are a number of reasons for this. First, transaction structures and covenants ensure that management is typically restricted from making changes to the nature or scope of the project, financing structure, and even counterparties or ownership. Second, the combination of long-term contracts and high leverage in most projects suggests that if a project performs as forecasted when the rating is assigned, few opportunities will exist for upgrades. (The exceptions could include when we raise the rating on a counterparty or host country.) Third, the rating reflects our expectation that the project will generally not issue additional debt, merge with or acquire other businesses, or materially change—all factors that frequently contribute to rating changes to corporate debt. Not surprisingly, project finance ratings exhibit more downgrade potential than upgrade potential *(see table 4)*.

In general, a downgrade is just over twice as likely as an upgrade, and we changed the ratings on just less than half the project debt tranches *(see table 5)*.

We also segregated initial ratings into investment grade and speculative grade and counted the number of crossover debt issuances. Almost 75% of debt initially rated investment grade retained that rating level; 22% moved to speculative grade, and the remaining 3% defaulted *(see table 6)*. Of the debt initially rated speculative grade, 6% moved to investment grade, 80% remained speculative grade, and 13% defaulted.

Methodology

This article compares the initial debt ratings with the last available rating. If the debt has a current active rating, we use that one; if the debt rating has been withdrawn, we list the last rating prior to withdrawal. This provides more information about debt that has been retired both for positive and negative reasons.

A number of projects were structured with multiple tranches of debt, so the number of distinct tranches was 573. This data include both public and confidential ratings but covers only "full" ratings, meaning we excluded several hundred credit estimates (preliminary studies done for issuers considering a full rating) and rating estimates completed for structured finance collateralized debt obligations that included project debt in their portfolios. The data do include a small number of projects that suffered from multiple failures—projects that defaulted on their initial debt, went through a refinancing or restructuring, and defaulted again. We also excluded corporate ratings, including those on project developers. In projects that have issued more than one series of debt, we aggregated debt that is pari passu into a single tranche. So a project with two tranches of senior debt and additional subordinate debt has two distinct issuances in our data.

The Future Of Project Finance Ratings

We expect to continue rating projects from the 'A' category, for some availability projects, down to the 'BB' or 'B' category, for more speculative projects with contractual exposures. However, structures will continue to evolve. For example, we expect most future U.S. power projects to include pass-through provisions or compensation for future carbon costs. And it is likely that some project financings will still fail. Structuring a default-free project would require uneconomical contracts or levels of liquidity.

Our goal with the revised criteria is to add transparency by isolating the weak points in projects. Some events, such as changes in natural gas prices, are hard to forecast, but our new, more detailed assessment methodology attempts to show exactly which changes could put a project in distress. By applying our own downside analysis, we aim to make it clear how resilient a project is to what we believe is the most likely stress scenario. **cw**

Table 5 | Rating Changes By Direction

	Up	Down	Unchanged
Investment grade	50	127	209
Speculative grade	29	65	93
Total	**79**	**192**	**302**

Table 6 | Crossovers By Rating Category

	Original issue rating	Currently investment grade	Currently speculative grade	Defaults*
Investment grade	386	289	83	14
Speculative grade	187	12	150	25
Total	**573**	**301**	**233**	**39**

*Last rating prior to withdrawal.

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Europe's Investment Plan

How To Spend €315 Billion In Three Years

Overview

- The European Commission's Juncker Plan aims to deliver €315 billion of investment over the next three years, mostly from capital markets, to boost Europe's economy and create jobs.
- We believe the plan, mainly for long-term strategic project investment but with a sizable portion ring-fenced for investment at SMEs and mid-market companies, is ambitious but achievable.
- Our analysis shows that increased investment in infrastructure can stimulate economic growth and create jobs as long as projects have a clearly targeted rationale and viable structure.
- However, we consider the plan's greatest challenge will be to open up the capital markets sufficiently in a relatively short three-year timeframe, given its aim to attract private-sector investors at a multiplier of 15x the EU's and EIB's investment both for projects and SMEs.
- To succeed, we believe the plan will have to attract substantial crowding-in of the private sector through scaled-up capital market funding with support and incentives from Europe's multilateral institutions, politicians, and policymakers.

As part of an ambitious plan to rejuvenate the eurozone's faltering economy through greater infrastructure spending, the European Commission (EC) has identified a pipeline of 2,000 projects worth an estimated €1.3 trillion. These projects will be financed primarily through the capital markets.

The projects are the backbone of the so-called Juncker Plan, named after the new EC president, Jean-Claude Juncker.

The EC formally adopted the plan on Jan. 13, 2015, following its endorsement by EU leaders at their year-end summit on Dec. 18, 2014 (1). With the goal of creating jobs and boosting growth, the plan aims to inject €315 billion into the European economy over the next three years.

Under the plan, the EC will establish a European Fund for Strategic Investment (EFSI) with an initial size of €21 billion—most of it for long-term project investments, while nearly a quarter will be ring-fenced to fund investment at small and midsize enterprises (SMEs) and mid-market companies. Of the facility's initial amount, the EU will provide €16 billion in the form of guarantees, and the European Investment Bank (EIB) will provide €5 billion. The EFSI will invest in riskier projects—or in more junior positions in low-risk projects—to help attract further private capital 15x greater than the initial EU and EIB €21 billion input.

Despite the plan's laudable aims, market observers have expressed many concerns about its feasibility, application, and ultimate ability to attract the necessary level of institutional capital.

Key Roadblocks And How They Might Be Overcome

We see three key challenges for the Juncker Plan:

- Attracting sufficient long-term institutional capital within a relatively short time frame;
- Convincing the public that infrastructure investment will rekindle EU economic growth; and
- Converting a €1.3 trillion project wish list into a credible and investable pipeline.

In our view, these challenges are not insurmountable. We believe there is a strong case for increased investment in infrastructure—if properly targeted—acting as a stimulator for economic growth and job creation. However, a clear economic rationale that justifies each investment is also important because a project's long-term viability will ultimately depend on it.

Market participants have been calling for a credible and comprehensive pipeline of projects across the EU. Upon initial examination, the EC's project list resembles more of a wish list than a fully worked-through pipeline of prioritized infrastructure projects.

More transparency and detail are required to prioritize the projects and make them attractive and viable investment propositions. In this respect, the U.K.'s and the Netherlands' work developing their own infrastructure pipelines could serve as useful templates.

To implement the plan, the EC has recognized that better regulation and deeper capital markets are essential for investment (2). To this end, it proposes to develop long-term investment plans and an EU-level website linked to member states' project pipelines. It also intends to provide technical assistance through an EU investment advisory hub and procedural standardization, such as for public-private partnerships (PPPs). It also wants to introduce value-for-money assessments to identify the most efficient project-structuring solutions and propose new financial instruments to advance viable projects that are not yet financed.

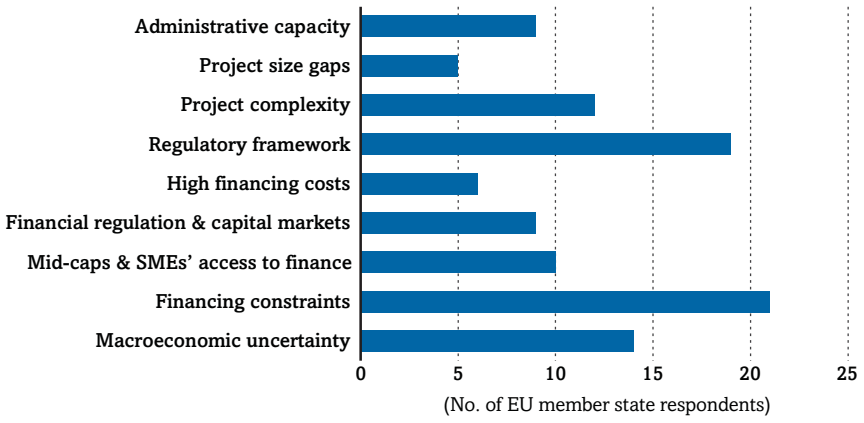
We believe the biggest hurdle to be overcome is opening up the capital markets to finance the plan, especially in the relatively short time frame of three years. Although we believe there is significant and growing institutional appetite for infrastructure investment—both debt and equity—more intervention is required to motivate this kind of step change in private-sector funding *(see chart 1)*.

The main proposal of the plan is to set up the EFSI, a managed account on the EIB balance sheet that will benefit from first-loss guarantees by the EU. The EFSI will invest in riskier projects—or in more junior positions in low-risk projects—to help attract further private capital.

Such credit-enhancing initiatives are not new, and have had some success lately in helping stimulate capital market activity in infrastructure. Such is the case of the EC project bond initiative, which, since August 2013, has been successful in leveraging €3 billion of bond financing into five projects by providing just under €500 million in contingent liquidity support.

Nevertheless, scaling-up these early successes to the level envisaged under the Juncker Plan will, in our view, require more radical policy changes. For example, on Dec. 3, 2014, the U.K. announced a withholding tax exemption for private placements in infrastructure, which prompted six investment companies to immediately commit £9 billion to the sector. Allianz Global Investors alone announced it would allocate upward of £3 billion over the next three to five years. Replicated on a regional scale, and complemented by other support mechanisms, policy changes such as these could be the shot in the arm that is

Chart 1 | **EU Member States' Perceived Barriers To Infrastructure Investments**



Source: European Commission.

required to turn an EC wish list into EU reality.

Building A Case: The Need For Infrastructure Investment

Does infrastructure investment always lead to economic growth? This premise has been challenged by CEPS, a Brussels-based think tank, which has argued that investment across the EU was probably above sustainable levels prior to the financial crisis due to the pre-2007 credit boom. It argues that infrastructure investment might only be justified as a growth stimulator in countries that have high levels of efficiency (3).

However, our own economic analysis shows that infrastructure spending boosts output growth through demand in the short term and supply in the long term *(see "Global Infrastructure Investment: Timing Is Everything [And Now Is The Time]," on p. 12).* The demand-driven effect depends on where an economy stands in its economic cycle; it's stronger at the low point in a cycle. At the same time, the supply-driven effects depend on how productive investments are, which, in turn, could be linked to how they're financed.

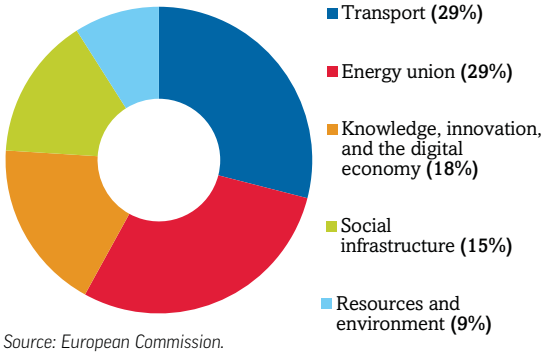
We believe that without growth, compliance with the EU's fiscal rules by the majority of its 28 member states will be almost impossible to achieve. Standard & Poor's Ratings Services has stressed that the macroeconomic environment across the eurozone remains stubbornly weak, with faltering growth and deepening disinflation *(see "Credit Conditions: The Eurozone Crawls Into 2015 With Weak Momentum," published Dec. 4, 2014, on RatingsDirect).*

Our economic simulations show that each additional £1 spent on infrastructure in the U.K. alone in one year would increase real GDP by £1.9 over a three-year period. We also project that additional spending of 1% of GDP in the U.K. would add more than 200,000 jobs *(see "Building For Growth: Can The U.K. Close Its Infrastructure Investment Deficit?" on p. 55).*

Other simulations by Standard & Poor's economists have estimated the benefit to various eurozone economies over a three-year period (2015-2017) of an increase in spending of 1% of real GDP in the first year. In the eurozone as a whole, we estimate the multiplier effect to be 1.4x, with Germany and France coming out slightly lower at 1.2x and 1.3x, respectively, while Ireland and Spain would benefit the most at 1.4x and 2x, respectively. For the U.K., the EU simulation produces a multiplier of 2.5x. The main reason for the additional boost to U.K. GDP is increased demand from its European trade partners. We also project that such investment would add more than 300,000 jobs in the same year as the increase occurred.

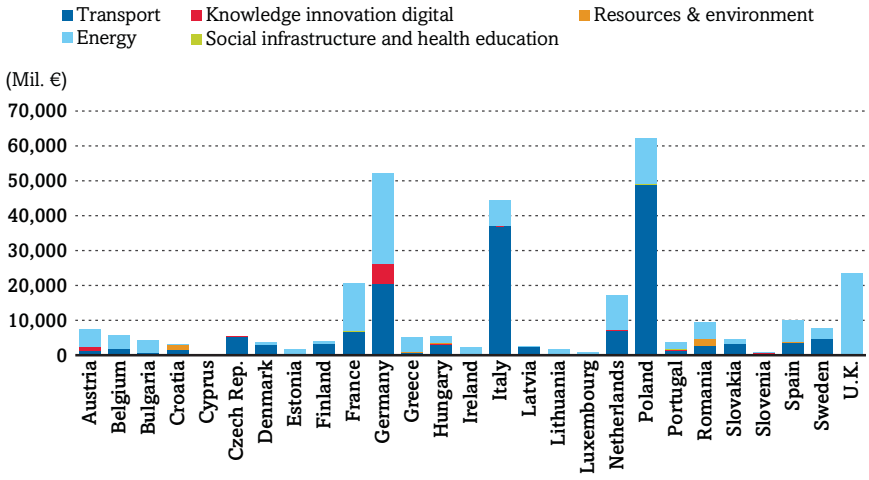
Although we estimate the 20-year accumulated investment deficit in the U.K. to be about £64 billion (3.7% of 2013 GDP), Bruegel—another Brussels-

Chart 2 | Anticipated Investments By Sector 2015 To 2017



Source: European Commission.

Chart 3 | Identified Projects By Country



Source: European Commission.

based think tank—has estimated the equivalent deficit across the EU-15 to be about €260 billion since 2006 (4). Even this could be an underestimate, according to other sources.

In November 2014, the EC and EIB commissioned a special task force that identified that EU investment in 2013 was 15% (€430 billion) below its pre-crisis peak in real terms (2). In some EU member states, the range was said to be between 25% and 60%.

At this stage, there is insufficient information from the list of 2,000 projects to identify which would be viable from the perspective of raising large-scale investment-grade debt. The projects are not prioritized, and there are scant details on procurement or financing methods.

Nonetheless, the list contains a number of projects in sectors that have proved successful in attracting private investment, such as regulated power transmission grids and PPP road projects. However, there are others—such as offshore wind power and high-speed rail projects—that could prove problematic given their risk profiles and relatively short operating histories.

The Fund Will Also Support SMEs And Mid-Market Companies

The bulk of the EFSI will support infrastructure debt investments, but a meaningful portion will be dedicated to small and midsize enterprises (SMEs) and mid-market companies. In particular, we expect that the EIB and the EU will provide €5 billion in the form of equity-type investments and loan guarantee facilities via the European Investment Fund (EIF). This aims to generate a total of €75 billion of funds over the period 2015-2017 for SMEs and mid-market companies through a 15x multiplier or through raising additional private capital on top of the €5 billion of EU and EIB capital.

How the money will be distributed will be decided by an administrative council jointly controlled by the EIB and the EC. Since the funds are supposed to support growth and the creation of new jobs, we expect that a higher percentage will be allocated to countries that have suffered most in the financial crisis. It remains unclear, however, which SME and mid-market companies specifically will benefit from this cheaper source of capital. The current "ring-fencing" of the €5 billion just covers SMEs and mid-market companies in general. From an economic perspective, the EU money would probably best be put to work by supporting companies that create the highest degree of innovation and the most jobs as they grow, and those that currently are cut off from external financing to realize their plans. This would most likely be start-ups, younger firms, and established SMEs with a growth focus. Should any of this EU money be allocated to companies that do not fit this business profile and that have access to external capital—either directly through extension of capital by the EIB or indirectly through EIB packages provided to commercial banks—the intended social benefits of the program might be reduced, in our view. The EU money would then simply become an additional pool of competitive funds for already plentiful funding liquidity by European commercial banks.

We also see some potential that commercial banks could be incentivized to use the EIB financing to support their own existing lower-risk clients instead of extending credit to high-risk start-up companies. Should the EU funds indeed flow into higher-risk start-up companies, the question would still remain whether €5 billion provided via the EIF would be sufficient to attract a further €70 billion of investments to achieve the overall total amount the plan targets.

High-risk start-up companies typically require a high equity cushion of approximately 40% or more. As a consequence, the overall capital raised might be lower than the intended €75 billion. Furthermore, given the current economic climate, the issue might be less that companies lack access to funding than that macroeconomic and fiscal uncertainties encourage them not to invest. In such an environment, companies might be unwilling to fully utilize the benefits of the additional EU funding.

However, if the EIB and EIF can successfully address these potential weaknesses, we believe that the SME and mid-market carve-out of the Juncker Plan offers a viable route to support growth and employment in Europe.

Financing The Plan

Key to raising the total €315 billion for all initiatives is the crowding-in of private investors into projects funded by the newly created EFSI. The facility size will initially be €21 billion. Of this amount, the EU is to provide €16 billion in the form of guarantees, and the EIB will provide €5 billion.

Out of the €16 billion of guarantees from the EU, we expect a large portion will guarantee investments by the EIB. The remainder will likely be allocated to cover equity or equity-like investments as well as SME investments through the EIF (for €2.5 billion).

Table 1 | Selected EU Infrastructure Projects & Corporates Rated In 2014

Rating date	Companies or projects	New rating/outlook
Jan. 2014	Scot Roads Partnership Finance Ltd.	A-/Stable
Feb. 2014	EMPARK Aparcamientos y Servicios S.A.	BB-/Stable/—
April 2014	Solutions 4 North Tyneside (Finance) PLC	BBB- (SPUR)/Stable
Aug. 2014	2i Rete Gas	BBB/Stable/A-2
Aug. 2014	V.Group	B/Stable/—
Sept. 2014	Dee Valley Water PLC	BBB/Stable/—
Oct. 2014	Domodedovo International Airport CJSC	BB+/Stable/B
Nov. 2014	Western Power Distribution Ltd.	BBB/Watch Pos/A-2
Dec. 2014	Aberdeen Roads (Finance) PLC	A- (prelim)/Stable

SPUR–Standard & Poor's underlying rating. Ratings as of Jan. 15, 2015.
Sources: EIB/InfraNews, Standard & Poor's.

But where will the rest of the money come from? Converting €16 billion of EU guarantees and equity investments from the EIB into €240 billion of real long-term investments over three years will be a challenge. We expect this 15x multiplier to be achieved by a combination of leverage and an element of crowding-in (incentivizing co-investment) from other funding sources. The EIB could deliver new loans, supported by a first-loss piece guarantee from the EU. These loans would then crowd in other investors to achieve the overall investment target.

EIB projects typically attract about 3x as much private investment as it finances through its loans for projects. However, the EIB believes it could significantly increase this multiplier by financing higher-risk (and higher-yielding) projects or being more junior in the structure of the project financing, as these projects will benefit from the first-loss piece guarantee from the EU.

The partial de-risking of transactions could well attract larger-scale investments from nontraditional sources of capital, such as pension funds, insurers, and other institutional investors, and so a multiplier of 3x is likely to be a lower bound.

We expect the EIB to prudently manage its additional risk arising from the EFSI. If we were to assess that the additional risk taken significantly outweighs the protection offered by the EU guarantees, this could put pressure on EIB's capital adequacy.

The EC points to €650 billion of existing sources of funding available (including co-financing from member states) at the EU level through programs such as the Connecting Europe Facility, which provides grants and financial instruments. However, deployment of finance through such sources and instruments has been slow to date.

Over the past years, the EIB already borrowed about €70 billion each year to support its lending initiatives (€72 billion in 2013). With the additional lending envisaged under the Juncker Plan, we would expect funding volumes to remain in this range.

The real aim of the fund is to attract large-scale private investment, especially from institutional investors. According to Linklaters, a law firm, approximately €800 billion could be available from private funds for investment in European infrastructure until 2023, provided there are enough sound revenue-generating projects for investment (5).

Although institutional investment in infrastructure across the region has been growing rapidly over the past two years—especially in debt instruments, such as bonds and private placements—the scale of institutional funding that the Juncker Plan envisages is still unprecedented.

According to Preqin, a data provider, infrastructure funds had raised about $27 billion globally through the third quarter of 2014, mainly for unlisted equity investments, with about 25% of these funds focused on Europe (6). Assuming global project bond issuance of about $37 billion as a proxy for institutional debt appetite, together with the €38 billion of institutional investor capital raised via funds in 2014, total nontraditional sources of capital are still only a quarter of what the plan requires on an annual basis.

Institutional appetite for infrastructure project debt has so far focused on 1) operational availability-based projects where regulatory and political risks are limited, and 2) social infrastructure (hospitals, schools, and housing). Projects that are in construction, rely on demand from users to generate revenues, or are exposed to general market risk have been less well supported. This could change over time as investors continue to hunt for yields typically found only in riskier projects *(see table 1)*.

The project bond credit enhancement (PBCE) instrument from the EIB—which has closed five transactions since August

Table 2 | PBCE Transactions Closed Since August 2013

Project	Description	Bond Size	Ratings	PBCE	Pricing
Project Castor (Watercraft Capital S.A.), Spain	Offshore underground gas storage infrastructure project in Spain	€1.4 bil., publicly listed	BBB/Stable (at issue)	€200 mil. initially	5.7% to 100 bps over sovereign at issue
Greater Gabbard OFTO, U.K.	Electricity transmission assets connecting wind turbines of the Greater Gabbard offshore wind farm to the U.K. onshore grid	£305.1 mil., publicly listed	NR	£45.8 mil.	125 bps over the benchmark U.K. gilt rate, or 4.317%
A11 Belgium	First greenfield availability-based road transaction	€590 mil.	NR	€115 mil.	4.50%
Axione Infrastructures France	First PBCE project in the broadband sector and first PBI project in France	€190 mil., 11-year amortizing bond	NR	€38 mil.	2.622%, 95.7 bps over 10-year 1.5% German bund
A7 motorway Germany	First PBCE project in Germany and second greenfield project	€429 mil., 29-year amortizing bond	NR	€85 mil.	2.96%

PBCE—Project bond credit enhancement. PBI—Project bond initiative. bps—Basis points. NR—Not rated.
Sources: EIB/InfraNews, Standard & Poor's.

2013—has demonstrated how contingent capital can be deployed to good effect in sectors such as gas storage, offshore transmission, and availability-based roads *(see table 2)*. Still, so far the instrument has not been applied to riskier projects that are either in construction or are exposed to volume risk.

We believe the EFSI—described by EU officials as "PBCE on steroids"—with clearer definition on how it will be targeted as well as how it will be structured could well succeed in attracting other sources of private capital. The need for greater infrastructure spending and the positive impact such targeted investment can have on the economy is relatively well understood. For the plan to succeed, substantial crowding-in of the private sector through scaled-up capital market funding will be essential and, we believe, ultimately achievable—as long as Europe's multilateral institutions, politicians, and policymakers provide sufficient support and incentives.

A Viable Project Pipeline, Or An Overambitious Wish List?

The commission has identified €1.3 trillion of potential investments (about 2,000 projects), of which €500 billion could be spent over the next three years (7). The list is based mostly on suggestions of national governments but also on recommendations from regional authorities, other public bodies, private investors, and the EC itself.

Transport and energy projects constitute 60% of the total *(see chart 2)*. Electricity and gas interconnectors feature prominently on the list, with projects connecting Western European countries (such as France, Belgium, Spain, the U.K., and Ireland) but also between Central and Eastern European countries (such as the Czech Republic, Hungary, Slovakia, Romania, Bulgaria, and Greece) as well as between the Baltic countries *(see chart 3)*.

The Europe-wide effort to integrate national power grids into an interconnected electrical system is a strong force behind the plan. The list includes large-scale schemes, such as a five-gigawatt (GW) power link between Spain and France costing up to €1.9 billion and a €1 billion two-GW Europe-Asia interconnector between Greece, Cyprus, and Israel. Spain alone is offering €12 billion of power grid projects.

The need for greater infrastructure spending and the positive impact such targeted investment can have on the economy is relatively well understood.

The list includes offshore wind plans in the Netherlands (€12 billion) and Germany (€6.5 billion)—the latter also submitted more than €5 billion of offshore grid link projects.

Liquefied natural gas (LNG) facilities also feature prominently on the list as countries seek to benefit from plunging global LNG prices and also ease increasing concerns over the security of supply that stem from geopolitical tensions in Russia and the Ukraine.

Outside energy, the focus is mainly on transport links, with large-scale road PPP programs proposed for Germany (€10 billion), the Netherlands (€8.3 billion), and Italy (€12 billion). There are also a number of mega-projects, including the €6.2 billion Fehmarn Belt tunnel project in Denmark, the €3 billion expansion of Frankfurt airport, the €11.7 billion Turin-Lyon railway, the €12.2 billion Brenner railway tunnel in Italy, and two motorway plans in Romania costing €6 billion each. Some of these mega-projects have been on the drawing board for years and have already been allocated EU funding but have not been started. The Romanian motorway investment project is already well under way—the government plans to spend about €4 billion, with another €5 billion from the EU—so in our view this is largely a recycling of existing projects for which funding has already been identified.

Although being on the list could accelerate the process, there remain doubts as to the need for some of these schemes. The Brenner tunnel, for example, has agreed EU funding but could ultimately be redundant given two other Alpine railway tunnel projects already under way. The rationale for the Fehmarn Belt tunnel is also weak, while the expansion of Frankfurt airport could quite feasibly be funded by its private owner, Fraport. **cw**

NOTES

(1) An Investment Plan For Europe, European Commission, Nov. 26, 2014 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014DC0903)
(2) Special Task Force (Member States, Commission, EIB) On Investment In The EU—Final Report, November 2014
(3) Investment as the key to recovery in the euro area? Daniel Gros, CEPS, Nov. 18, 2014
(4) Measuring Europe's Investment Problem, Gregory Glayes et al. Bruegel, Nov. 24, 2014
(5) Set to revive: Investing in Europe's infrastructure, Linklaters, March 2014
(6) The Q3 2014 Preqin Quarterly Update: Infrastructure. November 2014
(7) Project List From European Commission, November 2014

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Are Rumors For Global Project Finance Bank Lending's Demise Greatly Exaggerated?

Bank lending to the global project finance sector is again on the upswing, following a long decline since 2011. For 2014, total project lending stood at $321.3 billion, up 4% on the $309.5 billion signed in 2013 and the second-highest annual volume on record, behind 2011's $331.1 billion.

Overview

- Banks are finding the project finance sector attractive again, and lending is picking up.
- Project finance exposures rarely weigh materially on our assessment of banks' risk positions.
- Increased bank lending could be seen as delaying further the development of an institutional investor market for project finance, and this is a concern if banks suddenly pull back again.

Banks remain attracted to project finance mainly because of the sector's profitability relative to corporate lending and higher recovery rates. For the main lenders to the sector, this activity does not represent in our view a major concentration risk, with related exposures typically accounting for less than 5% of a bank's balance sheet—and still garners a relatively favorable treatment under Basel III. In fact, changes in regulatory treatment during 2014 were positive for certain project finance bank commitments.

What impact could this lending increase have on our assessment of credit risk for those most exposed to the sector? And what does this mean for the future of disintermediation—increased capital markets activity bypassing the banks—in the project finance industry? Are we on the verge of seeing major changes that could increase bank funding availability and liquidity, or will the project finance lending market remain a niche and entrenched sector for a small number of largely European and Japanese banks already active in the sector?

Project Finance Lending: A Noticeable Pickup

In the third quarter of 2014, global project finance loans moved ahead of the rest of the loan market and grew to $80 billion, up by 38% compared with the second quarter of the same year, making the the third busiest quarter over the past 10 years *(according to "Review of Project Finance Loan Markets Q3 2014," Credit Agricole, November 2014)*. Altogether, global project finance loan volume totaled $198 billion in the first nine months of 2014, accounting for just over 6% of the syndicated loan market and up 15% on the $172 billion recorded in the same 2013 period. For the full year 2014, syndicated loan market share for project finance was 10%, up from 8% the previous year *(see charts 1 and 2)*.

Increasing Liquidity And Decreasing Margins

Funding and liquidity costs for many Western European banks continue to decrease and are significantly below those costs in 2011 and 2012. Although Japanese banks still enjoyed a potential funding cost advantage over Western European banks of about 25 basis points

Project Finance And The Impact On Capital Adequacy And Risk Position

Standard Poor's bases its overall opinion on a bank's projected capital adequacy from its quantitative risk-adjusted capital model (RAC) for banks. We do not differentiate corporate risk from income-producing assets such as project finance. This means our capital model criteria do not define specific charges for project finance assets when computing our risk-weighted assets. Rather, we apply a risk charge to the exposure at default for a project loan that would be the same as to a corporate credit exposure. Such risk charge increases with the average economic scores derived from our Banking Industry Country Risk Assessment economic scores and the geographical distribution of the bank's assets.

When assessing the risk position, we determine whether potential risks are not fully covered by the RAC ratio and the risk weight applied. This could be the case, for example, due to concentration exposure, and possibly higher tail risk. We look at an exposure to given industry sectors, geographies, or obligors. We see higher risks in project loans where there are, among other aspects, either large construction risks or uncertainties around regulatory or political risks. The same is true for those with material refinancing risk. Refinancing risk is the risk that an existing loan cannot be repaid from a new borrowing. As for other types of credit exposures when analyzing risks, we review current and future economics that support the bank credit exposure. We also review underwriting and origination, where we see these relaxing to anticipate increased risk of future credit losses.

Project finance and the impact on funding position. Banks' ability to source funding, including the capacity to broaden its investor base by issuing secured lending or linking to non-bank participants, contributes to the bank assessment. In our view, international funding and capital resources would remain scarce for narrow wholesale business models in project finance, particularly when they focus on highly cyclical financing activity. Although we believe that project finance activities can weigh on banks' net funding requirements, the modest relative size of these activities for the largest lenders to the sector and their diversified funding profiles mitigate the overall impact. We note that, as a large proportion of project finance projects are funded with U.S. dollars, the activity increases foreign currency funding requirements for a number of the largest lenders to the sector. Such mismatches have contributed to reduced French bank activity in trade finance or export finance loans since 2012, when short-term wholesale capital market funding in U.S. dollars for them suddenly dried up.

Furthermore, project finance loans tend to be less liquid than other credit exposures, such as corporate leveraged loans. They are not traded in the secondary markets. Where asset sales may have taken place they have not led to information being made public. Also, the insurance capital market base for investing in projects that include construction risk is more limited.

Finally, how complex a project finance construction period is can lead to project exposures remaining funded through a bank balance sheet for a longer time before an issuer can contemplate a capital market exit. This is different from other asset types, such as leveraged loans again, where the "underwriting to market" time can be much shorter.

(bps) at year-end 2014, the stronger European banks are slowly converging with those of the Japanese banks and among themselves. Bank appetite for long-term lending continues to grow.

Since 2012, margins for project finance deals have been trending down faster than for corporates, while secondary loan market activity appears to be on the decline again, with short-term bank liquidity costs falling back close to pre-credit crunch levels.

In EMEA, project finance margins still carry a significant premium of 220 bps relative to investment-grade corporate margins. However, after European public-private partnership (PPP) pricing stabilized in 2012 and 2013, it is now trending rapidly down. Also, a decrease in market activity in the third quarter in EMEA led to further price competition as investor liquidity continues to improve.

Project Finance Loans Still Take Dominance, With Bonds Rising In EMEA

The project finance loan market in EMEA rose slightly in the first half of 2014 to $51.8 billion, up from $46 billion in the first half of 2013, a rise of 12.6%. Europe made up $36.7 billion of the total, with the Middle East contributing $9.4 billion and Africa $5.7 billion. The Japanese banks remain a key funding source, but French, U.K., Dutch, German, and Spanish banks were represented too.

However, European bankers still feel that deal flow is slow, amplified by the fact that competition is now hot between banks and other types of debt-funders, such as the institutional and bond investors that are encouraged by the Europe 2020 Project Bond Initiative that is promoting debt capital markets as an additional source of financing for infrastructure projects.

Project bond volumes in the region reached $11.7 billion, up from $8 billion this time last year, a 46% increase *(see table)*. All the bonds were in the European region, aside from the $2 billion Tamar oil and gas deal in Israel. Institutional financing led by project bonds and private placements is a reality, although the banking market is very strong.

Such deals included the A11 road in Belgium, the A7 motorway in Germany, the Greater Gabbard offshore power grid in the U.K., and the L2 road and Axione broadband projects in France.

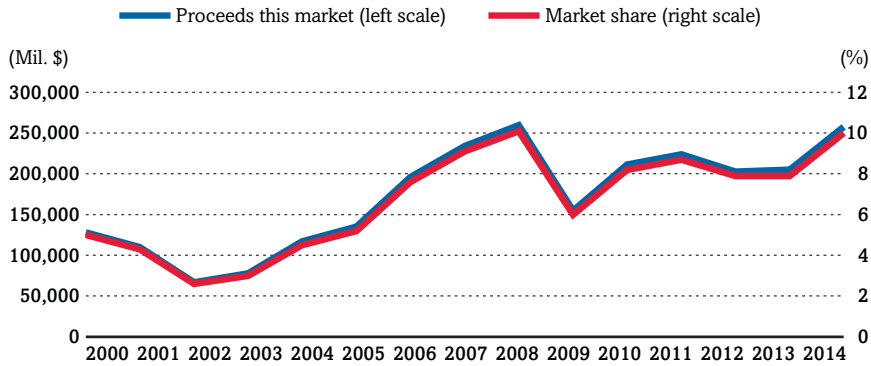
How Project Finance Investment Affects Our Bank Creditworthiness Assessment

When assessing the possible impact of project finance lending on a bank's creditworthiness, one key consideration for Standard & Poor's is whether this leads to any material concentration in the institution's risk exposures. Other considerations include whether the returns offered by these exposures enable the banks to generate sufficient capital to cover unexpected losses, as well as the banks' ability to source sufficient long-term funding—particularly in light of generally long tenors in this sector—to support their overall funding and liquidity positions.

Project finance exposures rarely weigh materially on our assessment of banks' risk positions

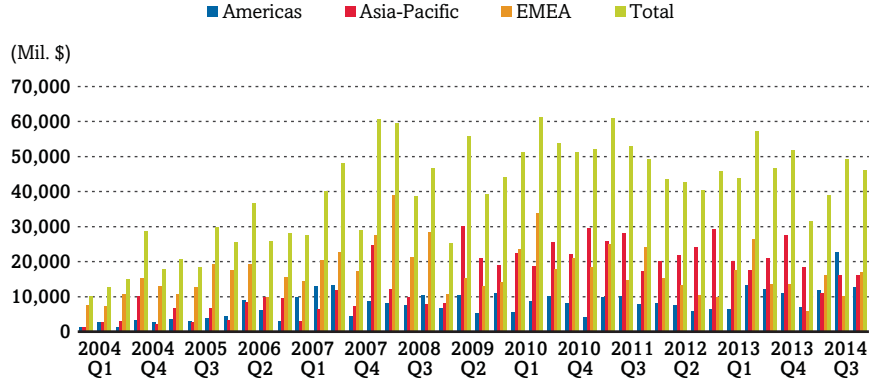
As part of the analysis of a bank's risk position, we analyze how exposures are split among different segments, such as governments, the financial sector, corporates, and households. For corporates, we also typically analyze whether a bank is exposed to any concentration on individual sectors and the possible tail-risk or greater cyclicality that could result from this.

Chart 1 | Global Project Finance Market Overview



Note: Industry total $2,577,054,200. Total issues 7,878.
Source: Thomson Reuters.

Chart 2 | Project Finance Loans By Quarter And Region



EMEA–Europe, Middle East, and Africa.
Source: Thomson Reuters.

Project finance typically represents a small proportion of banks' overall credit exposure. For instance, for some of the largest lenders to the sector, project finance represented less than 5% of the overall exposures to corporates. Therefore, we rarely view project finance activities as materially affecting banks' overall corporate risk exposure.

Another reason for this is that project finance has demonstrated a strong default and recovery record, and proved to remain resilient during the last global financial crisis. When compared with corporate default rates (although based on limited data), our rated project finance transactions default rate has averaged 1.5% since our first default in 1998, close but slightly below the default rate for corporate issuers over the same period (1.8%). Compared with corporates, the post-default recovery rate is higher, which can be explained by the strong collateral package of project debt *(see "Default Study: Project Finance Default And Recovery: Shale Gas Fuels Rise In U.S. Defaults," published Aug. 9, 2013).*

We believe, however, that some project subsectors, such as shipping or aviation, can be more cyclical. In a few cases, often with smaller banks, we believe that concentrations in more cyclical sectors weigh on these entities' risk profiles.

Stricter Regulations Have Affected Banks' Lending Capacity, Although Pressure Is Alleviating

We believe that stricter bank regulations being implemented since the crisis for capital, funding, and liquidity requirements, have affected banks' capacity to lend. Banks around the world have been restructuring and rebalancing their businesses after the financial crisis, which has brought about a new era of tighter rules and regulations for financial institutions. In response, the largest banks have been building their capital cushions.

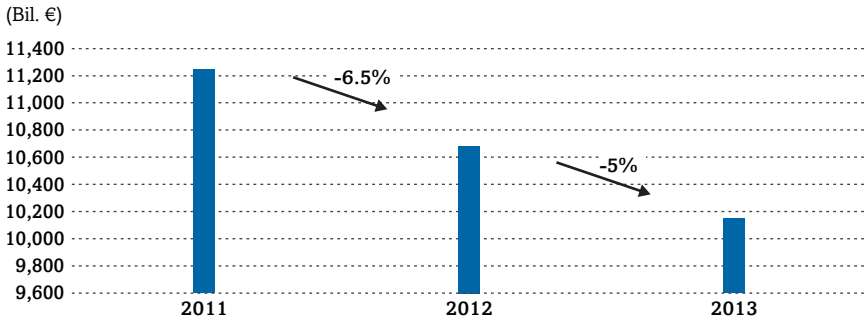
Basel III introduced radical changes in capital requirements leverage, and liquidity and funding ratios. Authorities' approaches to strengthening banks' regulatory capital remain a key impetus for change for higher levels of capitalization, as well as the quality of bank capitalization profiles. In response, banks have been derisking balance sheets, deleveraging, and moving toward achieving better matched funding. Banks have also increased their liquidity buffers.

However, banks have made material progress in the past few years in capital ratios and strengthening their funding and liquidity measures. Combined with greater visibility now in terms of regulatory requirements and often protracted implementation horizons, we believe that this could support some recovery in lending to project finance for a number of entities, as capital build-up in some regions may have reached a turning point *(see "The Top 100 Rated Banks: Will 2014 Mark A Turning Point In Capital Cushioning?" published Oct. 6, 2014).*

In 2014, the Basel committee published a modification of the leverage ratio's exposure, using a more granular approach to off-balance-sheet exposures by using a different credit conversion factor. This has been seen as a positive change for certain trade and project finance commitments (as opposed to drawn loans) in relation to letters of credit that have a 50% instead of 100% credit conversion factor.

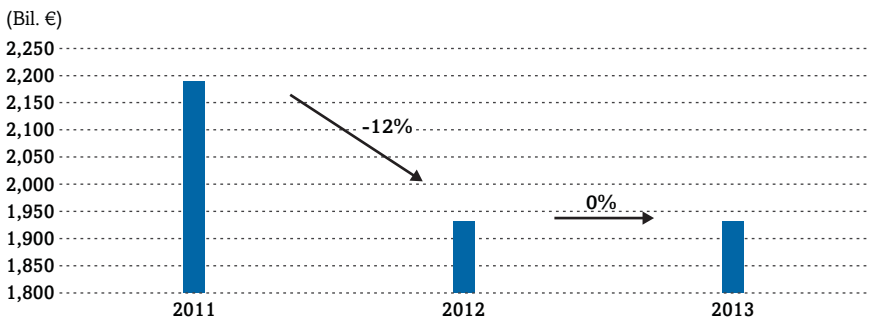
The Net Stable Funding Ratio (NSFR) will require that a bank holds stable funding that matches the liquidity characteristic of their assets, and therefore caused concerns that it would be costly and difficult for banks to have project finance backed by long-dated deposits or funding. Nevertheless, the NSFR does not distinguish loans to corporates from project finance as long as the maturity is beyond a year. It has given banks an incentive to move away from short-term wholesale funding and increase funding through deposits. Long-tenor assets expose banks to the risk of having to roll over the funding requirement several times during the exposure's term, if not fully matched in maturity from day one.

Chart 3 | Risk-Weighted Assets—Top 50 European Banks



Source: Standard & Poor's.

Chart 4 | Risk-Weighted Assets—Top Five French Banks



Source: Standard & Poor's.

Banks may also have to deal with attracting international deposits such as dollar funding, relying instead on less stable wholesale funding from the capital markets.

Overall, new regulations have constrained banks' ability by increasing their costs to take long-term illiquid assets on their balance sheets. Banks have been forced to rethink how they can best use their balance sheets to generate return, shifting the emphasis from the traditional "book-and-hold" approach to an "originate-to-distribute" business model. For European banks that had in the past been less averse to long-term funding and had become dominant lenders, the shift would be radical, contrary to the U.S., where capital markets have taken a bigger role. The most visible part of disintermediation in Europe has been in the corporate sector, with some countries like the U.K. and France being more advanced than in the Eurozone overall.

Is Deleveraging And Intensive Capital Management Coming To An End?

After years of steady improvement in banks' capitalization, recent developments could signal a change in trends. In mature markets, many banks are no longer in deleveraging mode, because governments, banking authorities, and central banks have sent strong signals that banks have a key role to play in support of economic growth and job creation.

Top European banks reduced significantly their risk-weighted assets during 2012 and 2013, through, among other measures, limitation of new lending, a shift in the composition of assets, and deleveraging in particular in nondomestic markets *(see chart 3)*. The pace of this reduction is not uniform for all European banks. Over the same period, the top five banks in France, after having gone through a more severe double-digit reduction of risk-weighted assets in 2012, saw their risk-weighted assets reduction coming to an end by the end of 2013 *(see chart 4)*. They are now showing more appetite for again increasing their risk-weighted assets, in specific assets segments. Sluggish economic conditions in European domestic markets have also pushed banks to deploy more capital into international banking activities such as project finance.

While banks become less risky and smaller, there is also a refocus on profitability. With still higher margins than other categories and upfront commissions, appetite in project finance lending from EMEA banks increased, and they became more active during 2014.

Higher Margins For Project Finance And Upfront Fees Help Profitability

European banks are struggling to deliver top-line revenue growth. With current low interest rates squeezing interest margins and sluggish economies, banks have been looking at targeting defined customer segments that align with their competitive advantage and offer revenue growth, shifting to focusing on customer relationships. Lending to infrastructure and a shift to renewable energy projects reinforce business relationships with large corporate sponsors.

This can explain why certain banks are returning to project finance, as they optimize balance sheets by replacing loans with higher margins. Project finance loans still enjoy higher margins

EMEA Bank Deals By Country 2014

	Proceeds (mil. $)	Market share (%)	No. of issues
U.K.	16,537.9	23.5	40
Turkey	8,580.2	12.2	12
France	6,835.7	9.7	61
Norway	5,896.9	8.4	11
Netherlands	5,332.3	7.6	8
Russian Federation	4,373.4	6.2	5
Sweden	4,195.8	6.0	2
Germany	3,380.0	4.8	16
Italy	3,246.9	4.6	20
Finland	3,230.4	4.6	5
Spain	2,421.0	3.4	11
Hungary	1,771.6	2.5	1
Ireland	1,410.3	2.0	5
Poland	718.5	1.0	5
Romania	553.7	0.8	5
Austria	403.2	0.6	6
Denmark	297.3	0.4	1
Greece	277.2	0.4	3
Belgium	240.5	0.3	2
Portugal	211.1	0.3	2
Czech Republic	139.3	0.2	1
Guernsey	133.2	0.2	1
Bulgaria	125.0	0.2	1
Georgia	80.0	0.1	1
Croatia	55.5	0.1	1
Serbia	19.5	0.0	1
Industry total	**70,466.4**	**100.0**	**227**

EMEA–Europe, Middle East, and Africa.
Source: Thomson Reuters.

Increased bank lending could be seen as delaying further the development of an institutional investor market for project finance.

than investment-grade corporate loans, but they are trending rapidly down as more banks compete for a limited number of transactions.

The repositioning of activities has come at the same time as stronger distribution capabilities. This includes cooperating with institutional investors in channeling funds to infrastructure projects and a reduction in businesses that do not generate significant synergies for banks. Since the financial crisis reduced the number of clients banks can do business with, they are looking at opportunities to strengthen long-term relationships with customers, including with project finance sponsors. Underwriting project finance debt by banks can be an attractive business line because it allows banks to take larger upfront commitments, which supports their relationship with designated key customers while lowering their ultimate exposure, at least as long as banks can sell their positions quickly in the market. Appetite from investors and market liquidity have benefited from recent attractive conditions, one noteworthy example being the leveraged loans market. But past experience has also demonstrated that conditions can change rapidly, which can restrict banks' ability to reduce as intended their exposures.

What Does The Future Hold?

Increased bank lending could be seen as delaying further the development of an institutional investor market for project finance, and this is a concern if banks suddenly pull back again. We expect more disintermediation over the longer term, but in the short term banks will go for profitability. Assuming continuing growth in demand and more stringent capital and regulatory requirements, will banks turn more and more to an "originate-and-distribute" model than other forms of disintermediation? The past two years have seen a resurgence of the European collateralized loan obligation (CLO) market, which had been dormant since 2008. This has been possible thanks to evolving structures in response to changing market conditions and the need for managers to meet equity investors' return expectations *(see "European CLO 2.0 Structures Evolve In Response To Changing Market Conditions," published June 5, 2014)*. Similar to leveraged loans, could project finance CLOs be a way to fund infrastructure loans? There have in the past been only a limited number of project finance CLOs. Project finance loans are complex and only a few investors are sufficiently equipped to assess and monitor their risks. Another potential obstacle to using securitization to fund project finance is whether the capital structure's economics are in place, meeting the return expected by the different tranches of the capital structure. A CLO manager's main motivation is to arbitrage the interest paid on the various liabilities of a CLO by the interest/capital appreciation earned on the assets side. As long as this balance is not right, incentives to have CLOs expanding to project finance loans will remain limited. **cw**

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Global Toll Road Operators Have Turned A Corner, With Credit Quality Likely To Improve In 2015

It's the light at the end of the tunnel. With very few exceptions, Standard & Poor's Ratings Services believes toll road operators around the world finally showed overall growth in 2014, after years of recession and postrecession sluggishness. The sector did remain stable during the past few years, but we are now seeing toll road operators' credit quality actually improve.

Overview

- We believe toll road operators globally are rebounding following years of sluggish growth.
- Across the world, we upgraded 20 issuers and downgraded only one.
- We expect continued growth in 2015 for the toll road operators we rate.

In fact, of all the toll roads we rate, we downgraded only one in 2014, in Mexico. Conversely, we had 20 upgrades during the period.

U.S.

The U.S. economy is continuing its recent trend of starting the year soft but finishing strongly. In 2014, the economy contracted 2.1% in the first quarter—but then the next two quarters showed the strongest growth in a decade. Overall, we expect annual 2014 growth of 2.3%, and 3.1% growth for 2015. Other economic barometers are equally encouraging. National unemployment at the end of the quarter was 5.9%, leading us to expect a full-year rate of 6.2%, and a drop to 5.8% for 2015. Furthermore, for the U.S. toll road sector, the continuing trend of declining oil and gasoline prices bodes well for toll operators, not only from reduced driving costs but also from the potential increase in discretionary spending that can also raise overall miles driven.

Table 1 | **U.S. Toll Facilities Ratings As Of Jan. 1, 2015**

Issuer name	Obligor/project name	State	Long-term rating	Outlook
Bay Area Toll Authority	Bay Area Toll Authority	CA	AA	Stable
Bay Area Toll Authority	Bay Area Toll Authority	CA	A+ (second lien)	Stable
Buffalo and Fort Erie Public Bridge Authority	Buffalo & Fort Erie Public Bridge Authority	NY	A+	Stable
Cameron County	Cameron County	TX	A-	Stable
Central Florida Expressway Authority	Orlando-Orange County Expressway	FL	A	Stable
Central Texas Regional Mobility Authority	Central Texas Regional Mobility Authority	TX	BBB	Stable
Chesapeake	Chesapeake Expressway	VA	BBB	Stable
Delaware River Port Authority	Delaware River Port Authority	PA	A	Stable
Delaware River Port Authority	Delaware River Port Authority	PA	BBB (second lien)	Stable
Delaware River and Bay Authority	Delaware River and Bay Authority	DE	A	Stable
Delaware River Joint Toll Bridge Commission	Delaware River Joint Toll Bridge Commission	PA	A	Stable
E-470 Public Highway Authority	E-470 Public Highway Authority	CO	BBB	Stable
Eagle Pass	Eagle Pass	TX	A	Stable
Florida	Alligator Alley	FL	AA-	Stable
Florida	Florida Turnpike Enterprise	FL	AA-	Stable
Florida	Tampa-Hillsborough County Expressway Authority	FL	A	Stable
Foothill-Eastern Transportation Corridor Agency	Foothill-Eastern Transportation Corridor Agency	CA	BBB-	Stable
Golden Gate Bridge Highway and Transportation District	Golden Gate Bridge Highway and Transportation District	CA	AA-	Stable
Grand Parkway Transportation Corp.	Grand Parkway	TX	BBB	Stable
Greater New Orleans Expressway Commission	Greater New Orleans Expressway	LA	A	Stable
Harris County	Harris County	TX	AA-	Stable
Indiana Finance Authority	WVB East End Partners LLC (Ohio River Bridges)	IN	BBB	Stable
Illinois State Toll Highway Authority	Illinois State Toll Highway Authority	IL	AA-	Stable
Kansas Turnpike Authority	Kansas Turnpike	KS	AA-	Stable
Laredo	Laredo Bridge	TX	A+	Stable
Lee County	Lee County	FL	A-	Negative
Maine Turnpike Authority	Maine Turnpike	ME	AA-	Stable
Maine Turnpike Authority	Maine Turnpike	ME	A (second lien)	Stable
Maryland Transportation Authority	Maryland Transportation Authority	MD	AA-	Stable
Massachusetts Department of Transportation	Metropolitan Highway System	MA	A+	Stable
McAllen	McAllen International Toll Bridge	TX	A	Stable
Metropolitan Washington Airports Authority	Dulles Toll Road	DC	A	Stable
Metropolitan Washington Airports Authority	Dulles Toll Road	DC	BBB+ (second lien)	Stable
Metropolitan Washington Airports Authority	Dulles Toll Road	DC	BBB (third lien)	Stable

Rating changes in the sector in 2014 all five were upgrades *(see tables 1 and 2)*. All of the upgrades were largely issuer-specific, relating to improved financial profiles, or project improvements. Furthermore, we believe Delaware River Joint Toll Bridge Commission benefits from its maturity and system diversity as a network of bridges. Farther south, the Tampa-Hillsborough County Expressway Authority operates in a region with what we consider a deep and diverse economy, and it has instituted a policy delivering predictable and automatic toll increases. In southern California, we upgraded the Orange County Transportation Authority in California due to the additional capacity it now has in the corridor. We raised our rating on the San Joaquin Hills Transportation Corridor Agency three notches to 'BBB-', following a restructuring that significantly reduces peak annual debt service while extending maturities slightly. In Texas, we upgraded the Central Texas Regional

Table 1 | **U.S. Toll Facilities Ratings As Of Jan. 1, 2015** (continued)

Issuer name	Obligor/project name	State	Long-term rating	Outlook
Miami-Dade County	Rickenbacker Causeway	FL	BBB+	Stable
Miami-Dade County Expressway Authority	Miami-Dade County Expressway	FL	A-	Stable
Mid-Bay Bridge Authority	Mid-Bay Bridge	FL	BBB+	Stable
Mid-Bay Bridge Authority	Mid-Bay Bridge	FL	BBB- (second lien)	Stable
New Hampshire	New Hampshire Turnpike	NH	A+	Stable
New Jersey Turnpike Authority	New Jersey Turnpike	NJ	A+	Stable
New York State Bridge Authority	New York State Bridge Authority	NY	AA-	Stable
New York State Thruway Authority	New York State Thruway	NY	A	Stable
New York State Thruway Authority	New York State Thruway	NY	A- (second lien)	Stable
Niagara Falls Bridge Commission	Niagara Falls Bridges	NY	A+	Stable
North Carolina Turnpike Authority	Triangle Expressway	NC	BBB-	Stable
North Texas Tollway Authority	North Texas Tollway	TX	A-	Stable
North Texas Tollway Authority	North Texas Tollway	TX	BBB+ (second lien)	Stable
Ohio Turnpike and Infrastructure Commission	Ohio Turnpike	OH	AA-	Stable
Ohio Turnpike and Infrastructure Commission	Ohio Turnpike	OH	A+	Stable
Oklahoma Turnpike Authority	Oklahoma Turnpike	OK	AA-	Stable
Orange County Transportation Authority	Orange County Transportation Authority (SR-91)	CA	AA-	Stable
Osceola County	Osceola County	FL	BBB-	Stable
Pennsylvania Turnpike Commission	Pennsylvania Turnpike	PA	A+	Stable
Pennsylvania Turnpike Commission	Pennsylvania Turnpike	PA	A- (second lien)	Stable
Rhode Island Turnpike and Bridge Authority	Rhode Island Turnpike and Bridge Authority	RI	A-	Negative
Richmond Metropolitan Authority	Richmond Metropolitan Authority	VA	A+	Stable
Riverside County Transportation Commission	Riverside County Transportation Commission (SR-91)	CA	BBB-	Stable
Route 460 Funding Corp. of Virginia	Route 460 Funding Corp. of Virginia	VA	BBB-	Negative
San Joaquin Hills Transportation Corridor Agency	San Joaquin Hills Transportation Corridor Agency	CA	BBB-	Stable
San Joaquin Hills Transportation Corridor Agency	San Joaquin Hills Transportation Corridor Agency	CA	BB+ (junior lien)	Stable
South Jersey Transportation Authority	South Jersey Transportation Authority	NJ	A-	Stable
South Jersey Transportation Authority	South Jersey Transportation Authority	NJ	BBB (second lien)	Stable
Texas Turnpike Authority	Central Texas Turnpike System	TX	A-	Stable
Toll Road Investors Partnership II L.P.	Dulles Greenway	VA	BBB-	Stable
Triborough Bridge and Tunnel Authority	Triborough Bridge and Tunnel Authority	NY	AA-	Stable
Triborough Bridge and Tunnel Authority	Triborough Bridge and Tunnel Authority	NY	A+ (second lien)	Stable
Virginia Small Business Financing Authority	Elizabeth River Crossings Opco LLC	VA	BBB-	Stable
Virginia Small Business Financing Authority	95 Express Lanes LLC	VA	BBB-	Stable
West Virginia Parkway Economic Development and Tourism Authority	West Virginia Parkways	WV	AA-	Stable

Mobility Authority a notch due to the completion of a project on time and within budget, and where initial traffic results are greater than forecast. We also had two outlook revisions on U.S. toll roads during the period—both to negative from stable.

Canada

Canada's gradually strengthening economy has contributed to modestly increasing traffic volumes for most toll road operators. We estimate the pace of the country's real GDP growth quickened to about 2.3% in 2014, from 2.0% in 2013. Not only did this stimulate traffic demand, it enabled toll road operators to pass along rate increases, which further supported their cash flows.

Toronto-area toll road operator 407 International Inc. has enjoyed the strongest traffic growth, at more than 3% in the first three quarters of 2014. This largely reflected above-average economic conditions and heavy congestion on alternative routes within its service area. Traffic for the Halifax-Dartmouth Bridge Commission has been considerably slower, given Nova Scotia's muted economic growth and harsh winter. We revised our outlook on the Commission to negative in November 2014 to reflect our expectation that its large capital funding requirements could materially weaken its debt metrics over the next two years. We also kept a negative outlook on Blue Water Bridge Canada in southwestern Ontario, in part because of the effect that commercial traffic trends is having on its debt service coverage levels.

We expect toll road operators' performances to reflect Canada's economy, in which we foresee real GDP rising 2.3% to 2.8% yearly through 2017. There remains little appetite among governments for new volume-based toll road projects. Instead, we expect governments to continue procuring new road and bridge projects through availability-style public-private partnerships (P3s), in which governments retain market risk. Case in point, we expect the federal government to procure the Champlain Bridge replacement project in Quebec as an availability-based P3. If this project proceeds, it will be one of the largest infrastructure projects in North America, with an estimated capital cost of C$3 billion to C$5 billion.

Latin America

In our view, toll roads in Latin America have maintained sound credit quality overall. Most of our rating actions within the past 12 months were upgrades *(see tables 3 and 4)*, which we attribute to higher-than-expected traffic levels and better performance in general.

Mexican toll roads have shown a traffic recovery trend in line with GDP growth (we expect 2.7% for 2014 and 3.5% for 2015). Without considering ramp-up periods in several of the toll roads we rate, we expect traffic to increase an average of 3.2% annually, as a result of the country's GDP growth and (in some cases) also in line with local economic growth. In recent months, we have seen sponsors leveraging their toll road projects through subordinated issuances (such as Rio Verde and Lipsa project) to finance new projects.

Chilean toll roads continue undertaking improvements and expansion works, mainly consisting of lane additions, new bridges and tunnels, connection improvements, and new exits that tend to relieve traffic. We don't think these investments will affect credit quality, given the Ministry of

Table 2 | **U.S. Toll Facilities—Rating Actions***

Issuer	Obligor	To	From	Date
Upgrades				
Central Texas Regional Mobility Authority (senior lien)	Central Texas Regional Mobility Authority	BBB/Stable	BBB-/Stable	Oct. 14, 2014
San Joaquin Hills transportation Corridor Agency	San Joaquin Hills transportation Corridor Agency	BBB-/Stable	BB-/Stable	Oct. 8, 2014
Orange County Transportation Authority	Orange County Transportation Authority	AA-/Stable	A/Stable	Aug. 1, 2014
Delaware River Joint Toll Bridge Commision	Delaware River Joint Toll Bridge Commision	A/Stable	A-/Stable	May 1, 2014
Florida	Tampa-Hillsborough County Expressway Authority	A/Stable	A-/Positive	Feb. 3, 2014
Outlook revisions				
Rhode Island Turnpike and Bridge Authority	Rhode Island Turnpike and Bridge Authority	A-/Negative	A-/Stable	May 30, 2014
Route 460 Funding Corp of Virginia	Route 460 Funding Corp of Virginia	BBB-/Negative	BBB-/Stable	April 1, 2014
New ratings				
Texas Turnpike Authority	Central Texas Turnpike System	BBB+/Stable	NR	Dec. 19, 2014
Miami Dade County	Rickenbacker Causeway	BBB+/Stable	NR	July 15, 2014
New York State Thruway Authority (second lien)	New York State Thruway Authority (second lien)	A-/Stable	NR	June 26, 2014
Buffalo and Fort Erie Public Bridge Authority	Buffalo & Fort Erie Public Bridge Authority	A+/Stable	NR	May 13, 2014
Osceola County	Osceola County	BBB-/Stable	NR	March 18, 2014

*Rating actions listed cover calendar year 2014. NR–Not rated.

Public Works' strong track record in compensating the concessionaires' investments through tariff increases, concession term extensions, and direct cash payments. In addition, internally generated cash has financed most of these projects.

In Brazil, tariff adjustments have shaped the credit story in 2014. On July 1, 2014, the regulator raised São Paulo state toll road tariffs slightly below the rate of inflation (6.37%). The concession contracts allow inflation-adjusted tariffs every year. Standard & Poor's believes that this does not represent any change in the regulatory framework under which São Paulo toll roads operate, as it aimed to maintain the contracts' internal rates of return (IRR). In 2013, the São Paolo state government, in an attempt to dif-

Table 3 | International Toll Facilities Ratings As Of Jan. 1, 2015

Issuer name	Obligor/project name	Country	Rating	Outlook
Sun Group Finance Pty Ltd.	Queensland Motorway	Australia	BBB+	Negative
Transurban Finance Co. Pty Ltd.	Australian toll road operator	Australia	A-	Negative
Autoban—Concessionaria do Sistema Anhanguera Bandeirantes S.A.	Toll road	Brazil	brAAA	Stable
Arteris S.A.	Brazilian toll road network operator	Brazil	brAAA	Stable
Atlantia Bertin Concessoes S.A.	Brazilian toll road network operator	Brazil	brAAA	Stable
Autopista Planalto Sul S.A.	Toll road	Brazil	brAAA	Stable
CCR S.A.	Brazilian toll road network operator	Brazil	brAAA	Stable
Concessionaria Auto Raposo Tavares S.A.	Toll road	Brazil	brAA-	Stable
Concessionaria da Rodovia Presidente Dutra S.A.	Toll road	Brazil	brAAA	Stable
Concessionaria Ecovias dos Imigrantes S.A.	Toll road	Brazil	brAAA	Stable
EcoRodovias Concessoes e Servicos S.A.	Brazilian toll road network operator	Brazil	brAAA	Stable
RodoNorte Concessionaria de Rodovias Integradas S.A.	Toll road	Brazil	brAAA	Stable
Rodovia das Colinas S.A.	Toll road	Brazil	brAAA	Stable
Triangulo do Sol Auto-Estradas S.A.	Toll road	Brazil	brAAA	Stable
407 International Inc.	407 ETR	Canada	A	Stable
407 International Inc.	407 ETR	Canada	A- (second lien)	Stable
407 International Inc.	407 ETR	Canada	BBB (third lien)	Stable
Blue Water Bridge Canada	Blue Water Bridge	Canada	BBB-	Negative
Halifax-Dartmouth Bridge Commission	Macdonald and MacKay Bridges	Canada	AA-	Negative
Ruta del Bosque Sociedad Concesionaria S.A.	Ruta del Bosque	Chile	BB+	Stable
Ruta del Maipo Sociedad Concesionaria S.A.	Autopistas del Maipo	Chile	BBB-	Stable
Ruta del Maule Sociedad Concesionaria S.A.	Ruta del Maule	Chile	BBB-	Stable
Sociedad Concesionaria Autopista Central S.A.	Sociedad Concesionaria Autopista Central S.A.	Chile	BBB+	Watch Pos
Sociedad Concesionaria Costanera Norte S.A.	Costanera Norte	Chile	A	Stable
Sociedad Concesionaria Rutas Del Pacifico S.A.	Rutas del Pacífico	Chile	BBB (SPUR)	Stable
Sociedad Concesionaria Vespucio Norte Express S.A.	Vespucio Norte	Chile	BB (SPUR)	Positive
Shenzhen International Holdings Ltd.	China toll road network operator	China	BBB	Stable
Autoroutes du Sud de la France S.A.	French toll road network operator	France	A-	Stable
Autoroutes Paris-Rhin-Rhone S.A.	French toll road network operator	France	BBB+	Stable
Cofiroute	French toll road network operator	France	A-	Stable
Verdun Participation 2 S.A.	Toll road	France	BBB- (SPUR)	Stable
VINCI S.A.	VINCI S.A.	France	A-	Stable
Ellaktor S.A.	Ellaktor S.A.	Greece	B+	Stable
M6 Duna Autopalya Koncesszios Zartkoruen Mukodo Reszvenytarsasag*	M6 Duna	Hungary	AA	Stable
DirectRoute (Limerick) Finance Ltd.	DirectRoute (Limerick) Finance Ltd.	Ireland	BB- (SPUR)	Stable

fuse violent political protests, froze tolls and took measures to rebalance the contract return, such as reducing the variable granting fee and tolling trucks with suspended axles. According to the regulator, the rebalancing measures benefited the concessionaries in the period, resulting in a higher IRR. Compensating drivers for this, the regulator approved lower-than-inflation tariff hikes. We believe the adjustment's impact should be marginal on toll roads operators' financial performance and our ratings.

Lastly, we expect traffic on Panamanian toll roads we rate to increase at 6% on average for the next 12 months due to the continuous growth of the country's economy (6% to 7%) in the next couple of years but more importantly as a result of toll roads pro-

Table 3 | **International Toll Facilities Ratings As Of Jan. 1, 2015** (continued)

Issuer name	Obligor/project name	Country	Rating	Outlook
Atlantia SpA	Italian toll road network operator	Italy	BBB+	Stable
Autostrade per l'Italia SpA	Toll road	Italy	BBB+	Stable
Ostregion Investmentgesellschaft Nr. 1 S.A.	A5 Ypsilon Motorway Project	Austria	B+ (SPUR)	Stable
Fideicomiso 1784 (Autopista Rio Verde Libramiento La Piedad)	Toll road	Mexico	mxAAA	Stable
Fideicomiso 1784 (Autopista Rio Verde y Libramiento La Piedad)	Toll road	Mexico	mxAA	Stable
Fideicomiso 209635 (Matehuala)	Libramiento de Matehuala	Mexico	BBB+	Stable
Fideicomiso 2990 (Punta Diamante)§	Carretera Viaducto La Venta-Punta Diamante	Mexico	mxAA	Stable
Fideicomiso 464 (Plan del Rio)§	Libramiento Plan del Rio	Mexico	mxAAA	Stable
Fideicomiso 464 (Plan del Rio)§	Libramiento Plan del Rio	Mexico	mxBBB (second lien)	Stable
Fideicomiso 80425 (Monterrey-Cadereyta)	Autopista Monterrey-Cadereyta	Mexico	BBB- (SPUR)	Stable
Fideicomiso 833 (Veracruz-Cardel)§	Autopista Veracruz-Cardel	Mexico	mxA+	Negative
Fideicomiso CIB/2076 (Autopista Rio Verde y Libramiento la Piedad)	Toll road	Mexico	mxAA- (subordinated)	Stable
Fideicomiso No. 2227 (Periferico del Area Metropolitana de Monterrey)	Toll road	Mexico	mxAA-	Stable
OPI*	Toll road	Mexico	mxAA+	Stable
Periferico del Area Metropolitana de Monterrey	Toll road	Mexico	mxAAA	Stable
Red de Carreteras de Occidente S.A.B. de C.V.§	Packaged concessionaire: 4 Toll Roads & 2 Availability	Mexico	mxAAA	Stable
Concesionaria Mexiquense S.A. de C.V.	Conmex	Mexico	BBB	Stable
Fjellinjen AS	Oslo Tollroad System	Norway	AA-	Stable
ENA Norte Trust	Corredor Norte	Panama	BBB	Stable
ENA Sur Trust	Corredor Sur	Panama	BBB	Stable
Granvia a.s.	R1 Expressway	Slovakia	BBB+	Stable
Korea Expressway Corp.	Korean toll road network operator	South Korea	A+	Stable
Abertis Infraestructuras S.A.	Abertis Infraestructuras S.A.	Spain	BBB	Stable
Autovia de la Mancha, S.A.	Autovia de la Mancha, S.A. (AUMANCHA)	Spain	B (SPUR)	Negative
Oresundsbro Konsortiet†	Oresund Link	Sweden/ Denmark	AAA	Stable
Aberdeen Roads (Finance) PLC	Aberdeen west peripheral route	U.K.	A- (prelim.)	Stable
Amey Lagan Roads Financial PLC	Amey Lagan Roads Financial PLC	U.K.	BBB- (SPUR)	Stable
Autolink Concessionaires (M6) PLC	M6 Motorway Project	U.K.	A- (SPUR)	Stable
Channel Link Enterprises Finance PLC	Eurotunnel	U.K./France	BBB (SPUR)	Stable
CountyRoute (A130) PLC (senior debt)	A130	U.K.	B+ (SPUR)	Stable
Highway Management (City) Finance PLC	M1/Westlink	U.K.	BBB (SPUR)	Stable
Road Management Consolidated PLC	A1 (M) and A417/419	U.K.	B (SPUR)	Stable
Scot Roads Partnership Finance Ltd.	M8/M73/M74 Scotland	U.K.	A-	Stable

*Senior secured debt rating. §National scale rating. †Rating based on that of supporting government. SPUR–Standard & Poor's underlying rating. N/A–Not applicable.

viding an efficient alternative to Panama City gridlock.

Europe

Standard & Poor's underlying ratings (SPURs) on European P3 road projects have demonstrated greater stability in the past year, as economic conditions have improved and projects have continued to mature. We raised our ratings on the senior debt issued by Amey Lagan Roads Financial PLC in September 2014, and on that issued by Autolink Concessionaires (M6) PLC in November. The former was due to a financial restructuring initiated by the issuer, while the latter was due to the completion of remedial works and the improving financial profile of the project as the concession approaches its end. We also revised our outlook on the debt issued by Ostregion Investmentgesellschaft Nr. 1 S.A. and DirectRoute (Limerick) Finance Ltd. to stable from negative because traffic performance improved for both projects. Median rating levels within the portfolio rose after we assigned new issue ratings of 'A-' and 'BBB+' to road projects in the U.K. (two projects) and Slovakia. All three projects incorporated availability-based revenues in their contract structures and hence have no exposure to traffic risk.

All 12 SPURs in our portfolio have stable outlooks. This reflects the more positive outlook for GDP growth and inflation across Europe for 2015 and beyond, reflected in our forecasts for both traffic volumes and tolls. Although all recently rated transactions have incorporated availability-based revenues, we believe that interest in transactions incorporating traffic risk might see a return during 2015, where the route concerned can establish a track record, such as for a refinancing of existing debt.

European toll road network operator (TRNO) traffic volume recovered above GDP level in the first nine months of 2014, supporting moderate growth in earnings and resilient cash flows. In 2015, we expect that rating trends will remain stable *(for further information, see "Global Rating Trends For Toll Road Network Operators Will Remain Stable In 2015," published Dec. 26, 2014, on RatingsDirect)*.

Our base-case credit scenario for 2015 assumes traffic volumes in line with real GDP, which we view as a key economic driver for TRNO, and we now estimate that in 2015 it will:

Table 4 | **International Toll Facilities—Rating Changes**

Issuer	Obligor	To	From	Date
Upgrades				
Investimentos e Participacoes em Infraestrutura S.A.	Brazil	brAA-/Stable/—	brA+/Stable/—	Nov. 6, 2014
Concessionária Auto Raposo Tavares S.A.	Brazil	brAA-/Stable/—	brA+/Stable/—	Nov. 6, 2014
Triângulo do Sol Auto-Estradas S.A.	Brazil	brAAA/Stable/—	brAA/Stable/—	May 8, 2014
Rodovia das Colinas S.A.	Brazil	brAAA/Stable/—	brAA/Stable/—	April 8, 2014
Sociedad Concesionaria Costanera Norte S.A.	Chile	A/Stable/—	A-/Watch Pos/—	Nov. 21, 2014
Sociedad Concesionaria Autopista Central S.A.	Chile	BBB+/Watch Pos/—	BBB/Stable/—	Sept. 22, 2014
Sociedad Concesionaria Costanera Norte S.A.	Chile	A-/Stable/—	BBB+/Stable/—	Sept. 22, 2014
Autoroutes Paris-Rhin-Rhone S.A.	France	BBB+/Stable/—	BBB/Positive/—	Nov. 26, 2014
Autoroutes du Sud de la France S.A.	France	A-/Stable/—	BBB+/Stable/—	March 31, 2014
Cofiroute	France	A-/Stable/—	BBB+/Stable/—	March 31, 2014
VINCI S.A.	France	A-/Stable/—	BBB+/Stable/—	March 31, 2014
M6 Duna Autopalya Koncesszios Zartkoruen Mukodo Reszvenytarsasag*	Hungary	AA/Stable	AA-/Stable	March 18, 2014
Fideicomiso 209635 (Matehuala)	Mexico	BBB+/Stable/—	BBB/Stable/—	May 21, 2014
Autolink Concessionaires (M6) PLC	U.K.	A- (SPUR)/Stable/—	BBB- (SPUR)/Watch Pos/—	Nov. 18, 2014
Amey Lagan Roads Financial PLC	U.K.	BBB- (SPUR)/Stable/—	BB (SPUR)/Watch Pos/—	Sept. 10, 2014
Downgrades				
Fideicomiso 833 (Veracruz-Cardel)§	Mexico	mxA+/Negative/—	mxAA/Stable/—	Feb. 19, 2014
Outlook revisions				
Sun Group Finance Pty Ltd.	Australia	BBB+/Negative/—	BBB+/Stable/—	Sept. 22, 2014
Transurban Finance Co. Pty Ltd.	Australia	A-/Stable/—	A-/Negative/—	Sept. 22, 2014
Ostregion Investmentgesellschaft Nr. 1 S.A.	Austria	B+ (SPUR)/Stable/—	B+ (SPUR)/Negative/—	Aug. 29, 2014
Halifax-Dartmouth Bridge Commission	Canada	AA-/Negative/—	AA-/Stable/—	Nov. 27, 2014
Sociedad Concesionaria Autopista Central S.A.	Chile	BBB+/Stable/—	BBB+/Watch Pos/—	Nov. 21, 2014
Sociedad Concesionaria Costanera Norte S.A.	Chile	A-/Watch Pos/—	A-/Stable/—	Sept. 22, 2014

- Increase 1.9% in Spain, where Abertis Infraestructuras S.A. will generate about 40% of consolidated EBITDA. We expect that the country's unemployment will fall to 22.8% in 2015, compared with 24.6% in 2014 and 26.1% in 2013;
- Increase 0.2% in Italy where Autostrade per l'Italia SpA, the main TRNO of Atlantia SpA, is based; and
- Increase by 0.7% in France, where Autoroutes Paris-Rhin-Rhone, and Vinci S.A., along with its subsidiaries Autoroutes du Sud de la France S.A., Cofiroute, operate.

Consequently, in 2015, we expect traffic and revenues to increase modestly in Italy and France and more significantly in Spain. Heavy traffic might be more profitable for TRNOs, but it is more sensitive to weak economies. We also expect tariffs increasing in line with, or slightly more than, the previous 12 months' inflation. We estimate that CPI inflation in 2015 will be 0.4% in Spain, 0.5% in Italy, and 1.2% in France. In our view, this should sustain low-single-digit revenue growth for 2015. We also expect that the EBITDA margins of most TRNOs will be stable, with those that have introduced some cost containment measures showing slight improvement.

Although we believe the sector's performance will remain stable through 2015, merger and acquisition (M&A) activities and regulatory changes could constrain the ratings. The degree to which M&A affects ratings will depend on the effect of the integration on an issuer's business risk profiles or financing structures, which in turn could lead to credit metric deterioration. Furthermore, there have been some discussions around changes in the French toll road concession model, more specifically to cap—or even lower—tariffs. Toll road concession formulas are linked to inflation and investment levels. We continue to expect significant changes to existing contracts to be difficult to implement because of clauses in their contracts compensating operators for changes to the sector's regulatory environment and protecting the economic balance of the concession contracts. However, a significant change in the regulatory regime could lead us to reassess the French TRNOs' competitive position and cash

Table 4 | International Toll Facilities—Rating Changes (continued)

Issuer	Obligor	To	From	Date
Outlook revisions (continued)				
Sociedad Concesionaria Vespucio Norte Express S.A.	Chile	BB/Positive	BB/Stable/—	April 7, 2014
Shenzhen International Holdings Ltd.	China	BBB/Stable/—	BBB/Negative/—	May 5, 2014
DirectRoute (Limerick) Finance Ltd.	Ireland	BB- (SPUR)/Stable/—	BB- (SPUR)/Negative/—	Dec. 19, 2014
Atlantia SpA	Italy	BBB+/Stable/—	BBB+/Negative/—	May 13, 2014
Granvia a.s.	Slovakia	BBB+/Positive/—	BBB+/Stable/—	Nov. 18, 2014
Abertis Infraestructuras S.A.	Spain	BBB/Stable/—	BBB/Negative/—	Feb. 4, 2014
New ratings				
Sun Group Finance	Australia	BBB+/Stable/—	NR	June 24, 2014
Arteris S.A.	Brazil	brAAA/Stable/—	NR	Sept. 22, 2014
Autopista Planalto Sul S.A.	Brazil	brAAA/Stable/—	NR	Sept. 22, 2014
Atlantia Bertin Concessoes S.A.	Brazil	brAAA/Stable/—	NR	April 14, 2014
OPI*	Mexico	mxAA+/Stable	NR	Dec. 17, 2014
Fideicomiso No. 2227 (Periferico del Area Metropolitana de Monterrey)	Mexico	mxAA-/Stable/—	NR	Nov. 18, 2014
Fideicomiso CIB/2076 (Autopista Rio Verde y Libramiento la Piedad)	Mexico	mxAA- (2nd lien)/ Stable/—	NR	Nov. 7, 2014
Fideicomiso 1784 (Autopista Rio Verde y Libramiento la Piedad)	Mexico	mxAAA/Stable/—	NR	July 3, 2014
Fideicomiso 1784 (Autopista Rio Verde y Libramiento la Piedad)	Mexico	mxAA/Stable/—	NR	July 3, 2014
Periferico del Area Metropolitana de Monterrey	Mexico	mxAAA/Stable/—	NR	May 14, 2014
Ellaktor S.A.	Greece	B+/Stable/—	NR	Oct. 3, 2014
Aberdeen Roads (Finance) PLC	U.K.	A- (prelim.)/Stable/—	NR	Nov. 28, 2014
Scot Roads Partnership Finance Ltd.	U.K.	A-/Stable/—	NR	Feb. 20, 2014
Withdrawals				
Fideicomiso No 80481 (Mexico-Toluca)	Mexico	NR	BBB+ (SPUR)/Stable/—	Sept. 10, 2014

Note: Rating actions listed cover calendar year 2014. *Senior secured debt rating. §National scale rating. SPUR–Standard & Poor's underlying rating. NR–Not rated.

In China, although economic growth has marginally softened in some areas, increases in car ownership continue to support traffic growth.

flows. Some French ministers of parliament have supported a buy-back of some of the toll road concessions. We understand that if this were to happen, which we don't expect right now, it would not take effect until 2017 and would give rise to financial compensation based on an estimation of the cash flows foregone by the concessionaires. The press has reported estimates in the range of €15 billion to €20 billion.

Asia-Pacific

We expect performances for toll road operators in the Asia-Pacific region to be broadly stable, with continued momentum for economic growth in the region, some capital expansion projects completing and fueling incremental earnings, and links between rate hikes and inflation. Traffic growth typically closely correlates with GDP growth, which we expect to be 2.6% for Australia in 2015 (compared with 3.2% for 2014), 7.1% for China (7.4% in 2014), and 4% in Korea (3.6% in 2014). We forecast inflation in these countries to remain at 2% to 2.5%, broadly in line with 2014 levels.

In Australia, a Transurban Finance Co. Pty Ltd.-led consortium acquired Queensland Motorway, the main toll operator in Brisbane, resulting in Transurban having full or significant ownership stakes in nearly every toll road in Australia's three largest cities. The remaining toll road operators are single-asset companies, and their respective fortunes have been mixed, with the Brisbane Airport Link and Cross City Tunnel in Sydney going into administration and Transurban acquiring the latter. We expect significant investment to continue across the country, with a combination of major road expansion in Melbourne but also greenfield projects in Sydney and Melbourne. Given the continued reluctance of private investors to take greenfield risks due to recent failures, Australian state governments have had to look at new structures to ensure they could be privately funded. This includes structuring the East West Link tunnel in Melbourne as an availability-based project and the West Connect project in Sydney, which is likely to be on the government's balance sheets until traffic is established.

In China, although economic growth has marginally softened in some areas, increases in car ownership continue to support traffic growth. After the implementation of tariff concessions that affected some toll road operators, the regulatory landscape has stabilized, and we expect this to continue for now. Our expectation of stable performance also reflects our opinion that M&A activity across the sector will remain limited, similar to 2014 but significantly lower than in the years before that.

Given Korea Expressway's broad network, we believe its performance will remain closely linked to that of South Korea's economy. Investments will continue, but more to develop secondary road links and relieve congestion, rather than increase earnings.

Looking Ahead

Across regions, we expect to see continued growth in 2015 for the toll road operators we rate, mostly because of a stronger global economy in 2014 and into next year. What might put growth at risk would be weaker economic performance than our economists forecast, regionally or globally. To whatever degree that were to occur, it could bring to a halt the positive momentum the sector has gained in 2014. For now, however, we're expecting modest growth to continue for most toll road operators in the year ahead. **cw**

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Can The G20-Sponsored Global Infrastructure Hub Kick-Start Private Investment In Asia-Pacific?

Overview

- Asia-Pacific's large investment requirements make it an attractive region for infrastructure investors.
- In practice, Australia captures the bulk of the region's private investment, mainly through the combination of a real-deal pipeline and well understood institutional and legal frameworks.
- The creation of the Global Infrastructure Hub, in Sydney, should promote an environment that offers better investment opportunities across the rest of Asia, provided it is bold in its approach and does not seek to replicate what others are already doing.
- The success of this initiative will ultimately be inherently linked to the willingness of regional governments to promptly implement the Hub's recommendations.

When the G20 countries met in Brisbane, Australia, in November 2014, the representative members agreed to create a Global Infrastructure Hub (and to base it in the Australian city of Sydney). In broad terms, the mandate of the hub will be to coordinate the infrastructure plans of participating governments; enhance governments' knowledge of how their public sectors work, what they need, and how they are developing their funding practices; and standardize procurement processes.

While there is a need for greater coordination and taking onboard lessons learnt from decades of private infrastructure investment globally, will the Global Infrastructure Hub be bold enough to make a meaningful difference? Sticking to delivering investment in what is now the current way will achieve only one certainty: continued stagnation of investment levels and an increase of the infrastructure deficit. Change is needed.

One of the key goals coming out of the G20 meeting was the commitment to achieving incremental global growth of 2.1% over the next five years. On the G20 estimate, achieving the 2.1% growth could release an additional US$2 trillion of investment over the next 15 years. With Asia becoming the global economic growth engine but many of its countries suffering from material deficits in infrastructure, the region's goal should be to capture a significant part of that additional investment through increased investment in infrastructure. But how to go about that? The G20 recognized the need for greater coordination and simplification (and this is particularly relevant for countries in Asia-Pacific)—and thus the Global Infrastructure Hub was conceptualized.

Infrastructure Opportunities Abound Across Asia-Pacific

Infrastructure investment in Asia-Pacific is a hot topic of conversation, with investors showing a great deal of interest in the sector. This is because everyone realizes that the infrastructure requirement is immense. The Asian Development Bank (ADB) and the Asian Development Bank Institute estimated in their joint study "Infrastructure for a Seamless Asia" that the region would require about US$9 trillion of investment between 2010 and 2020, with about 70% of that earmarked for new projects, and the remainder being allocated to maintenance of existing infrastructure. The ADB estimated that more than 50% of that amount would need to be allocated to the energy sector, reflecting the systemic electricity generation capacity deficit and rapid growth in energy demand. The road sector is estimated to require in excess of US$2 trillion over the period.

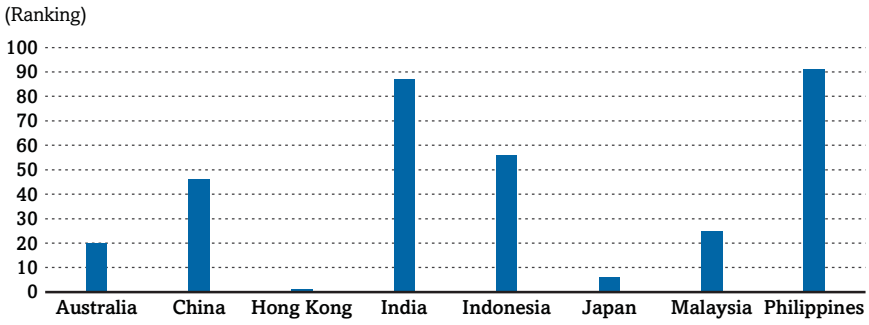
Evidence of this requirement for growing investment in infrastructure can also be found in the World Economic Forum's annual *Global Competitiveness Report*, which, among other things, assesses the quality of infrastructure across the globe. Chart 1 highlights the ranking of several countries in the region in terms of infrastructure quality, as defined by the World Economic Forum.

Hong Kong (first in the ranking), Japan, and Australia all feature in the top 15%, but opportunities for further investment in the rest of the region are clearly real. The fact is that actual private investment remains limited. This is because investors remain concerned about the institutional, legal, and regulatory frameworks in most countries. In its *"Doing Business"* project, The World Bank Group has assessed a number of factors for 189 countries, including dealing with construction permits (capturing the ease of obtaining all necessary consents and permits, as well as obtaining utility connections) and enforcing contracts. Chart 2 shows for the same countries as chart 1 the rankings in both categories.

How To Ensure A Project's Success

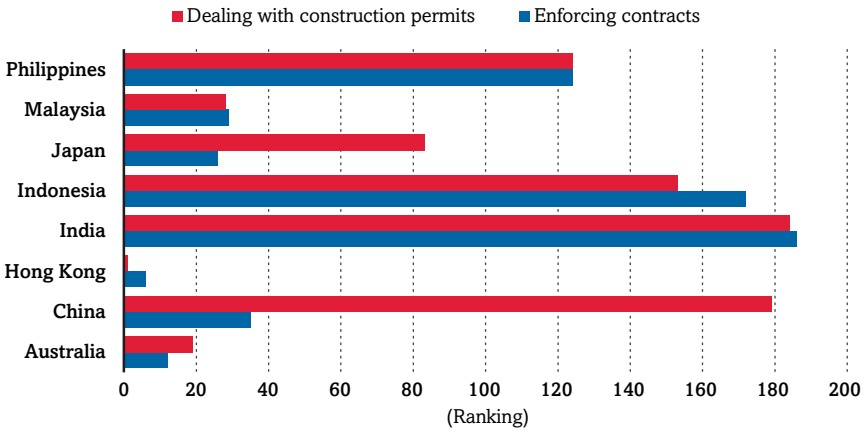
Two factors (although not the only ones) are critical for the potential success of a project.

Chart 1 | Infrastructure Quality Ranking Of Selected APAC Countries (Out Of 151)



APAC–Asia-Pacific.
Source: World Economic Forum.

Chart 2 | Enforcing Contracts, Dealing With Construction Permits



Source: Doing Business Project, World Bank Group.

The first provides an insight as to the likelihood of a project's construction activities performing in line with budget and program.

A typical greenfield project might involve a number of steps before building activities start, such as obtaining required licenses and permits (covering environmental considerations or building approvals). Then, a project would require all necessary approvals to operate. We view the "Dealing With Construction Permits" as providing some evidence of how efficient (or otherwise) the bureaucracy of a country is. This level of efficiency adds to the certainty of the construction phase of a project. In its study, the World Bank Group determined that the average length of time to obtain construction permits in Australia is 112 days, growing to 185 days in India or 211 days in Indonesia. Such added duration not only leads to increased costs (for a similar actual build phase, a project in Indonesia would take at least three months longer than Australia, resulting in an additional three months of interest on the financing). Also captured in this measure is the cost of obtaining those permits. According to the study, when expressed as a percentage of construction value, the figures came in at 0.5%, 28.2%, and 4.3% in Australia, India, and Indonesia, respectively. All else being equal, this again would indicate more favorable conditions in Australia.

The second is certainty that the project will perform as expected under its contracts.

While confidence that a project would perform as expected in the base case from an operational perspective is important, investors also focus on the ability to enforce contracts in case this "operational" base case was experiencing pressure. This is where we believe the "Enforcing Contracts" measure provides some good guidance. In its study, the World Bank Group assessed the length of time, number of procedures, and costs to solve a contractual dispute. Table 1 looks at the results of the study in Australia, India and Indonesia.

In the enforcement of legal rights under a contract, two areas are critical:

- How long until a decision is reached? and
- What are the costs?

The duration is key from the point of view of assessing for how long cash flows could be disrupted and, as a result, how to determine the required liquidity that a project may need to have. Based on the table, this would indicate liquidity requirements for projects in India that could be 3x higher than what they would be in Australia or Indonesia (looking purely at the time to resolution). The cost of the procedures is also important in determining required liquidity, as a project would need to have sufficient funds to cover these costs. Again, this would have a significant impact on liquidity, and this item would differentiate projects in Australia and Indonesia.

Example

Increased contingencies. Let's assume three identical projects, with a capital cost of US$1 billion, 80% debt funded, located in Australia, India, and Indonesia. What would be the size of the required contingency funds necessary to absorb the same level of stress linked to delay in obtaining consents? We assume here that each project should be able to absorb a 10% increase of budget and 10% increase in the time to obtain these permits.

Taking the same project as above and assuming the project located in Australia has sufficient liquidity to cover potential disputes, we assess in table 3 the additional liquidity that would be required for a similar project in India and Indonesia to provide the same buffer. For the purpose of this example, we are assuming a claim equal to 10% of the construction price.

In both examples, to achieve a similar position in terms of risk contingency and taking an Australian project as the benchmark, the Indian project would require an additional contingency of about 17% of the construction costs, whereas the Indonesian project would need an additional 11%.

Will The Global Infrastructure Hub Be Effective In Allocating Risk?

Clearly, the cost of a project encapsulates not only the direct cost of building and operating but also adequate contingencies against known risks. As a result, risk allocation between the public and private sector can have a significant impact on the overall economics of a transaction, and could lead to materially different outcomes. While the overarching concept of the risks needed to be allocated to the party that is best equipped to manage it is very well accepted in the infrastructure finance sector, it is not, in our view, simply about the ability to manage a risk, but really about the ability to do so in a cost-efficient manner.

This is where we believe the Global Infrastructure Hub could play a significant role in determining the optimum risk transfer that will deliver an economically efficient infrastructure that is attractive to a wide range of private investors. Clearly, risk allocation should not be standardized across all countries but tailored to each and every jurisdiction. While the risk allocation should not be standardized, the search for uniformity across all countries could be the underlying basis for it.

Take the example of construction permits, highlighted earlier. This risk is generally accepted in a number of markets globally because of certainty around timeframe to obtain those. The timeframe could be used as the benchmark that private investors are willing to take the risk on, and therefore, this could be a set number of days for which a project in other jurisdictions would be at risk. Where the costs are unknown, the risks would probably be retained by the public sector—this is not about pushing risks back to a government, but establishing the most economical way to mitigate such risk. In the event a project was to establish large contingencies against the risk but achieve the desired outcome in a cost- and time-efficient manner, the contingency would then flow as an equity distribution. While risk and cost sharing could also be envisaged, simplicity is sometimes

the most efficient structure when the range of outcomes is extremely wide.

By establishing and precisely quantifying the risks that private investors should be retaining, this would then allow all countries to establish a contractual framework that is common. The difference is that, unlike what is typically done today, where governments seek to retain a common set of risks irrespective of the protections that can be found in laws and regulations, this is about transferring a defined set of risks to the private sector.

A typical example highlighting this is the risk around land acquisitions: In a lot of countries, land acquisition is transferred to the private sector because there are very well defined and legislated procedures for compulsory acquisition, for which the costs can be very well estimated. In practice, private investors are willing to take the risks because they are comfortable that the time will be no longer than a set number of days and that the costs have a high degree of certainty. That is not the case in other countries, such as Indonesia, where time and costs can vary materially. Applying the principle above in an Indonesian context, projects could transfer some land acquisition risks, although up to a set budget and for a set period of time, beyond which the project would be fully compensated. In this particular case, though, a government might decide to complete all land acquisitions ahead of the project progressing.

Table 1 | **Averages For Projects In Australia, India, Indonesia**

	Duration in days	Costs (% of claim)
Australia	395	21.8
India	1,420	39.6
Indonesia	471	115.7

Commitment To Expectations Keeps Australia Attractive To Investors

While improving coordination and standardization will always have a positive impact in the successful delivery of a project, many private investors remain reluctant to invest in certain countries not because of a lack of coordination/standardization, but because they simply do not have sufficient comfort around the strength of some legal and regulatory systems. Such typical weaknesses introduce a level of uncertainty that is generally not compatible with risks related to single-asset financing. For example, facing the prospects of lengthy delays in the connection of a new power plant to the electricity transmission grid means that a project that would have otherwise performed adequately during its construction is at risk of default simply because it cannot sell its electricity output. We believe that until these weaknesses are addressed, Australia will continue to capture the lion's share of private infrastructure investment earmarked for the region.

Table 2 | **Required Contingency Funds**

(Mil. US$)	Permit costs	Cost contingency	Debt interest cost to cover additional time	Total increase	Contingency (as % of build cost)
Australia	5.0	0.5	1.7	2.2	0.22%
India	282.0	28.2	3.2	31.4	3.14%
Indonesia	43.0	4.3	2.8	7.1	0.71%

Table 3 | **Additional Liquidity Required**

	Additional time coverage	Debt interest cost for additional time coverage (mil. US$)	Additional cost contingency (mil. US$)	Total increased liquidity (mil. US$)	Contingency (as % of build cost)
India	1,025 days	157.3	17.8	175.1	17.5%
Indonesia	76 days	11.7	93.9	105.6	10.6%

Ultimately, it is such knowledge and understanding of the overall risk allocation that attracts a lot of investors to Australia, despite the country having seen its fair share of project stresses. Very well-known examples can be found in the toll road sector, where four of the most recently completed projects have defaulted because of severe traffic shortfalls against forecasts. Projects have also come under severe stress due to material construction cost overruns. Yet investors remained comfortable taking the risk with those projects, mainly because contracts performed in line with expectations. Obviously, another key reason for the attractiveness of Australia is the higher sovereign rating compared with a lot of other countries—in the infrastructure sector, the sovereign rating would typically act as a cap on a project's rating. A low sovereign rating would therefore result in a lower rating. That is, however, one area that investors can easily take a view on. A different story is managing risks that are undefined and extremely challenging to deal with absent exorbitant contingencies.

Change, So As To Grow

The Global Infrastructure Hub should act as a conduit to the fulfilment of Asia-Pacific's infrastructure needs by taking the lead in driving standard risk profiles. But, in reality, governments around the region will need to proactively and consistently apply the Hub's findings and recommendations, setting aside both national preference and personal ambition. For that to happen, the Hub's ideas must be acceptable to all parties while remaining independent from politics and disengaged from the public/private tussles. That will be a challenge for the organization, but one that we regard as well worth taking on. **cw**

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Building For Growth

Can The U.K. Close Its Infrastructure Investment Deficit?

Although the U.K. was one of the pioneers of infrastructure development, in recent decades its investment has lagged behind that of several other countries in the Organisation for Economic Co-operation and Development (OECD). This has put the country's infrastructure under strain: In the *2014-2015 Global Competitiveness Report* from the World Economic Forum, inadequate supply of infrastructure stood out as an obstacle to doing business in the U.K. We estimate that over the years, the U.K. has accumulated an infrastructure investment deficit of more than £60 billion.

Overview

- The U.K.'s infrastructure investment deficit is at least £60 billion, and potentially much greater, according to Standard & Poor's analysis.
- We estimate that each additional £1 the U.K. spends on infrastructure in one year would increase real GDP by £1.9 over a three-year period.
- We also project that additional spending of 1% of GDP in the U.K. would add more than 200,000 jobs in the same year.

There is currently a broad consensus among all main political parties in the U.K. about the need to invest more in infrastructure. And Standard & Poor's Ratings Services estimates that each additional £1 the U.K. spends on infrastructure in one year (in real terms) will increase real GDP by £1.9 over a three-year period. We also project that infrastructure investment would have a strong effect on job creation. Additional spending of 1% of GDP in the U.K. would add more than 200,000 jobs in the same year, by our estimates. We expect that investment will increase over the next decade, which will create significant opportunities for private capital investment in the sector. In our view, this could boost the country's economic growth, both in the short term and over time.

The U.K.'s Infrastructure Investment Deficit

Total investment in new U.K. infrastructure has been trending down since the mid-1980s, dropping from 1% of GDP in 1980 to 0.6% in 2008, at the outset of the global crisis. Although the government's stimulus program and preparation for the 2012 Olympic Games boosted infrastructure spending to 0.95% of GDP in 2011, this increase was only temporary.

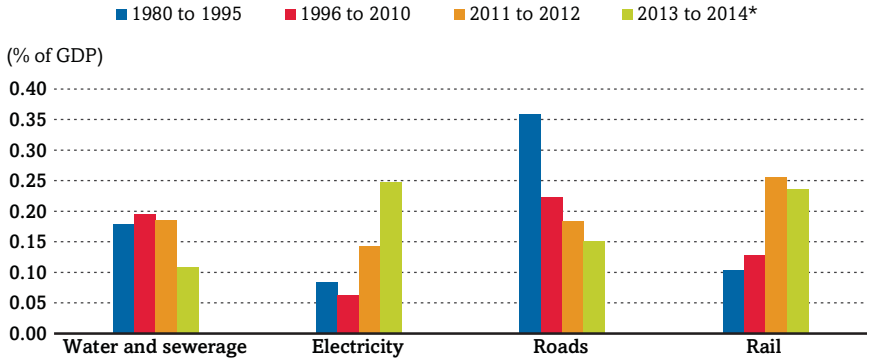
Falling investment levels have hurt certain sectors more than others *(see chart 1)*. Roads have seen the most dramatic declines, with infrastructure-related construction output halving since the 1980s. Road congestion is viewed as a significant problem in the U.K., generating costs to the economy and the environment, as well as to the population's quality of life. INRIX, a road traffic and driver services company, ranks the U.K. as the third-most-congested country among major developed economies in Europe and North America. It estimates that over the past 12 months, the average U.K. driver has spent some 30 hours in traffic jams, and that figure rises to 84 hours in the London commuting area. The government recognizes that its road network is under significant strain. To address this, on Nov. 10, 2014, Prime Minister David Cameron announced that the government plans to spend £15 billion over the next 10 years on improving its major roads.

But just how large is the U.K.'s infrastructure investment deficit? Our analysis suggests that it is at least £60 billion—and potentially much greater. We used two approaches to estimate the deficit. The first assessed the shortfall in infrastructure spending by looking at the U.K.'s historical levels of investment. Applying the assumption that the U.K. should have continued spending about 1% of GDP—the level in 1980—annually on developing its infrastructure, we estimate that the deficit in infrastructure investment between 1994 and 2013 is about £64 billion, or 3.7% of 2013 GDP.

We also assessed the U.K.'s spending compared with that of other OECD countries, based on data from the International Transport Forum. From 1995 to 2011 (the latest data available), the U.K.'s investment in its transportation infrastructure averaged 0.7% of GDP, compared with 0.9%, on average, for the OECD economies *(see chart 2)*. Applying the assumption that the U.K. should have invested in line with the OECD average during that period, we estimate a deficit of £58 billion, or 3.4% of 2013 GDP.

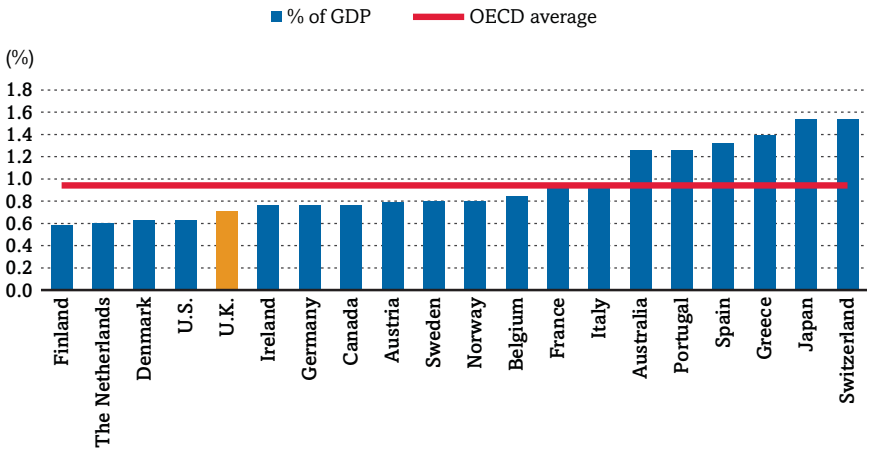
The second estimate is, in our view, likely too low because it covers only one of the infrastructure sectors. In addition, if we were to use the higher levels of investment in countries with the best infrastructure as guidance for an optimal level of investment, the estimated deficit would be much higher. For instance, Switzerland,

Chart 1 | Infrastructure-Related Construction Output



*Data for 2014 refer to the first half of the year. Maintenance is not included.
Sources: Office of National Statistics; Standard & Poor's calculations.

Chart 2 | Average Transportation Infrastructure Investment In 1995 To 2011



OECD–Organisation for Economic Co-operation and Development.
Sources: International Transport Forum, Standard & Poor's calculations.

which the World Economic Forum ranked first in terms of overall infrastructure quality in its 2014 global competitiveness report, invests 1.5% of GDP in transport infrastructure. Based on that level of investment, the deficit the U.K. has accumulated would exceed £200 billion.

Infrastructure investment generates both short- and long-term benefits, including job creation, increased demand, and improved productivity.

Beyond The Cost Of Infrastructure

The debate on infrastructure often focuses on cost. While this is an important part of the equation, we view the potential returns on infrastructure investment to be equally important. Infrastructure investment generates both short- and long-term benefits, including job creation, increased demand, and improved productivity. As a result, each £1 billion spent on infrastructure may generate much more in terms of total economic output—a phenomenon known as the "multiplier effect."

In the short term, infrastructure investment boosts aggregate demand in the economy. A construction company needs materials, goods, and services (e.g., steel) from other industries, which boosts demand in these categories. As hiring increases across various sectors and the total wage bill rises, people begin to spend some of their additional income, thus increasing demand for consumer goods and services. Businesses are also likely to spend more. And this spending cascade explains why each £1 billion invested in infrastructure may generate much more in terms of GDP.

The impact on employment alone can be significant. Infrastructure spending tends to first boost job creation in the construction industry—for example, to build roads. This is the direct effect of infrastructure spending on employment. But it also generates employment in related industries, such as manufacturing, while demand also increases for the services of engineers and surveyors, for example. This represents an indirect effect on employment. As people get paid and spend part of their income on consumer goods and services, the additional spending may also create new jobs in unrelated segments of the economy—an induced effect of infrastructure investment. Indeed, when taking these indirect and induced effects into account, for each 1,000 jobs directly created in infrastructure construction, employment as a whole rises by 3,053 jobs (according to a joint report by the Centre for Economics and Business Research and Civil Engineering Contractors Association titled *"Securing our economy: The case for infrastructure"*).

The short-term boost to output and employment would be welcome, provided that there is still slack—or unused resources—in the economy, including in the labor market. But the benefits of infrastructure spending don't stop there. Over the longer term, improving infrastructure can enhance the private sector's productivity, for instance, by reducing transport and communication costs. And the gains can be significant: The *December 2006 Eddington Transport Study* shows that a 5% reduction in travel time for all business travel on roads could generate around £2.5 billion of cost savings for companies, or 0.2% of 2006 GDP. Reduced transport costs improve market access and enhance competition, which boosts productivity.

The impact on the labor market can also extend beyond the short term. Better transport infrastructure can boost job creation by connecting people to jobs. As an example, the U.K.'s Northern Hub project aims to stimulate economic growth by improving train services between the major cities of Northern England, thereby promoting job creation and improving access to employment, according to the National Infrastructure Plan 2013.

A number of empirical studies confirm that infrastructure has a positive effect on long-term economic growth, although the magnitude of the reported impact varies widely and causality is difficult to

establish (i.e., countries with higher output may be able to afford higher spending on infrastructure). A comprehensive 2009 study conducted by OECD economists reports a positive impact of infrastructure spending on growth, based on historical data between 1960 and 2005. Specifically for the U.K., the findings suggest that investment in roads, railways, and electricity generation infrastructure was associated with higher output levels over the study period.

Increasing Spending Could Bring Big Returns

But what would be the effect of additional infrastructure spending on today's U.K. economy, in terms of output and job creation?

Despite the recovery gaining pace since the beginning of 2013, there is still slack in the U.K. economy. Employment in the construction sector in particular remains well below the pre-crisis peaks—by about 250,000 jobs. We believe that at a time when monetary policy is ultra-loose and slack in the economy still persistent, an increase in infrastructure spending can significantly boost demand.

To quantify the impact of increased infrastructure spending on the economy, Standard & Poor's conducted simulations using Oxford Economics' Global Economic Model. We assumed that public investment—which we take as a proxy for infrastructure investment—increases by an additional 1% of GDP (or around £19 billion) above our baseline forecast. We also assumed that the Bank of England keeps its policy rate at the level of our baseline scenario, gradually rising to 1.9% by the end of 2016. We think it is a plausible assumption as, in our simulations, consumer price inflation remains below 2% until mid-2016 and averages 2.3% in 2017.

Our simulations suggest that the multiplier effect of infrastructure investment for the U.K. economy is currently quite strong. As we noted previously, each additional £1 spent on infrastructure in one year (in real terms) would lift real GDP by £1.9 over a three-year period, by our estimates, and the effect on job creation is also strong: Additional spending on infrastructure of 1% of GDP in the U.K. would add more than 200,000 jobs in the same year.

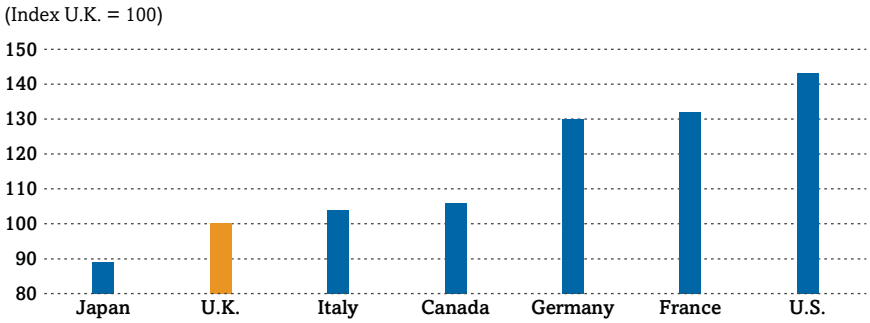
Our simulations focused on the short-term impact of infrastructure investment through the lens of demand. Beyond the short-term effect on demand, we expect that infrastructure investment would boost the country's productivity over time, which should support a permanently higher level of potential output.

This is consistent with findings published by the Civil Engineering Contractors Association in May 2013. They estimate that in the U.K., £1 of infrastructure spending boosts GDP by £1.3 in the short term and £2.8 in the long term. Furthermore, a report published by the National Institute of Economic and Social Research in April 2013 suggests that an increase of infrastructure investment in the amount of 1% of GDP can boost potential GDP by 0.4% in the long term.

The long-term impact of increased infrastructure investment is relevant because, in our view, insufficient investment has been one of the key factors explaining weak productivity performance in the U.K. Output per hour in the U.K. was below the average for the rest of the major G7 industrialized economies in 2013 *(see chart 3)*. And in 2013, one hour of work in the U.S. was producing 40% more than one hour of work in the U.K.

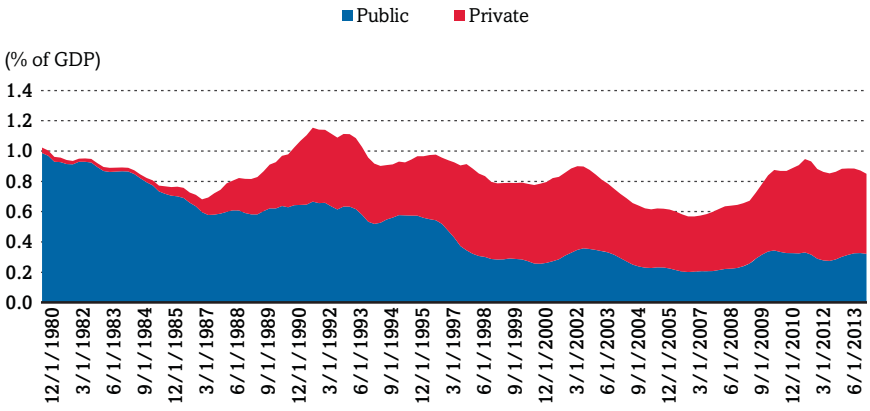
Productivity in the U.K. has remained roughly unchanged from its level in the pre-downturn year of 2007, and is currently some 18% below what it would have been if it had continued to grow at its long-term rate since 1991. One factor has been strong employment growth accompanying the economic recovery,

Chart 3 | GDP Per Hour Worked In G7 Countries In 2013



Sources: Organisation for Economic Co-operation and Development, Standard & Poor's calculations.

Chart 4 | Infrastructure-Related Construction Output By Type Of Financing



Sources: Office of National Statistics, Standard & Poor's calculations.

reflected in a rising participation rate, increasing numbers of self-employed, temporary, and part-time workers, and a long period of falling real wages, which have encouraged firms to expand employment further.

Notwithstanding the impact of labor market developments, structural factors such as infrastructure bottlenecks may help explain weak productivity performance in the U.K. The OECD has repeatedly identified insufficient infrastructure as one of the factors holding back U.K. productivity growth, and has called for an increased investment in infrastructure—-both public and private.

The Financing Challenge

The need for greater investment in the U.K.'s infrastructure prompts questions about how to finance it at a time when government debt is rising and the country's budgetary deficit remains significant. We anticipate that general government net debt will peak in 2016, at just over 95% of GDP, before gradually declining. The government has implemented a fiscal consolidation program to cut its deficit. In our view, this fiscal pressure is likely to constrain the government's ability to finance new infrastructure projects. We therefore believe that a significant portion of funding for infrastructure investment will come from the private sector.

The government has supported significant private sector investment in the past. It has done so, in part, by providing a stable and transparent legal system, developing public-private funding schemes, and fostering strong regulatory frameworks in industries such as airports, water, and energy. However, private capital investment in infrastructure has not fully offset falling public investment.

The government has developed a national infrastructure plan that lays out its ambitions in terms of new investment. This plan includes a pipeline of projects worth £383 billion, with most of the spending in the energy and transport sectors. While the plan gives investors an overview of the government's goals, we believe it could benefit from more detail. The government expects to publicly fund only one-quarter of its infrastructure pipeline. Securing significant private capital investments will, in our view, require good visibility on the timing of new projects, their terms, and the process for awarding them. We see this as essential for the government to ensure that it has the tools to facilitate and deliver on these projects—and to ensure that it addresses the historical shortfall in infrastructure investment.

Investors have allocated significant funds to finance new infrastructure projects. The range of investors includes infrastructure funds as well as pension and sovereign funds, which have allocated part of their capital for infrastructure investment *(see chart 4)*. Participants also include infrastructure companies such as utilities, airports, and water companies, which will deliver some of the new investments. In addition, with regulatory requirements restricting banks' long-term lending, nontraditional lenders such as insurers and pension funds are poised to contribute a larger share to the infrastructure investment pipeline *(see "Investing In Infrastructure: Are Insurers Ready To Fill The Funding Gap?," published July 7, 2014, on RatingsDirect)*. The government has been making strides to encourage institutional investment in infrastructure, which should help diversify funding sources. For example, as part of the U.K. Insurance Growth Action Plan, U.K. insurers have agreed to work alongside partners with the aim of delivering at least £25 billion of investment in U.K. infrastructure over the next five years.

In our view, macroeconomic factors support an increase in private investment in infrastructure. Real interest rates remain at historical lows. Employment in the U.K. construction sector remains well below peak levels. Investing in infrastructure creates jobs, generates demand, and enhances productivity. While we expect real GDP to grow by 2% to 3% per year over the next several years, we believe higher infrastructure investments could lift growth further and bolster the U.K.'s competitiveness. And given the U.K.'s fiscal challenges, this couldn't come at a better time. **cw**

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