

## How investors can get more out of infrastructure

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Rarely have investments in global infrastructure—everything from roads, bridges, and tunnels to schools, hospitals, and power plants—held the spotlight as they do now. Governments around the world are increasingly comfortable using private money to finance such projects, while investors have poured large sums into specialist funds in hopes of obtaining attractive inflation-adjusted returns. From 2006 to mid-2007, we estimate, private investment funds raised \$105 billion for infrastructure projects.

All of this interest heightens competition and creates a problem for fund managers and investors seeking profitable infrastructure opportunities. If funds follow the crowd, bidding to operate existing assets under a business-as-usual model, they run a double risk because of the sheer volume of dollars now chasing deals and driving up prices: either they lose out to more audacious competitors, or they risk overpaying and achieve suboptimal returns. Yet funds are under growing pressure to invest the money they raised. They can't sit on the cash indefinitely.

So infrastructure investors must raise their game in two ways. First, they should become better at extracting value from projects by improving their operational capabilities. Second, they ought to use this more sophisticated operational perspective to assess the risks of nontraditional infrastructure deals—such as those that involve complex operations, emerging markets, or new assets.

If this story sounds familiar, it should: private-equity firms followed a similar path over the past decade. Leading ones evolved their business models to create value from not only financial engineering but also managerial and operational improvements; at the same time, they gained the confidence to invest in more and more complex businesses. By learning the same lessons—and understanding best practice from industries, such as oil and gas, that routinely face the same sort of complexity in unfamiliar locations—infrastructure funds should produce returns that will keep investors happy.

The money is here—what about the deals?

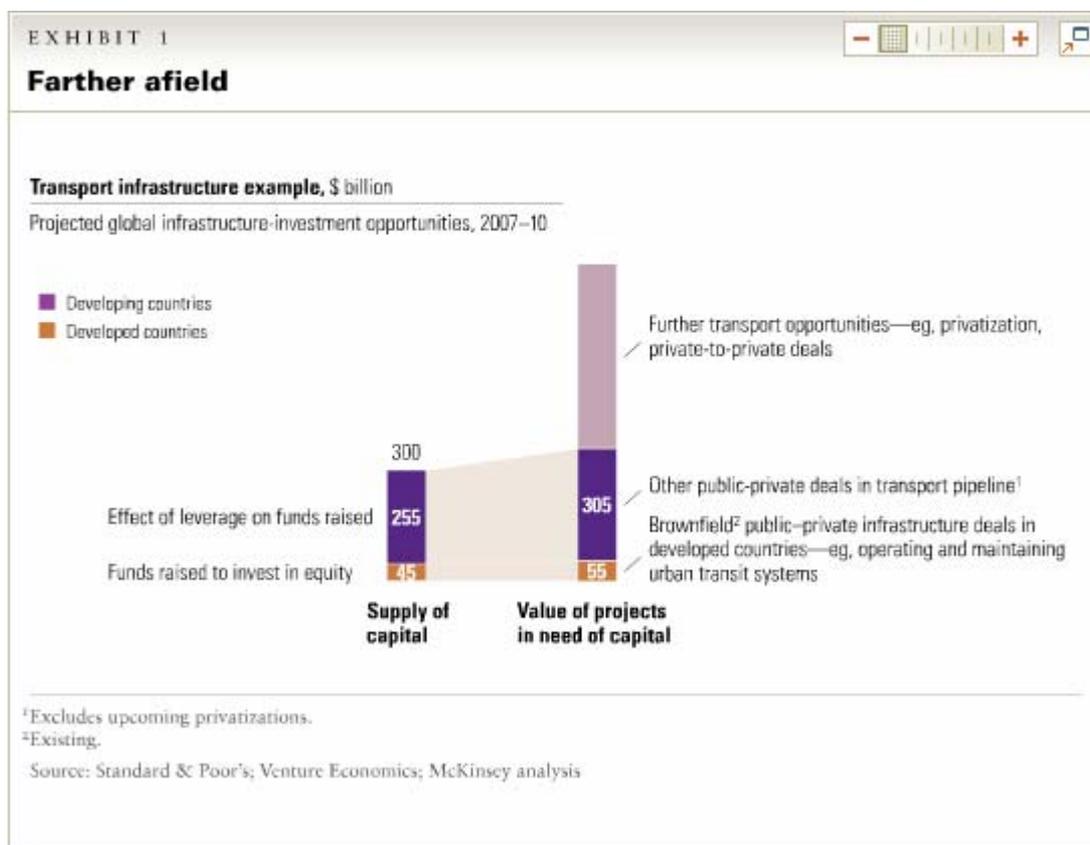
During the past two years, the flood of money into infrastructure funds has been astonishing: the world's 20 largest now have nearly \$130 billion under management, 77 percent of it raised in 2006 and 2007 and about 63 percent from new entrants. Taking into account leverage, a billion dollars of equity funding could, in some situations, pay for up to \$10 billion in projects.

Where will all the money go? The value of infrastructure buyout deals has already grown from roughly \$20 billion in both 2003 and 2004 to \$106 billion last year. The volume of the developed world's remaining traditional brownfield opportunities—those in existing infrastructure, such as owning and operating a toll road—won't satisfy investor demand over the next three to four years. Bidding for these deals is already intense,<sup>1</sup> which has pushed up price-to-earnings multiples. The multiple of 9 achieved by Italy's Aeroporti di Roma when it was sold in 2002, for example, is dwarfed by the multiple of 27 that investors paid for the UK's London City Airport in early 2007; in the ports sector, the multiple of 9 paid for Hesse-Noord Natie in 2002 was less than half the multiple of 20 achieved by Orient Overseas in 2006. Meanwhile, in North America the competition for road projects has become increasingly heated—as seen in the multiples commanded by the Indiana Toll Road and Chicago Skyway deals. High valuations mean that funds must work much harder to generate satisfactory returns.

Investors hoping to avoid these sky-high valuations can target more attractive deals if they are willing to look beyond existing infrastructure in developed economies and consider the following:

projects in emerging markets—which, we estimate, will require more than \$1 trillion in capital over the next ten years

complex brownfield deals, which typically have a substantial construction element because of the upgrade and refurbishment work involved wholly private infrastructure opportunities, such as private industrial rail lines and power plants or the full privatization of infrastructure providers Exhibit 1 shows what this approach might mean for the global transport sector. Of the \$360 billion of transport-related projects we have identified from now until 2010, around \$305 billion are either located outside the Organisation for Economic Co-operation and Development (OECD) countries or lack established income streams.



New types of deals, of course, expose investors to a large number of new risks, many of them difficult to quantify. If not managed, such risks open fund managers to the charge that they are straying into projects that look more like traditional equities than like infrastructure. But managers who don't consider nontraditional projects will shut themselves out of the lion's share of the opportunities in coming years.

In this more bracing environment, funds need a new approach. Most investors have typically created value through financial engineering and rising user demand. They have acted less aggressively to improve operations; indeed, many financial investors still leave such issues to contractors and focus their governance efforts on financial metrics.

The old business model is ill suited to capturing the opportunities in today's competitive market. Infrastructure investors must not only spot ways to improve operating cash flows before committing their capital but also ensure that they have the knowledge and expertise to enhance the value of a highly priced asset once they own it. Moreover, they have to anticipate and assess the operational complexity of any nontraditional project in order to understand and manage the risks of bidding for it.

For funds that can master infrastructure operations, the prize is twofold: a better chance of winning traditional deals and making them profitable, as well as the ability to bid for more

operationally complex and less competitive types of infrastructure. These strengths also give investors the confidence to walk away from overpriced deals.

### The devil's in the operations

One key attraction of infrastructure investments is the prospect of reasonably straightforward operations: there is less scope for management discretion in running a bridge, for example, than a global retail chain or a software house—not, of course, that such investments leave no room for operational improvement or can't create significant value. This straightforwardness is a characteristic not only of the roads sector, traditionally seen as one of the most operationally undemanding categories of infrastructure, but also of more complex categories, such as airports, power plants, and transit systems.

Exhibit 2 highlights the performance of five leading infrastructure-management companies active in a single EU country. Despite the common working environment, the operations and economics of each company's toll collections, motorway patrols, and routine maintenance work are quite different. In fact, all of these companies showed room for improvement in one or more aspects of the business—no single contractor was best across the board.



Our work with road operators provides many examples of operational improvements and feasible savings. Some techniques are sophisticated, such as restructuring procurement systems to bring in smaller raw-material companies and thus make suppliers more competitive. Others are strikingly simple: for instance, designing the shape of embankments to minimize construction time or drafting winter maintenance contracts in order to reduce unnecessary salting and sanding. In projects that involve existing roads, experience suggests, a proactive investor could cut its costs by 9 to 16 percent in present-value terms by raising the operations of European or North American highways from average to best in class. That would certainly allow a bidder to be a touch more aggressive—say, by offering 22 rather than 20 times EBITDA<sub>2</sub>—and also preserve acceptable rates of return. While a change of this magnitude isn't transformative, it has the potential to make the difference between winning and losing a bid or to help an investor recognize that it's time to walk away.

The importance of operational improvements grows as infrastructure projects become more complex. Macquarie and Ferrovial's coinvestment in the UK's Bristol International Airport, for example, involved upgrading signage systems; renewing check-in, baggage reclaim, and catering facilities; rerouting foot traffic; and installing all-weather landing equipment. The investors also rejuvenated the airport's retail offering, strengthened the management and sales teams, and even tweaked the system for booking parking spaces. In the four years after the acquisition, the number of passengers using the airport doubled—as did its EBITDA. More recently, the management of the airport had to address operational concerns over its runways to ensure the project's continued success. Ferrovial's subsequent acquisition of the British airports operator BAA has involved complex decisions about airport logistics, security, management restructuring, regulatory strategy, and investment priorities. It would be unthinkable for an investor with no expertise in the transport sector to make these decisions.

Even the apparently straightforward business of rail maintenance offers room for greater efficiency. Work with a range of OECD rail operators suggests, for instance, that implementing best-practice procedures in maintenance scheduling, repairs, purchasing, and overhead management can cut annual upkeep costs by 15 to 30 percent. Routine maintenance is usually just the start of the challenge, however. Complex decisions about signaling systems, integration with other networks, and negotiations with rail operators all offer further scope for operationally savvy investors to distinguish themselves from less sophisticated ones.

Again, these realities should come as no surprise to anyone who has followed the development of the private-equity industry. A McKinsey analysis of 60 completed private-equity deals showed that over 60 percent of the value they created arose from improving the performance of companies (that is, raising revenues and margins or redirecting corporate strategy) rather than financial engineering, arbitrage, market timing, or sector appreciation.<sup>3</sup>

#### Mastering investment risk

Operational understanding and operational capabilities are essential for assessing and managing risk. The ability to deal with risk is in turn a prerequisite for investing in projects—in particular, greenfield projects, deals in emerging markets, and complex schemes—that might scare other bidders. It is also required to know which deals to avoid.

When investors deal with a familiar type of brownfield infrastructure project in a well-understood geography, assessing and managing risk is relatively straightforward. They can typically assess the levels of demand risk, maintenance cost risk, and political risk, if any; factor the financial impact of unexpected events into a bid; and track such problems over a project's life.

The number and magnitude of the risks increase if a project involves building a new asset, operating in a complex or untested regulatory environment, or bidding for an asset that has complex interdependencies with other projects. McKinsey's work with leading developers in the oil, gas, and energy sectors, where complex billion-dollar-plus projects in unfamiliar locations are a fact of life, highlights practices that infrastructure experts can use to advantage.

In the preproject phase, for example, successful developers tailor their project-development and risk-management processes specifically to the venture in hand rather than rely on standard processes. They assess various types of risk in a structured way, avoiding unwarranted focus on a single category, such as technical delivery or regulatory compliance. To do all this, and to reduce the dangers of faulty intuition or any bias toward optimism, they quantify and prioritize risks wherever possible and regularly revisit their estimates.

Once a project is under way, good governance is the key to managing risk. Leading developers ensure single-point accountability wherever possible, giving project teams direct control over the resources needed to complete the work and avoiding matrix or functional structures. To prevent silos from developing as projects unfold, a centralized integration function should regularly and rigorously review them to ensure that they are on track or, if they aren't, that corrective measures are taken swiftly. Finally, successful developers implement appropriate financial incentives to make sure that the owners of risk manage and optimize it.

Investors incapable of assessing risk accurately may come to grief. Consider the early difficulties in building the Channel Tunnel between France and Britain. The initial winners of the contract, in 1986, did little work on detailed design and produced cost estimates that one recent study described as “more or less rough guesswork.”<sup>4</sup> A subsequent change of ownership at Eurotunnel led to the appointment of a new management team, a more detailed assessment of risk, and tighter contracting terms. In the end, the massive project was completed close to deadline, though at a cost substantially above initial estimates (see sidebar, “Effective infrastructure investment: The public-sector perspective”).

The energy industry provides more recent examples of the importance of assessing and managing risk. Increasingly, developers such as Marubeni undertake lump-sum turnkey projects to build power plants (Middle Eastern ones, in Marubeni’s case), taking ownership of construction risk and creating the incentives and processes needed to manage it. A leading oil company assesses a major investment’s probability of success by developing scenarios and stochastic models and then uses its findings as a yardstick for measuring the effectiveness of plans to mitigate any risks. Such lessons are just as useful for investors in infrastructure, as well as the funds that finance it, because this kind of project integration and control is something they are well positioned to provide.

Likewise, successful private-equity funds have been defined in part by their exceptional ability to assess and manage the risks in their portfolios of companies. In the 1990s, Nomura’s Principal Finance, a leading buyout firm of the time, purchased state-owned Angel Trains, one of the UK’s three lessors of passenger rolling stock. It then proceeded to demonstrate how much such firms could achieve. Nomura conducted a detailed due diligence and financial analysis to demonstrate that Angel’s future cash flow was more secure than other bidders realized and that they had exaggerated the safety risks. These efforts allowed Nomura to bid competitively in what was then an untested asset class. Refusing to accept the incumbent management’s claims, Nomura itself also assessed the possibility of raising Angel’s operating efficiencies. After winning the auction, Nomura quickly set new objectives for Angel, reorganized its management to achieve them, and kept a close eye on the operational risks already identified. The lesson—that good risk management not only reduces the potential downside but also creates an additional upside—holds true for today’s infrastructure investors as well.

#### Next steps for funds

Infrastructure investors and the funds they subscribe to must take important steps—one strategic, the other organizational—that will make them better able to improve both the operations they oversee and the way they deal with risk. First, they should focus on a manageable range of sectors where they can apply real insights that will help them source transactions, pay appropriate prices, and extract maximum value. Second, they should create a team of in-house experts to assess and manage the risks. Much as large buyout funds have moved on from the “three bankers and a Rolodex” model, so too infrastructure investors will probably need to start hiring people with experience beyond investment banking or commercial financing. They should consider former asset operators, risk managers from financial institutions, and former officials of government infrastructure departments.

#### The benefits of focus

Many of today’s new infrastructure funds were set up with a broad remit that helps them attract new capital quickly—their offering memoranda give them enough flexibility to target a wide range of infrastructure types in a wide range of countries. This kind of freedom has to be managed carefully; bidding reactively for projects in many disparate sectors probably won’t create value if a fund lacks the relevant expertise. Successful infrastructure players, such as Macquarie, direct their investments to high-potential areas in which they have the knowledge and capabilities to create a sustainable advantage.

One critical step for a new fund is to consider what distinctive skills, experience, and networks it can use to create value. A larger institution, such as a bank, that sets up a fund may have

expertise in a particular region, industrial sector, or deal structure. Some of Macquarie's early funds, for example, had a tightly defined focus on highways, airports, or South Korea.

Focused strategies can be particularly effective for smaller players. In the late 1990s and early 2000s, for instance, investors with experience in the UK debt and project finance markets began building equity positions in infrastructure undertakings launched under the UK government's Private Finance Initiative (PFI). These projects were too small for larger generalized investors—and for many of today's new funds. But smaller, more specialized ones, such as the Secondary Market Infrastructure Fund (acquired last year by Land Securities Trillium), have successfully built up portfolios of positions in UK infrastructure projects.

#### Developing in-house expertise

In the short term, investors can outsource some operational and risk-management functions to advisers, just as private-equity firms do and as infrastructure investors themselves do for demand forecasting and for legal and taxation due diligence. They can also rely on coinvestors or subcontractors to provide advice.

Relying on coinvestors with industry experience, such as construction or facilities-management firms, is often a successful approach. Some of these relationships, notably the fruitful partnerships between Macquarie and Ferrovial, have endured across a number of deals. But funds should think twice before depending exclusively on industrial coinvestors for operational insights and advice. As the European road-management analysis mentioned earlier shows, no operating company can claim to be a market leader in every aspect of operations. Since similarly uneven patterns can be found in other areas of infrastructure, funds risk losing value by locking themselves into a single partner.

Moreover, investors relying solely on the operational expertise of construction and maintenance firms may expose themselves to conflicts of interest: these businesses often perform a dual role as shareholders in infrastructure projects (and thus receive dividends) and as operators performing specific tasks (and receive fees, like any other contractor). Rumors circulate that in early infrastructure deals, financial investors lost out to subcontractors they had relied on for operational guidance. At the very least, a fund must know a business well enough to hold the managers of the investment project and the contractors accountable no less for operational than for financial targets and to form an independent view of the operational improvements achievable.

Leading private-equity firms, such as Texas Pacific (TPG) and Kohlberg Kravis Roberts, have increasingly developed the expertise to carry out much of the core due diligence and operational governance themselves, so they can execute complex and operationally demanding transactions with confidence. Infrastructure players like Macquarie and Henderson's Laing subsidiary have adopted the same approach; both can rely on significant teams of operational experts to undertake due diligence for deals and to support the management of projects.

Opportunities to invest in global transport and other types of infrastructure—to build and operate new projects and manage old ones—are set to increase in the next few years, but so will competition for deals. A fund can position itself to stay ahead of the competition and improve its chances of securing healthy returns if it deepens its knowledge of operations, improves its ability to assess the risks of individual deals and to manage them, and develops the in-house skills to institutionalize these capabilities.

#### Effective infrastructure investment: The public-sector perspective

More intense bidding for infrastructure projects generally increases the amounts paid to governments for the right to run existing assets and reduces the cost of constructing new ones. Yet overexuberant bidding can clash with the public's best interests and undermine the provision of services. Governments should entrust such projects to smart investors who understand their operating realities and risks. Although public-private partnerships give governments strong protection if the private sector fails to deliver, failure is rarely painless for any of the parties involved. The UK's National Physical Laboratory is a case in point. Built under the UK government's Private Finance Initiative (PFI), the project went substantially over budget, creating serious financial difficulties for one of the investors. The public sector didn't foot the bill for these problems, but the facility was delivered late as a result of its complex financial restructuring.

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