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Pension Fund Investment in Infrastructure: A Resource Paper

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Abstract

What is termed "infrastructure" appears to offer pension funds opportunities for investment that might yield substantial and predictable returns matching their long-term liabilities. But there are diverse ways by which infrastructure is defined and an increasing number and variety of facilities or services are being lumped under that term. Infrastructure appears to be attractive as a means for diversifying pension fund investment portfolios, but it does not readily fit within a distinct asset class. This complicates the task of assessing how it diversifies a fund's portfolio and helps achieve its financial objectives. Whatever the infrastructure investment vehicle, its profile of reward and risk ultimately derives from those of the underlying individual infrastructure project investments. At the project level many factors shape the profile. There are an increasing range and variety of investment vehicles from mutual fund-like public traded vehicles to private equity-like limited partnerships to direct investment. They differ greatly in terms of the demands they make on pension funds' organizational capacity and resources and decision-making and oversight capabilities. Historical data on returns and risks of investment vehicles is limited and constrained by the largely commercial nature of the sources of that data. There are few scholarly studies. Those studies suggest that claims about long-term, relatively stable and not insubstantial returns have some merit, but much more needs to be done to substantiate those claims. Fees charged for investment through various vehicles vary widely from mutual fund-like to private-equity fund-like fees. Particularly with regard to the latter there are concerns about whether such fees are excessive and, as a related matter, whether there are serious conflicts of interest in how the vehicles are managed.

Investments in infrastructure, like other kinds of investments, potentially pose concerns about the job impacts and labor practices of both the companies that are the object of investment and the public entities, the privatization of whose facilities or operations provides the occasion for private investment. These concerns are a special source of apprehension for public sector pension funds whose members might be affected. Wholly apart from action pension funds might take, political debate over privatization has resulted in the imposition of both process and substantive labor-related requirements by legislative bodies or executive officials either as a matter of broad policy or decision-making in particular contexts. While some may argue that such action moots out any need for involvement by pension funds, a number of funds have concluded that they as prospective owners of privatized facilities need to address job impacts and labor practices and have formulated policies to do so. A number of those policies relate to how the fund should take cognizance of potential loss of or harm to public sector jobs; others pertain to the workplace issues at privatized facilities. Generally speaking, these policies avoid hard and fast rules in favor of provisions that encourage or incentivize managers of investment vehicles to take serious enough account of job and labor issues. Correspondingly, they aim to spur pension fund decision-makers to seriously bear in mind how those managers have acted without compelling those decision makers to not invest with or disinvest from managers whose behavior falls short. Such flexibility is seen as a means for accommodating the requirements of fiduciary duty.

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Introduction

Infrastructure has drawn increasing attention from pension funds as a potential alternative to traditional investment classes.[1] Funds are attracted by the idea that they might earn higher or more stable returns, diversify their portfolios, and find better matches for their long-term liabilities.

Driving fund interest is a mounting global demand for new infrastructure, as well as for the expansion and repair of existing facilities. Among the new opportunities for private investment are those in what have traditionally been public ventures, such as roads, bridges, tunnels, and water and waste-water plants.[2] Although the definitions of what is considered a public venture vary, the options available to investors have expanded in recent years to encompass a wide range of regulated services and facilities that are predominantly privately owned, including energy-, utility-, and communications-related services as well as hospitals, schools, parking facilities, and even lotteries.

This paper pays special attention to traditional public ventures that have been the focus of investment by public-sector pension funds. We do so because of the labor-related issues they involve, which may be of keen interest to public-sector plan members.[3] For that reason we offer the following observations:

Infrastructure investment opportunities linked to the privatization of public services have arisen in part due to the decades-long dominance, most pronounced in the United States, of political leaders and other market-oriented advocates who contend that roads, bridges, and other infrastructure can be run more efficiently by private owners or operators. This view remains politically divisive and highly contentious, with critics attacking it as avaricious privatization and proponents endorsing it with a softer, less threatening term of “public-private partnerships.” Advocates typically invoke the virtues of market forces to deal with the public sector’s failure to keep up with infrastructure requirements, while opponents stress the continued need for public-sector solutions to the delivery of public goods and services. The pro-privatization view has gained sufficient support to spur a wide range of new investment possibilities in the United States and abroad.

Private-sector infrastructure investment in traditionally public ventures also is being propelled by widespread resistance to tax increases, again especially pronounced in the United States after decades of political focus on the topic. More generally, public officials who do not want to take responsibility for raising taxes or user fees to pay for new schools or road repairs have been turning to private investors to help fill in the gap.[4]

One issue not extensively addressed in the debate is how private infrastructure investment nonetheless alters the taxes or fees citizens (or users) must pay. Where traditionally public ventures are involved, even if privatization proponents turn out to be correct about the greater efficiency of that approach, someone still must pay to build and run new public facilities or modernize existing ones. Historically, such funding has involved some combination of tax revenue, public debt, and user fees. The mix may change when private investors step in, which could mean different people pay. For example, privatized highways that charge tolls shift the cost to those who use that road and away from all taxpayers (or from all drivers if gas taxes had been used).

Such shifts raise often-unexamined questions about what in fact changes for taxpayers. Some private-sector solutions even involve deferred or hidden public subsidies, such as "shadow tolls," that have been developed to ensure that toll road operators' profit goals are met.[5] Thus private investment may appear to remove infrastructure financing off public balance sheets and off the backs of politicians, even as citizens continue to pay in one form or another. Such investments also can raise troubling questions of equal access for lower-income taxpayers and whether private investment may lead to de facto privatization of the public service itself – even one that remains at least partially subsidized by all taxpayers.

Private investment in public services can raise more troublesome questions when pension funds serve as a source of capital. Public pension funds in particular may face difficult choices if they invest in privatization efforts that may cause harm to plan members through job losses, lower compensation, or loss of union status.

The situation becomes more complicated when pension funds invest in infrastructure in other jurisdictions (domestic and otherwise). When that occurs, employees in one area may gain from investments that might cause economic harm to workers elsewhere. Setting aside any moral qualms, such actions raise the issue of reciprocity and whether

employees in the first group can expect support against privatization of their own jobs from workers in locales in which their fund has invested. A related question is whether pension fund infrastructure investments create private-sector jobs, such as in building and construction trades, but diminish public sector employment.

Another factor in the expansion of infrastructure investment is the role played by government. On the one hand, states and municipalities serve as sellers; on the other hand, they may serve as buyers, through public pension funds that typically have some public officials on their governing boards. At the same time, governments also can be involved as designers of tax and regulatory policy. For example, elected officials' unwillingness to raise the federal gasoline tax, a major source of funding for transportation projects, has been a spur to states and localities to look to privatization as an alternative. Yet lawmakers often have been willing to spend taxpayer money on generous tax breaks for interest payments and depreciation on infrastructure investment, which facilitates privatization.[6] The tax dollars involved may not be as visible as the ones drivers pay at the pump, and they are spread out over all taxpayers, but they nonetheless come out of the public purse.[7] Executive and legislative officials also have encouraged privatization through a spate of regulatory changes at the federal and state level.

This paper focuses on two aspects of pension fund investment in infrastructure. The first section addresses a broad range of financial considerations, including the different ways infrastructure can be defined, whether it should be considered a separate investment class, and how it relates to investors with different objectives. It then characterizes the financial risks and rewards of individual infrastructure projects and reviews aspects of those projects that give rise to them. Next, it reviews the direct and indirect means by which pension funds might gain exposure to infrastructure. It then reviews the literature on the performance, volatility, and risk of infrastructure investments in comparison to other investment classes, followed by a discussion of fees and charges associated with certain investment vehicles. Finally, it considers where infrastructure investments might fit in a pension fund's portfolio.

The second section analyzes the potential impact infrastructure investments might have on workers. By definition, pension-fund capital exists by dint of contributions made by workers, either directly or on their behalf by their employers. Investing those contributions in infrastructure may offer returns that can help assure that pension plan promises to pay

benefits are fulfilled. But if those investments involve privatization, funds need to decide whether and how to take account of any adverse effects on those same workers, as well as their effect on other workers. This section also describes some contractual, legislative, and regulatory, pension-fund specific approaches to mitigating those effects.

Section 1: Risk, Reward, and Other Financial Considerations

A. Infrastructure: definitions

The term infrastructure can be defined in various ways. One approach is to describe it largely in *functional terms; that is, in terms of the uses of the facilities and services involved*. For example, some analysts use the category of economic infrastructure to describe essential services such as toll-roads, bridges, tunnels, airports, seaports, and rail networks, as well as common utilities such as gas distribution networks, electricity and renewable energy production and distribution, and water treatment and distribution facilities.[8] They distinguish those from social infrastructure such as schools, health care facilities, prisons and intra-city railroads.[9]

A somewhat more detailed definition divides infrastructure into three categories: transportation, utilities, and social infrastructure. The first category includes toll roads, bridges, tunnels, parking facilities, railroads, rapid transit links, airports, refueling facilities, seaports. The second encompasses electricity generation and transmission, gas and water distribution, sewage treatment, broadcast and wireless towers, telecommunication, cable networks, and satellite networks. The third covers courthouses, hospitals, schools, correctional facilities, stadiums, and subsidized housing.[10]

Pension funds and other investors often take another approach, one that distinguishes between *facilities that can yield a reasonably privileged income stream* and those that do not.[11] One factor is whether the facility has a true monopoly or a strongly competitive position.[12] At one end of the spectrum, in the case of an electric utility, there is legal protection from competition (though it is subject to regulation on matters such as fees and expansion.) Although airports and toll roads are not legal monopolies they are effectively ones because potential competitors face high barriers to entry. While railroads may face no or limited competition from other railroads, truckers who may benefit from tax-subsidized highways can be effective competitors.[13]

Another factor relates to how the income is generated. For example, some projects derive revenues from user-based fees linked to benefits provided and costs incurred. In other cases, tax revenues or subsidies may be part of the mix.[14]

Because infrastructure investment opportunities frequently arise from the private sector taking over public sector responsibilities, a third categorization concerns the *amenability of the facility to privatization*. For example, in some transactions, usually involving economic infrastructure, there is an outright purchase or acquisition of a long-term lease. However, the seller government or agency may retain some control through regulatory oversight and/or contractual provisions. The latter specify the purchaser's responsibilities for operating and maintaining the facility and authority for the seller to monitor fulfillment of those responsibilities and intervene in the event of performance falling short.[15]

In other cases, usually involving social infrastructure such as schools, there may be no readily identifiable revenue stream such as a user fee to make them attractive to would-be investors.[16] (These investments often take the form of arrangements in which the public agency retains ownership of the underlying asset but a private operator manages it.[17]) Indeed, it has been suggested that social infrastructure might be defined in terms of those facilities whose source of revenue is the government rather than the user. However, even here the lines are blurry. Revenue streams for toll roads may come from the government rather than users, for example, arrangements in which the government pays according to the extent of usage (the shadow tolls) or simply according to the amount and quality of available services or facilities, regardless of take-up.

An additional way to categorize infrastructure focuses on phases of the investment life cycles involved. For example, *early stage* investments, sometimes referred to as *greenfield* investments, include projects such as new road, bridge and tunnel developments, or assets in higher risk locations or where there is no established demand patterns upon which to rely.[18] They provide little or no income from the asset for some significant period of time.[19] Not surprisingly, they may offer higher returns, in part because of the greater potential for growth. On the other hand, they are riskier, in part because of construction and political risk and in part because cash flow projections can't be based on historical experience – the demand for service has yet to be established – and are thus inherently uncertain.[20]

By contrast, *growth stage* investments typically include expansion projects and new privatizations of existing operating assets.[21] Here, already known operating track records allow for better estimates of what might be attractive growth with a reasonably consistent yield. [22]

Meanwhile *late stage* investments, sometimes referred to as *brownfield* investments, involve assets that are considered mature and proven.[23] The income from existing toll roads, airports, utilities or other facilities will be well-established and income will be the predominant component of the investment return.[24] "In many cases, particularly in the utilities field, infrastructure businesses are regulated, with price increases on their product limited to periodic government review. This typically occurs where there are monopoly-like conditions, providing for ostensibly very predictable income stream potential for investors."[25]

The diversity of all these definitions suggests caution when considering investments offered under the rubric of "infrastructure." As purveyors of such opportunities proliferate, it appears that the definitions have broadened and sometimes encompass categories that can only be loosely linked.[26]

B. Why infrastructure investments may be attractive to pension funds

Among the reasons offered for why a pension fund might want to invest in infrastructure are: (1) the long duration of such investments; (2) protection against volatility; (3) protection against inflation; and (4) diversification.

(1) and (2). It is frequently suggested that infrastructure assets can yield long-term and predictable revenue streams that might match the long-term liabilities of a pension fund. Arguably, the stream is long-term because of the assumed extended life of the facility and the long-term nature of the concession rights acquired by virtue of the investment, which in some cases can be as long as 99 years. The volatility of any revenue stream will depend on factors such as how heavily regulated the facility is, the extent to which it has a monopoly on the service provided, and the inelasticity of the demand for the service. Examples include water supply systems and, perhaps to a lesser degree, roads that are the only transportation link in a geographic area.[27]

(3) Infrastructure investment cash flows are often inflation linked, or may at least face a relatively inelastic demand.[28] The former may be achieved by linking user fees to a consumer price index or to a country's Gross Domestic Product (GDP), or by taking account of inflation through a rate-setting process where the infrastructure is heavily regulated, such as utilities.[29] But even here, there are no guarantees as to total revenue (and net profits).[30]

(4) A range of experts asserts that infrastructure investments diversify large investment portfolios.[31] For example it is often suggested that they have a moderate to low correlation with traditional asset classes, such as stocks and bonds.[32] However, as the different and complex definitions outlined above might suggest, infrastructure is at best a heterogeneous class, if, indeed it can be considered a class at all. As a result, claims about diversification require careful scrutiny, particularly in light of the wide array of investment vehicles available and the extensive regulatory and political differences across regions and countries.

C. The financial rewards and risks of investments in individual infrastructure facilities.

Despite the variety of infrastructure investment vehicles available, their financial promise rests ultimately on the rewards and risks of the particular infrastructure project assets involved. Not surprisingly then, pension funds are often presented with a variety of broad-based characterizations of infrastructure returns and risks, typically by investment management firms active in the field. The Table 1 offers one example.

It is probably wise to take the figures presented as merely suggestive since the study they come from provides no reference to the underlying individual project data to support the numbers. In addition, they represent averages that may vary widely depending upon the specific characteristics of the individual facility. For example, another source estimates leverage (defined as debt to enterprise value) for toll roads as ranging from to 30% to 50% for new (presumably the rough equivalent of "early stage") toll roads and 40% to 80% for mature (presumably the rough equivalent of "late stage") ones. It also suggests leverage in the range of 60% to 90% for water infrastructure and 50% to 80% for mature gas and electric power distribution, and transmission.[34]

Table 1. Return Characteristics of Typical Infrastructure Project Assets, by Stage[33]

	Toll-road/ transport	Airport	Utilities	Social
Early stage projects				
Target Internal Rate of Return (IRR)	>12%			
Standard Deviation of Return	~16%			
Typical leverage at asset level	30%			
Growth stage projects				
Target IRR	>10%	>12%	>10%	>12%
Standard deviation of return	~10%	~16%	~10%	~15%
Typical leverage at asset level	40%	35%	55%	90%
Late stage projects				
Target IRR	> 8%	> 9%	> 9%	>12%
Standard deviation of return	~7%	~10%	~8%	~15%
Typical leverage at asset level	50%	50%	65%	90%

A somewhat different take is offered by Table 2, presented by the managing director of a major investment bank which termed the figures as “illustrative returns” associated with particular kinds of infrastructure investments.[35] On the one hand, the numbers suggest the extent to which returns may be derived from capital appreciation (as contrasted with cash income); on the other, it broadly characterizes the level of underlying risk associated with generating such returns.[36]

The overall level of risk presented in the Table arises from a wide variety of particular kinds of individual project related risks. These include the following:

So-called *unknown commodity risk* stems from the fact that the project field is new and has a skimpy track record. Early investors may earn premiums by being among the first to invest in this way. However, the less robust data about a market still in its infancy may make it an uncertain proposition, with the possibility of failure.[37] Some analysts assert that this is the largest risk in infrastructure investments.[38] In some respects, this kind of risk is similar to what has been termed *pricing risk* or *valuation risk*; that is, the risk arising from the "[v]aluation of projects [being] complicated and similar to private equity."[39] There are related agency, administrative, and accounting concerns.[40]

Table 2. Characterization of Risks and Rewards of Infrastructure Asset Segments[41]

Asset Segment	Risk	Avg Cash Yield (yrs 1-5)*	Average Leveraged IRR**	Capital Appreciation Potential
Toll roads (Operating)	Low	4-8%	8-12%	Limited
Private Finance Initiatives* **	Low – Med	6-12%	9-11%	Extremely limited
Regulated Assets	Low – Med	6-10%	10-15%	Limited
Rail	Medium	8-12%	14-18%	Yes
Airports/Seaports	Medium	5-10%	15-18%	Yes
Toll Roads (Development)	Med – High	3-5%	12-20%	Yes

*Cash distribution to equity holders as a percentage of equity investment.
** Assumes debt of 50% to 85% and investment periods of not less than five to seven years.
*** Private Finance Initiatives (PFIs), a form of privatization initially started in the United Kingdom, involve private companies winning) long-term contracts through a bidding process method of providing funds for major capital investments. Private firms are contracted to complete and manage projects, with the government authority committing itself to making annual payments to the firms for the costs of financing the project (adjusted for the risk assumed by the private company) and of maintenance.

Political/regulatory/contract risk concerns fears that political opposition may derail agreements, that the government may exercise regulatory power in a way that adversely

affects the concession or that it may not honor the agreements, which usually are central to infrastructure investments.[42] (Similarly, *tax risk* relates to policy changes of that sort which governments might make.[43]) Political issues may arise from the possibility that union jobs may be lost or the perception that the deal is a bad one for taxpayers, or because of fee increases or environmental issues. In the case of non-domestic investment, resistance to foreign ownership can be a factor as well.[44]

The risk may differ depending on the revenue source for the asset or service involved.[45] Contract risk likely cannot be entirely avoided, even with agreements written to minimize such concerns.[46] For example, according to one recent analysis, more than 40% of the contracts for non-telecommunications-related private infrastructure had been or were being renegotiated, although this appears to have occurred primarily in the developing world.[47]

Reasons for problems with contracts include the inability of agreements to deal with uncertainty and changed circumstances over the life of infrastructure projects that can stretch for a period of 20 to 30 years, the inadequacy of a frequently used principle of allocating risks to the party most able to bear them, disputes over increases in prices, and the labor issues noted above.[48]

There also is *leverage risk*, due to infrastructure projects typically involving a substantial amount of debt financing.[49] Associated *interest-rate* risk can be hedged by use of swaps and other financial derivatives. However, the persistence of high inflation-adjusted rates over long periods of time can adversely affect investment returns. The problem can be most acute in the case of assets not traditionally considered as infrastructure, such as car parks and service stations, which may be less suited to supporting high debt multiples.[50] For example, according to one rating agency's assessment an investment that seems to have incorporated both regulatory and leverage risk involved the Ontario Municipal Employees Retirement System's (OMERS) 2006 acquisition of Associated British Ports (ABP) through a consortium by which OMERS, through Borealis Infrastructure Management, Inc. (a separate investment entity which OMERS created and supports) acquired a 33.3 per cent interest in the asset.[51] Despite a strong monopolistic position and stable cash flow, according to that analysis, it was suggested that the deal was so highly leveraged that OMERS might not be able to fully mitigate the risk.[52] (It was also asserted that OMERS faces increasing environmental and regulatory hurdles, which may limit ABP's ability to expand capacity in the future.[53])

Liquidity risk arises from infrastructure investments usually entailing long-term commitments, so there may be no ready market for selling them in the interim.[54] Investors therefore need to examine a manager's proposed exit strategy, particularly since lease and concession agreements can be as long as 50 to 99 years. As one consulting firm executive firm has put it, "exit strategies right now are somewhat theoretical."[55] However, the increased interest in infrastructure investment and the proliferation of vehicles by which to make investments may afford opportunities for greater liquidity. Potential purchasers include strategic acquirers, other large, sophisticated investors looking to gain long-term positions through direct investment or co-investment, "specialist vehicles (such as publicly traded vehicles or specialist [Public Finance Initiative (PFI)] secondary funds)," and possibly secondary purchasers of partnership positions.[56] Investment managers also securitize projects like wind power plants as part of a financial instrument. Or they could sell the plant to an operating company or another financial investor like a private equity or infrastructure manager. [57]

The foregoing discussion focuses on liquidity risk with respect to particular infrastructure assets. Issues of liquidity risk for investment vehicles may vary according to the number of such individual assets that vehicle holds. (See, for example, discussion below about closed- and open-end funds, at pp. 20-21).

Event Risk refers to the devaluation or even destruction of infrastructure assets by terrorist attacks and natural disasters.[58] If portfolios contain a small number of relative large holdings, as is often the case, a significant loss for one may have a large impact on the whole portfolio. Such adverse consequences can be mitigated by insurance policies, assuming they are available, although they may not always cover all possible losses. A related risk – improbable but still possible – concerns the possible obsolescence of the asset (consider, for example, the unexpected fate of city pay phones in the cell phone era). While it may be hard to imagine such a dramatic drop in demand occurring with highways, airports, electricity grids, etc, the significant run-up in gasoline prices that occurred in the middle of 2008, if sustained, might have a significant impact on highway usage for example.

Business operational risk may result from demographic change, shortfalls in forecasted revenue, changes in economic conditions and in consumers' disposable income, poor asset management and the emergence of new competing infrastructure.[59] Related

concerns are *construction risk* (in the sense of delays and cost overruns) and *liability and litigation risk*.[60] In addition, because the field is relatively new, there is a limited pool of professionals with lengthy experience in sourcing, structuring, and transacting complex infrastructure deals.[61] According to one management consultant, while in the past, investment returns had "typically been created…through financial engineering and rising user demand," that model is "ill suited" for today's market. The new model will require investor-owners to generate returns through operations. This, in turn, demands that they first have the ability to accurately assess the operational complexities of projects they are bidding on and bid accordingly and second, that they have the knowledge and expertise to effectively manage that complexity if they win the bid.[62]

If an international investment is involved there is *exchange rate risk.*[63] "[M]ost projects have revenues denominated in local currency, whose depreciation may significantly increase the cost of their dollar debt obligations, especially due to the long amortization period of project debt."[64] In some cases strategies are available to hedge these and some other financial risks.[65]

Bid or deal risk reflects how a proposed bid for a project may not be accepted, with attendant waste of the time and expense of formulating and pursuing the bid.[66]

The presence and significance of the above-described risks, of course, will bear differently on the financial return profile on particular facilities. For example, "[t]otal expected returns are highest for Greenfield toll roads to compensate for risks such as construction and traffic forecasting."[67] Thus, "the path to stable income flows could be volatile," "depend[ing] to a large degree whether the tollroad company bears the full risk of traffic flows or whether the government provides some form of guaranteed payment." [68]

By contrast, it is suggested that because privately owned airports operate under long-term leases that allow them to generate income not only from aeronautical, but also retailing and property services, they are cushioned against income volatility associated with external events having adverse impacts on travel.[69] (However, changes in regulatory arrangements are also a "key risk."[70]) Again, returns from greenfield telecommunications networks (like greenfield toll roads) can be volatile because of the need to sign up new users, unless they are distinct enough to avert competition or have the benefit of long-term contracts with users.[71]

Precisely how to assess these risks is an open question. For example, one consulting firm suggests that its view of risk is "significantly different from [that] of investment mangers."[72] While one such manager "believes that the risk…is along the value added spectrum," the consultant sees it as "var[ying] from core-plus to opportunistic," reflecting its assessment of the varying seriousness of kinds of risks with different kinds of project assets. [73]

At the extreme, according to that consultant, there is only "anecdotal evidence" about several assets "that had to be completely written off. Most of these…were due to overpayment for an asset that led to a liquidity crunch, and eventually, the government took control of the assets." The failures were in "greenfield development and merchant power." [74] Another consultant offers a somewhat different perspective, namely that there is "sufficient data" to support the view that "very few infrastructure projects enter financial difficulty, and those few that do exhibit far higher recovery rates than other forms of investment financing."[75] It takes note of default rates that are an indicator or infrastructure project risk: according to one report, those rates are said to be low both in emerging and non-emerging countries. According to that report, there is a high level of rating stability (referred to as "ratings transitions"), which may also be seen as a measure of the riskiness of investments.[76]

However, there have been suggestions that under current conditions, certain infrastructure investments may be more risky than before. According to a late 2006 Standard & Poor's publication, "[a]s infrastructure funds enter ferocious bidding wars, the valuation and debt multiples are rapidly increasing, while equity shares are becoming ever slimmer."[77] Other experts have voiced similar concerns, arguing that soaring demand may have driven prices to excessive levels.[78] Standard & Poor's "also identified a similar negative credit issue: The adoption of increasingly aggressive balance sheets by potential target infrastructure assets in an attempt to stave off predatory private equity investors." A further issue "is the growing trend toward deep-future concession financing," namely, concessions (1) for a term much longer than what had been the typical 25 to 35 year range, for example, the 99 year term for the Chicago Skyway, (2) with a level of debt amortization much higher than what had typically been in the $250-$750 million range, for example, $1.19 billion in the case of the Skyway,[79] and (3) more sophisticated financing structures involving deferred payments.[80]

D. Where infrastructure investments fit in the fund portfolio

Because infrastructure investments are so heterogeneous, they do not fit easily into a single asset category. They share some characteristics with existing asset classes, but differ in crucial ways as well.[81] As a result, major pension funds and other institutional investors haven't yet settled on a common approach. According to a recent report (on unlisted infrastructure funds only – see pp. 19-20 below for discussion) "47% of active investors in the sector now have a separate allocation specifically for infrastructure, whil[e] 43% include infrastructure funds in their private equity portfolio and 10% include it in their real assets allocation."[82]

Australia and Canada have developed the most extensive infrastructure markets, which has led some investors to treat them as a separate asset class. On average, Australia pension funds allocate 5% of portfolio assets to the sector, with larger funds committing even more.[83] As of 2006, 5 large Canadian pension plans had made significant commitments (as much as 15% of total assets) to infrastructure investments.[84] Although the Dutch fund ABP includes infrastructure investments in its real estate portfolio, it nonetheless appears to consider them a separate asset class.[85] Pension funds in the UK "typically put infrastructure funds into their private equity baskets."[86]

Some pension funds have invented entirely new asset classes to handle infrastructure and other investments that don't fit easily into the usual stocks, bonds, real estate, etc. For example, the Ontario Teachers' Pension Plan (OTPP) in Canada refers to a segment of its portfolio as "inflation-sensitive investments," which includes infrastructure, in addition to "real-return" bonds, real estate, and commodities.[87]

In the United States, the Maine Public Employees Retirement System recently raised its target allocation for infrastructure from 4% to 5% as part of a Liability Driven Investment (LDI)-oriented reconfiguration of its portfolio.[88] Similarly, in September 2007, the California Public Employees Retirement System (CalPERS) included an initial infrastructure allocation of up to $2.5 billion in a new, "inflation-linked asset class," which includes commodities, inflation-linked bonds, and timber.[89] In November of 2007, the Washington State Investment Board voted to allocate 5% of its assets to a new asset class, termed "tangible assets," which includes infrastructure, agriculture, and timberland.[90] The Teachers Retirement System of Texas includes in its investment policy statement not only infrastructure in what

it terms its "real assets" portfolio, but also "private [and public] real estate debt or equity,… timber, agricultural real estate, oil and gas, mezzanine debt or equity, mortgage-related investments, entity level investments, and other opportunistic real assets."[91] Similarly, the Kansas Public Employees Retirement System, Topeka created "a 14% target allocation in real return strategies including TIPS, timber and infrastructure."[92] The San Bernadino County Employees' Retirement Association, the Missouri State Employees' Retirement System, the Chicago Teachers' Pension Fund have also made decisions in favor of infrastructure investment, although where those investments are situated within their respective portfolios is not clear.[93] Among other reported United States pension fund investors in infrastructure are the Illinois State Board of Investment, the Cincinnati Retirement System, along with the New York City Retirement Systems, and the Arizona State Retirement System.[94]

Among Taft-Hartley funds, the Operating Engineers Central Pension Fund is said to have established a target 5% allocation to infrastructure – in the range of $450 million dollars – to be achieved over three to five years. As of October 2008, the Fund had commitments of roughly $350 million with about $170 million in actual investments made.[95] The national carpenters union fund and various local funds combined are said to have, as of late 2008, made commitments of about $391 million. A possible additional $200 million of commitments are being contemplated in the near future.[96] The place of such investments within fund portfolios varies. It may be in a stand-alone category or part of the fixed income, real estate, or private equity category. For the national fund, they were part of a portfolio allocation to alternative investments, which include private equity and real estate, in addition to infrastructure.[97]

The Laborers International Union of North America is estimated to have made investments of slightly over $200 million.[98] The Western Conference of Teamsters Pension Trust Fund has for a number of years made investments in infrastructure, seeing that as a substitute for certain fixed income investments, with commitments to date upwards of $600 million.[99] Of course, pension funds may have considered infrastructure investments but declined to make them. One such case in point was the Illinois Teachers' Retirement System.[100] Another involves the Teacher Retirement System of Texas and the Employees Retirement System of Texas, though in that case, resistance reflects concern about pressures from

Texas executive officials and legislators to get the funds to invest in a Transportation Finance Corp, an entity focused solely on Texas-based projects.[101]

Table 3. Characteristics Associated With Infrastructure and Other Assets Categories

	Infrastructure	Institutional Bonds	Institutional Real Estate	Private Equity
Nature of Asset	Typically operating company dependent on control of large, physical assets	Financial security	Physical Property	Operating Company
Asset Availability	Asset scarcity, many in unique, monopoly situations	Deep volume in most markets	Moderate to deep volumes in most markets	Moderate volumes in most markets
Acquisition Dynamic	Competitive tenders, regulatory, environmental, social and political issues, often held for the long run	Efficient, on-market purchase	Competitive tenders, environmental and social issues common	Competitive tenders, management buy-out, negotiated trade sale, typically medium-term exit strategy
Liquidity	Moderate	Very high	Moderate in most sectors	Moderate
Income	Once assets mature, very stable, inflation/GDP growth relative. Typically higher than bonds and core real estate	Fixed coupon: sensitive to interest rates	Mixture of fixed and variable interest rate and sector dependent	Typically dominated by capital returns
Growth	Dependent on asset stage: modest (late-stage) to high (early stage/development) assets)	Low	Dependent upon asset characteristics; moderate to high	Dependent on asset characteristics; typically high
Volatility	Moderate (early stage) to low (late stage)	Moderate (market factors)	Low/Moderate	High (early stage) to Moderate (late stage) depending upon industry sector
Typical return expectation per annum post fees	Mature portfolio: 7-10% Development portfolio >10%	Approximately 5-7%	Core: ~7.9% Value added: ~12-18% Opportunity: >18%	Diversified portfolio >15%

Even investment management firms have grappled with how to categorize infrastructure. JP Morgan Asset Management created a new unit within its real estate investments division. It said it considered infrastructure to be the fourth major alternative asset class, along with equities, fixed income, and real estate.[102] The company explained its rationale by saying that there are more connections between infrastructure and real estate than with private equity.[103] It sees infrastructure as "evolving much like real estate into core/ core plus, value added and opportunistic strategies." However, the company said that its approach isn't common among its competitors, which tend to place infrastructure in with their private equity businesses.[104]

By contrast, one consulting firm contends that "infrastructure should be treated as a distinct class." While such assets "can be supervised in a similar manner as real estate or other real assets (e.g., timber and agriculture)[,]…the management and drivers of this class are different."[105] Still another suggests that infrastructure "falls into the alternatives allocation of…[its model] portfolio."[106]

More relevant than the labels may be the investment characteristics that infrastructure shares with other asset classes. The accompanying Table 3 prepared by one consultant offers such a comparison.[107]

E. Types of investment vehicles

There are an increasingly wide variety of vehicles through which investments in infrastructure can be made.

Direct Investments: Investments in infrastructure can be made either *directly* or *indirectly.*[108] Direct investments, by definition, offer direct control.[109] They allow funds to match allocations to their specific needs and bypass high fund performance fees.[110] They also enable funds to hold the investment for the economic life of the investment, an approach taken by the OTPP, a major direct investor in infrastructure.[111] According to the vice president of the investment arm of the OTPP, "direct investing [is]…the most cost effective way into infrastructure."[112] In each instance, although the investments are direct they are made as part of consortia so that the fund holds only a partial interest in the ownership of the asset. Note also that, at least in OTPP's case, although "equity participation is [its] preferred mode of investment, in some cases [it] will provide subordinated debt with some equity characteristics."[113]

However, as the preceding might suggest, direct investment requires expertise that can make it prohibitive for smaller investors. In-house experts or outside consultants are required to make the acquisitions, ensure proper diversification, and manage the acquired assets.[114] They have to ensure that a potential purchase has been correctly priced in light of the political and regulatory control over the future income stream involved. They also must assess any conflicts of interest that might be involved in the financial analysis performed by the investment bank promoting the infrastructure sale.[115] Moreover, "the decision timeframe to invest in a deal is usually tight and inflexible and involves significant sunk due diligence costs."[116] The investment arm through which the OTPP makes its direct investments, Teachers' Private Capital, has a portfolio of $17 billion (invested and committed) and is staffed by more than 50 investment professionals.[117] As noted above, OMERS makes direct investments through Borealis Infrastructure Investment, Inc. It is possible that smaller funds could overcome the limitations of size by co-investing.[118]

With regard to any direct investment in an individual project, the risks for the pension fund will depend upon how the venture is structured financially. For example, under a common model for financing individual projects – what is termed "project finance" – an economically distinct or separable vehicle is created for each project. Providers of equity and loan capital primarily look to the revenues produced by the project to service the debt and generate returns on the equity investments. Assuming a pension fund had a dominant or leading role in setting up such a vehicle, one in which it made a significant equity investment, in the event of failure of the project, the fund's losses would be limited to that equity investment. Whether in reality that would be the case depends upon what if any guarantees or collateral the fund might have had to offer to secure needed loan commitments or perhaps to gain equity investments in the project from others.

Indirect Investments: Indirect investment can take the form of *listed* or *unlisted* infrastructure funds. Such funds "are set up to investigate opportunities quickly and efficiently and can commit large amounts of capital in a short time-frame."[119] According to one characterization, in the last few years a "tidal wave" of such funds has been launched.[120]

Unlisted infrastructure funds (or what might be referred to as unlisted wholesale funds) involve pooled capital arrangements – typically limited partnerships – through which investments are made in a variety of infrastructure assets or operating companies.[121]

These funds are usually large, "often over $1 billion in assets,"[122] and "require a substantial investment to join"[123] and frequently involve "complex deals with intricate debt and equity arrangements."[124] They "generally have a dominant allocation to mature assets, but will often include some brownfield and the occasional greenfield or developing market projects."[125] Limited partnership agreements are said to differ substantially across funds, so all documentation requires careful review.[126]

Unlisted funds may be *closed-* or *open-end*. Closed-end ones have specified maturity dates and private equity-like structures and fees. A typical fund like this has a ten-year term, with two or three one-year extensions.[127] Some experts say that this approach gives investors more choice of investment managers.[128] One pension fund consultant has argued that "[b]ecause returns for a closed-ended vehicle are calculated 'cash on cash' (i.e. cash received at fund close vs. cash committed at fund start), valuation is not questionable and returns are *ex post* realization.

However, the defined period may not match with a pension fund's investment horizon. It also holds a potential for high private-equity type fees as well as return requirements that can lead to more risk taking. And of course, if it is closed, the investment by definition is illiquid, with no withdrawals until the fund is liquidated at the end. Also, the fund size may place limitations on diversification.

To address the problem of (relatively) short fund lives, some investment management firms have developed so-called hybrid structures – that is, ones which are "designed to invest across the infrastructure risk/return spectrum, aggregating investments with both shorter and longer maturities." But they have not gained wide acceptance, in part because of concerns about possible conflicts of interest.[129] Another approach is to stretch out the maturity by offering 12-year to 15-year terms.[130] One anticipated method of disposal of these funds is reorganization or sale to a secondary fund.[131]

By contract, open-end funds have an indefinite term.[132] According to one report, they "are structured more like open-end real estate funds"[133] with "[t]he liquidity terms…not [being] well resolved or tested, as the managers are anticipating that inflows can be used to offset outflows, just as for open-end core real estate funds."[134] Because open-end funds tend to have longer terms, they are usually more in line with the underlying asset characteristics, for example, an ability to retain the asset as an ongoing investment with an ongoing

revenue stream. Their fees are typically lower and transactions costs may be lower than for closed-end funds. They have better liquidity as well, and typically give investors the opportunity to remain fully invested.[135] They also can help portfolio diversification in that they (like unlisted closed-end funds) are reportedly more likely to be uncorrelated to listed markets.[136]

One potential disadvantage is that open-end funds rely on quarterly valuations based on appraisals rather than current, market-based valuations. Funds attempt to deal with this problem by using independent appraisals, although some observers hold that valuations are "at best guesses and are subject to error."[137] However, that view is disputed.[138] A second disadvantage is that because investors aren't locked in, open-end funds must maintain a cash balance, which can have negative impacts on returns, as can withdrawal requests.[139] Also, while it has been suggested that open-end funds offer "less diversification for early investors," over the longer term they would appear to offer greater diversification than closed end funds, because they can incorporate a broader range of investments as they grow.[140] According to one infrastructure fund manager, closed- and open-end funds are also different in that the former "are typically designed for new developments, which are higher risk and higher return" whereas the latter "might be devised for an ongoing investment."[141] Another (closed end) fund manager expresses concern about the ability of open-ended funds' ability to add value to and manage a relative large number of assets under management.[142]

Listed infrastructure funds. There are several kinds of listed vehicles for infrastructure investment. While listed funds, by definition, involve publicly traded securities, the assets held by the listed entity appear to vary quite widely. In some cases managers of private equity firms choose to publicly list a number of both their closed- and open-end funds.[143] In such cases the underlying assets are directly owned. Insofar as this is the case one might term them ***listed infrastructure funds.*** Such funds may have complex structures. For example, Macquarie Airports (MAp), which is publicly traded, describes itself as "one of the world's largest private airport owners and operators with a core portfolio of four major airports."[144] However, MAp has nearly two-thirds of its assets in the Macquarie Assets Group, which is "an unlisted investment vehicle focusing on equity investments in airports" with the remaining third being a 50% interest in Bristol airport (in the United Kingdom).[145] For a more general characterization of the "Macquarie model" see the discussion below relating to fees, pp. 29-30.

By contrast, what we term ***listed infrastructure securities funds*** are public listed entities that invest in a portfolio of securities of "infrastructure-related companies" or other funds.[146] Some of these funds may "look much more like a `utilities' equity strategy, investing in regulated utilities, energy companies, and construction firms likely to be awarded infrastructure contracts,"[147] though the choices for portfolios appear to vary widely.[148]

The dividing line between these two kinds of funds is blurry. For example, it might seem that the assets in which listed infrastructure securities funds invest are publicly traded securities. However, this is not necessarily the case. For example, the prospectus for the Macquarie International Infrastructure Securities Fund states that the Fund "can invest in listed and unlisted global securities issued by entities that have as their primary focus (in terms of income and/or assets) the management, ownership and/or operation of infrastructure and utilities and assets. That Fund will predominantly invest in equity securities but can also invest in hybrid or debt securities issued by infrastructure entities. The Fund may also invest in derivatives, primarily for currency hedging and other risk purposes."[149] Clearly, a careful examination of the fund prospectuses or other documents is essential to ascertaining the nature and extent of either type of fund's investment strategy, attendant financial returns and risks, etc.

What all of these funds share in common is that they allow quick and easy access to investments in infrastructure. On its face, this access would appear to be less costly than for unlisted infrastructure. However, while the stated fees might be modest, by definition the entities in which these funds invest are one or more steps removed from direct investment in individual infrastructure assets. So investors in the fund pay not only the fund's fee, but also implicitly the management costs and fees associated with the entities that directly or indirectly acquire and manage those individual assets.

Listed funds may permit greater diversification, depending on how global the funds' investment approach is (in terms of type of infrastructure, geographic location, etc.). Insofar as the underlying investments are publicly traded securities, then portfolio valuations are presumably "independent and transparent."[150] Also, listed infrastructure companies, especially European ones, may use "a significantly lower level of [leverage] (30%-40%) and [have a] less complex tax structure compared to unlisted funds (60-90%)."[151]

There are several potential downsides to listed funds. They are more likely to have a higher correlation to equity portfolios and offer less protection against inflation.[152] According to

one investment firm's study of Australian funds, listed fund values are also more negatively correlated with long-term interest rates than unlisted ones.[153] It has been suggested that many tend to have a short-term focus and lower risk-adjusted returns, along with higher volatility.[154] Also, because such funds are relatively new there is as of yet little track record to assess the value of active management and the fees charged for providing it.[155]

Note also there are a number of ***exchange-traded fund (ETF) infrastructure funds, including one for*** a major public infrastructure index (the FTSE/Macquarie Global Infrastructure Index). It has been suggested that ***passively managed infrastructure securities funds*** "are sure to follow."[156]

Although the vehicles described above focus on equity, there are also a range of ***debt-based investments***. These include "bonds with cash flow explicitly linked to infrastructure, hybrid debt/equity instruments, structured products and mezzanine debt associated with private-sector acquisitions."[157] Correspondingly, there are also ***enhanced yield/ debt based funds***, which include investments in infrastructure debt (e.g., debt issued by electricity distributors). These are not usually offered as stand-alone investments but are lumped in with other kinds of corporate debt.[158] And, as noted above, funds include investments in both equity and debt vehicles.

Categories of assets: Some funds concentrate on a category of assets, such as social infrastructure like schools or even a specific type such as airports. Others are more diversified.

F. Financial performance[159]

The performance history for infrastructure investments is fairly limited. The industry is relatively new, data is often proprietary and "there has been reluctance to report performance measures across the industry."[160] There are also significant difficulties in making comparisons among funds and projects, such as the large scale of infrastructure assets and the unique character of many of them, which vary by asset type and maturity.[161] There are also a limited number of transactions and no accepted benchmarks.[162] Some experts conclude that there is no return metric like a stock market index that can adequately capture the whole infrastructure asset class or strategy.[163]

There are only a couple of published studies that describe in some meaningful measure the evidence upon which they rely and the methodology they use. Even there, the definitive conclusions that might be drawn from them are modest. These are detailed below.

Unlisted Funds

Returns, volatility and risk-adjusted performance

There appears to be just one scholarly study of the performance of unlisted funds and it examined only five of nineteen major Australian funds.[164] The five funds had assets totaling $1.35 billion as of December 2005, with the largest fund holding $746 million.[165] Also, the funds differed widely as to the composition and number of their assets.[166]

At first blush the returns appear impressive. The authors report average annual returns of 14.1% from the second quarter of 1995 to the second quarter of 2006, higher than for Listed Property Trusts ("LPTs") (the Australian equivalent of Real Estate Investment Trusts (REITs)) (13.8%), stocks (12.9%), direct property (10.9%), and bonds (7.2%).[167] Unlisted infrastructure had the added benefit of annual volatility of only 5.8% lower than that for listed property trusts (7.9%) and stocks (11.0%).[168] In turn, its *risk-adjusted* performance (as measured by the Sharpe index) was second to only that of listed property.[169]

However, the outcomes are sensitive to the time period. For example, the returns over the second half of that 10-year period (11.7%) were substantially lower than over those for the first half (16.57%). Volatility was correspondingly lower and higher (at 5.1% and 6.4%, respectively)[170] with risk-adjusted performance falling in the second half of the period to below those for direct property and LPTs. Moreover, the results are dominated by the two largest funds, which were the only ones in existence before 2000.[171] In addition, the authors do not explain precisely how they calculated the quarterly returns used for the annual performance data, which rely on valuations of the assets in the funds.[172] Finally, the limited history of exits from these investments is another reason to approach characterizations of returns with caution.[173]

Correlation with other asset classes

While the academic study reported that "unlisted infrastructure generally showed lower correlation with other asset classes…than the listed infrastructure sector," the results

for the former were not statistically significant ones.[174] Unlisted infrastructure did evidence modest, statistically significant correlations with listed infrastructure overall and subcategories thereof.[175] Similar results were reported in a roughly comparable study by Australian investment firm Colonial First State Global Asset Management (CFSGAM).[176] However, the correlations differed between the first and second halves of the ten-year time frame. In the first period, the correlations were low but not statistically significant between unlisted infrastructure and non-infrastructure asset classes. For the second half, there were relatively high, statistically significant correlations with direct property and LPTs.[177] In addition, the CFSGAM study suggests that correlations vary widely according to the time period chosen for analysis.[178] Presumably, correlations are driven in part by how income is generated by different assets. For example, the key difference among fund returns, the study found, is the potential for infrastructure to have a higher capital growth rate, the stage of the business' development, and the opportunities to actively manage the business.[179] Also, the validity of these assessments is "somewhat muddied as returns on a portfolio of infrastructure assets will generally be calculated on an appraisal basis, thus 'smoothing' return streams and causing correlations to appear artificially low."[180]

Listed Funds

Returns, volatility and risk-adjusted performance

The scholarly study of the five Australian unlisted funds examined the performance of listed vehicles there over the same period. However, the authors did not look only at funds. Instead, the sample included 16 individual companies valued at $27 billion in August 2006 and 16 funds that were valued at $52.7 billion at that time.[181] For the most part, each of the funds and companies focused on only a narrow category of infrastructure, ranging from toll roads and airports to gas, electricity and water transmission and energy generation (including farm, gas, hydro, biodiesel fuel, geothermal, and solar power generation).

The results for returns and volatility for what the authors term "composite infrastructure" (which includes utilities) were considerably higher than those for unlisted funds: returns averaged 22.5% over the decade, with average annual volatility of 16.0%.[182] With utilities excluded – leaving what the authors refer to as the plain "infrastructure" category – the returns were roughly the same, but with volatility higher (23.4%). Within the infrastructure category, airport returns were much lower (8.0%) and volatility much higher (30.7%).[183] The

risk-adjusted performance of composite infrastructure and infrastructure were substantially below that for unlisted infrastructure, with utilities having the relatively highest and airports the lowest.[184] However, for the most part, while both returns and volatility for listed assets were substantially higher during the first half of the 10-year period as compared to the second half, risk-adjusted performance was substantially lower.[185]

Here, too, some caution in drawing conclusions from these figures is necessary. For example, the authors do not specifically state how they weight the different fund and company components when they calculate performance and diversification for listed infrastructure. Also, funds and companies that were in existence during the first time period represented only a modest fraction of the value assets held by all fund and companies in August 2006.[186] Many were created during 2004, 2005, and 2006.[187] Moreover, by far the bulk of the infrastructure facility investments were related to energy.[188]

The CFSGAM study also reports higher average returns for listed infrastructure over the 10-year period ending in June 2006, compared to those for unlisted infrastructure, listed and direct property, equities, and 10 year bonds, but at the cost of higher volatility of monthly returns. Over 3- and 5-year periods, listed infrastructure's performance advantage declined.[189]

Again, though, caution in assessing these results is necessary, since they are sensitive to the particular choice of benchmarks and how returns are calculated or what they mean.[190] For example, the firm notes that returns for listed vehicles "may include amounts that have been borrowed to pay equity distributions and therefore may not necessarily demonstrate the amount of income generated by the underlying infrastructure business."[191]

Beyond the foregoing, a number of return series have been created to *benchmark* listed infrastructure investment performance. One approach has been to construct indices of exchange-listed companies whose businesses are characterized as having a defined connection with infrastructure.[192] Financial characteristics of these benchmarks can then be calculated.

Consider, for example, a recent assessment of the UBS Global Infrastructure & Utilities Index (GIUI) by Deutsche Bank asset management unit RREEF. The GIUI is designed to encompass global infrastructure and utility companies, as well as 84 related regional and sub-sector indices.[193] The GIUI is but one of several indices that have been designed to

serve as means by which to benchmark and characterize infrastructure returns. There is no widely shared view about how such indices should be constructed.[194]

With these provisos in mind, RREEF reported that the GIUI's 10-year return as of March 31, 2007, was 12.7%, less than those for private equity and public real estate, but greater than those for hedge funds, public equity, and fixed income. [195]The GIUI's volatility – the 10-year standard deviation – was 18.3%, slightly lower than that for public real estate and arguably below that of private equity, but higher than that for fixed income and hedge funds.[196] Of course, whether all these differences would hold over the long run is not clear.[197]

However, a recent academic study using GIUI data pertaining only to the United States came to less favorable conclusions. It found that for the seven years ending in the fourth quarter of 2006, U.S. listed infrastructure underperformed direct U.S. real estate, U.S. Real Estate Investment Trusts (REITs), and U.S. bonds on a risk-adjusted basis. It did perform slightly better than U.S. stocks. On a risk adjusted basis, U.S. infrastructure generally and U.S. utilities in particular underperformed U.S. real estate, REITs and bonds. U.S. infrastructure slightly outperformed and U.S. utilities more substantially outperformed stocks.[198]

Generally, investors should be cautious about using broad indices such as the GIUI, which lump together heterogeneous assets. Returns and risk (as measured by the volatility of returns) and, correspondingly, risk-adjusted returns, as characterized by the UBS indices, vary widely across infrastructure sub-sectors and regions.[199] For example, U.S. infrastructure had much lower risk-adjusted 5-year returns than global infrastructure. Toll roads, water utilities and ports had the highest risk adjusted return, while diversified infrastructure and power generation had the lowest.[200] Also, some listed sectors have few sub-sectors, so the performance of one or a couple of constituents could bias results, favorably or unfavorably, and thus offer potentially misleading results. It is said that "the performance of the underlying sub-sectors differs widely; this may be partially affected by equity market 'noise' rather than reflect a rating of fundamental asset values." [201]

Correlation with other asset classes

As suggested above, the limited evidence available indicates that listed infrastructure funds tend to have higher correlations to other asset classes than unlisted ones. According

to the academic study of listed Australian funds and companies, listed infrastructure had a fairly substantial statistically significant correlation with LPTs and bonds over the 10-year period ending in mid-2006.[202] There were no statistically significant correlations with stocks.[203] Interestingly, the authors found a slightly higher correlation with other non-infrastructure asset classes for the first half of the period, but no statistically significant correlations for the second half. [204]

The results of the academic study of U.S. listed securities for the 7-year period are rather different. In that case, infrastructure's only statistically significant correlation – a very substantial one – was with stocks.[205] Again though, there were differences between the first and second halves of that period. During the first half the statistically significant correlation of infrastructure with stocks was slightly higher than for the whole period; but for the second half there were none with any of the non-infrastructure asset classes.[206]

Other, non-academic publications offer what would arguably also be contrasting results relating to correlations for global listed infrastructure, but the publications do not indicate whether the correlations reported are statistically significant ones.[207]

Benchmarks

The discussion above has been concerned with what is known about infrastructure returns. As noted, problematic efforts have been made to craft indices by which such returns can be characterized. These indices may also be used to benchmark pension funds' returns on their infrastructure investment. But here, too, there are challenges in choosing appropriate benchmarks. For example, according to one discussion of the subject, there are two "key decisions" that need to be made: the type of benchmark and the determination of the benchmark rate of return. These choices, in turn, should reflect the investors' goals. [208]

Thus, possible types of benchmarks include: equity return plus margin, absolute rate of return, long-term bond yield plus margin, long-term bond index plus margin, and inflation plus margin. [209] So, for example, an equity plus margin benchmark "reflects the 'opportunity cost' of not investing in the listed market plus a premium for asset and portfolio specific risks including the illiquidity premium associated with direct investments." [210] By contrast, a long-bond yield plus margin benchmark "represents the `opportunity cost' of not investing at the risk-free rate with the margin representing the risk premium required to allocate

to infrastructure." [211] Similarly, the return of the benchmark could be done by "assuming various risk-return profiles for individual assets and using these inputs to simulate the likely composition of the portfolio" or comparison with peer funds; that is, ones with similar "management style, investment horizon and approach to sector and geographic diversification as the selected portfolio." [212]

G. Fees and other charges

Unlisted Infrastructure Funds

Unlisted infrastructure funds charge several kinds of fees similar to those found in other private equity deals. *Management fees* pay for the work of identifying and evaluating particular infrastructure investments and preparing bids for them. These fees are charged annually as a percentage of the total funds invested by the limited partners. According to one source, infrastructure funds tend to charge a flat annual rate of 1.5% to 2.5%.[213] A more detailed source suggests that funds such Macquarie, Morgan Stanley, Babcock & Brown and Carlyle charge management fees in the range of 1.5 to 2.0%. Others, including Alinda and Goldman Sachs, are said to use a sliding scale, with the fee amount decreasing as the size of the investment grows.[214] Industry Funds Management (IFM) reports a fee of 1.25%.[215] Note that these fees generally appear to be paid on the total amount of pension fund *commitments* to the infrastructure fund, although IFM states that it charges the fee only starting at the time that it *calls a commitment;* that is, when it is ready to make a specific investment.[216]

Some fund managers charge *acquisition fees*, which cover the costs incurred by the infrastructure fund to acquire an asset. Although this would seem to duplicate the management fee, apparently there is no offset of such fees against the management fee. In addition, some funds charge annual *organizational fees* to cover their day-to-day administrative expenses of the fund. In some cases fund managers cap the fee; in others, they do not. In the former case, fees appear to be in the range $1.5 to $2.5 million.[217]

In addition to all of these fees that investors pay before a return is earned, infrastructure funds also follow the private equity practice of allocating an extra portion of profits to general partners after certain investment hurdles are achieved. The funds set a "preferred return" rate, comparable to the "hurdle rate" in the private equity context. Typically this will

be in the range of 8% to 10%.[218] Limited partners get paid up to this rate, which generally is designed to assure that they get their principal back after the fees are paid.

After the preferred return is achieved, the fund will split further profits between the limited and general partners, with 80% often going to the former and 20% to the latter. In some cases, the general partners get all of the so-called "excess return" until they hit 20%, after which the limited partners are entitled to their 80%. Alternatively, it may be that when a return reaches the hurdle rate, the general partner is entitled to 20% of the *entire* return. Whether the payment of the preferred return rate is triggered may be determined on a deal-by-deal basis, sometimes called a "pooled waterfall" basis. In the latter case, incentive payments to the general partner commence only when there has been a return of capital and paid costs payment of the preferred return to the limited partners on *all* the investments in the portfolio.[219] A recent analysis of unlisted funds suggests that because "[t]he investment period is generally the most costly and demanding for the fund manager,…after this period is over, the management fee is often reduced as a reflection of the lessened workload."[220]

Concern about deal terms, including fees, appears to have animated some pension funds to consider the idea of establishing an infrastructure investment consortium among themselves, possibly with sovereign wealth funds.[221]

Listed Infrastructure Funds

One leading model among the major listed infrastructure funds has been developed by Australia's Macquarie Group Limited. It involves a sponsoring manager that "acquires assets and then sells them on to a separate fund or listed entity but retains management rights."[222] The actual management of the infrastructure fund is contracted out to an external manager "which is typically a wholly owned subsidiary of the investment bank or other sponsoring firm."[223] The manager fees typically include a base fee, "which is a percentage of the infrastructure fund's `enterprise value'" and a "performance fee which is often 15 percent or 20 percent of the amount by which the fund outperforms a benchmark index."[224] Other parts of the manager's organization may be engaged as well "for investment banking advisory work, arranging debt and equity financing, underwriting, and other services [so, called related-party fees.]"[225]

According to one evaluation of 15 funds, nine of them had "manager's fees [which] were a double-digit percentage of operating cash flow; and…above 20 percent in six of those nine funds. In another fund, cash flow was negative."[226] These figures did not include related-party fees. These arrangements have been criticized as raising troubling issues of conflict of interest.[227] One Taft-Hartley pension fund officer whose fund had invested with Macquarie acknowledged the potential conflict of interest but suggested that the fund was, for that reason, vigilant and had acted to ensure the fees in question were competitive.

Under a more recent, competing model, "the publicly traded entity is externally managed in its development phase, with the administration function performed by an investment bank…The powers and fees of this external manager are however limited through contracts…to a flat dollar annual base fee."[228]

The fee schedules of infrastructure funds have been criticized because they are comparable to those of private equity funds, but the returns offered are much lower. However, it is argued that "at present it is a sellers [sic] market, because there are a limited number of managers with credibility in this asset class so they can pretty much set their own prices."[229]

Listed Infrastructure Securities Funds

There are a wide range of listed infrastructure securities funds and corresponding fee arrangements that appear to be roughly analogous to those for conventional equity mutual funds. For example the SPDR FTSE Macquarie Global Infrastructure 100 ETF portfolio included 51.4% of its assets in electric utilities and 23.1% in multi-utilities, with small amounts for gas utilities (6.1%), transportation infrastructure" (2.1%), and water utilities (3.8%).[230] The total expense ratio was 0.60%[231] By contrast the Goldman Sachs JBWere Australian Infrastructure Wholesale Fund (AIWF) actively manages its assets.[232] A report on the fund states that the AIWF will invest 80% to 100% of its assets in Australian Stock Exchange listed infrastructure funds and up to 10% in foreign unlisted infrastructure assets and global listed infrastructure securities, and indicates that its total fees were 0.85% of net assets.[233]

Section 2: Labor Implications and Responses

A. Potential impacts

There appears to be minimal systematic (as compared to anecdotal) literature on the labor impacts of the kinds of infrastructure investments that have been the primary focus of this paper, involving transportation, power, and communications facilities. More attention seems to have been paid to hospitals, schools, and similar facilities.[234] One reason may be that political contests over privatization often have focused on the workers who deliver public services rather than on the facilities through which they are delivered. Indeed, sometimes it is only the services that are privatized, such as the private provision of medical services to government owned and run prisons. It may also be that concerns over efficiency which sometimes motivate privatization efforts loom larger in labor-intensive services, where cost-cutting may appear easier than it might be with a road or a bridge operation.

Despite the paucity of research, it is clear that private investments in public infrastructure may have a wide variety of effects on workers. The impacts are likely to be the largest for organized employees, since the public sector is heavily unionized in the United States. The creation or loss of jobs is one area of concern. Greenfield investments, by definition, involve new facilities, which will bring new construction jobs. Facilities of any kind also must be maintained and operated, which entails new jobs as well. However, this may not always lead to net new job creation in a particular location, depending on whether the investment replaces existing facilities or not. If the new facility operates largely as a monopoly or does not displace another, then presumably it will create new jobs to build and maintain the facility. Either way, greenfield investments will cause some workers to gain jobs. They also could lead at least indirectly to job losses as well.

By contrast, so-called brownfield investments in existing facilities are not likely to create new jobs, on a net basis or otherwise. The only way that they might would be if the private manager were to find opportunities for growth or profit in an expansion, or if a transaction is linked to a commitment to improve or expand the facility. In fact, jobs are more likely to be cut, since private operators often want to trim costs through staffing reductions. In addition, individual workers may gain or lose jobs even if overall employment does not change, depending on how much leeway the new owners have to hire and fire workers.

Infrastructure investments may bring changes to compensation and unionization protections as well. The new managers and owners may want to cut back on anything from salaries or overtime to retirement, health insurance benefits, working conditions, procedural and other protections, and worker voice safeguards such as unionization rights. Such issues may loom larger where workers are represented by unions, which usually win higher-cost wages and benefits for their members. [235]

There has been a suggestion in some quarters that these concerns are exaggerated to some degree, although published empirical support for that contention is not available. For example, despite the perception that infrastructure deals result in the loss of union jobs or compensation premiums, one pension consultant asserts that they "do not have to be adversarial, and most concerns can be mitigated in the concession agreement." The firm contends "most operators are accustomed to working with unions, as a greater proportion of workers are unionized in the countries in which they have experience."[236]

Some of these problems also may be less important for workers in the building trades. In heavily unionized states, toll roads and other public works projects often are subject to prevailing wage laws or project labor agreements, which offer significant wage-and-benefit protections even if the builder is a private company.[237] In non-union states, where construction workers command less of a wage premium, the introduction of a private builder also may not change compensation levels significantly. If the states are non-union, for corresponding reasons, there may not be much, if any loss, of unionized construction trade jobs, though the precise impact will depend upon the particular circumstances. Of course, whether or not union members are affected, job losses are a concern.

In addition to potential compensation or job impacts, infrastructure investments may affect workers as users and taxpayers. Private investments may result in new or higher fees for a toll road, airport, or other facility. They also may bring changes in access to the facility, such as new vehicle weight or height limits on privatized toll roads. They could bring better or worse service, as well as new taxes or greater public debt loads.

Although all of these questions arise whether or not the investment involves public pension fund assets, their use raises additional concerns. One is the legitimacy of using public-sector workers' money in a way that may cause them economic harm. Another is the effect of any potential loss of public jobs on contributions to the pension plan making the investment – and hence to its financial outlook. On the one hand, a loss of jobs will result

in lower overall contributions from workers; on the other it will result in a shortening of job tenure and ultimately a reduction in the amount of pension benefits paid. What the net effect would be is not clear.

Of course, these issues do not arise if a pension fund invests in infrastructure in another location, where its members do not work or live. Even so, they may pose a problem. If a pension fund in, say, California, puts money into a private investment that lowers the compensation of public employees in New York, the latter's funds may feel no compunction about doing likewise in California.

Prominent in debate over whether to proceed with a transaction that transfers ownership and operation of infrastructure assets is the appropriate allocation of the proceeds.[238] For example, debate over the sale or lease of roads is informed by overlapping concerns on the part of both citizens generally (as users of roads and as taxpayers) and state, county, and municipal workers. For the former, there may be a pressing need to maintain and improve other existing roads (or more generally transportation) infrastructure. This need, in turn, bears on the demand for public sector (and private sector) workers, some (or perhaps many of whom) are or might be unionized. These concerns give rise to recommendations that public-private sector contracts require that all revenue generated from these transactions be applied in specified ways.[239] Similarly, the extent to which provision is made to ensure good road conditions and proper maintenance helps assure safe and efficient travel important to users. The work required in conjunction with doing so may be important to current and increased employment opportunities.[240] Also, an investor may seek to establish non-compete clauses or impose other restrictions that bear upon demand for the road for which it has acquired a concession. While this may prove profitable to a concessionaire, it may be seen be others as potentially harmful to drivers as well as those whose livelihoods are tied to road construction, repair, maintenance, and operation.[241]

The extent to which workers might be threatened by infrastructure transactions will likely vary according to labor expenses as a share of overall operating costs. For example, testimony in debate over whether to privatize the Illinois Tollway System suggested that there were "800 toll collectors, money room drivers, clerks, custodians, and employees of the…Tollway."[242] Yet, labor costs relative to other Tollway costs were deemed modest and hence, the expense of incorporating labor protection provisions into any concession agreement was termed small.[243] Nonetheless, the potential adverse impacts for affected

workers may be significant.[244] For example, while it was reported that the City of Chicago's sale of the Chicago Skyway concession resulted in the loss of a small number (around 70) of unionized jobs,[245] it is said that replacement workers' wages were reduced from $15 to $11/hour, that the employees could not participate in a defined benefit plan, and that healthcare coverage changed dramatically for the worse.[246]

B. Contractual and legislative responses

Concerns about adverse labor impacts of infrastructure investments might be addressed through collective bargaining or other terms of engagement with companies involved in constructing, repairing, or operating particular facilities. However, they may also be dealt with through legislation that extends law pertaining to public facilities to privatized ones or establishes labor-related requirements to privatization efforts, in general or particular concession agreements.

As an example of the extension of existing law, consider the Illinois Procurement Code, which contains "Prevailing Wage" and "Responsible Bidder" provisions that coverall roadway projects. While the provisions were originally enacted to deal with the traditional use of private contractors to build public highways, union officials suggested that they apply to full-scale privatization as well. The provisions apply prevailing wage laws to any construction work on state-owned roads, a law designed to spur union recognition or union work and assure that the benefits of union-negotiated pay rates are shared more widely.[247] Other provisions of state law require contractors to meet minority and female contracting and employment goals, and impose clearly defined enforcement penalties.[248] (In each of these cases, it has been suggested that such provisions might be linked with "a public oversight body…establish[ed] to [assure] accountability for the private operator through regular audits of the affected [infrastructure]"[249] "and/or "well defined reporting standards and procedures that facilitate compliance documentation by the concessionaire."[250]

There are also anecdotal reports about state legislation geared to addressing labor concerns arising from proposed concession agreements that appears to have yielded modest labor protections.[251] For example, in 2006, the Indiana state legislature authorized turning over the Indiana Toll Road – a 157-mile stretch of Interstate Highway 80/90 – to private investors Macquarie and Cintra.[252] There were, perhaps not surprisingly, no protections relating to union representation, since the Governor, on his first day in office, had abolished collective bargaining rights for state workers.

However, the legislature enacted broad-based legislation applicable to the Toll Road transaction which gave pension vesting rights to workers who stood to lose their jobs by virtue of privatization and otherwise would not have been vested in their state pension. It also obliged the state to pay for service credits to certain workers that would enable them to qualify for early or normal retirement.[253] (While debate over privatizing the Illinois Tollway yielded a proposal against barring private contractor payments to construction worker defined benefit plans, that appears not to have been raised in the debate over the Indiana Tollroad.[254]) In addition, the private operator for the Tollway was required to "interview all existing employees interested in employment," "give a hiring preference to qualified Indiana workers," and "adhere to 'Buy Indiana' 90% guidelines for maintenance and construction contracts."[255]

There was no promise of jobs for the roughly 550 state employees who worked on the road prior to its privatization. Nor did the Legislature specify the terms and conditions of employment for any employees offered a job. However, the former workforce did receive a guarantee of a position with the state.[256] Those who accepted new posts were assured of no loss in salary and benefits.[257] By the time the transition was completed in early 2007, more than 80% of the workforce reportedly had accepted jobs with the new toll road company.[258] Moreover, some efforts at unionization were made under the private concession owner and succeeded. For example, toll road collectors voted in December 2007 to join the Teamsters, though as of late June 2008 they had yet to negotiate a first contract and were considering going on strike to get one.[259]

Stronger protections were secured in connection with the 2006 sale of the concession for the Chicago Skyway to a Cintra-Macquarie consortium by the City of Chicago. Among the 108 people reportedly directly employed by the Skyway were about 70 toll collectors whose union secured for them the choice of taking a severance package, the right to another job with the City, or applying for a job at the Skyway under the new, private operator.[260] Although some of these workers interviewed for the new jobs, none were employed. Rather they continued in employment with the City in other jobs that offer similar pay and benefits.[261] Moreover, according to one report, while unionized city toll collectors were paid more than $20 per hour, new toll collectors hired by a company which had a contract with the new Skyway private owner to provide toll-collection were paid $12/hour.[262] Another report suggested that toll takers used to be full-time employees "with rich benefits" but "[n]ow most are part-time independent contractors."[263] The Skyway apparently had no dedicated maintenance staff, relying on personnel assigned by the

city's Streets and Sanitation department. Under the new management, a 15 member dedicated maintenance and operations staff was hired by Cintra.[264]

A broader legislative approach was taken by the Illinois Local Government Facility Lease Act, enacted in May 2006. The legislation covered property leased to a private entity by a municipality or local government for an airport, parking, or for waste disposal or processing.[265] It extended minority-and women-owned business and anti-discrimination ordinances applicable to public facility properties to leased ones.[266] The legislation required that at least 90% of the net proceeds of the lease be applied to the construction and maintenance of infrastructure in the municipality and/or to contributions to pension funds created for municipal employees.[267]It also said that for large contracts, municipalities must negotiate a project labor agreement with labor organizations in the construction industry.[268]

The legislature adopted additional protections specifically for airport property. A number were related to jobs and the terms and conditions of employment. For example, the act required that anyone employed at the time of the lease be offered a job by the lessee under comparable terms and conditions and also be offered employment with the lessor municipality, again under comparable terms and conditions.[269] In addition it required that those hired to perform work on the airport property previously done by the municipality's workers be paid "not less than the economic equivalent of the standard of wages and benefit enjoyed by [those] employees."[270] Further, it extended state prevailing-wage laws to all projects at leased facility property used for airport purposes.[271] Other provisions related to unionization and collective bargaining. The legislation called for management to negotiate in good faith for labor neutrality and card check procedure agreements.[272]

This legislation anticipated the sale of Chicago's Midway Airport, which reportedly affected 165 union and 25 non-union workers. A request for qualifications has been issued in connection with that possible sale and notes that the protections of the Local Government Facility Lease Act referred to above apply to the transaction. One trade journal characterized those protections as important to gaining union support for the lease. It added that the city was "committed to spending much of the remainder on infrastructure and to help trim [the City's] $9 billion unfunded pension liability" as a means of clearing the path to opening bidding for a lease.[273] In September 2008, the City of Chicago agreed to the sale of a 99-year lease of Midway Airport for $2.5 billion, subject to approval by the Chicago City Council and the Federal Aviation Administration.[274]

These kinds of protections are modest in contrast with those of some other countries, for example, those in the European Union.[275] Some of those protections are substantive in nature. Both the European Union's Acquired Rights Directive and company and public authority action spurred by it provide protections to workers when the enterprise at which they are employed is transferred from one employer to another. Those protections include preservation of the terms and conditions of work at the time of transfer (but not afterward) along with some protection of pension rights.[276]

In 1999, the United Kingdom enacted a national code that offers additional protections for newly hired workers at a privatized enterprise to avoid the creation of a two-tier workforce. The code requires private contractors to offer jobs to new employees that have terms no less favorable than those of employees who previously worked for and been transferred from the public sector employer. Contractors also must offer reasonable pension arrangements, including membership in the local government or employer pension or defined-contribution plan.[277] However, the code does not prohibit concessionaires from offering these new workers a "package of non-pension terms and conditions" or "otherwise amending packages so that they are distinguished from that of the transferred staff."[278]

Other protections are process-oriented. For example, another European Union Directive (EC 2002/14) affords workers rights to information and consultation in anticipation of a privatization (as well as other kinds of changes that might be contemplated).[279] In Ireland, union engagement with the government resulted in a framework for setting up public/private partnerships (PPPs), in which public entities retain ownership of a privately managed asset, along with guidelines for consulting affected workers. The framework specifically excludes full-scale privatization, which was defined as the transfer of asset ownership, the withdrawal of public authorities from service, and the establishment of shareholder interests.[280]

Even so, that experience offers potential lessons for the U.S. Both the framework and guidelines focus primarily on the need for public authorities to consult with workers and their representatives about moves to PPPs. Officials are required to inform public-sector workers early on about PPP proposals and give them the opportunity to contribute to the development of the projects. They also must consult workers on a wide variety of project-related issues, including the impact on worker tenure, terms and conditions of employment and their future careers, opportunity for feedback, and the use of existing

industrial relations systems to assess such impacts and explore how concerns might be resolved.[281]

Finally, Australia offers other contrasts. On the one hand, efforts at privatization have been prominent in Australia for many years. It is the base for a number of early mover and major investment players in the world of infrastructure funds investing both within and outside of Australia. On the other, as noted above, Australian superannuation funds have for some years invested in infrastructure in a substantial way. Indeed, a policy statement released by the Australian Labor Party shortly after its return to power at the national government level acknowledged the role that superannuation funds had already played in infrastructure investment. They have done so either in groups directly or indirectly with jointly (labor-management) trusteed industry superannuation funds "in proportion to their size, [having] invest[ed] about three times as much in infrastructure as the superannuation industry generally."[282]

The Party committed itself to "facilitating greater involvement in infrastructure financing and delivery by Australia's superannuation funds."[283] Some of that financing had been provided in connection with PPPs. However, the statement noted that while "Federal and State Government public procurement policies and guidelines do apply to PPPs,….these practices do not address the particular challenges posed to employment standards by PPPs."[284] More particularly, it noted that "[w]hile protections for public sector employees mean that employees transferred to private companies through PPPs may continue to have their employment conditions regulated as they did in the public sector, new employees employed by the private company do not enjoy such protection. "[285]

The Australian Labor Party seems to have approvingly taken note of protections included in the above-noted code of practice introduced in the UK. However, it seems not to have made a commitment to introduce those specific requirements but a more general one to standards that take into consideration "appropriate wages and conditions, fair employment standards, best practice industrial relations, and guidelines on achieving fair and safe workplaces."[286] The Party did call for protections like those imposed in connection with privatization of aspects of the British National Health Service, which required that certain staff members were to "remain public sector employees, and therefore entitled to public sector terms and conditions of employment, even though they are managed by the private sector partner."[287] As of this writing, legislation addressing these concerns has not been enacted.

C. Pension fund responses

Pension funds that want to address labor-related impacts of their infrastructure investments must grapple with a number of policy issues. These include the investment vehicles to which the policies should apply; the size of the vehicle's ownership stake in any particular investment which is the trigger for application of the policy; whether to afford protection against the potential loss of public sector jobs or harm to efforts to unionize or maintain the unionized status of workers, or both; whether provisions should be mandatory; how policies should be enforced; and, as a general matter, how the foregoing needs to be done to be consistent with fiduciary duty.

A consideration of the California Public Employees' Retirement System's (CalPERS) Infrastructure Program ("the Program"), recently approved by its Board, highlights these issues. It contains a general provision stating CalPERS' intentions with respect to PPPs, as well as a set of specific provisions relating to responsible contracting and another pertaining to domestic public sector jobs.

The general provision states that CalPERS' Investment Committee, "where appropriate, will consider the extent to which the sponsoring public entity and the investor(s) share in the benefits and risks associated with the PPP."[288]

The first set of specific provisions includes infrastructure under CalPERS' Responsible Contractor Policy, which previously had covered only real estate. More particularly, managers "of any investment vehicle, for which [CalPERS'] Responsible Contractor Policy ('RCP') applies" must agree in writing to "adhere" to the RCP in its current or any amended form.[289] The RCP is limited to certain "domestic" investments in which CalPERS "owns a greater than 50% ownership interest." The RCP also "specifically excludes all other types of investments, including commingle[d] funds, opportunity funds, mezzanine debt, hybrid debt, international investments, an indirect, specialty, and mortgage investments lacking equity features and their respective advisors." Presumably, then, the Program is similarly limited.

The Program builds on a provision of the RCP that "encourage[s]" those not covered by it "to comply with [its] spirit, consistent with fiduciary duty." However, the policy did not require staff to give any preference to those did so.[290] More particularly, the infrastructure policy provides that where the RCP "is not applicable by its terms" other than "to make a good

faith effort to comply with the spirit [of the RCP,]"[291] staff must "give a strong preference to all domestic vehicles that have adopted an internal policy regarding responsible contracting consistent with CalPERS' RCP subject to CalPERS' fiduciary duty."[292] In contrast to the provision requiring written agreement to comply with the RCP, this one "specifically applies to investments including, but not limited to, commingled funds, opportunity funds, mezzanine debt, and hybrid debt instruments."[293]

Note that enforcement of these provisions can be overridden. Even if the domestic investment vehicle neither complies with the RCP nor adopts such an internal policy, staff may still recommend such an investment to and the Board's Investment Committee may approve it.[294] Moreover, while violation of the requirements during the life of an investment vehicle would otherwise bar staff from making an investment in the manager's follow-up fund, staff may propose to the Investment Committee that it decide to the contrary. [295]

Insofar as the relevant provisions of the RCP formulated for real estate investments also apply to infrastructure investments, then contractors and sub-contractors must be selected "through a competitive bidding and selection process" which requires outreach to bidders "identified as Responsible Contractors" and "consideration …[of] the adherence to the [RCP]."[296] A responsible contractor is defined as one that "pays workers a fair wage and a fair benefit." [297] The RCP "does not require hiring union workers" though it expresses "support[]" for "a position of neutrality" in response to organizing efforts.[298]

While the above Program provisions focus on fair conditions of employment and closely related issues of union representation, a second set addresses the impact on public sector jobs. First, staff must present to the Investment Committee "any investment that [staff determine] would directly impact California public sector jobs."[299] Second, managers of domestic investment vehicles are required to agree in writing to use "good faith efforts" to "ensure" that their transactions involving PPPs or the public offer of "the sale, lease, or management of public assets" have "no more than de minimis adverse impact on existing employees."[300] Managers' compliance with this provision is deemed to be a "key consideration" in the Board's review of their future investment opportunities."[301]

These job protection provisions did not go as far as some California unions wished. For example, one union urged that there be an absolute bar to any investment "in any project or program which would result in any job loss or other adverse impacts" on plan members.[302]

Another focused on investment vehicles. It opposed private equity-type models, which it seemed to suggest, would by virtue of that model be particularly harmful to workers (as well as the public interest). Instead it pressed for what it termed "responsible" investments, which would include direct long-term loans, direct investment or co-investment with public or non-profit agencies, monetized future revenue streams, and long-term leases with public agency operating agreements.[303] Yet another union would have extended similar protections to public sector workers in non-domestic jurisdictions. [304]

Enforcement of this set of provisions basically parallels that of the set discussed above. If a manager fails to make the required good faith efforts during the life of an investment vehicle, staff are barred from making an investment in that manager's follow on fund. However, they are permitted to recommend such an investment to the Investment Committee, which "determine[s] whether to invest…consistent with its fiduciary duty."[305] In the event of approval, the follow-on fund has to agree to the written commitment to make good faith efforts in the future.[306]

The CalPERS Program builds on an earlier Alternative Investment Management ("AIM") program concerning "investment in entities that outsource U.S. public sector jobs."[307] AIM's "strategic objective" was to "restrict private equity investments in entities that are likely to outsource U.S. state and local public sector jobs…because of the potential negative impact to the employees and members of the System."[308] More particularly, the AIM program suggests that such outsourcing "may involve unique risks" to outsourcers, such as "exposur[e] to political resistance, labor disputes and public relations risks."[309] In addition, it opines that outsourcing "may cause public sector workers, including CalPERS members, to be laid off and be offered new private sector jobs in which they perform the same work but with inferior wages, benefits or working conditions."[310] However, according to that policy, a portfolio company does not risk being deemed an "outsourcer" if, among other reasons, it is involved in "[i]nvestments in assets on sale from public entities where the public interest was served by the decision to sell the asset." [311]

Arguably, the very fact that a state or local government approves privatization of a function to be performed by a company held in a private equity fund portfolio could deem the outsourcing as being in "the public interest." If so, then any such CalPERS AIM portfolio company investment would not be subject to the outsourcing policy. Otherwise, CalPERS would be placed in the position of second-guessing the state or local decision,

an uncomfortable exercise in and of itself, and perhaps a problematic one as well since the criteria upon which CalPERS would appropriately assess such a decision are not self-evident. The same difficulty would be posed if the AIM outsourcing policy were literally extended to infrastructure. The precise relationship between the new Infrastructure Program policies and AIM is not clear.

The California State Teachers' Retirement System (CalSTRS) also has adopted labor protection policies for infrastructure investments. They appear to be virtually identical to those of CalPERS, although phrasing differences may leave some room for varying interpretations.

For example, with respect to responsible contracting, CalSTRS explicitly bars investments in *any investment managers* who neither adopt CalSTRS' RCP nor an internal policy.[312] This bar is difficult to square with CalSTRS' provisions that pertain to *all domestic fixed asset financing investment vehicles*. CalSTRS, like CalPERS, gives a "strong preference" to domestic investment vehicles that have adopted an informal policy (when the RCP does not by its terms apply). [313] Moreover CalSTRS, like CalPERS, allows staff to recommend to the Investment Committee and that Committee to approve domestic investment vehicles which adopt neither CalSTRS' RCP nor an internal policy. [314] Finally, both CalSTRS and CalPERS have the same provisions relating to vehicles that are a follow-on to those which have violated policy requirements. [315]

The only other difference between the funds' infrastructure policies relates to their link to their respective RCP provisions. As noted above, CalPERS' RCP policy does not apply to joint ventures and partnerships when it owns less than a 50% ownership interest, or to the list of other types of investments. By contrast, CalSTRS' RCP Policy does not apply "to investments such as hybrid debt, joint ventures, opportunity funds and other real estate investments where CalSTRS does not have 100% ownership and/or full control of the investment."[316] The CalPERS policy would seem to apply to situations where the CalSTRS one does not, including investments in which CalPERS has a 50% or greater ownership but less than 100% or full control.

CalSTRS public jobs-related provisions differ from those of CalPERS in two seemingly slight ways, though it is not clear whether they might yield different outcomes. First, CalSTRS staff is required to submit to the Investment Committee any investment that

would have a direct impact on California public sector jobs. CalPERS staff must first conclude that it is "in the best interest of CalPERS" to consider such an investment before being obliged to make such a submission.[317] Second, while both CalSTRS and CalPERS staff may recommend investment in a follow-on fund to the Investment Committee despite the prior fund's violation of the jobs policy requirements, only CalPERs explicitly requires in the event of the Committee's acceptance of the recommendation that the follow-on fund enter into a written agreement committing the fund to the mandated behavior.[318] It is not clear whether, in practice, this difference would yield different outcomes.

The Illinois State Board of Investment (ISBI) has adopted labor-related policies similar to those of CalPERS, too, although they are narrower in certain respects. For example, the two have identical policies on the selection of responsible contractors, on support for neutrality agreements, and on encouraging firms not strictly required to adhere to responsible contractor policies to engage in good faith efforts to do so. The types of investments to which the provisions apply are identical as well.[319]

However, while ISBI encourages adoption of an internal policy consonant with its RCP when the RCP does not by its terms apply, IBSI accords no explicit preference to firms that take up such a voluntary policy, as CalPERS does. Arguably, mandating a preference is stronger than merely encouraging adoption of a policy, although whether in reality that would make a practical difference is not clear.[320]

A more striking difference is that ISBI has no provisions relating to the impact of its infrastructure investments on public sector workers. This reflects a judgment on ISBI's part that such matters are more appropriately dealt with through contracts between the private firms involved and the government that owns the facility .[321]

The CalPERS and CalSTRS infrastructure policies described above do not include an "in the public interest" provision. Rather, where California public sector jobs are directly affected by any investment, approval is left to the Investment Committee. Any failure by an investment manager to appropriately engage public sector workers over adverse impact and make good faith efforts to mitigate them puts approval of future opportunities for that manager at risk (and hence, implicitly, requires review.) With respect to both these, there is no explicit instruction regarding *how* the Investment Committee or Board should decide in light of state and local government approval of a deal giving rising to

such an investment. Of course, whatever the Committee or Board might conclude in terms of impact, the infrastructure policy (like the AIM policy) allows perceived fiduciary duty to trump that conclusion in terms of allowing an investment.[322]

CalPERS', CalSTRS', and ISBI's policies are largely similar in terms of their geographic reach. The latter's policies apply to "U.S. infrastructure" in which ISBI has the requisite ownership interest. The responsible contractor aspects of CalPERS' policies apply to "domestic infrastructure vehicles." These provisions offer the occasion for similar/ reciprocal action by pension funds operating in other jurisdictions, depending upon what the rationale is for applying the policy outside the fund's jurisdiction. However, despite the considerable attention given to infrastructure privatization in the United States, to date, by far the bulk of such activity has occurred abroad. If so, then the ISBI policy, which does not apply outside the United States, may have little force.[323]

By contrast, CalPERS' and CalSTRS' policies require their staff to get Investment Committee approval for investments that would directly affect California jobs. In addition, their provisions requiring written agreement by firms to make good faith efforts to minimize adverse impacts on existing employees and the responsible contractor provisions apply more broadly to domestic jobs; that is, jobs throughout the United States.

The infrastructure labor policies of all three funds generally avoid a "legalistic" approach; that is, one that is written in a way that looks to enforcement through litigation. Presumably the belief is that although policies can be written in sufficient detail to allow litigation in the event of an asserted breach, the time required for and the complexities and cost of such litigation might render legal enforcement problematic. As a result, "market-based" solutions might be seen as more effective, namely, the prospect of a fund's decision not to reinvest with an investment manager as an incentive for compliance with the letter and spirit of stated policies. The extent to which the investment manager is transparent in its dealings and willing to resolve disputes with fund officials over issues during the term of the investment in a manner consistent with the spirit of the provisions presumably will bear upon whether future investments will be made with that manager.[324]

Regardless of the choice of specific policies that relate to labor issues, an analysis of labor risk and impact might be part of the due diligence process (and consultation with relevant labor representatives could be as well). For example, it has been suggested

that reports on a fund's portfolio should include "an ongoing evaluation of labor and political risk exposures" and "for each investment vehicle the number and type, nature and compensation of jobs created, jobs transferred from public to private sector, and jobs retained in the public sector."[325] Certainly some of this information will be directly relevant to a fund's investment risk in particular cases. Also, given the concern about labor impacts, it may be desirable for the fund to at least gather information about these impacts to inform its own or possibly legislative review in the future.

Regardless of the specifics of the policies, their practical effect depends upon how well they are implemented. For example, for responsible contractor policies to have an impact, there must be mechanisms by which lack of conformity with policy requirements are identified and breaches acted upon. It is not evident that pension funds have (or have committed) the resources to monitor the behavior of firms to which their policies apply. As a result, unions that have a stake in those policies may be compelled to step into the breach. As with private equity funds, unlisted infrastructure funds have advisory boards in which limited partners, such as pension funds, participate. These boards (in addition to reports from the general partner to the limited partner) provide a mechanism for pension funds to gain information, ask questions, and spur relevant action. The effectiveness of such a mechanism is not clear.

In the course of debate over CalPERS' policy, one union argued that because investment pools are controlled by investors concerned about financial returns "without regard to the social consequences," a fund should make only direct investments.[326] Whatever the merits of that view of investment pools, many funds may be of insufficient size to warrant direct investments.

In Canada, where there has been an earlier and a considerably greater level of pension fund investment in infrastructure, the Ontario Municipal Employees' Retirement Systems (OMERS) established a somewhat different, though short-lived kind of labor policy. It adopted job-protection measures in 2004 relating to infrastructure investments, although the governing board revoked these measures in early 2008.[327] The original action requirement was that "appropriate efforts" be made "to ensure jobs will be protected to the extent reasonably possible."

A second provision appears to have contained a flat-out prohibition on investments that entailed the outsourcing of government services (while permitting those involving

the private-sector construction of buildings used to deliver them). It required that "any investment in Infrastructure Assets relating to infrastructure buildings (such as long-term care facilities, hospitals, schools and courthouses) be restricted to 'bricks and mortar' and no part of OMERS investment shall be committed or made in respect to the outsourcing of delivery of existing government services carried out in these infrastructure buildings."[328]

After these provisions were revoked, OMERS only retained generic "socially responsible investing" provisions that it has been suggested have minimal effect on its infrastructure investments.[329]

One challenge to implementing pension fund policies arises from limitations based on the size of the pension fund's ownership stake. An infrastructure fund will likely have a number of investment partners in acquiring a given targeted facility. As a result, it may not have a controlling interest in the facility. In turn, the fund may not be in a position to seek compliance with a responsible contractor policy in connection with the operation of that facility. In any event, the infrastructure fund might be reluctant to accept a pension fund partner that would require a responsible contractor policy as a condition of its investment. Such a condition might deter investment by prospective partners not sympathetic or even resistant to a responsible contractor policy. Similar concerns have been raised in the context of pension funds seeking to maintain labor-friendly private equity and responsible contractor real estate investment policies. Certainly, insofar as there is a private equity or real estate investment firm seller's market, firms may be in a position of rejecting sought-for pension fund labor-friendly policies.

As a result, pension funds might look less to their own policies and more toward investing in those infrastructure funds which not only appear to offer competitive returns but also establish for themselves policies which embody labor-friendly type standards. There are, in fact, a number of major infrastructure funds that do include such standards as part of their policies. For example, Macquarie, Carlyle, Alinda, and Industry Funds Management (IFM) have incorporated identical "Responsible Contractor" provisions among their infrastructure fund policies.[330] The provisions are applicable to "all U.S. Infrastructure equity investments where the [infrastructure] Fund owns a 50% or greater ownership and exercises a controlling interest," though the Fund commits itself to encouraging operating company managers to "comply" "in good faith" with the spirit of the policy" in other circumstances.[331] It also is limited to large (independent contractor) service contracts.[332] The document first states broadly, that consistent with fiduciary duty, the policy is devised "to support and

promote the engagement of independent contractors who can be expected to provide both competitive and high quality services to Fund investments, utilizing appropriately trained and fairly compensated employees."[333] Moreover, the Fund commits itself to "endeavor in good faith to recognize the important role and contributions of public employees to the development and operation of such assets."[334] Further, the Fund agrees to strive to "ensure," "by working directly with public employees, government officials, and collective bargaining groups" and otherwise," that "such transactions minimize any potentially adverse impacts on employees."[335]

These general commitments are specified in the following terms: the policy requires that the operating manager "ensure, to the extent commercially reasonable, that there is a selection process that is inclusive of potentially eligible Responsible Contractors."[336] A "Responsible Contractor" is an "independent contractor" who, among other things, "pays workers a fair wage and fair benefits."[337] Moreover, the Fund asserts that it "supports a position of neutrality in the event there is a legitimate attempt by a labor organization to organize workers performing Services at a Fund-owned operating company." In turn, it requires that contractors "observe their legal obligations" to recognize a union as the representative of workers upon a showing of majority of signed cards in favor.[338] IFM's policy in this regard to different and arguably stronger in that it *requires* that contracts recognize a union upon such a showing of cards (even if doing so would not be a legal obligation).[339]

The formal provisions for enforcement of this policy are limited. A non-complying operating company is first placed on a "watch list." If it fails to modify its "pattern of conduct" (a "key indicator [of which] is [it being]…inconsistent with the provisions of this policy") then that pattern "along with other information" may result in non-renewal of the contract.[340] However, the Fund has "sole responsibility to enforce th[e] Policy."[341] Investors (and others) have no rights they otherwise already have with regard to the subject matter of the policy.[342] However, investors are entitled to receive from the Fund "annual reports… with a management comment regarding the Fund's compliance with th[e] Policy."[343]

It may be, though, that formal enforcement mechanisms are not as useful as informal or other ones. As noted, a number of these unlisted infrastructure funds have advisory boards in which pension fund investors participate. The progress of the investment fund, investment strategy, and other issues of investor concern are issues that might be addressed at such boards' meetings. Certainly, such participation allows pension funds in

some measure to monitor and offer input with respect to infrastructure practices, including but not limited to labor and job-impact related practices. On one view, such a role has proved at times to be a useful mechanism by means of which to learn about and raise concerns and have them addressed.[344] On another view, such a role is less significant in comparison to engagement between relevant unions with investment fund managers during and after the due diligence phase of the pension fund's consideration of that manager.[345] On yet another, skeptical view, some funds' boards may have served as a way to gain pension fund limited partner "buy-in" for problematic management behavior and perhaps, because of the nature and extent of information shared, created accountability or liability issues for them.[346]

A different argument relates to the investment vehicles themselves. As suggested above, many such investment vehicles have been organized by investment banks whose focus is arguably (and understandably) solely on the matter of financial returns. One of the investment firms in the field argues that while it can deliver competitive returns, by virtue of its origins and distinctive structure it also necessarily takes cognizance of potential adverse labor-related impacts and has the ability to avert or minimize them. The contention arises from the fact that the firm, Industry Funds Management (IFM), was established and is owned by a consortium of pension funds which themselves are jointly governed by labor and management trustees.[347] The suggestion is that such a fund has an understanding and ability to avert or constructively deal with those adverse impacts both at the time of acquisition of a facility and on an ongoing basis.[348]

Moreover, the firm argues that such a background leads it to incorporate a critical assessment of labor relations as a part of its due diligence in assessing a possible investment. The premise is that a history of problematic labor relations bodes ill for the financial performance of the infrastructure facility over the long term. In certain respects the argument here is similar to that made in the context of residential and commercial real estate investment in the sense that investments with investment management entities such as the AFL-CIO Housing and Building Investment Trusts ("HIT" and "BIT") and J for Jobs created by the Union Labor Life Insurance Company (ULLICO) have not only yielded competitive returns but also created union jobs and better labor outcomes. In those cases, HIT, BIT, and ULLICO are union-owned, not pension fund owned, though pension funds invest in those entities.

It should also be noted that one U.S. pension fund has a long track record in investment in what has been largely private sector infrastructure. More particularly, the Boilermakers & Blacksmiths National Pension Trust is the sole investor in the Boilermakers' Co-Generation and Infrastructure Fund (BCCIF). The BCCIF, with major banks, insurance companies, and others, co-invests in the construction of power generation plants that it leases or sells. While the BCCIF makes only senior or subordinated loans rather than riskier equity investments, its reported 15% average annual internal rate of return over 12 years is said to be comparable to that which equity investments would yield. At the same time, the BCCIF is reported to have generated 1.4 million hours of work for (union) plan participants.[349]

Conclusions

With respect to financial dimensions of pension fund investment in infrastructure**, t**he discussion above suggests the following key points:

First, what is termed "infrastructure" appears to offer pension funds opportunities for investment that might yield long-term and predictable revenue streams that might match their long-term liabilities. However, there are diverse ways by which infrastructure is defined or categorized. Moreover, efforts to find and supply investment vehicles for infrastructure have led to a broadening of the kinds of assets that are included in that category. As a result some caution is required in discussions about such investments because what may be termed infrastructure assets may not have the attributes or characteristics that are normally associated with producing the sought-for revenue streams.

Second, infrastructure appears to be attractive as a means for diversifying pension fund investment portfolios. However, it is not evident that infrastructure can readily be fit within a distinct asset class; indeed, as of yet, pension fund practice is to the contrary. Moreover, different kinds of infrastructure have different financial characteristics, ones that may more or less overlap those of other kinds of assets, for example, real estate or bonds. Consequently care is required in assessing the ways particular investments in infrastructure will help diversify a fund's portfolio and achieve any given fund's financial objectives.

Third, investment returns will, in the first instance, be those afforded by the particular investment vehicles a fund chooses. However, ultimately, the rewards (and risks) are

derived from the underlying individual infrastructure project investments included within those vehicles. In turn, there are a wide variety of factors relating to specific projects that will determine whether and to what extent they are likely to succeed. An investment in a monopoly concession for an existing toll road in a developed country which requires little repair or few improvements and for which there is popular support is very different from an investment in a new road for a relatively uncharted area within a developing country with an uncertain political, legal, and financial environment. The lesson then, is that it is important for decision-makers to understand the risk profiles of the kinds of projects that will underlie their fund's infrastructure investments,

Fourth, there are what appear to be an increasing range and variety of vehicles through which pension funds might invest in infrastructure. At one end of the spectrum are direct investments; at the other are mutual fund-like publicly traded vehicles which hold securities – often publicly-traded shares – in companies identified in some way as "infrastructure" companies. Other funds may have sufficient size and organizational capacity to make and oversee investments that bear some similarity to limited partnerships typical of private equity.

However, it seems unlikely that many funds, especially smaller ones, will have the resources, organizational capacity, and expertise to take that approach. Instead, they may be more comfortable investing in one or another listed vehicle. In that case, particular care may be required in the selection of listed vehicles which themselves make direct infrastructure investments. Funds need to pay close attention to whether the managers are equipped with the special knowledge and skill needed to select, bid for, and manage particular infrastructure facilities. They must also be aware of the complex and perhaps even problematic terms under which those managers are rewarded for their services. And they must attend very carefully to whether and to what extent leverage is used in the pursuit of higher returns.

Not surprisingly, as fund investors move to the mutual fund end of the spectrum, the demands of due diligence and post-investment monitoring will likely be more modest and concerns about liquidity reduced, although that may well come at the cost of missing out on possibly greater returns from other investments. Moreover, as noted above, the dramatic losses in these vehicles that have mirrored those in publicly traded stocks in the financial meltdown of 2008 are a reminder that their behavior may be far removed from

that of other non-publicly traded ones.[350] In all events, the increasing array of vehicles demands greater care in learning about and differentiating among them.

Fifth, investments in infrastructure are, of course, driven by perceptions about possible returns (and the attendant risks in pursuing them). One of the challenges for pension funds is that there is a paucity of reliable data on that subject. This is due to the relative newness of the field, its modest historical performance record, the proprietary nature of much important information, and the fact that the financial services firms selling many of the investments are also the predominant source of that information. We have been able to uncover only a few scholarly studies on the level and volatility of infrastructure investment returns and the extent of their correlation with other kinds of assets. And even these studies are very limited because the most cogent information relates to Australian investment vehicles and the sample of such vehicles is relatively modest, with some having lifetimes shorter than the time periods studied. While the results of these studies are encouraging in terms of pension funds' goals they would seem at best to be suggestive.

The results reported in the much greater number of performance analyses produced by financial services firms are, on their face, also encouraging, perhaps even more so. But it is hard to assess claims they have made without a much better sense of the source and quality of the data used and the methodologies that were employed. Pension fund decision-makers, like all decision-makers, must act in the face of limited information, so the problem is not new or unique to infrastructure. That being said, given the state of information about infrastructure investment returns, pension funds would probably be well served by pressing would-be providers and other advocates for infrastructure investments for more and much better quality information about the nature and track record of their and comparable infrastructure investments.

Finally, the amount and quality of such information needs to be linked to the particular investment vehicles a pension fund might choose and the types and level of fees they are willing to pay. There appears to be some disquiet over both the perhaps unwarranted private-equity-type fees of certain unlisted vehicles and the fee levels and arrangements of certain listed vehicles. While the current intense interest in infrastructure investments places pressures on the buyer/demand side, the number of new financial service players entering the field may create opportunities for vigilant pension funds to negotiate more favorable fee arrangements. And creative thinking among pension funds married to relevant financial expertise may create other, better, alternatives.

With regard to labor-related issues arising from pension investment in infrastructure, the discussion above suggests the following:

Investments in infrastructure, like others, of necessity potentially pose concerns about the job impacts and labor practices of the companies or other entities that are the object of investment. Investments in facilities that were previously privately owned and operated (even if in some cases, highly regulated) raise concerns that would not appear to be significantly different from those that arise from investments in any other kind of privately owned companies or entities. However, decisions to invest in what were previously publicly owned and operated facilities raise distinctive issues because the jobs and workplaces affected may be those of the participants in the very public sector pension funds making the investment.

At the same time, such job and workplace issues are one of but many that are contested politically when attempts at privatizing public facilities are made, attempts that, if successful, create investment opportunities for pension funds (and others). How those issues are resolved determines the precise nature of those opportunities. As we have seen, both process and substantive labor-related requirements can be and have been imposed by legislative bodies or executive officials either as a matter broad policy or decision-making in particular contexts. Process requirements impose the obligation to include affected workers in some or all phases of decision-making: from whether there should be any privatization in the first place, to what are the ground rules by which any offer of a sale or a concession is to be made, to evaluation of the bid and/or bidders. Substantive requirements mandate specific job, wage and benefit and other protections and/or requirements pertaining to union recognition and collective bargaining.

It might be argued that public sector job losses or changes arising from privatization which give rise to an investment opportunity for a pension fund are better or more properly resolved through the political process than through action by the fund. By contrast, it might be asserted that as a partial prospective owner, the fund should be concerned and can legitimately set conditions, for example, by applying a responsible investment policy (consistent with fiduciary duty), for the ongoing labor practices of the entity responsible for managing the facility that has been acquired. These positions are ones that essentially appear to be those taken by ISBI. Certainly they seem reasonable positions, although it is not clear how sharp or principled a distinction one can make between changes in labor practices at the time of acquisition and those made thereafter.[351]

By contrast, both CalPERS and CalSTRS have implemented policies that address concerns about the impact on public sector workers employed at infrastructure facilities subject to privatization, as well as on whichever workers are employed at the facility after privatization. As noted, for CalPERs, the former kind of policy is not new: it had previously established one that had application to privatization in connection with a private equity investment.

In all events, the policies these funds have established are largely process as opposed to standard oriented. That is, CalPERS' and CalSTRS' public sector worker policies require the investment manager to agree to make good faith efforts (which are briefly characterized in the policy) to ensure that public sector workers suffer minimal harm in connection with the privatization transaction. There is no requirement that they succeed in such efforts. And even then enforcement is only after the fact. That is, a manager's failure to comply with the policy is deemed to be "key" to any decision to hire that manager again in the future. Moreover, as noted, despite such a key failure the fund's investment committee can still authorize hiring that manager again should it believe fiduciary duty requires it do so. Realistically speaking, any such decisions would likely be highly pragmatic, case-by-case ones set within the broadly framed legal requirements of fiduciary duty. Experience will only tell what factors or parameters would guide or inform those decisions.

These process-oriented and lightly articulated policy requirements in some measure reflect the challenge of funds being in uncharted waters – and being at risk of being buffeted by critics – as they try to formulate these new policies. But the requirements also seem to manifest both a concern that too hard-and-fast and/or precise rules may not be, practically speaking, enforceable and a belief that spurring dialogue over legitimate concerns among key players may prove to be more productive. Generally speaking, it would appear that in these respects, previously established responsible contractor policies are of a similar nature and have a similar character for largely the same reasons.

The infrastructure fund internal investment vehicle policies referred to above are, perhaps not surprisingly, largely the same as those enacted by the pension funds and in and of themselves do not create any legally enforceable rights for pension funds to ensure compliance with the policy terms. Their value may be more in affording a basis for gaining information and fostering constructive dialogue about labor impacts.

Further, the ISBI policy is clear about it applying to all U.S. infrastructure equity investments of a specified character. Also as noted, the CalPERS and CalSTRS public sector worker provisions generally but cryptically refer to domestic investment vehicles. However, one of them specifically requires that the pension fund's investment committee consider the direct impacts on California public sector jobs, which suggests that all other provisions apply more broadly to U.S. public sector jobs. An argument might be made that these kinds of requirements have the most legitimacy because they pertain to the jobs of members of the fund making the investment. Still requirements pertaining to other public sector workers should not be dismissed as illegitimate. [352]

Finally, as described above, pension funds have made direct investments in infrastructure, collaborated with one another (as well as with other investors) in making these investments, and have done so in a manner consistent with fiduciary duty while taking account of and addressing labor concerns. Such examples are worthy of serious attention.

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Endnotes

1 For example, according to a recent survey of 138 investment firms that managed alternative assets on behalf of pension funds, at of the end of 2007 17 managers of infrastructure funds had a total of $45.7 billion in assets under management, with sizes ranging from $1.3 to $20.1 billion. "Global Alternatives Survey, Including the Global Alternatives 99," Watson Wyatt, June 2008, p. 15. Available at http://www.watsonwyatt.com/research/resrender.asp?id=gas08&page=1 (sign-up required). The top 20 percent of the funds held 56 percent of the assets. Id. at 21. The largest fund was Macquarie Group Limited, with RREEF having $4.2 billion and Goldman Sachs Asset Management, $3.6 billion, followed by five funds in the $2 to $3 billion range. (Colonial First State Asset Management, 3i Group plc, Alinda Capital Partners, LLC, Morgan Stanley, and AMP Capital Partners). Id. at 24. About 54 percent of the funds were invested in Europe, with 21% in each of North America and the Asia Pacific, respectively. Id. at 16.

With respect to just unlisted infrastructure funds – see discussion in the main text at pp. 19-21 – as of mid-2008, it was reported that there were "71 funds on the road seeking an aggregate $90.8 billion – a dramatic increase [over]…2005 when there were four funds seeking$1.8 billion." Id. at 4. European investors were found to constitute nearly one half of all investors while North American investors made up one-third. Id. at 6. Similarly, 23 funds with "an aggregate target of $33 billion" "had "a primary focus on Europe, "whil[e] just 15 are primarily US-focused vehicles" with a target of $34 billion. Id. at 9.

2 Note that what is viewed as "traditionally public" varies across countries. See for example, "France: competition for the market and contract based regulation," Chapter 5, pp. 82-107, in *Competition an Economic Regulation in Water, The Future of the European Water Industry*, by Tony Balance and Andrew Taylor, IWA Publishing, 2004 (noting that the "French model is based on the concept of competition *for* the market and the use of long-term contracts between public authorities and private operators. Under these contracts, private operators win the right to manage these assets, but unlike in England, ultimate ownership remains with the private sector."), p. 82. Available at http://books.google.com/books?id=WNVk8GoTpUsC&pg=PP6&dq=%22water+and+wastewater%22+%26+france+%26+ownership&source=gbs_selected_pages&cad=0_1&sig=ACfU3U2cgn2aEaXS8qgrD9MhuEfJrJ677Q#PPA82,M1.

3 This is not to say that there are not similar concerns with respect to private (though typically highly regulated) infrastructure in the United States, e.g., telecommunications and energy infrastructure, especially private equity investment in such infrastructure. See "Private Equity's Appetite for Infrastructure Capital Could Put State and Local Taxpayers and Services at Risk," Policy Discussion Paper, Service Employees International Union, October 2008. Available at http://www.behindthebuyouts.org/storage/Copy_of_DRAFT_SEIU_Infrastructure_Policy_Paper_Oct_2008.pdf.

4 Resistance can take the form of opposition to increasing current tax revenues or to increasing the issuance of debt that will have to be paid back from future (and perhaps increased) tax revenues.

5 Payments from former public sector owners to highway concession owners are a function of the level and type of traffic on the highway. According to one report about the Indiana Toll Road (ITR) concession, "[t]he Indiana Finance Authority…has committed to finance a toll freeze on the IRG over the first 10 years of the concession. The toll freeze is to be financed by way of a cash back scheme similar to schemes implemented on the M4 and M4 in Australia." "Illinois Tollway System Valuation," Credit Suisse, August 2006, p. 115. Available at http://www.jschoenberg.org/tollway/Illinois_Report_Final.pdf.

6 An example of the former is found in the $589 million in tax-subsidized private activity bonds (PABs) issued to finance HOT lanes on Virginia's I-495 Capital Beltway. This, in combination with a low-interest federal loan and a $409 million equity contribution from the state to the $1.93 billion project "kept the cost of debt for the project under 5% annually." "Private Equity Bonds Issued for I-495," Public Works Financing, Vol. 228, June 2008, pp. 8-9 (referring to the PAB loan having a weighted annual cost of 4.97% and the reduced rate federal Transportation Infrastructure Finance and Innovation Act (TIFIA) 40-year loan at 4.45%). Similarly it was anticipated that the $2 billion FasTracks commuter rail lines and facility to be built, equipped, operated, and maintained for the Denver Regional Transportation District would have the benefit of $932 million in federal money along local sales tax money which will mainly go to acquire rights of way. "Denver FasTracks Rail P3 Gears U," Public Works Financing, Vol. 228, June 2008, pp. 12-13 (noting that "[t]he RTD will likely seek allocations for both private equity bonds and federal credit assistance"). Finally, the Interstate 645 managed lanes project (and 52-year concession) in Texas, with construction costs estimated to total $1.3 billion, would be made financially viable by up to $700 million in public funds. The Knik Arm Bridge project in Alaska gained authority to issue up to $600 million in tax-exempt private equity bonds, anticipated approval of up to $261 million in TIFIA loans with an additional $70 million in public funds being made available. Finally, the $2 billion North Tarrant Express managed lanes project north of Fort Worth Texas is anticipated to have the benefit of nearly $712 million in public funds and $59 million in TIFIA loans and the developer anticipates using private activity bonds as well. "Tarrant Mega-Deal Offered by TxDOT," Public Works Financing, Vol. 225, March 2008, pp 20-21.

7 "The privatizing companies can afford to give states and cities big upfront payments partly because they get the benefit of accelerated tax depreciation…But Congress could knock out that tax advantage, jut as it did a few years ago with equipment leasing deals." "Investors await gains as U.S. states privatize roads," by Joan Gralla, Reuters, April 24, 2007 (citing Cherian George, Fitch Ratings). Available at http://www.reuters.com/article/reutersEdge/idUSN2443443620070424?pageNumber=1.

8 "Infrastructure Investing: In a class of its own?," by Dennis Martin, Institute for Fiduciary Education, 2005, p. 1. Available at http://www.ifecorp.com/Digital%20Binders/RE0905/Papers/RREEF.pdf.

9 Id. It is not evident why, under this categorization, rail networks would not be economic infrastructure. Perhaps a distinction is intended between the railroads that deliver goods and those that deliver people.

10 Why this second set of categories includes more items than those described in the preceding paragraph, such as parking and various kinds of telecommunications facilities, is not clear.

11 "Alternate Route, Infrastructure is More Than a Detour," by John Rubino, CFA Magazine, July-August 2006, p. 28. Available at http://www.iassa.co.za/Alternative%20Route%20JulyAugust%202006.pdf.

12 Id. TV broadcast towers are cited as a case in point: "There are only so many needed in a given city, and they have a

long period when all local TV stations will use them," Id.

13 Id.

14 "Infrastructure Investing: In a class of its own?," by Dennis Martin, Institute for Fiduciary Education, 2005, p. 1. Available at http://www.ifecorp.com/Digital%20Binders/RE0905/Papers/RREEF.pdf.

15 Id.

16 However, in the context of school privatization, if a student moves from a public school to a private one, the cost of the private education may be supported by requiring the public school system to pay an amount equal to what it would have spent on educating the child. See "The Swedish model – private education," The Economist, June 14, 2008. Available at http://www.economist.com/business/displaystory.cfm?story_id=11535645.

17 Id.

18 "Infrastructure Investing: In a class of its own?," by Denis Martin, Institute for Fiduciary Education, 2005, p. 5. Available at http://www.ifecorp.com/Digital%20Binders/RE0905/Papers/RREEF.pdf.

19 Id.

20 Id. Note that "for transport assets (such as toll roads), the price of entry to that income stream and capital appreciation is generally participation in the early stage of development of the project, as few investors will be looking to sell such an attractive asset during its growth phase." Id. at 6. Infrastructure, like any other economic asset, passes through various stages, from development to maturation to obsolescence. A greenfield project (say, the clearing of a forest to build a new airport in China) and a Canadian toll road that has been around for decades will have a very different risk-return profile." "Alternate Route, Infrastructure is More Than a Detour," by John Rubino, CFA Magazine, July-August 2006, p. 28. Available at http://www.iassa.co.za/Alternative%20Route%20JulyAugust%202006.pdf.

21 "Infrastructure Investing: In a class of its own?," by Dennis Martin, Institute for Fiduciary Education, 2005, p. 5. Available at http://ifecorp.surewest.net/Digital%20Binders/RE0905/Papers/RREEF.pdf.

22 Id.

23 Id. In this case "existing roads [would]… require on-going maintenance," "an existing airport…new gates and concessions," and an "existing lottery…more efficient operation and marketing." Meketa Investment Group, p. 13. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf.

24 "Infrastructure Investing: In a class of its own?," by Dennis Martin, Institute for Fiduciary Education, 2005, p. 5. Available at http://ifecorp.surewest.net/Digital%20Binders/RE0905/Papers/RREEF.pdf.

25 Id. According to a slightly different characterization, what are termed "[r]ehabilitated [b]rownfield [i]nvestments...generally lie on the midpoint of the infrastructure risk/return spectrum." For example, while "an operating toll bridge" might "currently [be] generating cash flow, [it may] require[] significant immediate capital improvements for major retrofitting or expansion." "Investing in Infrastructure Funds," Probitas Partners, September 2007, p. 8. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf.

26 "The definition of infrastructure is being applied to a broader range of assets, many with a tenuous link, such as airports and German service stations." "Infrastructure at Crossroads," by Ian Fraser, Financial News Online, May 12, 2008. Available at http://www.efinancialnews.com/assetmanagement/pensionfunds/content/2450611071. "'The original concept of infrastructure investment meant investment in individual projects – such as roads, bridges, and tunnels – that have clear sources of revenue. '"That has been broadened to public private partnerships – schools, prisons and hospitals – and latterly into quoted companies that are not involved in single projects or even baskets of projects. My worry is that it has become just a buzzword, a convenient catch-all.'" "Infrastructure at Crossroads," by Ian Fraser, Financial News Online, May 12, 2008 (quoting Nicola Ralston, director of consulting firm Liability Solutions, Ltd.). Available at http://www.efinancialnews.com/assetmanagement/pensionfunds/content/2450611071. See also "The Next Asset Bubble," by Kit R. Raone, Portfolio.com, February 4, 2008. Available at http://www.portfolio.com/news-markets/national-news/portfolio/2008/02/04/Infrastructure-Investment-Bubble (noting the "flood" of new infrastructure funds and "new ideas [that] involve less-traditional assets like lotteries, gas stations, and old folks homes")

27 According to the investment management company specially created by the Ontario Municipal Employees Retirement System (OMERs) to originate, structure, finance and manage its infrastructure investments, "[t]he most significant benefit of infrastructure investments is that they generate stable, long-term cash flows. As I mentioned earlier, many assets, such as electrical and gas utilities, are government regulated. Others, such as toll roads, are closely watched by governments concerned about public safety and rates. The combination of regulatory regimes and strong, inelastic demand result in predictable long-term cash flows which result in return volatilities that are much lower than many other asset classes and, perhaps more importantly, can help pension funds match their long-term liabilities with similar long-term cash flows offering higher rates of return than fixed income products." Speech by Michael Nobrega, CEO, given at the U.S. Pensions and Investment Summit – "Infrastructure Investments for Increased Diversification: The Borealis Infrastructure (OMERS) Case Study." September 1, 2006. Available at http://www.borealisinfrastructure.com/news/newsreleases.aspx#sep12006. "Monopolistic market conditions for the majority of infrastructure assets, protected by the number of service providers (e.g. one water or gas distributor to service a particular region) or the location of the asset itself (e.g. the only road or tunnel to join important transport destinations)." Further, "[a] combination of returns from physical assets and the performance of an operating company with the licence or concession to provide an essential service for which their customers will pay. This characteristic illustrates the blend of private equity and real estate investment disciplines inherent in many infrastructure assets." "Infrastructure Investing: In a class of its own?," by Denis Martin, Institute for Fiduciary Education, 2005, p. 5. Available at http://www.ifecorp.com/Digital%20Binders/RE0905/Papers/RREEF.pdf.

28 "An Introduction to Infrastructure Investment," ING Real Estate, November 2006, p. 26. Available at http://www.ingrealestate.com/images/An%20Introduction%20to%20Infrastructure%20Investment%20-%20November%202006_tcm95-83013.pdf. See also "Getting real with infrastructure," by Bruce Robertson and Krista Horsman, Benefits, Canada Benefits, February 2005 (suggesting that "while most investments respond negatively to inflation, infrastructure assets typically benefit from increases in inflation as a result of increased demand for the services these assets provide, acting as a hedge."), p. 26.

29 "Investment Research Report," by Pension Consulting Alliance, Inc., June 2007, p. 10. Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf. See also, "Exploring Infrastructure," EnnisKnupp, 2007, p. 3. Available at [http://www.ennisknupp.com/Portals/57ad7180-c5e7-49f5-b282-

c6475cdb7ee7/research_infrastructure.pdf. More specifically, according to one characterization (1) "[t]oll road concessions typically have a stipulated inflation component in the tolling regime"; (2) regulatory pricing formulas for regulated utilities "specifically allow for an inflated related adjustment"; and (3) for airports, "aeronautical charges ([a] majority of an airport's revenues) make allowance for an inflation adjustment." "Investing in Infrastructure," by Shemara Wikramanayake, Macquarie Group, "Public Fund Forum," EnnisKnupp Associates, October 2, 2007. Available at http://www.ennisknupp.com/docs/PFBOOK.pdf.

30 "Even for a Brownfield toll road whose use characteristics are presumed to be well known (thus less risky than, say, a Greenfield project), the availability of non-toll alternatives now or in the future, or the impact of either soaring fuel prices or steeply rising tolls can reduce actual revenue. In fact, a Greenfield social infrastructure project with well-defined contractual structures and availability payments may be inherently less risky than a toll road whose revenue streams are driven by user fees." "Investing in Infrastructure Funds," Probitas Partners, September 12007, p. 8. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf. As an empirical matter, one pension fund consultant reports that "the correlation coefficient between the Consumer Price Index and infrastructure is -0.21," although it does not describe the data and methods upon which this conclusion is based. "A White Paper on: Infrastructure Investment," Courtland Partners, Ltd., March 2007, p. 12.

31 "Memo to Board and Staff of the State Universities Retirement System," by Lauren Nicholson, James Casselberry and Richard Ennis, EnnisKnupp, September 5, 2006, p. 6. Available at http://www.surs.com/pdfs/minutes/x_inv/ex09_04.pdf

32 Id.

33 "Infrastructure Investing: In a class of its own?" by Dennis Martin, Institute for Fiduciary Education, 2005, Exhibit 2, p. 5. Available at http://ifecorp.surewest.net/Digital%20Binders/RE0905/Papers/RREEF.pdf. Id. According to the author of this article, the "greatest value will typically occur during the Growth and Late Stage of an asset's life-cycle." Id. at 6. He would appear, in this regard, to be referring to the ratio of target IRR to a measure of risk, the standard deviation of return.

34 "Infrastructure Research Paper, A guide to infrastructure investments," Colonial first State Global asset Management, September 29, 2006 (citing CFS Research as its source of information), p. 4. Available at http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/060929%20infrastructure%20overview(1).pdf.

35 The same author offers, in the table below, a characterization of the relative risks and rewards of categories of infrastructure investments:

Risk-Reward Spectrum (less risk, less return to the left)

Core and Core Plus	**Value-Added**	**Opportunistic**
Bridges Tunnels Toll roads	Airports Seaports	Development projects
Pipelines Energy transmission and distribution	Rail links Contracted power generation	Satellite networks, Merchant power generation
Water and waste-water systems	Rapid rail transit	Non-OECD country infrastructure

"Investing, in Infrastructure," by Larry Kohn, Managing Director, JP Morgan Asset Management, CIPFA Scotland Asset Management Workshop, March 1, 2007. Available at http://www.cipfa.org.uk/scotland/download/conf_jpmorgan.pdf.

36 Here, too, the table in the main text is of limited value to potential investors, because the authors don't offer specific details that would allow assessment of the evidence supporting the figures presented.

37 "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 13. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf.

38 "Memo to Board and Staff of the State Universities Retirement System," by Lauren Nicholson, James Casselberry and Richard Ennis, EnnisKnupp, September 5, 2006, p. 7. Available at https://www.marquetteassociates.com/2q06%20Investment%20Perspectives.pdf. Although the argument in the main text would seem to suggest that greenfield, i.e., new project, investments would be the most risky, according to one investment advisory firm, "[a] Greenfield investment is not necessarily riskier than a Brownfield or a Rehabilitated Brownfield project. Ultimately, the risk/return profile of each investment is a function of the structure of the investment and how that structure addresses a number of [other] specific important risks." "Investing in Infrastructure Funds," Probitas Partners, September 12007, p. 8. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf.

39 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 14. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf. For example, "[t]oll roads, water utilities and ports reflect the highest risk adjusted return vis a vis Shape Ratio values, while diversified infrastructure and generation reflect the lowest risk adjusted returns." Id. at 14 and Exhibit 13.

40 With regard to the agency issue, one consultant notes that "[o]ften the general partner (GP) is not required to use a third-party to value a fund's assets, though they may do so of their own accord...The assets are usually valued on a discounted cash flow (DCF) basis, sometimes using third-party cash projections." "Infrastructure," Meketa Investment Group, p. 11. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. The administrative and accounting concerns arise from the fact that "valuations from the general partner are typically not available until well after the valuations from public market portfolios." Id. Also, in connection with unlisted funds, the costs of preparing bids "are generally recovered from limited partners when the deal is secured – therefore, general partners have an incentive to overpay and secure the deal." "Infrastructure Part I: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, February, 2007, p. 5.

41 Id. For a very similar though not quite identical characterization of investment performance by the same source see

"Investment Research Report," by Pension Consulting Alliance, Inc., June 2007, p. 14 (Table IV. Illustrative Investment Performance) (citing JP Morgan as a source). Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf. For yet another, see "The Role of Infrastructure in an Investor's Portfolio," by Steve Bickerton and Matt Gaden, Challenger, Slide: Infrastructure – Investment Returns, October 2006. Available at http://www.pacificprospect.com/iif_2006/downloads/b/6.pdf.

42 According to one consulting firm, "[r]egulatory risk is one of the key issues for infrastructure investors…as regulated assets will go through regulatory uncertainty as the returns and price controls for successive regulatory periods are determined. Pricing this risk is very difficult. Given that these assets can be highly geared, the impact on both equity and debt holders can be pronounced." Infrastructure – going global and listed," by Harry Liem and Dragana Timotijevic, Mercer Investment Consulting, Australia, December 2005, p. 8.

Arguably the longer the term of the concession or the greater the degree of privatization, the greater the risk of such adverse action. For example, in connection with the concession for the M5 Motorway in Hungary, the imposition of tolls resulted in diversion of "a significant amount of traffic" to a parallel, untolled route. "The increased noise pollution and safety hazard led to protests by local residents." The concession holder was "able to resist pressure to reduce the agreed toll rates on the M5…but did agree to a program of more substantial discounts for frequent and local users." Illinois Tollway System Valuation," Credit Suisse, August 2006, p.126. Available at http://www.jschoenberg.org/tollway/Illinois_Report_Final.pdf.

43 "Unrelated business taxable income "may be an issue for tax-exempt investors involved in direct infrastructure investments." "Infrastructure Research Report," by Judy Chambers, Pension Consulting Alliance, Inc., June 2007, p. 12 (recommending that investors "consult experienced and qualified tax professional about all tax related issues pertaining to infrastructure investments.") Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf.

44 See "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 13. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf. According to another consultant, "[p]olitical risks have not had a long enough history to be tested. Concerns such as liability issues (with respect to government sovereignty), eminent domain, and public disdain have not yet been tested and could be exercised in future transactions. It should be expected that some governmental contracts will go awry, and a power struggle for control over certain assets could occur in the future." "A White Paper on: Infrastructure Investment," Courtland Partners, Ltd., March 2007, p. 10.

45 "Infrastructure," Meketa Investment Group, p. 11. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. For example, "[s]ome assets collect their revenues directly from the user (e.g., utilities, airports, toll roads), while others collect them indirectly from taxpayers (e.g., hospitals, schools). ..[A]ny Greenfield project that involves eminent domain will be controversial, and nuclear power remains contentious." Id.

46 Id. As an illustration, one investment consultant noted that "during the California energy crisis deregulation led to the bankruptcy of major utility companies that could not pass on price increases to their customers." Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 13. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf. Also, "[t]he Dulles Greenway in the U.S….was renegotiated at a significant cut to investors." Id. Another example concerns what was then "the proposed long-term lease of a courthouse development in Canada. Despite repeated assurances it was committed to moving ahead, the government suddenly cancelled the lease negotiations in the 11th hour. It also happened to a consortium in which [Borealis Infrastructure on behalf of OMERS was a] member that offered to acquire a toll road network in France. The French government awarded the contract to a French-controlled consortium despite the fact that [the] consortium offered the highest price." Speech by Michael Nobrega, CEO, given at the U.S. Pensions and Investment Summit – "Infrastructure Investments for Increased Diversification: The Borealis Infrastructure (OMERS) Case Study." September 1, 2006. Available at http://www.borealisinfrastructure.com/news/newsreleases.aspx#sep12006

47 "The Privatisation Paradigm: Jumping onto the infrastructure bandwagon," by Ryan Orr, Infrastructure Journal, p. 17. Available at http://crgp.stanford.edu/publications/articles_presentations/Orr_IJ.pdf. The author adds: "[D]espite carefully-negotiated and varied contractual guarantees and protections, approximately half of all long-term infrastructure investment contracts ended up being renegotiated, with significant changes to the original contractual arrangements. Examples of renegotiations where initial equity investors have taken major 'haircuts' include a string of power plants in Indonesia, the Dhabol power plant in India, and the Dulles Greenway in the U.S." Id. at 17-18. According to one pension investment fund manager, "'[i]n developed countries, there's a legal framework where even if the government changes its mind, you have an enforceable contract. This is not so easy in less politically stable situations.'" "Alternate Route, Infrastructure is More Than a Detour," by John Rubino, CFA Magazine, July-August 2006 (quoting Robert Coomans, head of infrastructure investment for Dutch fund manager ABP), p. 28, Available at http://www.iassa.co.za/Alternative%20Route%20JulyAugust%202006.pdf.

48 Id. at 18. The author notes with respect to the second point: "For many projects initiated during the 1990s, the bargained-for allocation of such risks proved unsustainable commercially, politically and legally, notwithstanding sophisticated risk analysis and risk allocation. When the risk crystallized into liability, the party to whom the risk was allocated (often the host government) proved financially incapable of meeting its obligations." Id.

49 "Additionally, development will add to the illiquidity of an asset." "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 12. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf. "Additionally, hedging protection [against the sensitivity of an asset's return to interest rates] rarely extends for the life of the lease or asset." Id.

50 "Slack debt deals undermine 'safe' infrastructure – S&P," by Shayla Walmsley, IPE.com, September 10, 2007 (quoting Mike Wilson, managing director of infrastructure finance ratings at Standard & Poor's). Available at http://www.ipe.com/realestate/Slack_debt_deals_undermine_safe_infrastructure_S_P_25304.php. Wilson also "urged investors to scrutinise individual transactions, using hybrid (debt) structuring techniques for infrastructure operating within monopolistic environments with stable cash flows over the long term." While he was affirmative on the asset class, in the near term "he expected a shake-out 'only after some

deals have gone into distress.'" Id.

51 GIC (the government of Singapore's pension plan) and Goldman Sachs acquired 33.3 percent and 23.3 percent interests, respectively, with Infracapital (a subsidiary of Prudential plc), acquiring the balance. "Infrastructure, Assets," Ontario Municipal Employees Retirement System. Available at http://www.omers.com/Infrastructure/Assets.htm. More particularly. Borealis does "sourcing, screening, selecting, structuring, bidding on, [and] negotiating and managing infrastructure assets" on OMERS' behalf. Michael Nobrega Speech given at the U.S. Pensions and Investment Summit - "Infrastructure Investments for Increased Diversification: The Borealis Infrastructure (OMERS) Case Study." (September 1, 2006). Accessed but not currently available at http://www.borealisinfrastructure.com/news/newsreleases.aspx#sep12006.

52 "Slack debt deals undermine 'safe' infrastructure – S&P," by Shayla Walmsley, IPE.com, September 10, 2007 (quoting Mike Wilson, managing director of infrastructure finance ratings at Standard & Poor's and citing him, more generally, to the effect that "the current credit crunch which ended 18 months of favourable debt terms could paralyse loosely structured leverage worth $34bn (€24.6bn)."). Available at http://www.ipe.com/realestate/Slack_debt_deals_undermine_safe_infrastructure_S_P_25304.php. Another S&P report remarked as follows about the ABP deal: "Often we are seeing new infrastructure acquisition financing structures employing structural features, such as short shareholder lock-in periods, that are weaker than those of traditional transactions, coupled with a very aggressive financial structure. ABP, for example, was purchased for £2.8 billion with an enterprise value (EV)-to-EBITDA ratio of 16.6. Despite the asset's strong monopolistic position and stable cash flows, these terms are unlikely to fully mitigate risk arising from the high level of debt." "Global Finance Project Yearbook 2008," Standard & Poor's, p. 10. Available at http://www2.standardandpoors.com/spf/pdf/fixedincome/Project_Finance_2008.pdf. Note also, according to one report on the ABP investment, the ratio of net debt to EBITDA was said to be 11.5. "Infrastructure financing: recent trends," Global Infrastructure Partners, February 6, 2007, Slide 6. Available at http://www.pppinindia.com/cpp_pdf_files/Raj_Rao.pdf.

53 "Slack debt deals undermine 'safe' infrastructure – S&P," by Shayla Walmsley, IPE.com, September 10, 2007 (quoting Mike Wilson, managing director of infrastructure finance ratings at Standard & Poor's). Available at http://www.ipe.com/realestate/Slack_debt_deals_undermine_safe_infrastructure_S_P_25304.php.

54 "[T]he secondary market is somewhat untested at this point. This is particularly concerning for closed-end vehicles, which must sell the asset within a certain time-frame. Potential exit strategies used by managers include: listing on a public exchange (no real market at present), sale to an institutional investor with an infrastructure allocation, and sale to strategic buyers." "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 13. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf.

55 "Funds Eye US Infrastructure Gold Mine," Global Pensions, March 2007 (citing and quoting Mike Dudlowski, a vice president of Wilshire Consulting), p. 16. Available at http://globalpensions.com/feature/feature_pdf_1021.pdf. More specifically, one pension fund consultant reports, based on interviews with managers "that the sales of infrastructure assets have been good, but that most sales have been to other institutional investors and in one off transactions in Australia." "A White Paper on: Infrastructure Investment," Courtland Partners, Ltd., March 2007, p. 10. It adds: "The Canadian exit experience has not yet been tested and the United Kingdom exit experience is based on a smaller proportion of assets into infrastructure funds in their private equity allocations." Id. According to one infrastructure investment manager, liquidity for unlisted funds could be achieved not only from the sale or listing of individual investments, but also the sale or listing of the portfolio, asset recapitalization, and securitizing investments. "Investing in Infrastructure," by Shemara Wkramanayake, Macquarie Group, "Public Fund Forum," EnnisKnupp Associates, October 2, 2007. Available at http://www.ennisknupp.com/docs/PFBOOK.pdf.

56 Investing in Infrastructure Funds," Probitas Partners, September 2007, pp. 13-14. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf. For example, Macquarie Group's Macquarie Infrastructure Co., a $1.6 billion partnership listed on the New York Stock Exchange, securitizes the cash flow from a number of U.S.-based infrastructure investments, including an airport services business, an airport parking business, a business-district energy provider and a natural gas production and distribution business. "Infrastructure securities could be getting place at table," by Arleen Jacobius, *Pensions & Investments*, July 23, 2007. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20070723/REG/70720019/1008.

57 "Infrastructure securities could be getting place at table," by Arleen Jacobius, *Pensions & Investments*, July 23, 2007. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20070723/REG/70720019/1008.

58 "As with real estate, while each asset is usually insured against natural and man-made disasters, there is no guarantee that the insurance would completely cover the resulting damage and loss of revenues." "Infrastructure," Meketa Investment Group, p.12. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf.

59 Id.

60 With regard to the first, the construction contractor usually bears most of this under in the terms of the construction contract. Notwithstanding, investors still bear some residual risk in these contracts if, for example, the contractor becomes insolvent. "Understanding Infrastructure," by Lonneke Lowik, Peter Hobbs, and Kate Cam, RREF, December 2005, p. 12. Available at https://www.rreef.com/GLO_en/bin/Understanding_Infrastructure.pdf. The latter two are said to have "some unique aspects…for infrastructure. Structural deficiencies….could result in severe losses or liabilities…While each asset is usually fully insured against claims relating to the design, construction, maintenance, and operation of the asset, there is no guarantee that such insurance would completely cover liabilities relating to such a claim. "Infrastructure," Meketa Investment Group, p. 127. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf.

61 "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 13. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf. Arguably, this category includes what has been referred to as *forecasting risk*: "For example, estimating the rate of passenger growth at an airport is fundamental to accurately valuing the airport investment opportunity. Forecasting the electricity pool price likely to be achieved by a merchant power generator is another example." "Understanding Infrastructure," by Lonneke Lowik, Peter Hobbs, and Kate Cam, RREF, December 2005, p. 12. Available at https://www.rreef.com/GLO_en/bin/Understanding_Infrastructure.pdf. See in this connection, "Airports Grow Apace, but the Timing Seems Off," by Micheline Maynard, *The New York Times*, October 30, 2008 (describing how, at least over the near term, miscalculations in airport construction have resulted in a significant excess of capacity in relation to air carrier demand in the United

States).
62 "How investors can get more out of infrastructure," by Robert N. Palter, Jay Walder, and Stian Westlake, The McKinsey Quarterly, February, 2008, pp. 4 and 5.
63 "The Role of Infrastructure in an Investor's Portfolio," by Steve Bickerton, and Matt Gaden, Challenger, Slide: Risks of Investing in Infrastructure, December 2006. Available at http://www.pacificprospect.com/iif_2006/downloads/b/6.pdf.
64 "A firm foundation for project finance," by Akash Deep, in *Managing Risk, Part I – Concepts*, James Pickford (Ed.), Prentice Hall, 2001, pp. 218-223, 221.
65 "In industrialized countries, which have developed financial markets and relatively stable macro-economic fundamentals, most financial risks can be hedged through standard derivative instruments such as swaps, futures, and options. In developing countries, however, regulations often do not permit normal hedging instruments such as forwards and futures. In such situations, non-delivery exchange-rate contracts (NDFs) have proven to be excellent tools for managing currency risk." "A firm foundation for project finance" by Akash Deep, in Managing Risk, Part I – Concepts, James Pickford (Ed.), Prentice Hall, 2001, pp. 218-223. 221.
66 "The homework required in preparing a bid is extensive and may cost millions of dollars." Infrastructure Part I: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, February, 2007, p. 5. For example, although Pennsylvania had solicited bids for a 75-lease of the Pennsylvania Turnpike and had accepted a bid from Pennsylvania Transportation Partners, a consortium led by Citgoup and Abertis, a Spanish toll operator, subject to legislative approval. There was considerable legislative resistance. The upshot in face of the resistance (and delay) was that the consortium withdrew its bid. "Consortium pulls out of $12.8 bn turnpike deal," by Robert Wright, *Financial Times*, September 30, 2008.
67 "Infrastructure Research Paper, A guide to infrastructure investments," Colonial first State Global asset Management, September 29, 2006 (citing CFS Research as its source of information), p. 4. Available at http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/060929%20infrastructure%20overview(1).pdf
68 "Infrastructure Research Paper, A guide to infrastructure investments," Colonial first State Global asset Management, September 29, 2006 (citing CFS Research as its source of information), p. 7 (referring to guaranteed payments "such as 'shadow toll' paid per vehicle or an 'availability payment' for making the road available for use by motorists."). Available at http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/060929%20infrastructure%20overview(1).pdf
69 Id. at 5.
70 Id.
71 Id.
72 "A White Paper on: Infrastructure Investment," Courtland Partners, Ltd., March 2007, p. 10.
73 Id. For example, as a general matter, it suggests that construction risk for transportation project assets is "low" while that for utilities is "moderate"; political risk for the former is "moderate/high" and "moderate" for the latter. Id. In turn, these characterizations arise from assessments of particular risks. For example, with regard to political risk, "[a] broken road is likely to attract lower public backlash than a poorly maintained water supply." Id. at 12.
74 Id at 10.
75 "Infrastructure," Meketa Investment Group, p. 19. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf.
76 "Infrastructure Research Report," by Judy Chambers, Pension Consulting Alliance, Inc., June 2007, p. 15 (Table VI). Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf. In non-emerging companies, the one-year and five year cumulative default rates for infrastructure projects were 0.25 percent and 1.23 percent, compared to corporate bond default rates of 1.82 percent and 7.82 percent. These figures are for industrial economies. For emerging economies the figures are higher, namely, 2.73 percent and 14.69 percent, respectively. According to the same report, over the period 1992-2003, "[i]nfrastructure projects had a 96.65 percent average ratings transition, compared to corporate ratings in the infrastructure of 76.05%." Id. The cited statistics appear to be derived from "Investing in Infrastructure: A Prime," Morgan Stanley Investment Management, Infrastructure Paper Series No. 2, May, 2007, p. 7. Available at http://www.morganstanley.com/views/perspectives/files/infrastructure_paper2.pdf. See also "A White Paper on: Infrastructure Investment," Courtland Partners, Ltd., March 2007, p. 9 (presenting apparently identical numbers as part of a broader comparison, citing S&P Risk Solutions calculation, November 2006).
77 "The Amazing Growth of Global Infrastructure Funds: Too Good to be True?," by Michael Wilkins, Standard & Poor's, November 30, 2006, p. 5. Available at http://www.cassalumni.net/The%20Amazing%20Growth%20Of%20Global%20Infrastructure%20Funds%20Too%20Good.pdf.
78 "There's a lot of capital chasing a smaller number of deals…" "New Opportunities for Infrastructure," by Arleen Jacobius, Pensions & Investments, October 1, 2007 (quoting Chris Lawton, partner, global real estate center, Ernst & Young, New York), p. 28. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20071001/PRINTSUB/70928006. "Recent infrastructure deals worldwide have been completed at 12 to 20 times debt to earnings before interest, taxes, depreciation, and amortization compared with historic levels of eight to 11 times." Id. For criticism suggesting that Cintra-Macquarie paid too much for the Chicago Skyway, see "Cintra-Macquarie paid too much for the Chicago Skyway – an opinion," Toll Roads News, April 14, 2005. Available at http://www.tollroadsnews.com/node/1093. See also "How investors can get more out of infrastructure," by Robert N. Palter, Jay Walder, and Stian Westlake, The McKinsey Quarterly, February, 2008, (noting that "[b]idding for…deals [had] already [been] intense" with "price-to-earnings multiples" risen from 9 for an Italian airport acquisition in 2002 to 27 for a UK airport acquisition in 2007, and a greater than doubling for two port acquisitions between 2002 and 2006), p.2.
79 See "Macquarie Infrastructure Group, Skyway Financial Close" (referring to a purchase price of $1.83 billion and initial debt of $1.19 billion), Slide 3. Available at http://www.macquarie.com.au/au/mig/acrobat/mig_chicago_close.pdf.
80 "Credit FAQ: Assessing the Credit Quality of Highly Leveraged Deep-Future Toll-Road Concessions," by Robert Baio, Kurt Forsgren, and Paul B. Calder, in "Standard & Poor's PPP Credit Survey 2006), pp. 65-68. Available at http://www.ibtta.org/files/PDFs/PPP%20Credit%20Survey_2006.pdf.
81 For example, one consulting firm specialist contends that in certain ways property and infrastructure assets are similar:

"large upfront investments; low cost; reliable and regular cash-flows, low beta; interest rate sensitive due to the long duration of the assets) and the perceive defensive nature of both." But they are also different: property assets "have more commodity-like characteristics" whereas "[i]ndividual infrastructure assts are more specialized and frequently have monopoly like characteristics which result in considerable pricing power"; "property is more sensitive to the vagaries of the economy which leads to higher variability in cash flows" whereas "infrastructure has a monopoly position, it generates more predictable cash flows and hence lower risk [depending upon the particular characteristics of the investment]", and "[i]ndividual properties meet a 'ready' market and scope exists to refurbish and redevelop properties to maintain their viability as demand changes" whereas "[i]ndividual infrastructure projects are invariably highly specialized and if revenues are threatened by the arrival of a rival technology or rival facility, the flexibility to respond may be low."). "The Case for Global Listed Infrastructure," by Dragan Timotjevic, Mercer Human Resource Consulting, January 2007, p. 2. Available at http://www.mercerhr.com/referencecontent.jhtml?idContent=1255730. (Noting that the possible monopoly position of infrastructure assets may be result of "natural barriers to entry such as the difficulty in obtaining suitable land on which to develop, and various environmental and legal impediments" or "exclusive long-term concession periods, long-dated contracts for a significant proportion of demand, [as well as] efficiencies provided by economics of scale.") "infrastructure: A Hidden Gem?," Global Pensions, December 2004, p. 41. Available at http://globalpensions.com/data/GP_pdfs/features/feature_pdf_357.pdf. Also, "[i]nfrastructure assets, in particular patronage assets, have higher growth potential than property. A toll road, for example, can continue to capture worth without having to re-invest significant capital. A commercial building may be fully let or vacant – either way there is limited growth potential." Id.

82 "The 2008 Preqin Infrastructure Review," Private Equity Intelligence Ltd, p. 5. Available at http://privateequityintelligence.com/docs/samples/sample_ID2008.pdf.

83 "Bridging the Gap, A Trustee's Guide to Alternative Investments – Part 4," by Peter Hobbs, Benefits Canada, March 2006, p. 51. Available at http://www.benefitscanada.com/pdfs/trusteesguide0306.pdf.

84 More particularly, the Ontario Municipal Employees Retirement System, the Caisse de depot et placement du Quebec, the Ontario Teachers' Pension Plan, the Canada Pension Plan Investment Board, and the Ontario Public Service Employees Union Pension Trust and actual or target allocations of 15%, 4%, 9%, 10%, and 15%, respectively. "The Infrastructure Funding Deficit: Time to Act," Residential and Civil Construction Alliance of Ontario, " June 2006, p. 13. Available at http://www.rccao.com/research/files/Rccao_InfraFundDeficit-Jun06.pdf.

85 "Dutch plan to make new allocation for infrastructure investments," Pensions and Investments, January 18, 2007. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20070118/REG/701180718/-1/ONLINENEWS01.

86 "A White Paper on: Infrastructure Investment," Courtland Partners, Ltd., March 2007, p. 7.

87 "Inflation-Sensitive Investments, Ontario Teachers' Pension Plan." Available at http://www.otpp.com/web/website.nsf/web/inflation-sensitive. The Canadian Pension Plan Investment Board, which managed a portfolio of $119.4 billion at the start of 2008, has "generally [been] interested in infrastructure assets that provide relatively stable long-term results, operate in strong regulatory environments, have relatively low technology replacement risk, and possess minimal substitution risks." It "look[s] for long-term assets that can be held for periods of 20-30 years." "Backgrounder, Infrastructure Investing," CPP Investment Board, February 2008, p. 1. Available at http://www.cppib.ca/files/PDF/CPPIB_Infrastructure_Backgrounder_February_2008.pdf. The Board suggests that the types of assets with such characteristics include: "electricity transmission and distribution, gas transmission and distribution, water and sewage companies, and certain transportation assets, such as toll roads, bridges, and tunnels, airports, and ports." Id. at 2. The Board's initial focus was on a "smaller number of large [direct investment] transactions" through consortia, targeting the $300 million to $600 million range. Id. The Board's major direct investments totaling $2.6 billion included a partial ownership interests in a natural gas distribution network in the United Kingdom (UK), the parent of a UK based water and sewage company, and an electricity transmission company in Chile, id. at 3, and apparently, most recently a French communications tower company. "Infrastructure Portfolio," CPP Investment Board. Available at http://www.cppib.ca/Results/Financial_Highlights/infrastructure_investments.html

88 "Maine to boost alts, cuts equities and TIPS," Pensions & Investments (citing the fund's CIO characterizing "infrastructure's hedging characteristics" as commensurate with that strategy), June 24, 2008. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20080624/DAILY/236086322/1036/PIDAILYMM

89 "New Asset Class for CalPERS," by Heather Dale, GlobalPensions, September 11, 2007. Available at http://globalpensions.com/?id=me/17/news/28/47507/38&keyword=infrastructure. For CalPERS' inflation-linked asset policy, see California Public Employees' Retirement System Statement of Investment Policy for the Inflation-Linked Asset Class," California Public Employees' Retirement System. Available at http://www.calpers.ca.gov/eip-docs/investments/policies/inv-asset-classes/ilac-policies/ilac.pdf. (Attachment C to that document contains policies related to infrastructure). A similar, if not quite identical approach has recently been under consideration by the Committee of Investments of the Regents of the University of California. More particularly, they focused on a class of "[r]eal assets," which are "comprised of 'hard' assets that are expected to provide value protection during unexpected bouts of inflation and participate in continued industrialization of emerging economies. Real Assets include: inflation linked bonds (TIPS), real estate, natural resources (oil, gas, and timber), infrastructure, farmland, and commodities." Minutes, Committee on Investments, Regents of the University of California, September 11, 2007, p. 2. Available at http://www.universityofcalifornia.edu/regents/regmeet/sept07/i3attach1.pdf.

90 See "State Investment Board makes significant asset allocation changes for state retirement fund investments." Press Release, Washington State Investment Board, November 15, 2007, available at http://www.sib.wa.gov/information/pr/111507.html and "Washington State ups real estate allocation," IPE.com, November 28, 2007, available at http://www.ipe.com/realestate/Washington_State_ups_real_estate_allocation_26155.php. According to the Board, such assets are ones "likely to have returns that are relatively uncorrelated to other asset classes or to each other." It cited several other reasons for using the new designation, including that some of the investment types correlate well with inflation or "produce long-term, high-quality, stable income streams which are advantageous for return diversification as well as investment allocation management." Id. The Board made its first investment in infrastructure in June of 2008, committing $400 million to the Alinda Infrastructure Fund, which invests heavily in North

America. "Washington State sinks $1.2 bn into real estate and infrastructure," by Jon Peterson , IPE Real Estate, June 26, 2008. Available at http://www.ipe.com/realestate/Washington_State_sinks_1_2bn_into_real_estate_and_infrastructure__28399.php.

91 "Investment Policy Statement," Teacher Retirement System of Texas, Adopted April 11, 2008, p. 17. Available at http://www.trs.state.tx.us/investments/documents/investment_policy_statement.pdf. The composition of this category reflects its stated purpose, to wit: to "contribute favorably to diversification of the Total Fund through exposure to real assets' low or negative correlation to public equity and fixed income" and "[p]rovide competitive returns through capital appreciation." Id.

92 "Kansas to add real return portfolio," Pensions & Investments, April 2, 2008. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20080402/DAILY/3226840/1034/PIDAILYMM.

93 During the 2007 fiscal year, the Chicago Teachers Pension fund "allocated 2% to infrastructure, a new asset class." "112th Comprehensive Annual Financial Report," Chicago Teachers' Pension Fund, p. 12. Available at http://www.ctpf.org/AnnualReports/cafr2007.pdf. As of March 31, 2008, the San Bernadino County Employees' Retirement Association had a 2% allocation to infrastructure, with 1.3% actually having been so invested. "Asset Allocation, Investments," San Bernadino County Employees' Retirement Association. Available at http://www.sbcera.org/financial_info/asset_allocation.html. In fiscal year 2007, the Missouri State Employees' Retirement Association reported "follow-on commitments were made to two of our previously hired managers, and a new manager was hired to focus on infrastructure that exhibit private equity-like returns." 2007 Annual Report, Missouri State Employees' Retirement System, p. 92. Available at http://www.mosers.org/assets/pdfs/2007_annual_report/investment_section.pdf.

94 "Infrastructure Traffic Builds," by Arleen Jacobius, Pensions & Investments, April 16, 2007. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20070416/PRINTSUB/70413039/1031/TOC. The Michigan Municipal Employees' Retirement System, Lansing, was said to be considering initial allocations. Id.

95 Telephone call with John Szczur, Director of Investments, The Central Pension Fund of the International Union of Operating Engineers, October 1, 2008. Thought has been given to expanding the allocation to infrastructure from 5 to 10%. Id. Two hundred million dollars in commitments were made to Macquarie Infrastructure Partners and $75 million to Carlyle Infrastructure Partners. Additional commitments were made to funds established by Macquarie, Alinda, and Carlyle. Id. See also "The Central Pension Fund of the International Union of Operating Engineers and Participating Employers," by John Szczur, EnnisKnupp Associates, Client Conference, October 2, 2007. Available at http://www.ennisknupp.com/docs/PFBOOK.pdf.

96 Telephone conversation with John DeCarlo, Attorney with DeCarlo, Connor & Shanley, Los Angeles, California, October 9, 2008. According to Mr. DeCarlo, 50% or more of the commitments already made had been called by this time. Investments were made with funds created by Macquarie and Alinda. The focus of the funds was primarily on North American investments. Many of such investments are brownfield ones. Note, also, the following report: "One of Macquarie's newer funds, Macquarie Infrastructure Partners, includes among the 47% of its investors that are U.S.-based the Midwest Operating Engineers Pension Fund and the Mid-Atlantic Carpenters Pension Fund, "Pensions Funds and Infrastructure Investment: Only privately financed and operated infrastructure makes sense for pension fund investment," by Robert Poole, Public Works Financing, May 2008. Available at http://www.reason.org/commentaries/poole_20080500.shtml.

97 Telephone conversation with John DeCarlo, Attorney with DeCarlo, Connor & Shanley, Los Angeles, California, October 9, 2008.

98 Telephone conversation with Richard Metcalf, Director of Corporate Affairs, Laborers International Union of North America, October 9, 2007.

99 Telephone conversation with Rome Aloise, Trustee, Western Conference of Teamsters Pension Plan, July 10, 2008. investments include ones in funds created by Macquarie, IFM, and UBS. Id.

100 For example, according to one report, "[t]he $39 b[illion] Illinois Teachers' Retirement System has distanced itself from infrastructure investments, claiming it had 'more confidence' in other asset classes." "TRS Cool on Infrastructure," by Damian Clarkson, Global Pensions, February 7, 2007. Available at http://globalpensions.com/showPage.html?page=gp_display_news&tempPageId=658147.

101 See "Alternatives briefs: Texas plans urged to invest in state infrastructure," *Pensions & Investments*, September 1, 2008. Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20080901/PRINTSUB/309019987/1025/TOC.

102 Id. (quoting Joseph Azelby, Managing Director and Global Head, JP Morgan Asset Management's Real Estate Business).

103 Id (citing Joseph Azelby, Managing Director and Global Head, JP Morgan Asset Management's Real Estate Business).

104 "JPMorgan Asset adds infrastructure division. Firm considers unit part of real estate, not private equity; Weisdorf named global CIO," by Arleen Jacobius, Pensions and Investments, February 6, 2006 (referring to competitors ABN Asset Management, Deutsche Bank AB and Goldman Sachs).

105 "A White Paper on: Infrastructure Investment," Courtland Partners, Ltd., March 2007, p. 13. More particular, as contrasted with other real asset classes, "political relationships are the most important factor to manage. Asset maintenance and capital expenditures are of importance, but real costs to the public are also of importance. This makes managing operating expenses more significant." Id.

106 "Infrastructure Part II: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, September, 2007 (stating that in that model portfolio, 20% is allocated to alternatives and suggesting that "an allocation of 2-5% staged over 2-3 years seems an appropriate consideration at this time."), p. 3.

107 "Understanding Infrastructure," by Lonneke Lowik, Peter Hobbs, and Kate Cam, RREF, December 2005, pp. 14-15 (Table 4). Available at https://www.rreef.com/GLO_en/bin/Understanding_Infrastructure.pdf. Another analysis locates "later stage" infrastructure between "core" and "value added" real estate in terms of risk and reward and "developmental" infrastructure between "value added" and "opportunistic" real estate. "Global Infrastructure Investing: The Emergence of an Alternative Asset Class," by Peter Hobbs, Canadian Investment Review, 1st Infrastructure Investment Summit Mont Tremblant, Quebec June 14-16 2006. Available at http://www.investmentreview.com/conferences/ /pdfs_files/Hobbes,%20Peter%20-%20IIS2006.pdf. Of course, infrastructure assets differ, so a more finely grained comparison between the characteristics of particular kinds of such assets and other categories of assets is even more useful. For example, "assets such as utilities operate very much like any other private equity company with a broad company base, seeking to reduce operating costs and enhance revenues" while "airports more closely

resemble real estate, as they include a substantial underlying (hard) asset and a tenant base. Further, the income component generated by this tenant base or the users of any other infrastructure assets should resemble the steady income received from highly leased real estate investments." Infrastructure," Meketa Investment Group, p. 13. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 13. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf.

108 "Alternate Route, Infrastructure is More Than a Detour," by John Rubino, CFA Magazine, July-August 2006, p. 29. Available at http://www.iassa.co.za/Alternative%20Route%20JulyAugust%202006.pdf.

109 "Global Infrastructure Investing: The Emergence of an Alternative Asset Class," by Peter Hobbs, Canadian Investment Review, 1st Infrastructure Investment Summit Mont Tremblant, Quebec June 14-16 2006. Available at http://www.investmentreview.com/conferences/IIS2006/pdfs_files/Hobbes,%20Peter%20-%20IIS2006.pdf.

110 "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 15. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf. Note that the discussion in the main text refers to equity investments; however, direct investing may also be done through acquisition of debt in specific infrastructure assets." Speech by Michael Nobrega, CEO, given at the U.S. Pensions and Investment Summit – "Infrastructure Investments for Increased Diversification: The Borealis Infrastructure (OMERS) Case Study." September 1, 2006. Accessed but currently not available at http://www.borealisinfrastructure.com/news/newsreleases.aspx#sep12006.

111 Head of the Class," by Sheryl Smolkin, Investment Insider – Employee Benefit News Canada supplement, May/June 2008. Available at http://ebnc.benefitnews.com/asset/article/591701/head-class.html?pg=.

112 "Taking the Direct Track to Infrastructure," by Elizabeth Pfeuti, Global Pensions, July 2007, p. 16. Available at http://globalpensions.com/feature/feature_pdf_1248.pdf. At the end of 2006, the C$106 billion fund held C$6.8 billion infrastructure (and timber). Id. For a detailed description of how Borealis Infrastructure, on behalf of OMERS, got involved in 1998 and subsequently built its stake in infrastructure investments to $4 billion by 2006, see Speech by Michael Nobrega, CEO, given at the U.S. Pensions and Investment Summit "Infrastructure Investments for Increased Diversification: The Borealis Infrastructure (OMERS) Case Study." September 1, 2006. Accessed but currently not available at http://www.borealisinfrastructure.com/news/newsreleases.aspx#sep12006.

113 Head of the Class," by Sheryl Smolkin, Investment Insider – Employee Benefit News Canada supplement, May/June 2008. Available at http://ebnc.benefitnews.com/asset/article/591701/head-class.html?pg=.

114 Id. One writer refers to the "[l]arge scale of investment required per asset; for example, it is very common for assets in the infrastructure arena to be valued well over US$1 billion, placing them out of the league of individual institutional investors." "Infrastructure Investing: In a class of its own?," by Dennis Martin, Institute for Fiduciary Education, 2005, p. 5. Available at http://www.ifecorp.com/Digital%20Binders/RE0905/Papers/RREEF.pdf. See also "Head of the Class," by Sheryl Smolkin, Investment Insider – Employee Benefit News Canada supplement, May/June 2008 (referring to "the 20 people on OTPP's infrastructure team"). Available at http://ebnc.benefitnews.com/asset/article/591701/head-class.html?pg= and Speech by Michael Nobrega, CEO, given at the U.S. Pensions and Investment Summit – "Infrastructure Investments for Increased Diversification: The Borealis Infrastructure (OMERS) Case Study." September 1, 2006. (referring to its having at that time – 2006 – through Borealis infrastructure "a deep talent pool of 50 professionals and staff"), available at http://www.borealisinfrastructure.com/news/newsreleases.aspx#sep12006.

115 "Taking the Direct Track to Infrastructure," by Elizabeth Pfeuti, Global Pensions, July 2007 (citing and quoting Chris Condon, chief investment officer at MLC in Sydney, Australia), p. 16. Available at http://globalpensions.com/feature/feature_pdf_1248.pdf. "

116 "Following in the footsteps of the pioneering funds, a tidal wave of 72 new infrastructure funds have been launched in the past 15 months," "The rise of infra funds," by Ryan J. Orr, Global Infrastructure Report, 2007. Available at http://crgp.stanford.edu/publications/articles_presentations/Orr_01_Infra_funds_2007pfie.pdf.

117 "Teachers' Private Capital," Ontario Teachers' Pension Plan. Available at http://www.otpp.com/web/website.nsf/web/privatecapital.

118 "Taking the Direct Track to Infrastructure," by Elizabeth Pfeuti, Global Pensions, July 2007, p. 16. Available at http://globalpensions.com/feature/feature_pdf_1248.pdf. "Asset managers are partnering with pension funds to invest in long term infrastructure programs." For example, "Brookfield Asset Management…has partnered with several pension funds in infrastructure buyouts, such as the $1.7 [billion] deal with [the] Canadian Pension Plan (CPP) to buy the Chilean electricity transmission firm, Transelec, in June 2006." Id. ABP, the Dutch pension fund "co-invested in Thames Water through a consortium of investors, thus avoiding the due diligence process which was carried out by the funds entering into the transaction." Id. According to one pension consultant, co-investment is a way for funds that "are new to infrastructure to learn more about investment strategies." Also, they "typically pay lower fees in co-investment deals." "investment Research Report," by Pension Consulting Alliance, Inc., June 2007, p. 20. Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf. Note that OMERS has commenced partnering with other pension funds through "a North American infrastructure fund, managed by Borealis Infrastructure, in which OMERS would be the lead and largest investor" and which would be available to smaller pension funds. Speech by Michael Nobrega, CEO, given at the U.S. Pensions and Investment Summit – "Infrastructure Investments for Increased Diversification: The Borealis Infrastructure (OMERS) Case Study." September 1, 2006. Accessed but currently not available at http://www.borealisinfrastructure.com/news/newsreleases.aspx#sep12006.

119 "Following in the footsteps of the pioneering funds, a tidal wave of 72 new infrastructure funds have been launched in the past 15 months," "The rise of infra funds," by Ryan J. Orr, Global Infrastructure Report, 2007. Available at http://crgp.stanford.edu/publications/articles_presentations/Orr_01_Infra_funds_2007pfie.pdf.

120 Id. at 1.

121 "Investment Research Report," by Pension Consulting Alliance, Inc., June 2007, p. 20. Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf. An estimated $38 to $51 billion was raised in 2006-2007 for such funds. Id. (citing Macquarie Research, April 2007). Note that the "development in the infrastructure market over the past year [2006] has seen unlisted/direct players acquiring listed companies at significant premiums.

This may reflect the lack of opportunities in the unlisted space relative to the money committed to these funds. Two examples are ABP Ports, acquired by Goldman Sachs and BAA Pic, acquired by Rerrovial." "The Case for Global Listed Infrastructure," by Dragan Timotjevic, Mercer Human Resource Consulting, January 2007, p. 2. Available at http://www.mercerhr.com/referencecontent.jhtml?idContent=1255730.

122 "investment Research Report," by Pension Consulting Alliance, Inc., June 2007, p. 20. Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf.

123 "Infrastructure Part I: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, February, 2007 (referring to"$10 million as a typical minimum" investment), p. 4.

124 "Investment Research Report," by Pension Consulting Alliance, Inc., June 2007, p. 20. Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf.

125 "Infrastructure Part I: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, February, 2007, pp. 3-4.

126 Id. at 5-6.

127 See "The Rewards and Risks of Private Equity in Infrastructure," by Sasha Page, William Ankner, Cheryl Jones, and Rob Fetterman. See also " Lessons Learned from Public Private Partnerships for Infrastructure," Keston Institute for Public Finance and Infrastructure Policy, University of Southern California, March 28-29, 2008 (describing a non-statistically valid sample of five private equity infrastructure funds, showing four with 10 year terms and one with a 12 year term, with four of the five providing for potential for one year extension), p. 19, available at http://www.usc.edu/schools/sppd/keston/documents/PAGERisksandRewards.pdf and "The 2008 Preqin Infrastructure Review," Private Equity Intelligence Ltd. (stating, with respect to a mid-2008 survey of unlisted infrastructure funds that the "[vast majority (nearly 90%)…plan[ned] to employ a five year investment period," that period being only part of the overall life of the fund], p. 9, available at http://privateequityintelligence.com/docs/samples/sample_ID2008.pdf. However it has been suggested "these extensions are meant to deal with small, tag-end positions that may not quite be ready for exit, and not a larger portfolio of naturally long-lived assets. "Investing in Infrastructure Funds," Probitas Partners, September 2007, p. 13. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf.

128 Id. See also "Getting a piece of the infrastructure pie," by David Adler, Investment Insider – Employee Benefits Canada supplement, May/June 2008 (citing Bill Mckenzie, head of infrastructure investments at Alberta Investment Management Corporation, which manages assets for pensions funds and endowments, as preferring closed end funds and quoting him for the reason being "'mostly because they are more experienced managers and investment strategies to choose from.'" Available at http://ebnc.benefitnews.com/asset/article/591871/getting-piece-infrastructure-pie.html.
The head of infrastructure investments at a Canadian investment management firm, managing assets for pensions funds and endowments, is quoted as preferring closed end funds "'mostly because they are more experienced managers and investment strategies to choose from.'"

129 Investing in Infrastructure Funds," Probitas Partners, September 2007, pp. 8 and 12. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf. The conflict of interests issues are posed for fund sponsors by these arrangements insofar as they involve "transfer[s] between affiliated shorter-term oriented funds and longer term affiliated vehicles," Id. Here, "[g] reenfield investments can be sold once they are completed and stabilized…, while other projects with natural longer maturities are often either transferred to limited partners focused on long-tailed returns, sold to other investors, or transferred to vehicles affiliated with the firm and sponsors with longer durations and moderated economics to reflect a more passive, stabilized role," "Investing in Infrastructure Funds," Probitas Partners, September 2007, p. 12. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf.

130 Investing in Infrastructure Funds," Probitas Partners, September 2007, p. 12. Available at http://www.probitaspartners.com/pdfs/infrastructure.pdf.

131 The Rewards and Risks of Private Equity in Infrastructure," by Sasha Page, William Ankner, Cheryl Jones, and Rob Fetterman, " Lessons Learned from Public Private Partnerships for Infrastructure," Keston Institute for Public Finance and Infrastructure Policy, University of Southern California, March 28-29, 2008, p. 19. Available at http://www.usc.edu/schools/sppd/keston/documents/PAGERisksandRewards.pdf.

132 "Infrastructure Research Report," by Judy Chambers, Pension Consulting Alliance, Inc., June 2007, p. 20. Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf.

133 " Infrastructure," Meketa Investment Group, p. 19. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. "The liquidity terms for these funds are not well resolved or tested, as the managers are anticipating that inflows can be used to offset outflows, just as for open-end core real estate funds." Id.

134 ." Infrastructure," Meketa Investment Group, p. 19. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. See also PCA, p .20 (noting in reference to both to closed- and open-ended infrastructure funds, that "[i] nfrastructure assets are illiquid and exit strategies may not be clearly outlined").

135 Id. See also "Infrastructure Part II: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, September, 2007, p. 4.

136 "The Role of Infrastructure in an Investor's Portfolio," by Steve Bickerton, and Matt Gaden, Challenger, Slide: Listed Versus Unlisted Infrastructure," December 2006. Available at http://www.pacificprospect.com/iif_2006/downloads/b/6.pdf.

137 "Infrastructure Part II: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, September, 2007, p. 4.

138 Telephone conversation with Monte Tarbox, Client Services Director, Industry Funds Management (U.S.) LLC, June 23, 2008.

139 "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 15. Available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf.

140 "Investing in Infrastructure," by Linda McDonald, RogersCasey, January 2007, p. 15., available at http://www.rogerscasey.com/rogerscasey/contents/research/wp/InvestingInfrastructure.pdf, and Telephone conversation with Monte Tarbox, Client Services Director, Industry Funds Management (U.S.) LLC, June 23, 2008.

141 "Getting a piece of the infrastructure pie," by David Adler, Investment Insider – Employee Benefits Canada supplement, May/June 2008 (citing Mark Weisdorf, CIO of the infrastructure investments group at JP Morgan Asset Management). Available at http://ebnc.benefitnews.com/asset/article/591871/getting-piece-infrastructure-pie.html.
142 "Getting a piece of the infrastructure pie," by David Adler, Investment Insider – Employee Benefits Canada supplement, May/June 2008 (citing Gerry Wahl, assistant treasurer of Teck Cominco Ltd.).. Available at http://ebnc.benefitnews.com/asset/article/591871/getting-piece-infrastructure-pie.html.
143 " Infrastructure," Meketa Investment Group, p. 16. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf.
144 "MAp Overview," Macquarie Airports. Available at http://www.macquarie.com.au/au/map/about_map/overview.htm.
145 "Frequently asked questions," MAp Overview, Macquarie Airports. Available at http://www.macquarie.com.au/au/map/investor_centre/faqs.htm. Actually the structure of Map is more complicated than the foregoing. See Id.
146 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 15. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.
147 "Infrastructure," Meketa Investment Group, p. 16. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. See also "Infrastructure Part I: Why is Infrastructure a Concrete Investment?," by John Osborn and Leola Ross, Viewpoint, Russell Investment Group, February, 2007 (stating that "[c]urrently, the listed stocks and funds are dominated by very mature assets and have a concentration in utilities, but also include road and airport stocks which are listed on the ASX in Australia."), p. 2.
148 "Infrastructure," Meketa Investment Group, p. 15. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf.
149 "Macquarie International Infrastructure Securities Fund," Macquarie Funds Management, Product Disclosure Statement, July 1, 2006, p. 5. Available at http://www.macquarie.com.au/au/corporations/acrobat/mmif_miisf_with_app_form.pdf.
150 "The case for global listed infrastructure," by Dragan Timotijevic, Mercer, January 2007. Available at http://www.mercer.com/referencecontent.htm?idContent=1255730.
151 "The case for global listed infrastructure," by Dragan Timotijevic, Mercer, January 2007. Available at http://www.mercer.com/referencecontent.htm?idContent=1255730.
152 Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 15. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.
153 According to the study, both listed and unlisted infrastructure are negatively correlated with long-term, e.g., 10-year bond, interest rates because that rate "is typically embedded in the discount rate used to value infrastructure businesses." However, the relationship is stronger for listed infrastructure because "there is more focus on company specific factors in unlisted returns which often overwhelm the impact of changes in long-term interest rates." "Investing in infrastructure – the Australian experience," Colonial First State Global Asset Management, November 3, 2006, p. 9. Available at http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/061103%20Infrastructure%20research%20paper_Australian%20Experience.pdf.
154 Id. "A reasonable proportion of this volatility is likely to be equity market noise, unless a reappraisal of the fundamental value of infrastructure assets occurs." "The case for global listed infrastructure," by Dragan Timotijevic, Mercer, January 2007, p. 1. Available at http://www.mercer.com/referencecontent.htm?idContent=1255730.
155 "The case for global listed infrastructure," by Dragan Timotijevic, Mercer, January 2007, p. 1. Available at http://www.mercer.com/referencecontent.htm?idContent=1255730.
156 "Infrastructure," Meketa Investment Group, p. 16. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. As of the spring of 2008, one commentator suggested that a "handful of ETFs have emerged in the field." It referred to the SPDR FTSE/Macquarie Global Infrastructure 100 ETF (AMEX: GII) and the iShares S&P Global Infrastructure Index (NYSE: IGF) as "broadly diversified ones." "ETFs for the Global Infrastructure Boom," by Zoe Van Schyndel, CFA, The Motley Fool, May 15, 2008. Available at http://www.fool.com/investing/general/2008/05/15/etfs-for-the-global-infrastructure-boom.aspx.
157 "Rush for Assets," Risk, September 1, 2007. Available at http://db.riskwaters.com/public/showPage.html?page=468531.
158 "Infrastructure for Investors," AMP Capital Investors, October 4, 2005. Available at http://www.amp.com.au/display/file/0,2461,FI96122%255FSI56,00.pdf?filename=olivers_insights_041005.pdf.
159 Note that none of the discussion of financial performance here reflects the dramatic events in financial markets of recent months and various kinds of infrastructure investments have performed under such very stressful circumstances. Recent anecdotal, largely press reports which focus on listed vehicles offer some pause for thought. See, for example, "Infrastructure Takes Hit – Costs, Tight Credit Cause Cancellations of Global Projects," by Paul Glader, *The Wall Street Journal*, August 27, 2008, p. C16; "Macquarie's Malaise," The Financial Times, August 23, 2008, "Shaking Up the 'Macquarie Model' – Babcock's Woes Cast Clouds Over Infrastructure Funds; Debt Burdens Extract a toll," by Laura Santini, *The Wall Street Journal*, August 22,2008, p. C1; and "PM - Macquarie falters as model comes under fire," ABC, September 18, 2008, available at http://www.abc.net.au/pm/content/2008/s2368568.htm; and "Many promising alternative investments exist, but you never know what you'll get," by David Adler, The Investment Insider, September 15, 2008 ("[L]isted infrastructure funds have suffered - badly - recently as the credit crunch has forced funds to deleverage and try to sell off assets with little luck so far."), available at http://ebn.benefitnews.com/asset/article/695951/Many-promising-alternative-investments-exist-but.html. However, see "The Macquarie Model Is Very Solid," by Greg Ward, Chief Financial Officer, Macquarie Group Ltd., Letter to the Editor, *The Wall Street Journal*, August 30, 2008. Available at http://online.wsj.com/article/SB122005170714684911.html?mod=googlenews_wsj.
160 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 5 (data "reflect[s] returns of individual investors, and managers are subject to confidentiality agreements"). Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.
161 "Global Infrastructure Investing: The Emergence of an Alternative Asset Class," by Peter Hobbs, Canadian Investment Review, 1st Infrastructure Investment Summit Mont Tremblant, Quebec June 14-16 2006. Available at http://www.investmentreview.com/conferences/IIS2006/pdfs_files/Hobbes,%20Peter%20-%20IIS2006.pdf. See also Performance Characteristics of

Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007 ("[T]he risk/return varies significantly by type of investment at different stages."), p. 5. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.

162 "Infrastructure: Building A New Asset Class," by Pat Krolak, Investment Perspectives, Marquette Associates, Second Quarter, 2006, p. 2. Available at https://www.marquetteassociates.com/2q06%20Investment%20Perspectives.pdf. See also "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 5 ("There is much debate regarding the appropriate benchmark against which to evaluate the performance of infrastructure investments"). Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.

163 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 5. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.

164 The five funds studied were AMP Infrastructure Equity Fund, CFS Wholesale Infrastructure Income Fund, Perpetual Diversified Infrastructure Fund, Hastings Infrastructure Fund and Hastings Utilities Trust of Australia. "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, p.4. Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. Overall the nineteen funds held $4.5 billion in assets, the largest one having $1.1 billion in asset value, and had invested in a total of 144 infrastructure assets. Id. at 7.

165 Id. at 11-13 (Table 3).

166 The largest held airports, toll roads, electricity transmission and distribution, gas distribution, water, school accommodation, and healthcare facilities but others included timberland, a seaport, a tunnel, and a railway and what is characterized without further explanation simply as "[a] bias to PPP." The term "school accommodation" is note defined. Id. The largest fund held 16 investments, while the smallest had 2 assets. Id.

167 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, Table 4, p. 14. Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. The authors do not state whether they are providing aggregate or net returns. However, they compare those figures with ones for listed companies and funds. One would imagine that the returns of listed firms would represent dividend payments and capital appreciation (based on changes in market value. If so comparability would require returns for listed funds and unlisted vehicles to be net of fees and charges.

"In Australia, a listed property trust (LPT) is a unitised portfolio of property assets, listed on a stock exchange, usually the Australian Stock Exchange (ASX). They are known internationally as real estate investment trusts (REITs). Unit trusts of property assets which are not listed on a stock exchange are known as unlisted property trusts.

"An LPT usually owns a portfolio of large properties, which, due to their size and value, cannot be bought by the average private investor. Thus, these large investments are broken up into units of smaller value that can be purchased by private investors, who become unit holders." "Australian real estate investment trust," Wikipedia. Available at http://en.wikipedia.org/wiki/Listed_property_trust.

168 The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, Table 4, p. 14. Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. The authors define "annual volatility as "the annualized standard deviation of the respective quarterly returns." Id.

169 "The Sharpe ratio or Sharpe index or Sharpe measure or reward-to-variability ratio is a measure of the mean return per unit of risk in an investment asset or a trading strategy." According to an updated version of the index by the author (William Sharpe), it is equal to "the expected value of the excess of the asset return over [a] benchmark return" divided by the standard deviation of the excess return." See "Sharpe Ratio," Hedge Fund Consistency Index. Available at http://www.hedgefund-index.com/d_sharpe.asp.

170 Id. at 18 (Table 6). According to the authors, their assessment of the performance and diversification benefits of unlisted infrastructure was based on "an average-weighted index" using the five funds they studied. Id. at 4.

171 The two largest funds were established in 1994 and 1995. The others were established in 200, 2003, and 2004. Id. at 11-13 (Table 3).

172 The authors simply state that they obtained fund series information from Mercer. Id. at 4. Presumably, Mercer obtained valuation information from the funds. In all events, if whoever established the value used an appraisal basis, the fairness of the appraisals needs to be considered, along with the issue of smoothing return streams noted above. According to one infrastructure investment management consultant the traditional approach to valuing individual infrastructure assets is either value based on "trade price" or return upon realization/exit/liquidation measured by "[c]ost as a multiple of EBITDA," "price/earnings ratios," or the "[l]ast comparable trades." An alternative approach is the "keep it value," that is, "the value to the investor of perpetual retention," measured by the NPV (net present value) or the IRR (internal rate of return). The former refers to "the sum of future net cash flows, discounted by real risk"; the latter, "return on investment, based on the purchase price and future net cash flows." "Investing in Infrastructure," by Shemara Wkramanayake, Macquarie Group, "Public Fund Forum," EnnisKnupp Associates, October 2, 2007. Available at http://www.ennisknupp.com/docs/PFBOOK.pdf.

173 The need for caution is emphasized in a recent paper. See "The Rise of Infrastructure funds – A Case Study of Macquarie's Arlanda Express Buyout," by Maria Sward, Master's Thesis in Corporate Finance, Stockholm School of Economics, June 5, 2008 (citing an interview with co-author Graeme Newell to the effect that "the data set…was limited" and noting that "[t]here could be several reasons for the low volatilities reported for unlisted infrastructure and direct property," including "valuation smoothing which under-estimates the risk" and "the specific timeframe was very stable for both infrastructure and property."), p. 23. Available at http://arc.hhs.se/download.aspx?MediumId=566.

174 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, p.15 and p. 17 (Table 5). Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. The correlations of unlisted infrastructure with direct property, LPTs, stocks and bonds, were 0.26, 0.24, 0.06, and 0.17, respectively, but the results were not

statistically significant.
175 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, Table 5, p. 17. Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. The correlations of unlisted infrastructure with composite infrastructure, infrastructure, toll roads, airports, and utilities were 0.31, 0.36, 0.36, 0.26, and 0.16, respectively. Id.
176 See "Investing in Infrastructure – the Australian Experience," Colonial First State Global Asset Management, November 3, 2006 (reporting correlations for unlisted infrastructure with equities, REITs, direct property, and bonds of 0.27, 0.07, and -0.20, and 0.33 respectively, for; UBS listed infrastructure, from 0.23, 0.335, -0.34, and 0.50, respectively), Table 5, at p. 9. Available at http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/061103%20Infrastructure%20research%20paper_Australian%20Experience.pdf.
177 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24, 2007, Freemantle, Table 5, p. 17. Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. The correlations were 0.55 and 0.53, respectively.
178 "Investing in Infrastructure – the Australian Experience," Colonial First State Global Management, November 3, 2006) (presenting data of correlations of unlisted infrastructure based on 3, 5, and 10 year periods using rolling annual returns on monthly returns), p. 10 (Table 6). Available at http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/061103%20Infrastructure%20research%20paper_Australian%20Experience.pdf. The report author suggest that "[t]he strong positive correlation between [listed infrastructure and Australian equities] is likely due to the exposure of listed infrastructure to broader share market volatility." Id. at 9.
179 Id. at 7 (Figure 7).
180 Id.
181 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, pp. 9-11 (Table 2). Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. "Annual volatility is the annualized standard deviation of the respective quarrel returns." Id.
182 Id. at 14 (Table 2). The figures for unlisted infrastructure are 14.11 percent and 5.83 percent, respectively.
183 Id. at 14 (Table 2). The average annual return for airports was 8.05%; the annual volatility was 30.677%. Id.
184 Id. at 14 (Table 2). The Sharpe ratios for composite infrastructure and for utilities were 1.05; for infrastructure, toll roads, and airports, they were 0.83, 0.82, and 0.08 respectively. Id.
185 For example, average composite infrastructure returns were 31.62 percent and 13.78 percent, respectively; annual volatility was 19.63 percent and 10.22 percent, respectively. The Sharpe ratio dropped from 1.31 to 0.84. Id. at 18 (Table 6).
186 Roughly $30 billion of a total of $80 billion. Author's calculation based on their Table 2. Id. at 9-11.
187 They represented roughly $20 billion of the value. Author's calculation based on Table 2, pp. 9-11 in id.
188 Gas and electricity transmission and distribution, integrated and diversified utilities, and energy generation constituted over half the total: $22.8 billion, $17.7 billion, and $2.6 billion, respectively. Authors' calculation based on Table 2. Id. at 9-11.
189 "Investing in Infrastructure – the Australian Experience," Colonial First State Global Management, November 3, 2006, Table 3, p. 6. Available at http://www.cfsgam.com.au/uploadedFiles/CFSGAM/PdfResearch/061103%20Infrastructure%20research%20paper_Australian%20Experience.pdf.. For example, 3-year returns for listed infrastructure (20.3%) were lower than those for equities (23.9%) and 5-year returns (16.2%) were essentially matched by those for listed property (16.1%).
190 For example, in the CFSGAM study, the firm uses results for the same five unlisted Australian funds as the academic study, but the former used a weighted portfolio whereas the latter employs an average-weighted one. For listed infrastructure the firm study uses one or another component of the UBS Infrastructure & Utilities Index. The academic study appears to draw on data provided by UBS on individual companies and firms but does not seem to use the UBS indices. See "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, p 5. Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf.
191 See id at 7. Similarly, the CFSGAM study notes the volatility of income returns for unlisted infrastructure reflect the "lumpiness" of income generated by through capital refinancings. Id. at 7.
192 For example, the Macquarie Global Infrastructure Index, discussed in the Index, "uses abroad definition of infrastructure which includes those companies that provide or are involved in providing services that are essential for the growth and development of the community." "Infrastructure Research Report," by Judy Chambers, Pension Consulting Alliance, Inc., June 2007, p. 17. Available at http://www.pensionconsulting.com/pdfdocs/PCA%20Infrastructure%20Research%20Report%20June%202007.pdf.
193 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 7. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.
194 See, for example "Index Wars: What is infrastructure," by Arleen Jacobius, Pensions & Investments, July 21, 2008, p. 2 (stating that "no index is used as a "stand-alone benchmark, largely because of the split over how to define infrastructure," for example "whether a company that has an infrastructure side business should be considered an infrastructure company" or whether or not to include utilities.") Available at http://www.pionline.com/apps/pbcs.dll/article?AID=/20080721/PRINTSUB/58763244/1031/TOC.
195 Returns for private equity and public real estate were in the range of 15% and 13.7%, respectively; for hedge funds, public equity, and fixed income returns they were 10.3% to 10.6%, 8.7%, and 6.0%, respectively. "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 7. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf. The volatility for public real estate and private equity were 19.5% and in the range of 17.6% to 27.1% (depending upon the source of data), respectively. For fixed income and hedge funds the figures were 6.2% and 7.4%, respectively. Id.
196 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August

2007, pp. 7 and 8 (Exhibit 3a). Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf. For example, "[t]oll roads, water utilities and ports reflect the highest risk adjusted return vis a vis Shape Ratio values, while diversified infrastructure and generation reflect the lowest risk adjusted returns." Id. at 14 (Exhibit 13).

197 "Given the fundamental differences in risk characteristics between global listed property, global equities and global listed infrastructure, it is reasonable to expect that over the very long term global listed infrastructure should generate lower returns compared to these two asset categories accompanied with lower risk." "The case for global listed infrastructure," by Dragana Timotijevic, Mercer Investment Consulting, January, 2007, p. 1. Available at http://www.mercerhr.com/referencecontent.jhtml?idContent=1255730.

198 The Sharpe ratios were as follows: infrastructure (-0.6), utilities (0.85), real estate (3.43), REITS (1.43), bonds (0.85), and stocks (-0.12). "The Role of U.S. Infrastructure in Investment Portfolios," by Graeme Newell and Hsu Wen Peng, *Journal of Real Estate Portfolio Management* ,Vol. 14, No. 1, 2008, p. 29 (Exhibit 11). For a more recent paper including analyzing listed infrastructure returns using monthly returns of the GIUI for the 18-yaer period from July 31, 1990 – January 31, 2008, see "The Rise of Infrastructure funds – A Case Study of Macquarie's Arlanda Express Buyout," by Maria Sward, Master's Thesis in Corporate Finance, Stockholm School of Economics, June 5, 2008, pp.18-23. Available at http://arc.hhs.se/download.aspx?MediumId=566.

199 See, for example. "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, pp. 12-14. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.

200 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, pp. 13 -14. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.

201 "Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 15. Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf.

202 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, p.17 (Table 5). Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. The correlation coefficients were 0.40 and 0.38, respectively.

203 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, p.15. Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. p. 15.

204 "The Significance of Infrastructure in Investment Portfolios," by Hsu Wen Peng and Graeme Newell, Pacific Rim Real Estate Conference, January 21-24 2007, Freemantle, p.17 (Table 5). Available at http://www.prres.net/papers/PENG_NEWELL_%20THE_SIGNIFICANCE_OF_INFRASTRUCTURE_IN_INVESTMENT_PORTFOLIOS.pdf. The correlation coefficients were 0.54 and 0.42, respectively.

205 "The Role of U.S. Infrastructure in Investment Portfolios," by Graeme Newell and Hsu Wen Peng, *Journal of Real Estate Portfolio Management*, Vol. 14, No. 1, 2008, p. 30 (Exhibit 12). The correlation coefficient was 0.70.

206 "The Role of U.S. Infrastructure in Investment Portfolios," by Graeme Newell and Hsu Wen Peng, *Journal of Real Estate Portfolio Management*, Vol. 14, No. 1, 2008, p. 31 (Exhibits 15 and 16). The correlation coefficient for stocks was 0.73.

207 For example, the RREEF found that the GIU Infrastructure Index and the GIU Infrastructure and Utilities index over 10 years (on a rolling four-quarter–basis), each had a 0.59 correlation with a global public equities index; and 0.62 and 0.58, respectively with a public real estate index. The correlations with a fixed income index were -0.04 and 0.39, respectively. Performance Characteristics of Infrastructure Investments," by Asieh Mansour and Hope Nadji, RREEF, August 2007, p. 8 (Exhibit 4). Available at https://www.rreef.com/GLO_en/bin/Performance_Characteristics_of_Infrastructure_Investments_8-07_Final(1).pdf. The authors use the MSCI EAFE index for public equities, the FTSE EPRA/NAREIT Index for public real estate the Lehman Global Aggregate Index for fixed income. Id. However, the authors do not report whether the correlations are statistically significant ones, and if so, at what level.

208 "Infrastructure research note, A look at wholesale infrastructure fund benchmarks," Colonial First State Global Asset Management, January 30, 2007, p. 1. Available at http://www.firststate.co.uk/uploadedFiles/CFSGAM/PdfResearch/070130%20Infrastructure%20research%20note.pdf.

209 Id. at 2.

210 Id.

211 Id. at 3.

212 Id. at 6. For a criticism of published listed infrastructure indices and a description of what is termed "a customi[z]ed listed infrastructure index [The AMP Capital Global Infrastructure Index]" which is claimed to "exclude securities and companies that do not fulfill a definition of infrastructure consistent with the required characteristics described in this paper," see "infrastructure Investment – crossing the divide from asset to investment characteristics," by Paul Foster, AMP Capital Investors, pp. 4 and 6. Available at shttp://portfolioconstruction.com.au/obj/articles_pcc07/pcj4.1_ampci_fd.pdf.

213 "Why Macquarie manages infrastructure funds", online response to newspaper article, March 3, 2006. Available at http://www.macquarie.com.au/au/about_macquarie/media_centre/20060303a.htm.

214 "Infrastructure Investing," by Tim Kominiarek, (then) Assistant Research Director, Marco Consulting Group, presented at the "Capital Matters: Managing Labor's Capital Conference," 2007. Telephone call with Tim Kominiarek, (now) Portfolio Manager - Private Investments, Illinois State Board of Investment, July 11, 2007. More precisely, Alinda's fees range from 1.75% for investments under $75 million to 0.5% for investments over $300 million, while Goldman Sachs' rates range from 1.5% for investments under $100 million to 1.0% for investments surpassing $250 million. Id.

215 Telephone call with Dunia Wright, Head of US and Europe Industry Funds Management (US), October 16, 2008.

216 That is, when the investment firm is ready to make a particular infrastructure investment, it will call on the commitment by a pension fund to provide capital, to fulfill that commitment. Telephone call with Dunia Wright, Head of US and Europe Industry

Funds Management (US), October 16, 2008.
217 "Infrastructure Investing," by Tim Kominiarek, presented at the "Capital Matters: Managing Labor's Capital Conference," 2007. Available at http://www.law.harvard.edu/programs/lwp/Session%20VI%20-%20Kominiarek%20FINAL.pdf. According to a different report, management fees are in the range of 1.0% to 1.5% of commitments typically based on net invested capital after commitment period, with 9.020% in fund formation costs, an 80% transaction fee rebate, carried interest usually 20.0%, and a hurdle rate usually 8% ("typically with catch-up"). "The Rise of Infrastructure funds – A Case Study of Macquarie's Arlanda Express Buyout," by Maria Sward, Master's Thesis in Corporate Finance, Stockholm School of Economics, June 5, 2008, p. 13. Available at http://arc.hhs.se/download.aspx?MediumId=566.
218 Telephone call with Tim Kominiarek, (now) Portfolio Manager - Private Investments, Illinois State Board of Investment, July 11, 2007. According to a mid-June 2008 survey of unlisted funds, nearly 90 percent used an 8 percent hurdle rate, with the remainder being split between 6 percent and 9 percent hurdle rates. "The 2008 Preqin Infrastructure Review," Private Equity Intelligence Ltd, p. 9. Available at http://privateequityintelligence.com/docs/samples/sample_ID2008.pdf.
219 Telephone call with Tim Kominiarek, (now) Portfolio Manager - Private Investments, Illinois State Board of Investment, July 11, 2007. As an example, Macquarie's infrastructure fund has a preferred return of 8% and then distributes further profits 80/20 between private investor and general investor, whereas Goldman Sachs also has a preferred return of 8% but then takes the next 2% by means of a catch-up of 100%, and distributes any further profits 80/20. "Infrastructure Investing," by Tim Kominiarek, presented at the "Capital Matters: Managing Labor's Capital Conference," 2007. Available at http://www.law.harvard.edu/programs/lwp/Session%20VI%20-%20Kominiarek%20FINAL.pdf.
220 "The 2008 Preqin Infrastructure Review," Private Equity Intelligence Ltd, p 9. Available at http://privateequityintelligence.com/docs/samples/sample_ID2008.pdf. More particularly, "an overwhelming majority of 93% of funds will have some mechanism to reduce fees after the investment period is over." Id. at 9.
221 See "New Jersey PF pulls partners," IPE Real Estate, February 11, 2008. Available at http://www.ipe.com/realestate/New_Jersey_PF_pulls_partners_27121.php.
222 "Infrastructure Funds: Managing, Financing and Accounting, In Whose Interests?" RiskMetrics Group, April 2008, p. 4. Available at http://www.riskmetrics.com/docs/2008infrastructure/ (sign-up required).
223 Id. at 9.
224 Id. According to another report, management fees are in the range of 1.0 % to 1.5% of market capitalization (with 56% of the funds using 1.0%), carried interest in the range of 1% to 20% (with 67% of funds using 20%), with overperformance being measured relevant to a relevant index, "usually a broad market index." "The Rise of Infrastructure funds – A Case Study of Macquarie's Arlanda Express Buyout," by Maria Sward, Master's Thesis in Corporate Finance, Stockholm School of Economics, June 5, 2008, p. 13. Available at http://arc.hhs.se/download.aspx?MediumId=566.
225 Infrastructure Funds: Managing, Financing and Accounting, In Whose Interests?" RiskMetrics Group, April 2008, pp. 9-10. Available at http://www.riskmetrics.com/docs/2008infrastructure/ (sign-up required).
226 Id. at 17-18 (Table 13).
227 See "Infrastructure Funds: Managing, Financing and Accounting, In Whose Interests?" RiskMetrics Group, April 2008. Available at http://www.riskmetrics.com/docs/2008infrastructure/ (sign-up required). It appears that in response to these and other critiques, Macquarie has taken steps to be more transparent. See, for example, "Macquarie Group ready to bare all," by George Lekakis, *The Daily Telegraph*, October 23, 2008. Available at http://www.news.com.au/dailytelegraph/story/0,22049,24539510-5001024,00.html.
228 "Infrastructure Funds: Managing, Financing and Accounting, In Whose Interests?" RiskMetrics Group, April 2008 (referring to a model "embodied in toll road operator Transurban and replicated in two externally managed toll road developers, ConnectEast Group and River City Motorway"), p. 38. Available at http://www.riskmetrics.com/docs/2008infrastructure/ (sign-up required)..
229 "Funds eye US infrastructure gold mine," by Damian Clarkson, GlobalPensions, March 26, 2007. Available at http://globalpensions.com/data/GP_pdfs/features/feature_pdf_1021.pdf.
230 "SPDRS, Semi-Annual report, March 31, 2008," State Street Global Advisors, p. 40. Available at http://www.ssgafunds.com/fund_doc/fund_doc_20070604_104848/Semi_Annual_SPDR_Report_03312008.pdf.
231 Id. at 38. The total expense ratio includes management and other expenses such as trading fees, legal fees, auditor fees and other operational expenses. As a general matter there may also be redemption fees and so-called 12b-1 fees collected in connection with distribution of a fund's share. In the case of the fund discussed in the main text there were flat dollar amount redemption fees and it would appear, no 12b-1 fees.
232 By contrast, an exchange traded fund tracks an index, although ETF shares themselves can be traded like a stock.
233 "Infrastructure Review, GSJBW Australian infrastructure Wholesale Fund," Lonsec, October 2006, pp. 6 and 11. Available at http://www.gsjbw.com/documents/ProductsAndServices/ManagedFunds/IndResearchReports/Lonsec/Lonsec_Australian_Infrastructure_Wholesale_Fund.pdf.
234 The fact that such has been the focus does not mean that a one on less developed/developing countries is unimportant. In that context there appears to be an extensive literature, some with a special emphasis on Eastern European countries after the collapse of the Soviet Union. For access to some of that literature, see "The Public-Private Infrastructure Advisory Facility," World Bank. Available at http://www.ppiaf.org.
235 Procedural and other protections gained from union representation may be supplemented by constitutional and perhaps statutory protections applicable to public but not private sector workers. The diverse labor interests at stake and possibly different labor impacts may result in disparate views among unions about the wisdom and efficacy of particular privatization decisions. For example, according to one newspaper report, "[c]onstruction unions were a powerful force behind the Indiana Troll Road privatization because they felt that the $3.8 billion lease fee would kick-start road projects across the state." Nonetheless there were post-acquisition disputes over the extent of union construction for the venture. On one hand, the Northwest Indiana Building and Construction Trades council expressed concern about "'not getting the share of the work that we did before.'" On the other, the ITTRC contended that

about $27 million of Toll Road projects then underway were being done by non-union companies, while $258 million were. One blog commentator contended that the "ITR Concession, after a virulently anti-union campaign, also just beat back efforts by a Teamsters local in South Bend to organize over 100 of its in-house maintenance workers who work along the Indiana Toll Road." Posting by: intrepid | Aug 07, 2007 at 10:01 AM. Available at http://www.takingdownwords.com/taking_down_words/2007/08/bait-and-switch.html. According to one report, while members of certain Operating Engineers locals were being wooed (and apparently, along with a Sheetmetal Workers local endorsed the concession, see http://www.straighttalkpr.com/2006/03/case_study_star.html), UAW members expressed there opposition. "UAW protests road plans," by Patrick Guinane, Northwest Times, March 1, 2006. Available at http://nwitimes.com/articles/2006/03/01/news/top_news/2132e8373035cac686257124000475d8.txt. In December, 2007, the Teamsters Local 242, by a close vote, gained the right to represent 242 full- and part-time toll collectors. "Toll Collectors Unionize," by Keit Benman, *The Times* (Munster, Indiana), December 15, 2007. Available at http://www.nwitimes.com/articles/2007/12/15/news/lake_county/docff4bf7a4a5f632e5862573b2001501ad.txt. See also "Northwest Indiana Times: Toll Road Booth Workers to Vote on Union," Chicago Teamsters. Available at http://www.chicagoteamsters.org/news/2007/112607_toll.html. As of mid-August, 2008, though, no collective bargaining agreement had been reached. "Indiana toll collectors reject concession company offer," Tollroad News, August 16, 2008. Available at http://www.tollroadsnews.com/taxonomy/term/2815. By contrast, it was reported that 86 maintenance workers rejected representation by the International Union of Operating Engineers Local 150 and Teamsters Local Nos. 364 and 135. The Union News, October 6, 2008. Available at http://theunionnews.blogspot.com/2008/08/workers-repel-iuoe-teamsters-by-secret.html.

236 "Infrastructure," Meketa Investment Group, p. 19. Available at http://www.meketagroup.com/assets/reports/meketareport212.pdf. One organization which advocates for public private partnerships states that, "[o]verwhelmingly,…private operations in the U.S. have not meant massive layoffs. Most operating contracts call for downsizing only through attrition, and the assumption of the public payroll at salaries and benefits that are comparable to those that existed in the public sector before the takeover. Many private providers have union represented employees in their operations, and in many cases, union members and the unions themselves have fared better than with the public employer. In many cases, grievance filings have been all but eliminated, attesting in part to the greater flexibility of private employers." "The United States' Experience with Outsourcing, Privatization and Public-Private Partnerships," by David L. Seader, National Council for Public-Private Partnerships, p. 3. Available at http://ncppp.org/resources/papers/seader_usexperience.pdf. No document supporting the contention is provided in the paper. By contrast, another of that organization's publications acknowledges that "[i]n the case of many public-private partnerships, there have been reductions in public employees. Those reductions, however, have normally happened through attrition rather than layoffs. The public employees are usually hired by the private company to take advantage of their institutional knowledge and expertise." "Critical Choices: The Debate Over Public-Private Partnerships and What it Means for America's Future," National Council for Public-Private Partnerships, p. 12. Available at http://ncppp.org/presskit/2003whitepaper.pdf. But see "Privatization and Layoffs: The Real Story," by Robin Johnson, Reason Foundation, March 2001 (citing a variety of studies to the effect that "privatization has resulted in few, if any, layoffs" and citing (then) "[r]ecent long-term contracts [negotiated on behalf of the unionized employees] that privatized water and wastewater services in Atlanta, Buffalo, Milwaukee, and Indianapolis included provisions that all existing public employees would be hired by the private firm at comparable wages and with comparable benefits.") Available at http://www.reason.org/ebrief112.shtml. Finally, according to Richard Norment, Executive Director of the National Council for Public-Private Partnerships, some concessions actually create jobs, as "with the additionally availability of funds that are generated through PPPs. More projects can be undertaken." "Statement Submitted by National Council for Public Private Partnerships to the National Surface Transportation Policy and Revenue Study Commission," Richard Norment, May 10, 2007, page 2. Available at http://ncppp.org/resources/papers/transpcommtest507.pdf. However, in an e-mail correspondence requesting data about such job creation, Mr. Norment could provide no data to support this statement.

237 Phone conversation with Hank Scheff, Director of Research & Employee Benefits AFSCME Council 31, July 2, 2007.

238 "Testimony to the Illinois Senate Appropriations Committee," John Adler, May 31, 2007, p 3. Available at http://www.jschoenberg.org/tollway/Adler_SEIU_Testimony.pdf

239 For example, it has been reported that "[p]roceeds from the [Indiana Toll Road concession sale] will be reinvested in Indiana's transportation infrastructure…In contra[s]t, the proceeds from the [Chicago] Skyway system were used to fund short term projects and not reinvested in the tollway system." "Illinois Tollway System Valuation," Credit Suisse, August 2006, p.116. Available at http://www.jschoenberg.org/tollway/Illinois_Report_Final.pdf. Also, parties active in the debate over sale of the Illinois Tollway argued that funds from the sale "would be best utilized to match or augment Federal funding for ambitious improvements to our existing roadways, rail and bridges." "HACIA Testimony to the Senate Appropriations Committee on Private Public Partnerships," Cesar Santoy, September 13, 2006, p 1. Available at http://www.jschoenberg.org/tollway/Verga_Testimony.pdf Similarly, others would have barred any funds received from the sale/lease of transportation infrastructure from being used for operating expenses, budget shortfalls, or anything unrelated to transportation and infrastructure. Somewhat more vaguely it was suggested that the revenue "should be managed to provide a positive economic impact to as many transportation related businesses as possible." "Testimony of Sean Stott, Director of Governmental Affairs," Senate Appropriations II Committee, August 23, 2006. p 2. Available at http://www.jschoenberg.org/tollway/Sean_Stott_Testimony.pdf. The difficulty such proposals face is not only reaching a (politically) acceptable formula by which those funds are specifically allocated to transportation infrastructure, but achieving the necessary accommodations in light of other applications, some of which might also benefit both the general public and public sector workers. For example, in Illinois, there was a push to have the proceeds of the Tollway applied to the public sector pension deficit. However, municipalities in Southern Illinois, having supported to toll system for years, objected to that allocation, and advocated for the proceeds to be used on infrastructure in their area. Phone conversation with Hank Scheff, Director of Research & Employee Benefits, AFSCME Council 31, July 2, 2007. Moreover, other, non-transportation uses of the funds have appeal. And, of course, earnings from the transaction could be applied to "help offset the need for toll increases." "Testimony of George Billows, Illinois Trucking Association," Illinois Senate Hearing- Leasing of Tollways, September 13, 2006, p 2. Available at http://www.jschoenberg.org/tollway/Billows_Testimony.pdf.

240 Thus, there have been proposals for the formal establishment of "minimally acceptable road conditions and guarantees of

minimal maintenance standards" "Testimony of Sean Stott, Director of Governmental Affairs," Senate Appropriations II Committee, August 23, 2006. p 1. Available at http://www.jschoenberg.org/tollway/Sean_Stott_Testimony.pdf and establishment of an authority explicitly responsible for assuring that road maintenance is performed. (This would appear to presume that responsibility for road maintenance belongs to the lessee. One suggestion is that public-private contracts should "[r]equire for the lease to improve and expand the toll road as needed at the lessee's cost in a timely manor to meet minimum levels of service, as the public's needs change." Testimony of George Billows, Illinois Trucking Association," Illinois Senate Hearing- Leasing of Tollways. September 13, 2006, p. 2. Available at http://www.jschoenberg.org/tollway/Billows_Testimony.pdf Another is that lessees "should be part of a comprehensive strategy to improve rail and automobile traffic congestion" because "…[l]ess congestion would also lead to increased productivity for all business sectors as well as an improved quality of life as less time is spent traveling." HACIA Testimony to the Senate Appropriations Committee on Private Public Partnerships," Cesar Santoy, September 13, 2006, p 1-2. Available at http://www.jschoenberg.org/tollway/Verga_Testimony.pdf. Indeed, they contend, maintaining road quality should be in the interest of the lessee because improvements should cause the infrastructure to increase in value. "Testimony of: George A. Tapas," Illinois Senate Appropriations II Committee, Public Hearings on Public-Private Partnerships, September 13, 2006, p 5. Available at http://www.jschoenberg.org/tollway/Tapas_Testimony.pdf. Arguably such requirements have import for staffing levels and job requirements.

241 Legislation to avert these harms might bar agreements that "[p]revent[]…improvements to nearby, publicly-owned and maintained roadways, which may be viewed by an investor as competition." "Testimony of George Billows, Illinois Trucking Association," Illinois Senate Hearing- Leasing of Tollways. September 13, 2006, p 2. Available at http://www.jschoenberg.org/tollway/Billows_Testimony.pdf. Testimony of Sean Stott, Director of Governmental Affairs," Senate Appropriations II Committee, August 23, 2006. p 1. Available at http://www.jschoenberg.org/tollway/Sean_Stott_Testimony.pdf. Or it might expressly prohibit non-compete clauses, so that the state or locality "as well as other public or private groups would be free to build new roads or convert existing roads to compete" with the road under concession. "Testimony of George Billows, Illinois Trucking Association," Illinois Senate Hearing- Leasing of Tollways. September 13, 2006, p 2. Available at http://www.jschoenberg.org/tollway/Billows_Testimony.pdf. Also, truckers have proposed that private parties be barred from "impos[ing their]…own restrictions or special fees on vehicle configurations…and commodities" and the mandatory extension of "[i]ncreases in vehicle size and weight limits allowed under applicable federal or state law applying to interstate highways" to the road concession. "HACIA Testimony to the Senate Appropriations Committee on Private Public Partnerships," Cesar Santoy, September 13, 2006, p. 2. Available at http://www.jschoenberg.org/tollway/Verga_Testimony.pdf. Indeed, truckers contend that maintaining road quality should be in the interest of the lessee because improvements should cause the infrastructure to increase in value. Id.

242 "Testimony to the Illinois Senate Appropriations Committee," John Adler, May 31, 2007, p 3. Available at http://www.jschoenberg.org/tollway/Adler_SEIU_Testimony.pdf. The Tollway had an estimated 1751 full-time employees in 2006. See "Illinois Tollway System Valuation," Credit Suisse, August 2006, p .72. Available at http://www.jschoenberg.org/tollway/Illinois_Report_Final.pdf. "More than 85 percent of payroll employees stem from three departments – operational services, engineering, and State Police services." Id. "Most Tollway employees are covered by Collective Bargaining Agreements." Id. at 74. The collective bargaining agreements included ones with the Municipal Teamsters and Chauffeurs Union and the Service Employees International Union. Id.

243 Phone conversation with Hank Scheff, Director of Research & Employee Benefits AFSCME Council 31, July 2, 2007. "Operating costs associated with labor account for 52.6% of total operating expenditures in 2006 and 18.5% of all spending. Combining salaries and wages, FICA and retirement budget, and employee training, the total budgeted expenditure in 2006 is $142.4 million, representing an increase of 2.6%." "Illinois Tollway System Valuation," Credit Suisse, August 2006, p .73. Available at http://www.jschoenberg.org/tollway/Illinois_Report_Final.pdf

244 Phone conversation with Hank Scheff, Director of Research & Employee Benefits AFSCME Council 31, July 2, 2007.

245 Id.

246 "Testimony before the Illinois Senate Appropriations Committee," Christine Boardman, President, Service Employees International Union Local 73, July 20, 2006, p. 6. Available at http://www.jschoenberg.org/tollway/Boardman_Original_Testimony.pdf. More particularly, after the lease for the Chicago Skyway was completed, "Macquarie Cintra immediately subcontracted the management of the employees to another subcontractor. Formerly, the Skyway employees were paid about $15 per hour with other packages such as the City of Chicago defined benefit pension and insurance. However there was a wage reduction under the contractor and the workers' received no defined benefits and they were shifted to a different health insurance." (At first blush, it is not clear how the foregoing squares with the contention by a pension consultant, that "in the Chicago Skyway deal, the operator offered employment on the same terms to all existing union employees."

Boardman added that "[o]f the 860 members that we represent on the Tollway, the median seniority for this group is just over 10 years. If the Tollway is leased to a private entity and if the State of Illinois does not retain a proprietary interest, all employees on the Tollway will lose their ability to retain participation in the State Employee Retirement System. This would be a significant blow to all of the employees on the Illinois Tollway. As you probably know, Illinois is one of 13 states that was dramatically impacted by the 1983 Reagan passage of the Windfall Elimination provision to Social Security. It means that even if our member get a job that is covered by Social Security, their Social Security benefit will be offset by almost the same amount as what they would earn from their SERS pension." Id. at 5-6.

247 "Testimony of Sean Stott, Director of Governmental Affairs," Senate Appropriations II Committee, August 23, 2006, p 1 (noting "need for continued commitment to the maintenance of today's highly skilled construction workforce and the training of the future's workers through application of the 'Responsible Bidder' (30 ILCS 500/30-22) provisions of the Illinois Procurement Code on all projects on affected roadways" and that "bids should continue to be awarded to the lowest bidder deemed responsible using the aforementioned criteria. Negotiated bids should be prohibited."). Available at http://www.jschoenberg.org/tollway/Sean_Stott_Testimony.pdf. Responsible bidder statutes may have diverse meanings. In the context of pressing for application of responsible bidder requirements it was noted that those requirements included, among other things, compliance with the state's prevailing wage act and "participation in applicable US. Department of Labor, Bureau of Apprenticeship and Training-approved apprentice programs."

Testimony of Sean Stott, Director of Governmental Affairs, Laborers' International Union of North America, Midwest Region," Illinois Senate Appropriations II Committee, August 23, 2006. p. 1. Available at http://www.jschoenberg.org/tollway/Sean_Stott_Testimony.pdf.

248 Id. at 2.

249 Id.

250 "Testimony of the Black Contractors United, Inc," Senate Appropriations II Committee, September 13, 2006 (letter dated September 12, 2006), p.1. Available at http://www.jschoenberg.org/tollway/Cox_Testimony.pdf

251 Interestingly, a spokesman for the investment bank Goldman Sachs, which has both created and services infrastructure funds and advised state and local governments on privatization, testified at a 2006 Congressional hearing in favor of the privatization of public roads, contended that "[i]t is possible for concession contracts to be written so as a concessionaire must use municipal employees for all or a portion of toll collection, maintenance, administration, etc.," although he did not offer special examples to support this contention. Testimony by Mark Florian, Managing Director, Goldman Sachs & Co. before the House Transit and Pipelines committee, hearing on Understanding Contemporary Public Private Highway Transactions – The Future of Infrastructure Finance, May 24, 2006, p. 3 (cited in "Transportation Assets: Cash Cows?," Research and Collective Bargaining Services, AFSCME, p. 2. Available at http://www.afscme.org/docs/08LegAgenda-transportation.pdf.

252 More specifically, Macquarie Infrastructure Group of Sydney and Cinta Concesiones de Infrastructrers de Transporte S.A. of Madrid.

253 See Section 8.9(g), (h), and (i) of the House Enrolled Act No. 1008, Second Regular Session 1114 General Assembly (2006), Indiana. Available at http://www.in.gov/legislative/bills/2006/PDF/HE/HE1008.1.pdf.

254 "Testimony of Sean Stott, Director of Governmental Affairs, Laborers' International Union of North America, Midwest Region," Illinois Senate Appropriations II Committee, August 23, 2006. p. 1. Available at http://www.jschoenberg.org/tollway/Sean_Stott_Testimony.pdf.

255 "Infrastructure Privatization: The Indiana Toll Road," Presentation by Charles E. Schalliol, Director Indiana Office of Management and Budget to the National Surface Transportation and Revenue Study Commission, October 19, 2006. Available at http://transportationfortomorrow.org/pdfs/commission_meetings/1006_meeting_washington/schalliol_presentation_1006_meeting.pdf.

256 "Decision day for Toll Road workers," by Keith Benman, Northwest Times, January 19, 2007 (asserting "[t]he jobs guarantee was a key demand of State Sen. Earline Rogers, D-Gary, and some of other northern Indiana legislators who voted for the Major Moves legislation). Available at http://www.nwitimes.com/articles/2007/08/07/news/top_news/doccc37010c33f12f198625733000018f39.txt. More specifically, Toll Road workers "remain[ed] employees of the state" after the ITRCC took over in June, 2006, with the ITRCC "reimbursing the state for their wages and benefits." The employees had until January 19, 2007 to decide whether to stay on at the Toll Road as an ITRCC employee. "Decision day for Toll Road workers," by Keith Benman, Times of Northwest Indiana, January 19, 2007. Available at http://www.nwitimes.com/articles/2007/08/07/news/top_news/doccc37010c33f12f198625733000018f39.txt

257 Workers would "stay at their current salaries or perhaps even get raises, whether they stay with the Toll Road or move to a new job in state government." "Ditto for their accrued vacation time and other benefits." "Indiana Toll Road employees will find out about their fates Friday," by Nancy J. Sulok, South Bend Tribune, January 18. 2007 (citing Matt Pierce, public information officer for ITRCC). Available at http://corridorwatch.org/ttc_2007/CWA0701180.htm. Moreover, it was claimed that "[i]f a worker decides to leave the Toll Road but work for another state agency,…the state made a commitment to keep jobs "within reasonable proximity" of the worker's home. That means no workers should have to travel more than 25 miles from their home to their job." Indiana Toll Road employees will find out about their fates Friday," by Nancy J. Sulok, South Bend Tribune, January 18. 2007 (citing Matt Pierce, public information officer for ITRCC). Available at http://corridorwatch.org/ttc_2007/CWA0701180.htm.

258 The Governor's office suggested that "more than 80 percent of the workers asked to keep their jobs and were interviewed by ITRCC." "Indiana Toll Road employees will find out about their fates Friday," by Nancy J. Sulok, South Bend Tribune, January 18. 2007 (citing Jane Jankowski, press secretary for the governor). Available at http://corridorwatch.org/ttc_2007/CWA0701180.htm. According to a somewhat later report, 85% of the state workers accepted offers at the company. "470 Indiana TR state workers join concession company, 80 stay with state," Toll Road News, January 21, 2007. Available at http://www.tollroadnews.com/node/1772. See also "Decision Day for Toll Road workers," by Keith Benman, Times of Northwest Indiana, January 19, 2007 (suggesting that as of the deadline date, 15 percent of the Toll Road's employees had "signaled the[ir] intend[t] to continue their employment with the state," with the others expected to stay with the Toll Road and ITR concessions). Available at http://www.nwitimes.com/articles/2007/08/07/news/top_news/doccc37010c33f12f198625733000018f39.txt.

259 "Toll Road collectors may consider strike," by Troy Kehoe, WSBT, June 27, 2008 (updated July 2, 2008). Available at http://www.wsbt.com/news/local/22077404.html. Toll collectors' wages were reported to be in the range of $10.38 to $14.00 per hour. A sticking point in negotiations was the ITRCC's insistence on "hir[ing] as many temporary workers as they see necessary." Id.

260 "Toll Road Privatization Transactions: The Chicago Skyway and Indiana Toll Road," by Dr. Craig L. Johnson, Martin J. Luby, and Shokhrukh I. Kurbanov, School of Public and Environmental Affairs, Indiana University, September 2007, p. 13. Available at http://www.cviog.uga.edu/services/research/abfm/johnson.pdf.

"Decision and Order and Clarification of Bargaining Unit," "Central Parking System, Inc. v. [an affiliate of the International Brotherhood of Teamsters]" National Labor Relations Board, Region 13, Case 13-UC-402, January 29, 2007, pp. 8-9. Available at http://www.nlrb.gov/shared_files/Regional%20Decisions/2007/13-UC-00402-1-29-07.pdf.

261 E-mail from Hank Scheff, Director of Research & Employee Benefits AFSCME Council 21, October 18, 2007. According to Scheff, the salaries were to be "as similar as possible to what they were making with the Skyway" and he believed that no one suffered loss in pay or benefits. Id.

262 "470 Indiana TR state workers join concession company, 80 stay with state," Toll Road News, January 21, 2007. Available at http://www.tollroadnews.com/node/1772. The contractor appears to have been Central Parking Corp (CPC), which did toll taking for other roads, but whose primary business was parking facilities. According to one report, the concessionaire would "reduce

labor costs considerably. Many of the present toll collectors with seniority earn in the range of $20 to $25 as city employees." By contrast, CPC could "hire good toll collectors for $20 to $12/hour (plus benefits). "Central Parking gets toll collection job at Chicago Skyway – cutting costs," Toll Road News, January 18, 2005. Available at http://www.tollroadnews.com/node/983. Note that of the toll workers among the 1,000 Teamsters Local 436 members who worked at the Ohio Turnpike, hourly pay was said to be in the range of $18.22 and $20.63. "Ohio Turnpike workers vote to accept contract – no strike," Toll Road News, February 10, 2005. Available at http://www.tollroadsnews.com/node/1015.

263 "Roads to Riches," by Emily Thornton, *Business Week*, May 7, 2007. Available at http://www.businessweek.com/magazine/content/07_19/b4033001.htm. According to a decision of the federal National Labor Relations Board relative to CPC , when it assumed responsibility for toll collections "it needed to hire approximately 70 to 75 toll collectors. The existing toll collectors at the time, City of Chicago employees, were given the opportunity to take a severance package, be redeployed to another job with the City, or to apply to continue working at the tollway. About 10 or 12 of the existing toll collectors interview for jobs with CPS. CPS recruited and hired additional toll collectors." "Decision and Order and Clarification of Bargaining Unit," "Central Parking System, Inc. v. [an affiliate of the International Brotherhood of Teamsters]" National Labor Relations Board, Region 13, Case 13-UC-402, January 29, 2007, pp. 8-9. Available at http://www.nlrb.gov/shared_files/Regional%20Decisions/2007/13-UC-00402-1-29-07.pdf. At the time of the decision, it was reported that toll collectors "earn[ed] an average of $10.50 per hour," but were "not guaranteed any number of hours each week." In addition to performance-related bonuses they "received health insurance…and dental insurance," but "[b]oth benefits require[d] employee contributions for coverage." Id.

264 The contractor appears to have been Central Parking Corp (CPC), which did toll taking for other roads, but whose primary business was parking facilities. According to one report, the concessionaire would "reduce labor costs considerably. Many of the present toll collectors with seniority earn in the range of $20 to $25 as city employees." By contrast, CPC could "hire good toll collectors for $20 to $12/hour (plus benefits). "Central Parking gets toll collection job at Chicago Skyway – cutting costs," Toll Road News, January 18, 2005. Available at http://www.tollroadnews.com/node/983. Note that of the toll workers among the 1,000 Teamsters Local 436 members who worked at the Ohio Turnpike, hourly pay was said to be in the range of $18.22 and $20.63. "Ohio Turnpike workers vote to accept contract – no strike," Toll Road News, February 10, 2005. Available at http://www.tollroadsnews.com/node/1015.

265 Section 5. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf. It would appear that the language of this legislation does not apply to roads like the Chicago Skyway and, in any event, the agreement to enter into the sale of the Skyway was signed in October 2004, while the legislation was enacted in May 2006.

266 "Each party to whom facility property is leased shall comply with all applicable ordinances of the municipality in which the property is located governing contracting with minority-owned and woman-owned business and prohibiting discrimination and requiring appropriate affirmative action to the extent permitted by law and federal funding restrictions, as if the party to whom the property is leased were that municipality." Section 10. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf.

267 Section 20. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf.

268 Such an agreement would include provisions relating to the resolution of jurisdictional disputes and grievances arising before completion of work; guarantees against strikes, lockouts, or similar actions; provision of a reliable source off skilled and experienced labor; and enhancement of employment opportunities for minorities and women. Section 25. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf. Such an agreement would have to be binding on all contractors and subcontractors "through inclusion of appropriate bid specifications in all relevant bid documents." Id.

269 Section 40. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf. Of course, while people would be entitled to both kinds of offers, they presumably could only accept one.

270 Section 35. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf.

271 Section 910. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf.

272 For workers not then members of a union and employed on those premises, "the lessee shall negotiate in good faith, with any union that seeks to represent its employees, for a labor neutrality and card check procedure agreement." Section 30. Illinois General Assembly Public Act 094-0750, SB2872 Enrolled. Available at http://www.ilga.gov/legislation/publicacts/94/PDF/094-0750.pdf.

273 "Airports Poised for Privatization," by Yvette Shields, The Bond Buyer, June 18,2008. Available at http://www.bondbuyer.com/article.html?id=200806170N39LN85..

274 "Chicago Midway in $2.5 bn privatization deal," by Kevin Done, Financial Times, September 30, 2008. Under a federal program established in 1996, the privatization of up to five airports in different size categories could be authorized. If approved the Midway privatization would be the first. Id.

275 For a broad-ranging and detailed description of legislative and other methods for protecting workers in PPPs, see "Protecting workers in PPPs," by David Hall, Public Services International Research Unit, University of Greenwich (DRAFT 3 May 2008).

276 See generally "Protecting workers in PPPs," by David Hall, Public Services International Research Unit, University of Greenwich, United Kingdom (DRAFT May 3, 2008), p. 13. For the Acquired Rights Directive specifically, see "Council Directive 2001/23/EC of 12 March 2001 on the approximation of the laws of the Member States relating to the safeguarding of employees' rights in the event of transfers of undertakings, businesses or parts of undertakings or businesses." Available at http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32001L0023&model=guichett.

277 "Local Government Act 1999: Part I, Annex D, Best Value and Performance Improvement," Office of the Deputy Prime Minister, March 13, 2003, page 48. Available at: http://www.communities.gov.uk/pub/98/ODPMCircular032003BestValuePerformanceImprovementwith2004addendumsPDF196Kb_id1136098.pd

278 "Local Government Act 1999: Part I, Annex D, Best Value and Performance Improvement," Office of the Deputy Prime Minister, March 13, 2003, page 48. Available at: http://www.communities.gov.uk/pub/98/ODPMCircular032003BestValuePerformanceImprovementwith2004addendumsPDF196Kb_id1136098.pdf. This action appears to be response to criticism of the impact of prior PFI schemes and PPPs. For example, in 2003, Malcolm Wing, National Secretary of UNISON, a large union representing public sector workers, asserted that "[a] survey of 116 UNISON branches sowed that terms and conditions of new starters were worse than those of transferred staff in up to 73% of cases. New starters received lower pay (62%), worse sick pay (58%), fewer holidays (73%) and less pay for unsocial hours (44%)." "Head to Head: Are the main efficiencies' gained in PPP or PFI projects at the expense of public sector workers?", RSA Journal, February 2003, p. 20. Available at http://www.rsa.org.uk/acrobat/davey_060602.pdf.

279 For a discussion of that Directive, see "Protecting workers in PPPs," by David Hall, Public Services International Research Unit, University of Greenwich, United Kingdom (DRAFT May 3, 2008), p. 13. For the Directive specifically, see "Directive 2002/14/EC of the European Parliament and of the Council of 11 March 2002 establishing a general framework for informing and consulting employees in the European Community - Joint declaration of the European Parliament, the Council and the Commission on employee representation." Available at http://europa.eu/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:32002L0014:EN:NOT.

280 "Guidelines for Union on Consultations with State Agencies and Public Authorities in the Republic of Ireland Concerning Public Private Partnerships," Irish Congress of Trade Unions, May 2005, p. 7. Available at http://www.ictu.ie/html/publications/ictu/Congress%20Guidelines%20for%20Unions%20on%20PPPs%20May%2005.pdf.

281 Id. at 8-12.

282 "Australia's National Infrastructure: Report of the Australian Labor Party Inquiry into the Financing and Provision of Australian Infrastructure," November 2006. p. 38. Available at http://www.alp.org.au/download/now/infrastructure_report.pdf. Among those funds, Industry Funds Management had become "the frontline investment manager of Industry Super Funds" with "infrastructure and private equity holdings amounting to more than $9 billion, both in Australia and internationally." Id.

283 Id. at 39.

284 Id. at 59.

285 Id. at 60.

286 More particularly, new staff is to enjoy "fair and reasonable terms and conditions which are overall no less favourable than those of transferred employees" and "reasonable pension arrangements." Id. (citing the "Best Value Code Practice on Workforce Matters in Local Authority Service Contracts" reproduced in UNISON Guide: Best Value Code of Practice in Workforce Matters in Local Authority Service Contracts in England, April 15, 2003, p. 5).

287 Id. (citing the same source at p. 7). The staff members were "catering, cleaning, laundry, portering and security" employees. Id.

288 "Infrastructure Program," CalPERS, August 18, 2008, Section VI C. This provision specifically takes note of infrastructure assets "support[ing] services that benefit society as a whole and [being[intended to serve a long and useful life," and emphasis the importance of "recruiting and training a high quality workforce" to achieving "economic value by providing safe, reliable, efficient and high quality services." Id.

289 "Infrastructure Program," CalPERS, August 18, 2008, Section VI D. 1(a).

290 The RCP applies "to all domestic real estate advisors or partners[,] single family real estate investments, and joint ventures and partnerships" but "specifically excludes all other types of investments, including commingle[d] funds, opportunity funds, mezzanine debt, hybrid debt, international investments, an indirect, specialty, and mortgage investments lacking equity features and their respective advisors." "Statement of Investment Policy for Responsible Contractor Program," California Public Employees' Retirement System, August 15, 2005, Section VI.A., p. 3. Available at http://www.calpers.ca.gov/eip-docs/investments/policies/inv-asset-classes/real-estate/responsible-contractor.pdf.

291 "Infrastructure Program," Attachment C to "California Public Employees' Retirement System, Statement of Investment Policy for the Inflation-Linked Asset Class,", August 18, 2008, Section VI D. 1(b). Available at http://www.calpers.ca.gov/eip-docs/investments/policies/inv-asset-classes/ilac-policies/ilac.pdf.

292 Id.

293 Id. at VI D(1)(c).

294 Id. at VI D(1)(b) and (c).

295 Id. at VI D(1)(c).

296 "Statement of Investment Policy for Responsible Contractor Program," California Public Employees' Retirement System, August 15, 2005, Section IV., p. 2. Available at http://www.calpers.ca.gov/eip-docs/investments/policies/inv-asset-classes/real-estate/responsible-contractor.pdf.

297 Id. at 2 (Appendix 1).

298 Id. at 9 (Section L).

299 "Infrastructure Program," CalPERS, August 18, 2008, Section VI D(2)(a), 7, p. 7.

300 Infrastructure Program," Attachment C to "California Public Employees' Retirement System, Statement of Investment Policy for the Inflation-Linked Asset Class," August 18, 2008,Section VI D(2)(b), p. 7. Available at http://www.calpers.ca.gov/eip-docs/investments/policies/inv-asset-classes/ilac-policies/ilac.pdf.

Such good faith efforts "include working directly with public employees, government officials, or collective bargaining groups, as appropriate, in order to take such reasonable actions as may be within the investment vehicle's control to mitigate such potentially adverse effects." Id.

301 Id.

It would appear that the use of the word "domestic" refers just to California investment vehicles rather than vehicles in other of the United States.

302 "CalPERS Infrastructure Policy – Comments from External Entities," Attachment 3, Investment Policy Subcommittee Agenda Item 5 ("Inflation-Linked Asset Class Policy"), April 21, 2008 (Comments from the Professional Engineers in California Government (PECG)), p. 4. Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/policy/200804/item05-03.pdf. The PECG insisted that "[i]t would be a betrayal of the interests and the trust of the members of PERS if its retirement system sued members' funds to result in job loss or other adverse impacts on PERS members." Id.

303 "AFSCME Investment Policy Memo to CalPERS," American Federation of State, County and Municipal Employees (referring, among other things, in connection with private equity type vehicles concerns about the "slashing of workers wages" their being "managed without regard to the social consequences for infrastructure users").

304 "CalPERS Infrastructure Policy – Comments from External Entities," Attachment 3, Investment Policy Subcommittee Agenda Item 5 ("Inflation-Linked Asset Class Policy"), April 21, 2008 (Comments from the Professional Engineers in California Government (PECG)), p. 5. Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/policy/200804/item05-03.pdf.

305 Infrastructure Program," Attachment C to "California Public Employees' Retirement System, Statement of Investment Policy for the Inflation-Linked Asset Class," August 18, 2008, Section (VI (D)(1)(e) and VI D(2)(c), 8, pp. 7 and 8, respectively. http://www.calpers.ca.gov/eip-docs/investments/policies/inv-asset-classes/ilac-policies/ilac.pdf.

306 "Infrastructure Program," Attachment C to "California Public Employees' Retirement System, Statement of Investment Policy for the Inflation-Linked Asset Class," August 18, 2008, Section VI D(2)(c). Available at http://www.calpers.ca.gov/eip-docs/investments/policies/inv-asset-classes/ilac-policies/ilac.pdf. The responsible contractor policies proposed to be applicable to infrastructure investments are, by reference, the policies applicable to real estate investments. The enforcement mechanism for the latter entails non-compliant entities to be placed "on a probation watchlist." If the entity's pattern of misconduct is not modified, account is to be taken of that fact "along with other information" when the entity's contract is up for possible renewal." "Statement of Investment Policy for Responsible Contractor Program," California Public Employees' Retirement System, August 15, 2005, Section VI N, p. 9. Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/invest/200804/item03a-00.pdf. "The key indicator is a pattern of misconduct that is inconsistent with the provisions of the Policy." Id.

307 "California Public Employees' Retirement System Statement of Investment Policy for Restricting AIM Investments in Public Sector Outsourcing," December 13, 2004, p. 1. Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/invest/200704/item04a-01.pdf and http://www.afscme.org/docs/CalPERS_-_antiprivatization.pdf.

308 Id.

309 Id.

310 Id.

311 Id. at 4. But for this, given the relevant factors to be taken into account, a portfolio company purchase of just about any state and local infrastructure would deemed to be an outsourcing transaction. That is, among the factors to be considered in determining whether a transaction has a de minimis effect, are the "[e]xtent of current public sector outsourcing with respect to the number or percentage of jobs involved," the "[e]xtent to which the portfolio company's overall revenue depends upon the revenue derived from public sector outsourcing," and the "[e]xtent to which the portfolio company intends to engage in public sector outsourcing as part of its business strategy." Id. at 9-10.

312 "Fixed Asset Financing Investment Policy," California State Teachers' Retirement System, Investment Branch, July 2008, Section J, p. P-122. For the CalSTRS' Responsible Contractor Policy, see "California State Teachers' Retirement System, Responsible Contractor Policy." Available at http://www.calstrs.com/INVESTMENTS/Final_Resp_Cont_Policy_State_2-3-03.pdf.

313 See "Fixed Asset Financing Investment Policy," California State Teachers' Retirement System, " California State Teachers' Retirement System, Investment Branch, July 2008, Section J, p. P-12 and "Infrastructure Program," CalPERS, August 18, 2008, Section VI D(2)(b) and (c).

314 Id.

315 See "Fixed Asset Financing Investment Policy," California State Teachers' Retirement System, " California State Teachers' Retirement System, Investment Branch, July 2008, Section J, p. P-12 and "Infrastructure Program," CalPERS, August 18, 2008, Section VI D(2)(e).

316 California State Teachers' Retirement System, Responsible Contractor Policy." Available at http://www.calstrs.com/INVESTMENTS/Final_Resp_Cont_Policy_State_2-3-03.pdf.

317 Compare "Infrastructure Program," CalPERS, August 18, 2008, Section VI D(2)(d) with "Fixed Asset Financing Investment Policy," California State Teachers' Retirement System, July 2008, Part K ("Domestic Public Sector Jobs), p. 13.

318 Compare "Infrastructure Program," CalPERS, August 18, 2008, Section VI D(2)(a) with "Fixed Asset Financing Investment Policy," California State Teachers' Retirement System, July 2008, Part K ("Domestic Public Sector Jobs), p. 13.

319 "Responsible Contractor Policy [for infrastructure]," Illinois State Board of Investment, September 22, 2006, Part VI.A.

320 The CalPERS policy mandates such a strong preference both with respect to "investment vehicles that have adopted an internal policy regarding responsible contracting consistent with CalPERS' RCP subject to CalPERS' fiduciary duty" and to those for which the RCP is not applicable by which make "a good faith effort to comply with [its] spirit." Both preferences apply to "any domestic infrastructure investment vehicle." Infrastructure Program," Attachment C to "California Public Employees' Retirement System, Statement of Investment Policy for the Inflation-Linked Asset Class," August 18, 2008, Section VI (D)(1)(b) and (d), pp. 7-8. Note that CalPERS' RCP pertaining to real estate expresses "a strong preference that Responsible Contractors be hired." "California Public Employees' Retirement System, Statement of Investment Policy for Responsible Contractor Program," August 15, 2008. Section V, p. 3. Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/invest/200804/item03a-00.pdf. With respect to enforcement of the CalPERS RCP policy, "[t]he key indicator is a pattern of misconduct that is inconsistent with [its provisions." Part VI.K. Id. at 8. The CalPERS infrastructure policy makes no such reference.

321 Telephone conversation with William Atwood, Executive Director, Illinois State Board of Investment, June 18, 2008.

322 Even if CalPERS' AIM policy were otherwise applicable to bar an investment manager, its reach is limited in ways similar to the CalPERS infrastructure program policy. With respect to new funds, a determination is to be made of whether the fund manager's historical investment track record evidences a "substantial exposure" to previous investments in Outsourcers, namely, whether "greater than 15% of the previous capital commitments" were invested in such companies. California Public Employees' Retirement System Statement of Investment Policy for Restricting AIM Investments in Public Sector Outsourcing," December 13, 2004, p. 6. Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/invest/200704/item04a-01.pdf and http://www.afscme.org/docs/CalPERS_-_antiprivatization.pdf. If such a determination is made an investment in the fund is, in principle, barred. However, Staff may make a recommendation that "it [is] appropriate based on all the circumstances" to make the investment with the Investment Committee making the final decision. Id. at 4. With regard to fund investments already made, a determination that a portfolio investment in an Outsourcer was made, the policy states that CalPERS "will not seek any remedy or recourse against the fund manager"; rather, the staff are "precluded from making an investment in a follow on fund with the fund manager," subject to review by the Investment Committee. Id. at 8.

323 Of course, the question then becomes one of why the policy does not apply internationally and if it were, what distinctions, if any, would apply as between develop and less-developing/developing countries.

324 Telephone conversation with William Atwood, Executive Director, Illinois State Board of Investment, April 30, 2008.

325 "CalPERS Infrastructure Policy – Comments from External Entities," Attachment 3, Investment Policy Subcommittee Agenda Item 5 ("Inflation-Linked Asset Class Policy"), April 21, 2008 (Comments from SEIU, March 2008 and April 2008), pp. 7 and 9. Available at Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/policy/200804/item05-03.pdf.

326 "CalPERS Infrastructure Policy – Comments from External Entities," Attachment 3, Investment Policy Subcommittee Agenda Item 5 ("Inflation-Linked Asset Class Policy"), April 21, 2008 (Comments from AFSCME, March 2008), p. 10. Available at Available at http://www.calpers.ca.gov/eip-docs/about/board-cal-agenda/agendas/policy/200804/item05-03.pdf.

327 Discussion with Brian O'Keefe, former member of the OMERS Administrative Corporation (responsible for the day-to-day management of the plan, including management of investments) and currently co-chair of the Sponsors Corporation, responsible for plan design and appointments to the Boards of both Corporations), May 5, 2008.

328 Discussion with Brian O'Keefe regarding document "Infrastructure Investing – Policy direction, 2004," Ontario Employees Retirement System.

329 For example, the SIP&P states broadly that "OMERS believes that well-managed companies are those that demonstrate respect for their employees, human rights, the environment and the communities in which they do business while meeting financial standards" and that "as part of its due diligence in researching investments and monitoring performance, OMERS may take non-financial factors into consideration in terms of their potential impact on future returns." Enterprise Policy – Primary Plan Statement of Investment Policies and Procedures," OMERS, p. 6, February 20, 2008. It is not clear why the infrastructure specific policy was revoked.

330 E-mail from Richard Metcalf, Director of Corporate Affairs, Laborers' International Union of North America, October 9, 2007.

331 Id. at 3.

332 That is, it applies to "new construction capital works with an aggregate minimum of $50 million, ongoing capital works with an aggregate minimum value of $25 million and operating or other maintenance contracts not involving capital works with an annual minimum of $million." "Responsible Contractor Policy," Carlyle infrastructure Partners, L.P. ("the "Fund"), p. 5.

333 Id. at 1.

334 Id. at 2.

335 Id.

336 Id. at 6. The operating company manner has the responsibility to "incorporate any trade union/service union input received, where applicable and commercially reasonable, in the development of Responsible Contractor lists." Id. a 4.

337 Id. at 2. "Fair benefits" include, but are not limited to "employer-paid family health care coverage, pension benefits, and training and/or apprenticeship programs." Id. Note that such benefits are to be "evidenced by payroll and employee records." Id.

338 That is, they are required to "observe their legal obligations to recognize a union as the collective bargaining representative representatives of its employees upon showing (on cards) that a majority of the contractor' employees favor unionization." Id. at 6. "Resolution of any interjurisdictional trade disputes shall be the responsibility of the trades and the various state and national building trades councils. This Policy does not call for any involvement by the Fund or an operating company manager in interjurisdictional trade disputes." Id.

339 "Responsible Contractor," IFM Global Infrastructure (S), L.P., Part III.J.

340 Id.

341 Id.

342 Id.

343 Id.

344 Telephone conversation with William Atwood, Executive Director, Illinois State Board of Investment, June 18,,2008.

345 Telephone conversation with John Szczur, Director of Investments, Central Pension Fund of the International Union of Operating Engineers, October….., 2008. CHECK. DE CARLO?

346 Telephone conversation with and E-mail from Dunia Wright, Head of US and Europe Industry Funds Management (US), LLC (distinguishing IFM advisory board operation from that of certain other funds), October 16, 2008.

347 IFM is a subsidiary of Industry Super Holdings Pty Ltd ("ISH"). See http://www.industryfundsmanagement.com.au/en-au/AboutIFMGroup/AboutIFM.aspx. ISH is, in turn, wholly owned by 37 major Australian "not for profit" superannuation funds, jointly trusteed industry pension funds. See http://www.industryfundsmanagement.com.au/en-au/AboutIFMGroup/AboutIFM.aspx.. As jointly trusteed industry pension funds, superannuation funds are in that respect similar to Taft-Hartley pension funds in the United States. However, generally speaking, most superannuation funds are investment vehicles for defined contribution type plans whereas Taft-Hartley pension funds are predominantly investment vehicles for defined benefit plans.) Industry Fund Services and Members

Equity Bank are, in turn, wholly owned subsidiaries of ISH. See http://www.ifs.net.au/ifs_share.html. ISH also owns Industry Funds Services Pty Ltd and Members Equity Bank. "IFS provides services and products to industry superannuation funds and unions and their members, including financial planning, funds management, pension products, legal services and insurance." See http://www.ifs.net.au/default.htm. "Members Equity Bank has been specifically created to provide everyday Australians with innovative, low cost banking services." See http://www.membersequitybank.com.au/about/.

348 Telephone conversation with and e-mail from Dunia Wright, Head of US and Europe Industry Funds Management (US), LLC (distinguishing IFM advisory board operation from that of certain other funds), October 16, 2008.

349 "Building on Success*:* Labor-Friendly Investment Vehicles and the Power of Private Equity," by Michael Calabrese in Working Capital: The Power of Labor's Pensions, Ed. by Archon Fung, Tessa Hebb, and Joel Rogers, Cornell University Press, 2001, pp. 110-111. The BCCIF was reported to have made $450 in investments in 30 projects over its first 12 years. Id. at 110. As of 2000, The Boilermakers' fund had invested about $200 million, or 4% of its assets, in the BCCIF. Id. at 111.

350 See, for example, "Macquarie Airports pots H1 loss, to sell assets," International Business Times, August 21, 2008 (describing how at that point Macquarie Airports shares had fallen about 30.4% for the year (more than the benchmark) and suggesting that it was planning to sell some of the assets to bolster the share price. Note that in this case the formula for investment manager fees is base in part on the average market capitalization of Map's shares). Available at http://au.ibtimes.com/articles/20080820/macquarie-airports-posts-loss-sell-assets.htm. For a similar though more optimistic view of the foregoing, see "Unwinding of Infrastructure Funds," by Amarik Ubhi, Mercer, October 13, 2008. Available at http://www.mercer.com/print.htm;jsessionid=AHCfPT900kLJnRY9YQjNkQ**.mercer02?indContentType=100&idContent=1324620&indBodyType=D&reference=true.

351 So for example, in the context of private equity, pension funds might legitimately be concerned about the labor impacts resulting from the acquisition of a company by a private equity fund in which the pension fund is a partner. If so, the fact that an acquisition is from a public rather than a private seller would not seem to make any difference.

352 We have not seen discussion about job and labor of impacts of investment in non-U.S. infrastructure, particularly infrastructure in developing nations, at least as it pertains to the role of pension funds. This is not to say that there has more generally been concern and some action taken with respect to the latter kind of impact. See, for discussion, the Equator Principles that certain financial institutions have adopted "in order to ensure that the projects we finance are developed in a manner that is socially responsible and reflect sound environmental management practices." "The Equator Principles." Available at http://www.equator-principles.com/principles.shtml.

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Pensions and Capital Stewardship Project, Labor and Worklife Program, Harvard Law School

The Pensions and Capital Stewardship Project focuses on issues of retirement security, including employment-based retirement plans, and pension fund governance and management. It is also concerned with institutions, systems, and practices of pension fund investment that encourage capital markets and corporate policies to work more effectively for workers and the health and well-being of the community at large. The Project does this through research, education, and engagement with scholars and researchers, workers and unions, and practitioners.

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