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# Unlisted Infrastructure Investments




## External review of Political, Regulatory, and Reputational Risks

**Report for the Norwegian Ministry of Finance**
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# Summary

Infrastructure is a large and diverse asset class of about USD 4 trillion, of which 600[1] billion is private unlisted assets[2]. Assets span from airports and toll roads to solar energy and hospitals. As infrastructure investments are closely linked to real economic growth, the asset class enables investors to gain exposure to the performance of entire economies. In addition, long-term investors are attracted by the stable returns, cash flow generation, long-term liability matching, and portfolio diversification benefits that characterize many infrastructure investments. In line with this, we note that most long-term institutional investors invest in infrastructure and are increasing their capital allocations to the asset class, from on average about 3 to 4 percent between 2012 and 2015. Many institutional investors have stated an aspiration to allocate 10 percent or more of assets under management to infrastructure. Investors recognize that exposure to political, regulatory, and reputational risks are higher for investments in infrastructure than in other asset classes, and that there are significant differences across segments. To manage risk exposure, investors carefully select which infrastructure segments to invest in (and similarly which segments not to invest in), depending on their desired risk profile, capabilities, and ability to mitigate relevant risks. Effective risk mitigation requires expertise and investors take different approaches depending on their investment strategies. Indirect investors tend to rely on external parties, whereas direct investors tend to mitigate risks through a combination of close collaboration with partners and deep internal expertise[3].

## The risk and return profile varies across segments

Infrastructure assets are exposed to similar types of risks as other assets, but they have greater exposure to political, regulatory, and reputational risks. This is due to the assets' importance to local communities and the resulting high stakeholder engagement. Given the diversity of the asset class, risk exposure varies significantly across sub-sectors, geographies, and life cycle stages. Thus, the risks of infrastructure investments need to be understood and mitigated on an asset-by-asset basis. Similar to in other asset classes, the expected return of an infrastructure asset is related to its risk exposure. As a result, the risk and return profile of infrastructure assets varies across segments. For example, some sub-sectors such as social infrastructure, which includes hospitals and schools, tend to have lower risk exposure and lower returns. Similarly, greenfield assets have a different and typically higher risk exposure and expected return than brownfield[4] assets. While exposure to political, regulatory, and reputational risks can be greater in infrastructure than in other asset classes, events with highly adverse consequences on asset value are relatively rare[5].

1 Approximation as of mid-year 2015, according to MSCI (2016).

2 Unlisted assets refer to assets that are not listed on a stock exchange.

3 Direct investments refer to unlisted investments in which the investor(s) invest directly in the assets. Direct unlisted investments typically entail less than 10 shareholders (or even just one), most of whom with active ownership roles. Indirect investments, on the other hand, refer to investments made through third parties, such as infrastructure funds.

4 Brownfield typically refers to investments in infrastructure assets in the operating stage of its life cycle, while greenfield normally refers to new projects or material expansions or rehabilitations of existing assets.

5 Interviews with industry experts (2016)

## Investors carefully select where to play

Investors carefully select which infrastructure segments to invest in depending on the risk profile they want to accept and whether they can mitigate the relevant risks. Risk mitigation requires deep understanding of the asset and the local context in which investments are made. Expertise is also required at the investor's board level, as the Board is often actively involved in direct infrastructure investments (as such investments typically entail large investments with active ownership roles), including establishing frameworks for risk management and reporting. Actions to mitigate risks – aside from carefully selecting the segments to invest in – include selecting the right partners given the context (for example with local knowledge and network), acting as a responsible investor (for example by following recognized principles for environmental, social, and governance issues), and engaging with relevant stakeholders. It is also possible to mitigate some of the political and regulatory risks through contracting and insurance. Investors can, for example, invest with a multilateral development bank (in emerging markets), which provides insurances such as partial risk guarantees, or they can purchase commercial insurance (for example against adverse change in regulation).

## Risk management approach varies with investment strategy

Investors can be grouped into three archetypes depending on their investment strategies – hybrid investors, direct investors, and asset type specialists – each with different approaches to risk management. Hybrid investors invest through funds and co-investments. They are typically smaller or less mature investors in the relevant segment compared to the other two archetypes. Given limited direct access to the assets, they typically approach risk management at a portfolio rather than an asset level, and rely on partners' expertise for asset risk management. Direct investors take a "partnership-driven" approach in managing asset risks by collaborating with carefully selected investment and operating partners in each investment. Asset type specialists build deep asset and risk management expertise internally in selected focus areas. Direct investors and asset type specialists are typically larger or have a longer track record of investing in infrastructure. Regardless of archetype, investors often organize direct infrastructure investments with integrated deal and asset management teams. Both direct investors and asset type specialists often hold significant, if not majority, ownership shares and drive value creation and risk mitigation through active ownership, for example through board representation.

# 1. Introduction

The Norwegian Ministry of Finance is responsible for the strategic asset allocation of the Norwegian sovereign wealth fund, the Government Pension Fund Global (GPFG), including setting risk limits and reporting requirements. As of 1 December, 2016, the fund manages assets worth around USD 860 billion, more than double Norway's annual gross domestic product. Norges Bank Investment Management (NBIM), an entity within Norges Bank (the Norwegian central bank), is responsible for the fund's operational asset management.

In 2015, the Norwegian Government assessed whether to allow the GPFG to invest in unlisted infrastructure assets. As part of its assessment, the Ministry of Finance consulted with and received recommendations from Norges Bank[1] and an expert group[2]. While Norges Bank and the expert group recommended opening up for such investments, the Government decided not to open up for unlisted infrastructure at that point in time[3]. The Government noted that investments in unlisted infrastructure might be exposed to high political and regulatory risks. The Norwegian Parliament has subsequently asked the Government to continue its work by exploring political, regulatory, and reputational risks associated with such investments. The Government was also asked to explore how the investments could be managed with maximum transparency, if GPFG were allowed to include them in their investment portfolio, and how specific challenges and risks associated with investments in unlisted infrastructure assets are managed by other funds.

The Ministry of Finance has asked McKinsey & Company to support the assessment by providing a fact-based review of the particular risks associated with investments in unlisted infrastructure, focusing on political, regulatory, and reputational risks[4]. Furthermore, the report should review how large institutional investors manage these risks. Investments in unlisted infrastructure in emerging markets and in renewable energy assets should be emphasized throughout the report. Specifically, the mandate includes:

- Overview of large institutional investors' investments in unlisted infrastructure
- Outline of differences between unlisted infrastructure and real estate investments with respect to complexity, cost, and transparency
- Discussion on specific challenges related to political, regulatory, and reputational risks and their impact on the expected return of investments
- Overview of how large institutional investors organize investments in unlisted infrastructure and manage related political, regulatory, and reputational risks

1 See, for example, Norges Bank (2015)

2 Van Nieuwerburgh, Stanton, & de Bever (2015)

3 Report to the Storting, St. 23 (2015-2016)

4 Political and regulatory risks arise from governments' and authorities' level of instability and ability to impact the investments, for example through changes in legislation or regulation (Weber, Staub-Bisang, & Alfen, 2016). Reputational risks reflect any potential incidents that may damage the perception of the investor (Eccles, Newquist, & Schatz, 2007).

- Overview of transparency and reporting of investments in unlisted infrastructure assets
- Overview of events that have damaged the reputation of the investor(s) in unlisted infrastructure

The aim of this report is to provide a review of external sources based on publicly available information, expert interviews, and interviews with some of the large global and Nordic institutional investors. The mandate of the report does not include investment recommendations but rather a fact-base for the Government. It should be noted that the report does not include a comprehensive analysis of unlisted infrastructure investments as it does not provide a full perspective on the potential returns and risks of such investments. For example, it does not provide a perspective on the potential impact on overall portfolio return and risk profile, including diversification benefits, and it does not cover risks other than political, regulatory, and reputational ones (such as operational, construction, and technology risks). A decision of whether to open up for investments in unlisted infrastructure should take all of these aspects into account.

In this report, Chapter 2 introduces the overall investment landscape of unlisted infrastructure assets, including some of the top global and Nordic institutional investors. Chapter 3 outlines key differences between unlisted infrastructure and unlisted real estate investments, particularly in terms of complexity, costs, transparency, and reporting. Chapter 4 describes political, regulatory, and reputational risks associated with investments in unlisted infrastructure. The chapter also outlines possible measures investors can use to mitigate these risks. Chapter 5 summarizes how large institutional investors organize investments in unlisted infrastructure and manage related political, regulatory, and reputational risks. Finally, Chapter 6 provides some examples of damage to the reputation of investors in unlisted infrastructure. Examples of such damage are relatively unusual and mostly occur when investors fail to study risk and take appropriate mitigation measures.

# 2. Unlisted Infrastructure Investment Landscape

The following chapter introduces the overall investment landscape of unlisted infrastructure assets, including an overview of investments in unlisted infrastructure by some of the largest global and Nordic institutional investors.

The total value of global infrastructure assets was estimated at approximately USD 20 trillion, as of 2012[1]. Around one fifth of this is held by the private sector (about USD 4 trillion[2]). Estimates suggest that the private sector unlisted infrastructure market amounts to around USD 600 billion[3], as of mid-year 2015, split roughly equally into direct and indirect investments[4] (for example infrastructure funds). Unlisted infrastructure investments differ from listed infrastructure investments in several ways. For example, while the valuations of listed investments are provided by readily available market quotes, valuations of unlisted investments are based on periodic mark-to-market[5] analyses. In addition, unlisted investments are less liquid and may therefore offer illiquidity risk premiums to investors able to bear liquidity risks[6] (such as long-term investors with limited current liabilities). Listed infrastructure also has the transparency that comes along with public reporting requirements. Finally, the governance of listed and unlisted infrastructure can differ. A listed infrastructure asset has typical governance structures in which a board of directors represents the interests of all shareholders, and generally there are no major shareholders on the Board. Similarly, in unlisted infrastructure, the Board of Directors also represents the interests of the shareholders, but major shareholders are more often represented directly on the Board of Directors.

Infrastructure is a diverse asset class composed of assets in a range of sub-sectors with widely different characteristics. Sub-sectors include: renewable energy; transportation (such as airports, public transit, highways, and toll roads); non-renewable energy (such as non-renewable electricity generation, transmission, and distribution); water and waste; social infrastructure (such as hospitals and schools); and other (such as telecommunications)[7]. The heterogeneity of infrastructure assets can be understood by exploring different types of infrastructure projects. For example, renewable energy projects typically involve new generation technology, such as solar photovoltaic and solar cathodic protection. These projects are predominantly privately held but still largely dependent on public subsidy schemes with different kinds of guarantees, such as feed-in-tariffs and production tax credits. Transportation projects such as bridges and toll roads, on the other hand, are often natural monopolies. These assets have traditionally been publicly owned and are usually highly regulated, for example in terms of permits, licenses, pricing ability, and operational performance specifications. During the last

1 RARE Infrastructure (2013)

2 MSCI (2016)

3 MSCI (2016)

4 Preqin (2016)

5 Mark-to-market methodologies are accounting-based valuations of illiquid assets for which there is no readily available market price to read market value from.

6 Interviews with industry experts (2016)

7 The report applies the industry classification used by Preqin (2016).

five years, renewable energy has been the most transacted sub-sector, accounting for around 40 percent of all transactions[8], followed by transportation, non-renewable energy, water and waste, and social infrastructure assets[9].

The macro-level fundamentals for growth in the infrastructure investment market seem to be in place (although any investment must be judged on a case-by-case basis). The McKinsey Global Institute (2016) has estimated the cumulative global infrastructure funding need from 2016 to 2030 to be roughly USD 49 trillion[10] just to keep up with projected global GDP growth. While infrastructure is closely linked to GDP, infrastructure spending is expected to grow faster than GDP in certain geographies over the same time period. For example, the McKinsey Global Institute estimates that to bring infrastructure in the United States up to a good condition[11], infrastructure spending would increase from a 2008-2013 average of 2.4 percent of GDP to a 2016-30 average of 3.1 percent of projected GDP. This estimate implies an annual average funding gap of USD 135 billion, should spending levels remain constant at 2.4 percent of projected GDP[12]. The global infrastructure funding need might explain why more and more infrastructure assets are privatized. Private finance can relieve fiscal budget constraints amid the continuous need for infrastructure expansion and rehabilitation services. The private sector may in some instances be well equipped to provide such services to the public[13].

Infrastructure investments offer several attractive characteristics to long-term investors. Infrastructure investments are often correlated to the GDP growth of a country (or the economic growth of a region or a city), and thus enable investors to gain exposure to the performance of entire economies[14]. In addition, the long-term nature of infrastructure assets is attractive to institutional investors with long-term liabilities (such as pension funds and sovereign wealth funds) as it may match the interest rate sensitivity of the assets with that of their liabilities, resulting in lower net interest rate sensitivity for the investors' fiduciaries[15]. Infrastructure investments may preserve and grow the real purchasing power of institutional investors' beneficiaries as infrastructure investments often provide stable and inflation-protected returns. For example, predictable cash flows can arise as certain infrastructure assets may be protected from competition and some risks may be reduced through contracting or a regulatory framework that includes inflation adjustors. The stability of cash flows enable

8 Preqin (2016)

9 Preqin (2016)

10 The estimate is in terms of 2015 prices and absent productivity improvements. The analysis from 2016 is an updated perspective from a comprehensive study conducted in 2013 by the McKinsey Global Institute.

11 Defined as achieving a grade of B from current D+ by the American Society of Civil Engineers (ASCE).

12 McKinsey Global Institute (2016). The calculations use an infrastructure definition that includes roads, rail, ports, airports, power, water, and telecommunications.

13 For example, private companies can offer specialization that could improve the service offering of certain infrastructure assets. In addition, the long-term investment horizon of private investors may in some cases offer high stability over the service offering to the asset's users.

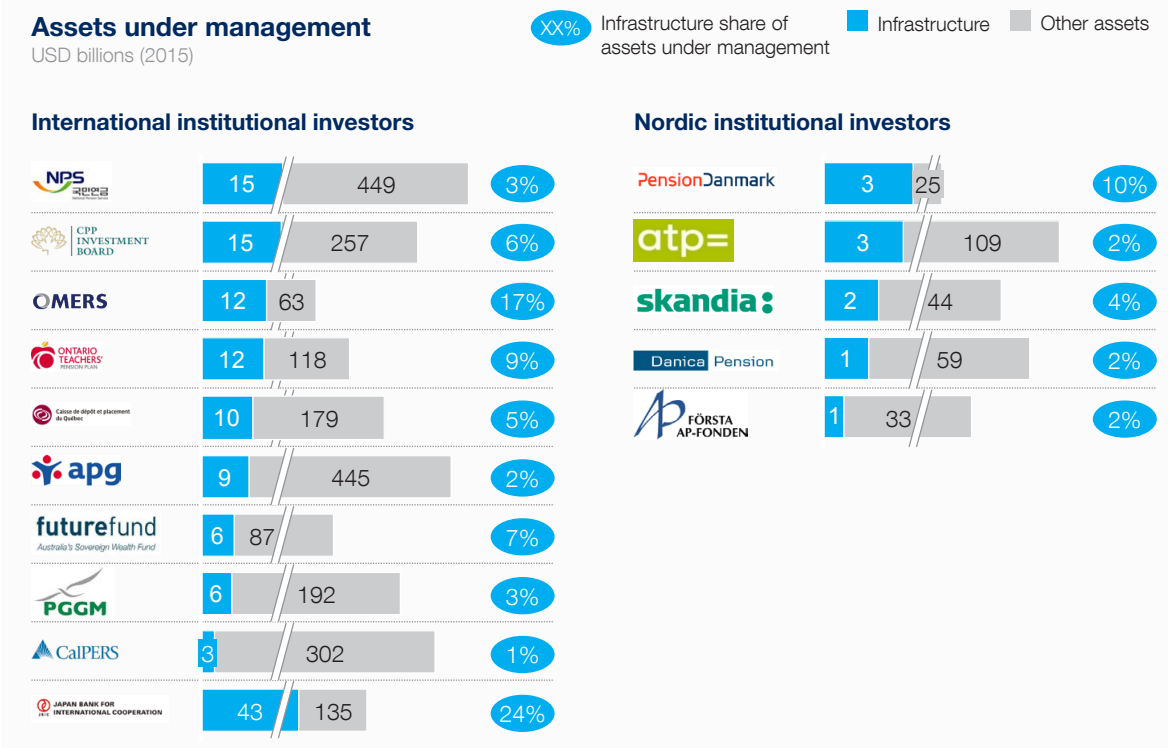
14 Unhedged currency exchange rate sensitivity can impact expected returns.

15 This effect is called asset-liability matching. Should the interest rate decrease, the present value of the institutional investor's liabilities increases. If the present-value weighted average timing of cash flows from the investor's assets match that from its liabilities, the present value of the assets' cash flows will increase by the same amount following the interest rate decrease.

a high debt capacity, and thus, many infrastructure projects are highly leveraged investments[16]. This means that the returns and risks to equity investors are amplified. Lastly, infrastructure investments could improve the risk and return trade-off of investors' portfolios through diversification, given infrastructure has a risk-return profile that sits between sovereign fixed income securities and public equities[17]. Reflecting this, the capital allocations to unlisted infrastructure assets by institutional investors has increased from an average of 3.3 to 4.3 percent[18] between 2012 and 2015. However, most funds are still below their target allocations, which stand on average at 5.7 percent[19], indicating that future allocations will increase.

Most large institutional investors include infrastructure in their investment mandate and portfolio. Capital allocations to infrastructure vary considerably among the largest institutional investors: from 1 percent of total managed assets to over 15 percent (see Exhibit 1 for further details), though many institutional investors have stated an aspiration to achieve 10 percent or more of their portfolio in infrastructure assets[20]. These investors tend to invest both directly and indirectly (for example through infrastructure funds), however they are increasingly shifting focus towards direct investments and are building internal teams and capabilities. Most of the Nordic institutional investors have slightly lower capital allocations to infrastructure than the average international institutional investor. The Nordic investors invest in infrastructure mainly through funds but also through direct

EXHIBIT 1:
LARGE INSTITUTIONAL INVESTORS' INVESTMENTS IN INFRASTRUCTURE




*Note: These investors represent examples of institutional investors with a global presence in unlisted infrastructure.*
*Sources: Preqin (n.d.)*

16 Highly leveraged investments refer to investments with a large proportion of funding from debt.

17 Interviews with industry experts (2016)

18 Preqin (2016)

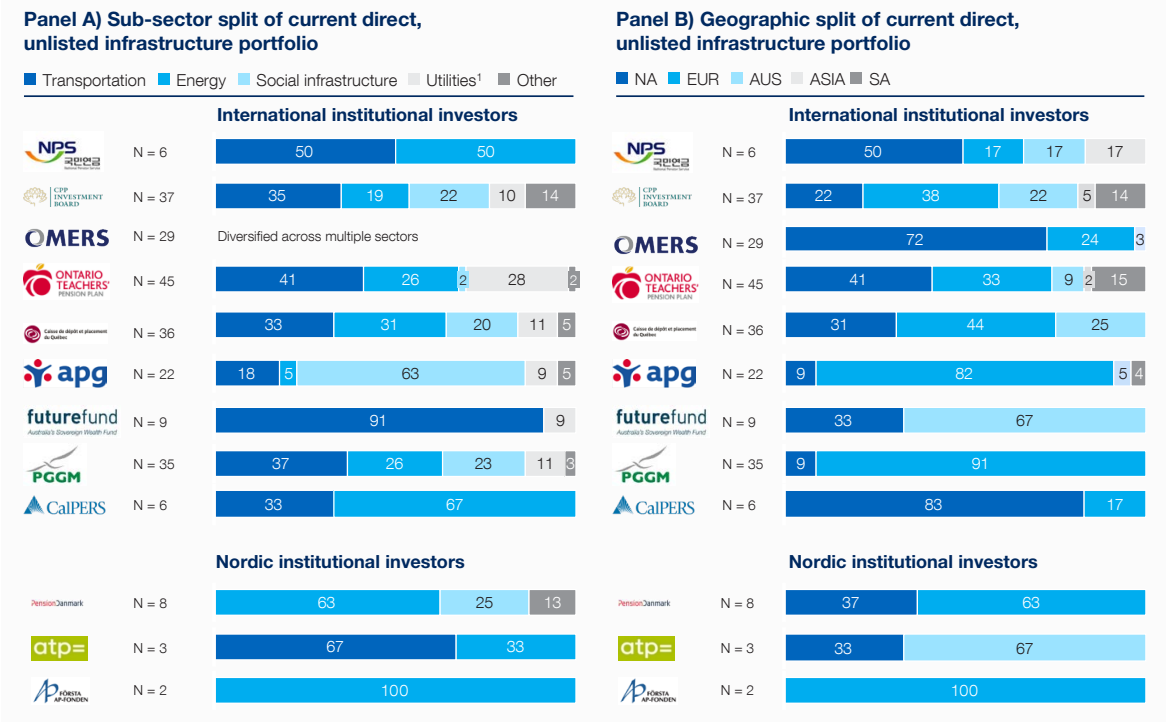
19 Preqin (2016)

20 Interviews with institutional investors (2016)

channels. Similar to among the large international investors, there seems to be a shift towards direct investments. Direct investments can provide the investor with a higher degree of control and transparency of the assets, mitigate challenges with misaligned interests (for example due to different investment horizons), and offer lower investment and management costs than indirect investments. Almost three quarters, 74 percent, of institutional investors surveyed by McKinsey & Company[21] report being "likely" or "very likely" to build direct investing capabilities in infrastructure before 2020. This is similar to trends in real estate and private equity. Large investors are increasingly using direct investing as the costs of setting up an internal team to invest directly are lower than the costs of third party asset managers. However, smaller investors resort to funds in order to gain access to the asset class and its associated benefits, as such investors have limited possibilities to access opportunities directly.

Large institutional investors have diverse infrastructure portfolios, as can be seen in Exhibit 2. Most of the investors have exposure to several sub-sectors. They invest predominantly in transportation (such as airports, toll roads, and sea ports), non-renewable energy (such as gas-fired generation, electricity transmission, and mid-stream natural gas), and renewable energy (such as wind power generation). They are mostly active in markets similar to their home market. Furthermore, most institutional investors seem to focus on brownfield rather than greenfield investments. There appears to be a maturity curve in that investors often embark on brownfield investments, build specialized capabilities, and then (potentially) venture into greenfield investments.

EXHIBIT 2:
**DEAL ALLOCATION OF DIRECT, UNLISTED INFRASTRUCTURE INVESTMENTS**




*Note: These investors represent examples of institutional investors with a global presence in unlisted infrastructure.*
*Sources: Preqin (n.d.)*

21 *The McKinsey & Company 2015 global institutional investor survey* is based on questionnaire responses by 40 executives across 27 of the world's leading pension and sovereign wealth funds that collectively manage USD 7.4 trillion in assets (McKinsey & Company, 2015).

# 3. Differences Between Unlisted Investments in Infrastructure and Real Estate

This chapter outlines key differences between unlisted infrastructure investments and unlisted real estate investments, particularly in terms of complexity, costs, and transparency.

Both infrastructure and real estate assets are often described as "real assets", however they have significant differences. In developed markets, most infrastructure assets are held by governments and other public entities, and the private market is smaller and less mature[1] than that of real estate. Infrastructure assets such as water treatment facilities, bridges, and power grids, operate locally and play an important role in local communities. Thus, infrastructure assets are highly visible, often regarded as community assets, and as a result, in many cases subject to greater governmental regulation and intervention. In real estate, the same is only true for iconic buildings, such as those with a strong cultural heritage, and certain urbanization projects[2]. These characteristics increase the complexity and costs associated with investing in and managing infrastructure assets compared to real estate. However, as infrastructure assets are diverse, there are also segments with less complexity than real estate assets. While public attention drives transparency requirements on infrastructure assets, market data may be scarce and fragmented due to the assets' large differences. However, significant owners can request relevant asset-specific data. Exhibit 3 summarizes key differences

EXHIBIT 3:
UNLISTED INVESTMENTS IN INFRASTRUCTURE VERSUS REAL ESTATE

| | | Unlisted infrastructure | Unlisted real estate |
|---|---|---|---|
| Market | Size | USD ~0.6 trillion | USD ~7 trillion |
| | Maturity[1] | Low | High |
| | Asset heterogeneity | High | Low |
| Complexity | Importance to local community | High | Low |
| | Exposure to political, regulatory, and reputational risks | High | Low |
| Transparency | External disclosure requirements | High | Low |
| | Quality of market data | Low | Medium |
| | Information to majority owners | Investor-driven | Investor-driven |

NOTE: This assessment is relative and indicative on the average segment of each asset class.
1 For example in terms of standardization of practices and transaction frameworks in addition to the number and sophistication of intermediaries.

1 For example in terms of standardization of practices and transaction frameworks in addition to the number and sophistication of intermediaries.

2 Interviews with industry experts (2016)

between unlisted infrastructure and real estate investments in terms of market, complexity, and transparency. These differences are indicative, and due to the heterogeneity of infrastructure assets, there may be exceptions. Furthermore, the return characteristics of the two asset classes are not included.

### Smaller, less mature, and more complex market

The global infrastructure market is smaller, more heterogeneous, and less mature than the real estate market. While the global accessible capital market for unlisted infrastructure amounts to around USD 0.6 trillion, unlisted real estate is the world's largest real asset class at about USD 7 trillion[3]. The infrastructure market is significantly more diverse, spanning power grids, bridges, airports, and hospitals. Furthermore, infrastructure assets are less transacted than real estate assets, which benefit from strong secondary markets for a wide range of equity and debt instruments. The private infrastructure market has evolved predominantly during the last 20 years and standardization of practices is limited. For example, there are many transaction frameworks, and they differ largely between regulators across geographies and sub-sectors. Such frameworks include Public-Private Partnership (PPP), Private Finance Initiative (PFI), Alternative Financing and Procurement (AFP), direct procurement, and direct sale. In addition, standards for mark-to-market valuations of illiquid unlisted infrastructure assets vary, hence investors might receive different valuations for the same asset when invested through multiple funds or other investment channels. Lastly, infrastructure intermediaries are fewer and generally less specialized than on the real estate market. It should be noted though, that there are infrastructure segments that offer lower complexity, such as in terms of market practices for transactions and intermediary expertise. For example, electricity thermal generation (such as gas-fired power plants) is a comparatively mature sub-sector. It has standardized technology and relatively low operational complexity compared to for example nuclear power. Hence, project finance for this kind of asset is well established, and projects have been executed in numerous locations around the world[4].

In contrast, real estate is a more established asset class with a long history. Market practices for transactions (such as contracting) and ownership structures (such as Real Estate Investment Trusts, REITs) are more standardized, and there is a broad range of specialized intermediaries on the market, such as agents, brokers, banks, non-bank financial intermediaries, and boutique advisors.

3 MSCI (2016)

4 Interviews with industry experts (2016)

## Heterogeneity and risk exposure drive increased complexity

The public nature and the importance of infrastructure assets (such as roads, water facilities, and metro systems) to a local community can increase the political, regulatory, and reputational risks. Greenfield infrastructure assets typically involve significant disruptions to the status-quo and might add considerably more value to local communities than any single real estate asset. For example, a new airport consumes large amounts of land and adds substantial noise pollution but also significantly increases economic growth, local job opportunities, and transport opportunities for large groups of people. Also, a new metro line causes major disruptions when it is constructed, but once completed, it increases neighboring real estate valuations and brings economic growth and new jobs along the metro corridor. Communities are particularly sensitive to certain infrastructure assets, such as water sanitation facilities and hospitals. Given their social importance, the coordination and regulation associated with such assets are innately high. While real estate is more or less a competitive market, most infrastructure assets tend to be natural monopolies or quasi-monopolies, such as electricity grids, airports, and toll roads. For these assets, communities cannot simply switch to a better service provider. Certain infrastructure assets, particularly those that involve a high degree of international traffic (such as airports and sea ports), offer strategic benefits to regions and even entire countries. For example, crude oil and natural gas pipelines may increase the energy diversification and independence of a country. In general, infrastructure assets are exposed to a broader set of risks and are more regulated than real estate assets. Real estate investments involve limited regulatory risks mainly focused on banking regulations.

Both brownfield and greenfield infrastructure assets typically involve more complex risks than real estate assets do. Brownfield infrastructure is normally exposed to operating, capital, environmental, reputational, technology, and counter-party risks, while brownfield real estate can be structured through triple net leases[5] so that tenant risk is the sole risk to the owner of the real estate. For greenfield investments, infrastructure and real estate assets are exposed to similar risks. However, siting, permitting, construction, and environmental risks can be higher for infrastructure investments as new assets could have material implications for local communities because of the scale and duration of potential impact. Moreover, some greenfield infrastructure assets cross municipal, state, or even national boundaries, and given different siting, permitting, and environmental regulations in all these jurisdictions, these risks tend to be greater with greenfield infrastructure. Real estate developments do not cross municipal, state, or national boundaries and are thus not exposed to these kinds of risks.

## Public interest calls for increased transparency

Infrastructure assets typically provide more transparency on operational, financial, and environmental data to local communities than real estate assets. For example, a government-owned electricity company may make detailed data (such as electricity pricing and costs, electricity consumption, capital planning, and operating performance) public to its users and local communities. The public interest in infrastructure assets drives public disclosure requirements and expectations[6]. In real estate, information is mostly private to investors; public attention and disclosure requirements are limited. Though more data is typically disclosed, external reporting standards for infrastructure assets

5 A triple net lease is a lease agreement in which the lessee (or tenant) has agreed to cover all maintenance costs, building insurances, and real estate or property taxes in addition to regular fees, such as rent and utilities.

6 Interviews with industry experts (2016); Interviews with institutional investors (2016)

vary significantly (even for listed assets). As a result, infrastructure market data is often fragmented and less unified than real estate market data. Majority investors in both asset classes hold similar effective control over information flow and can implement reporting structures and routines as needed. However, infrastructure assets typically require monitoring of a wider variety of indicators as the assets may be more complex.

Altogether, unlisted infrastructure assets can involve higher management costs than in real estate due to less standardized deal practices, higher complexity, and higher transparency requirements. For example, the due diligence of a power plant is normally much more comprehensive than that of a residential apartment complex. However, costs in relation to investment size are partially offset by the fact that unlisted infrastructure investments are often larger in size than real estate investments. While management costs are highly dependent on the asset, the typical third party asset management costs for infrastructure are somewhat higher than that of real estate[7].

7 Interviews with industry experts (2016); Interviews with institutional investors (2016)

# 4. Political, Regulatory, and Reputational Risks and their Mitigation

This chapter discusses specific challenges associated with investments in unlisted infrastructure, focusing on political, regulatory, and reputational risks. Potential measures to mitigate these risks are also outlined.

As discussed in the previous chapter, investments in unlisted infrastructure assets are typically characterized by significant stakeholder engagement, resulting from the assets' importance to local communities and investors' controlling positions. Hence, infrastructure investments are generally exposed to added political, regulatory, and reputational risks[1] compared to other asset classes. Infrastructure assets and their related risks are heterogeneous, and risk exposure needs to be understood on an asset-by-asset basis. A toll road in the United States, where the merits of privately-owned and operated toll roads are frequently debated, will have a different political, regulatory, and reputational risk-return profile than a toll road in Italy or France, where tolls are an accepted part of the transportation infrastructure[2]. Nonetheless, the common theme is that stakeholders hold considerable influence over the realized return of the investments. Though unusual, a regulator may change a regulated price unexpectedly, potentially depressing the investor's return. In these cases, the impact on investors' returns is often augmented because the investment is likely to be highly leveraged. However, private industries with market-determined prices may involve greater price risk than regulated infrastructure assets, as market prices may fluctuate continuously and significantly. To be able to mitigate the political, regulatory, and reputational risks in unlisted infrastructure investments, investors can assess and control these risks on five levels: country or region, regulator, community, asset, and partner.

## Political, regulatory, and reputational risks span a wide range of potential issues

Political and regulatory risks arise from governments' and authorities' level of instability and ability to impact investments, for example by changing legislation or regulation[3], while reputational risks are any incidents that may damage how the investor is perceived[4]. The political, regulatory, and reputational risks in unlisted infrastructure investments include a diverse range of potential issues (see Exhibit 4). These downside risks can sometimes outweigh the upside potential to be gained through operations improvements, capital deployment, or pricing changes. The upside potential for infrastructure investors is often limited by regulatory or contractual models, which specify the amount of revenue that

1 Infrastructure investors also face other risks, such as technical, execution, market, and organizational risks, many of which are similar to that in other asset classes. These risks are not covered in this report.

2 Interviews with industry experts (2016)

3 Weber, Staub-Bisang, & Alfen (2016)

4 Eccles, Newquist, & Schatz (2007)

EXHIBIT 4:
EXAMPLES OF SELECTED RISKS IN INFRASTRUCTURE INVESTMENTS

| Risk category | Risk sub-category | Examples of issues |
|---|---|---|
| Political risks | Safety and instability | ▪ Social unrest<br>▪ Terrorism<br>▪ War |
| | Legal | ▪ Expropriation<br>▪ Deletion or revision of existing agreements<br>▪ Change in political direction of infrastructure asset management |
| | Leadership and regime | ▪ Election (e.g., democratic, quasi-democratic)<br>▪ Coup |
| | Politics and policies | ▪ Tax legislation<br>▪ Labor laws<br>▪ Environmental standards<br>▪ Foreign direct investments and trade openness |
| Regulatory risks | Regulatory certainty | ▪ Renegotiations of existing agreements<br>▪ Modification of public-private partnership framework<br>▪ Sudden and unexpected cut in subsidy schemes<br>▪ Change in regulatory price point, e.g., stipulated prices, interest rates, asset base<br>▪ Limitations in price point changes<br>▪ Limitations to trade (e.g., of critical spare parts), e.g., trade tariffs, local content requirements, import/export quotas, bottlenecking inspections<br>▪ Inconsistent definitions and enforcement |
| | Regulatory efficiency | ▪ Unclear requirements<br>▪ Delays to decision making and timelines |
| Reputational risks | Environmental, social, and governance | ▪ Environmental damage, e.g., air and noise pollution, chemical spills<br>▪ Re-settlements<br>▪ Lack of local content or diversity<br>▪ Corruption<br>▪ Executive remuneration and perks |
| | Health, safety, and (work) environment | ▪ Injuries<br>▪ Long-term disabilities or chronic conditions<br>▪ Fatalities |
| | Stakeholder disagreements | ▪ Energy supply vs. amenity disruptions<br>▪ Local industries and minority interests vs. foreign technology |
| | Litigation | ▪ Indictment (e.g., related to ESG or HSE)<br>▪ Involuntary co-plaintiff (i.e., end-investor could be implicit co-plaintiff) |
| | Other negative publicity | ▪ Allegations or adverse press campaigns, e.g., about profiteering, corruption, embezzling<br>▪ Subject in political debate, i.e., false accusations of adverse events, e.g., blackouts, community issues<br>▪ Picketing by special interest groups, e.g., labor unions, community leaders, environmental activists<br>▪ Association with second-party, e.g., partner accused of corruption<br>▪ Association with third-party, e.g., partner with close ties to administration accused of corruption |

can be charged or the operating and capital expenses that can be recovered from an infrastructure asset[5]. Some of the political and regulatory risks may be mitigated through contracting. For example, a government may guarantee investors a certain price for renewable energy generation or a certain level of payment for toll road services irrespective of user flow. However, the opportunity to set such guarantees as an investor varies across governments and sub-sectors.

Since an infrastructure investment is typically long-term, it tends to be exposed to *political risks* as it may be impacted by changes in political direction or changes in government. For example, in the months following the Fukushima Daiichi nuclear disaster in Japan in 2011, a major European country reversed nuclear power policy and decided to close down all nuclear power plants

5 Interviews with industry experts (2016); Interviews with institutional investors (2016)

within a decade due to environmental and safety concerns. The investors of these nuclear power reactors potentially face the cost of phasing out the reactors sooner than they had anticipated and might lose future revenue.

*Regulatory risks* can arise from various factors, such as frameworks and subsidy schemes that can be designed with a short-term bias[6]. Those frameworks or subsidy schemes might, in some rare occasions, fail to capture long-term implications for the market and the payer of the subsidies. Should the regulator or government realize that the framework is inefficient or yields disproportionate value to investors, the regulator might alter frameworks (such as changing minimum price guarantees for renewable energy generation) or even modify existing contracts. Terms that can be seen by the public as too favorable for investors can result in a political backlash and changes to the original agreement. Therefore, investors may seek to understand the credibility and stability of regulatory schemes by analyzing their long-term feasibility from the regulator's and the government's point of view.

A common theme for political and regulatory risks is that both politicians and regulators could have material impact on the investor's return. However, exercising this control unpredictably and adversely might jeopardize the authorities' negotiating power in commissioning new projects. In the bidding phase, for example, investors could require a higher return to compensate for risks associated with authorities' poor track record. Though such political and regulatory events might happen, they are rather rare in segments attracting private capital.

Because infrastructure assets are community assets with significant public interest, the range and likelihood of *reputational risks* tend to be higher than that of other asset classes or businesses[7]. For example, investors in such assets may in some rare cases become the subject of political debate, for example being blamed for electricity outages. Some assets, such as pipelines and nuclear power plants, might be subject to increased stakeholder activism and picketing. As most infrastructure investments are both long-term and highly visible in their communities, the risk of becoming associated with dubious actions by second- or even third-parties is higher. For example, operating partners may be criticized for having a close link to a previous administration with corruption allegations. Additionally, for investors whose ultimate beneficiaries are taxpayers, suing for compensation might have particular adverse reputational effects – especially if the beneficiaries are wealthier than the defendants' dependents (for example a sovereign wealth fund versus less affluent communities in an emerging market). Finally, industry experts interviewed report that given the size and length of infrastructure investments and the varying local jurisdictions, direct investors often consider tax efficiency aspects as well. Investors should be mindful about the reputational risks of association to such actions.

### Risk exposure must be understood on an asset-by-asset basis

As infrastructure assets are highly diverse, the exposure to political, regulatory, and reputational risks varies from asset to asset. There are three asset characteristics that explain some of these differences: sub-sector, geography, and life cycle stage.

In terms of *sub-sectors*, infrastructure assets serve a host of different needs from transportation, energy and utilities to social infrastructure, such as hospitals and prisons. Each asset has an individual risk profile, hence generalizations of the overall riskiness per *sub-sector* are not insightful. However,

6 Interviews with industry experts (2016)

7 Interviews with industry experts (2016)

there are some common principles across sub-sectors. First, several infrastructure assets constitute natural monopolies because duplicating what they provide would be highly inefficient economically. For example, few communities (if any) offer multiple electricity grids or wastewater systems to their inhabitants. Second, communities in developed markets often consider the services of such assets as necessities. Local communities may react negatively to price increases for goods and services of monopolistic assets, even when they are driven by business dynamics, because there are few or no alternatives. Such assets may face detailed, but stable, regulatory regimes and bring added reputational risks for their investors.

Third, the more direct users the asset has, the higher the political, regulatory, and reputational risks are. As an example, water distribution assets might be particularly sensitive to delivery problems. Fourth, some sub-sectors differ in terms of their social license to operate, which investors often seek to evaluate over the lifetime of the investment[8]. For example, fossil fuel based energy generation might have higher political, regulatory, and reputational risks going forward than renewable energy assets. Fifth, some sub-sectors, such as renewable energy projects, are more dependent on subsidies and might face added political risks. For example, as several renewable energy generation methods become more cost competitive, one might expect subsidy schemes to be reduced, introducing political risk regarding the speed and focus areas of the subsidy phase-out.

As with most investments, the level of risk of infrastructure assets clearly impacts the expected return, and it appears that investors generally can demand commensurate compensation in their bids for projects or assets. Sub-sectors with lower risk exposure tend to have lower return expectations, assuming all other factors are equal[9].

From a *geographical point* of view, infrastructure is a local business and the assets predominantly affect local communities. The typical approach to segmenting by geography is to distinguish based on economic status, such as “developed markets” and “emerging markets”. That distinction can explain some differences in risk exposure, however, some of these differences may also be explained by the higher proportion of greenfield investments in emerging markets. Also, within any national market place, there will be regional and even municipal differences in how an infrastructure market operates. As such, the risks need to be considered at the lowest level of disaggregation which tends to be the municipal level. In addition, there are several exceptions to the segmentation into developed versus emerging markets and the associated risk exposure, indicating that investors cannot rely on it alone to draw conclusions on political, regulatory, and reputational risk exposure. Instead, as infrastructure is highly dependent on public policies and regulatory frameworks, the political stability and the regulatory consistency of a geography are important drivers of risk exposure. It is not necessarily the case that developed markets offer higher stability and consistency. For example, investments in Indian toll roads can be more predictable than those in the United States[10]. In certain Indian states, the government guarantees user flows, and should the toll road be nationalized by the government, debt investors are paid out in full while equity investors are entitled to a minimum 5 percent return on their equity. In the United States, there is generally no such protection for private investors. In sum, political stability and regulatory consistency determines geographical risk differences more precisely than classifying an asset as being in a developed or emerging market.

8 Interviews with institutional investors (2016)

9 Interviews with industry experts (2016)

10 Interviews with industry experts (2016)

Lastly, the *life cycle stage* impacts the infrastructure asset profile of political, regulatory, and reputational risks. Greenfield investment risks are materially different from those of brownfield assets. A brownfield asset is already in the operational stage and thus entails operational risks, such as supply chain, weather, and labor risks, whereas greenfield investments involve siting, permitting, environmental approval, and construction risks, and potentially significant challenges in engaging stakeholders. Greenfield investments involve new and unpredictable disruptions to local communities, which might increase reputational risks. If the asset introduces technologies entirely new to the region, the regulatory framework may be less developed and stable, leading to increased regulatory risks.

## Risks mitigation at five different levels

Investors can assess and influence political, regulatory, and reputational risks on five different levels: country or regional government; regulatory authorities; local community; operating entity; and partner (such as an investment partner, operating partner, and subcontractor). Risks can occur on any of these levels. For example, a change in political direction might happen at the country level, whereas accidents in the maintenance of an asset might happen at the partner or operating entity level. The risks can be mitigated in different ways across these five levels.

On the *country or regional level,* it is important to understand the stability of the political and governmental system, regulators' and officials' priorities regarding infrastructure, and the general sentiment for foreign private investments. For example, governments could favor certain types of infrastructure projects over others or may differ in their openness to foreign private capital in infrastructure. To assess political stability, a range of established frameworks and quantitative indices are available[11]. In the infrastructure context, it is particularly important to assess the stability of private ownership of community assets over time and through cycles of different governments, in addition to understanding the overall judicial system, legal framework, and contractual structure. An investor may choose to invest only in countries and regions with stable political environments. In addition, a set of actions can be applied to mitigate the risk of the investment. If the investment is of a considerable size relative to GDP, investors can in some markets establish a position as a strategic investor to the government. Such partnerships may involve local commitments, for example job creation and capability building. The investor can also purchase commercial insurance, for example to protect against adverse political or regulatory change. Another possibility is to invest together with multilateral development banks, which can provide insurance products such as partial risk guarantees. Such guarantees are typically used to secure long-term revenue agreements with governments in emerging markets. The development bank can set up a structure in which the relevant government guarantees revenue agreements will be honored. Should the guarantee be breached, the government is effectively in default to a development bank. Development banks are important for emerging markets' long-term growth financing needs and international capital market access. Additionally, breaching such guarantees damages the country's reputation as a treaty partner.

On the *regulator level*, investors can develop an understanding of the regulatory process, the sophistication of the public-private-partnership framework, and the regulator's track-record of administering that framework. The key mitigating action is to focus on assets in areas of regulatory consistency and predictability. For example, regulators that define and apply clauses consistently are more predictable and favorable. Infrastructure assets are important to local communities and might need to be highly coordinated with local authorities, for example in agreeing upon asset siting or service levels. Proactively cooperating with the regulator can mitigate regulatory risk, for example having regular meetings to ensure updated understanding of regulatory direction.

11 Such as the Economist Intelligence Unit's Political Stability Index.

Since *local communities* typically help shape and are impacted by infrastructure assets, it can be beneficial to actively engage them. Community engagement can help investors understand local priorities, concerns related to the asset, or ways to improve the asset's performance. Critical relationships to develop often include the local governor or mayor, union leaders, land owners, and local suppliers of goods and services. In practical terms, a responsible investor can consider making community commitments, for example creating new skilled labor jobs with formal training programs and opening certain positions on the project management team. For greenfield investments, which may cause significant disruptions to the status-quo, investors can establish a strong communications office and actively engage stakeholders, for example by operating a complaint hotline and conducting periodic on-the-ground community meetings. The overall theme in managing risks at the community level is to embrace and not ignore the local community. It is also important to ensure that all commitments made are actually delivered upon.

On the *operating entity level*, infrastructure investments share similar considerations as other real asset class investments in terms of environmental, social, and governance (ESG) issues as well as health, safety, and workplace environment (HSE) concerns. However, because community and regulatory influence is stronger in infrastructure assets, the importance of assessing and addressing the concerns of communities and regulators is often greater. One mitigating action is to ensure credible and frequent reporting of the most relevant risk measures and indicators, such as ESG performance. If the asset is a natural monopoly, its investors can mitigate risks for example by imposing policies that seek to avoid behavior that could be perceived as monopolistic and act more as one would in a competitive market. For potential price increases, investors can consider having a transparent and well-documented schedule of how and why prices will increase well in advance. In addition, the investor could ensure that the asset has a strong communications department and a solid communication plan for any severe contingencies. If a risk is realized, a central part of risk mitigation is to communicate proactively, rapidly, and accurately on the incident. Finally, investors also stated that they actively work with the management of the operating company to both drive value and mitigate risks[12].

On the investment and operating *partner level*, it is important to do a comprehensive due diligence on potential partners to gain a full understanding of their background, including ESG track record, compliance, and risk management capabilities. As a foreign investor, a safeguard could be to favor local partners who strategically emphasize community and regulatory engagement. Another strategy could be to partner only with entities with a long and established track-record on ESG and HSE issues, including for example how the partner has dealt with community issues in the past. Furthermore, the investor could structure the contract so that it aligns the incentives of the parties, for example by connecting payments to a predetermined set of ESG indicators. In the holding period (the entire time the investment is held), the investor could monitor key performance indicators strictly and keep partners and management accountable. Investors can also challenge and check reports from partners and management with independent advice.

# 5. How Leading Institutional Investors are Managing Risks Related to Unlisted Infrastructure

This chapter summarizes how other large institutional investors organize investments in unlisted infrastructure and how they manage related political, regulatory, and reputational risks. It also discusses the reporting and transparency of infrastructure assets to investors.

The analysis is based on interviews with around 10 funds and more than 10 industry experts, complemented with publicly available information[1]. The institutional investors interviewed are a representative and diverse peer group in terms of investment approach, scale, and geographic and sub-sector focus. The assets under management of the investors vary between around USD 50 and 500 billion, and their infrastructure investments vary within the range of USD 1 to 15 billion. All of the investors have considerable share of direct infrastructure investments and some of them also have sizeable infrastructure fund investments. Most of the investors have allocated capital to renewable energy assets and some to emerging markets.

## Three investor archetypes

Three distinct investor archetypes emerge from the investor interviews. The investors differ in terms of their operating model, including approach to investing and managing assets. Each investor can be classified primarily into one of the archetypes, however in some cases investors use different models for certain investments. All archetypes generally invest in both equity and debt, but equity is far more common. The three archetypes can be described as follows:

*Hybrid investors* invest primarily through infrastructure funds or other asset managers. The investors can also make direct co-investments alongside funds they invest with. Consequently, they usually have limited direct exposure to and limited control of individual assets. *The hybrid investors* choose to have limited capabilities for in-house asset management as the general partners of the external infrastructure funds are primarily responsible for that function. *Hybrid investors* tend to be smaller or less mature investors in the infrastructure space. Lacking the scale or the experience to sustain internal capabilities and a network of partners, they tend to use fund solutions to diversify their portfolios.

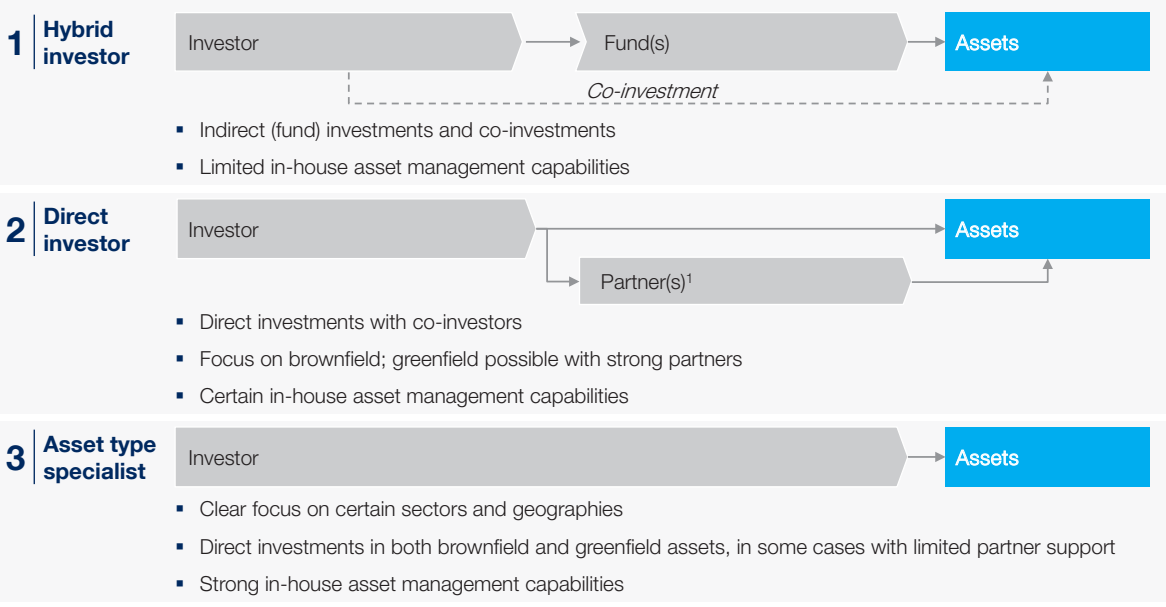
*Direct investors* primarily invest in assets directly, in addition to some co-investments alongside infrastructure funds. Compared to the *hybrid investors*, the *direct investors* have broader and more specialized in-house capabilities for investment and asset management. However, these in-house capabilities tend not to be deeply specialized by asset class or geography. Accordingly, the *direct investors* tend to rely on investment and operating partners to help fill in expertise gaps. Therefore, selecting the right partners for each investment is critical. Some investors aim to develop strategic

1 Such as company reports, industry reports, sustainability reports, and data vendors (e.g., Preqin).

relationships with a few partners (typically engineering, procurement, and construction (EPC) firms or other investors) over several investments in order to concentrate and better mitigate partner risks. *Direct investors* pursue significant ownership in their investments but do not necessarily seek majority control. In terms of life cycle, the focus of *direct investors* is usually on brownfield assets as they are less complex to manage. They only invest in greenfield assets with strong partners, who have the right capabilities and can drive the projects. *Direct investors* tend to be larger investors or have an established track record in infrastructure investments, as a certain scale or experience is necessary to develop required capabilities and strategic partnerships.

*Asset type specialists* invest directly in assets and often prefer to have majority control of the asset. As such, they do not prefer funds or co-investments. They have strong in-house investment and asset management capabilities in selected segments, and they work actively with the operating companies, for example through the board of directors of the operating companies. The *asset specialists* could also invest in greenfield assets if they have the relevant capabilities, such as siting, permitting, and construction. Because they specialize in various fields, it is often important to have a clear focus on selected sub-sectors and geographies. *Asset type specialists* are typically larger institutional investors with longer experience in investing in unlisted infrastructure than other archetypes.

EXHIBIT 5:
**INVESTOR ARCHETYPES – OPERATING MODELS**




1 Operating partners

For all archetypes, debt investing does not seem to play a major role in the investment approach (though there are exceptions). Some of the investors interviewed consider infrastructure debt quite distinct from infrastructure equity, because the former does not yield the typical characteristics that many investors use to justify investments in the infrastructure asset class. For example, infrastructure debt does not typically yield inflation-protected returns, offer the same diversification benefits, or operating control as infrastructure equity. Major debt investors in infrastructure are usually multilateral development banks, which invest alongside equity investors.

### All three investor archetypes have a different risk management approach

The *hybrid investors'* risk management approach relies on partners' expertise and portfolio level concerns. As indirect investors, their management of political, regulatory, and reputational risks is more portfolio-oriented than that of other archetypes. The *hybrid investor* usually chooses to hold limited in-house capabilities on asset level infrastructure risk management and mitigation because the third party asset manager provides all these capabilities for the *hybrid investor*. They receive reports from funds and hold funds accountable; the practical responsibility of asset level risk mitigation is delegated to the fund manager. Hence, selecting the fund or partner is critical for risk exposure and investment management.

In the investment phase, the screening of fund managers includes thoroughly investigating compliance and risk management track records. For example, several infrastructure investors are signatories of the GRESB framework for infrastructure ESG performance evaluation[2]. Additionally, *hybrid investors* make sure they contractualize important risk measures, such as reporting routines and fund governance structures, because it can be challenging to change them during the holding period. Throughout the holding period, *hybrid investors* closely monitor and hold funds accountable to key asset level risk and mitigation performance metrics and initiatives[3].

*Direct investors'* risk mitigation approach is mainly partnership-driven. They have higher exposure to asset level risks than hybrid investors, but they also have the ability to directly influence those risks. They mitigate risk for example by closely cooperating with partners they trust to take practical risk mitigation actions, such as engaging with the regulator and local communities. Therefore, the selection of partners is a key success factor. *Direct investors* typically have some specialized in-house capabilities, such as deep industry knowledge, to understand and challenge the practical risk management of their investments. In addition, the nature of the direct investments typically requires investors to hold specific capabilities and risk management systems to handle issues around reporting and tax compliance, interactions with regulators, and more granular monitoring of key performance indicators on the asset level.

During the investment phase (when sourcing, deciding on, and setting up an investment), *direct investors* emphasize the need to carefully select partners, be it private or public parties, and ensure that interests are aligned, for example by maintaining a balance in contract structure and incentives or seeking strategic partnership with government. Also, a thorough due diligence leveraging partners' expertise is essential. *Direct investors* report several key risk mitigation actions on the regulator level, such as thorough due diligence of the consistency of the regulatory framework' (both in terms of

2 The GRESB framework is a scoring and benchmarking tool used to evaluate ESG performance of infrastructure assets and funds (GRESB Infrastructure, n.d.). The fund assessment tool is based on 10 indicators that address fundamental ESG planning and policies, accountability of leadership, community engagement strategies, communication plans, etc.

3 For example health and safety metrics and community engagement efforts.

design and enforcement), having a dialogue with leading regulators, and seeking support from local, specialized law firms to conduct independent assessments of the regulatory consistency[4]. In fact, the leading, large, direct infrastructure investors globally have created an organization called the Global Infrastructure Investors Association (GIIA) to help support these practices.

*Direct investors* seek carefully defined contracts that balance responsibilities and risks in order to mitigate political, regulatory, and reputational risks. Contracts vary across sub-sectors and geographies, but almost always define the revenue model, service level requirements, and ways of solving disputes and responding to major changes in the operational environment. Several of the investors also use the GRESB framework for infrastructure ESG performance evaluation[5]. They use this to evaluate asset ESG performance both in the investment phase and in the holding period. In terms of insurance, *direct investors* might leverage guarantees through multilateral development banks to limit political and regulatory exposure when investing in emerging markets. Additionally, *direct investors* might purchase commercial insurance to protect against specific events, such as political upsets.

*Asset type specialists* have deep expertise in their strategically selected focus areas. They typically require scale to develop strong in-house risk management capabilities and local presence, which they use to understand risks directly and to mitigate them. To sustain depth of expertise, this investor archetype has to have clear focus areas, typically in terms of sub-sectors and geographies.

Like for *direct investors,* a key mitigating action when deciding to invest is to conduct a comprehensive due diligence of each asset. However, *asset type specialists* rely more on in-house resources complemented with partners' capabilities (such as that of EPC firms or other investors) and the best available external experts (such as technical advisors, consultants, and former industry and regulator executives) and local insights. Contracting is as important as for direct investors, but the responsibility for negotiations is more on the *asset type specialist's* side. In the holding period, *asset type specialists* are continuously involved in managing risk by engaging actively with the operating company's Board of Directors. Investors tend to balance the board composition of their investments between members of their own infrastructure team and external people with deep industry or regulatory experience. Though having different investment mandates and strategies, most investors interviewed strongly emphasize that board representation and contribution by the investor is an important lever to maximize value and manage risks related to the asset in direct investments[6]. As typical for private companies, board members work closely with the management, for example requesting periodic firsthand risk analyses, challenging risk mitigation plans, holding management accountable for risk mitigating actions, and conducting occasional site visits. In addition, investors sometimes staff internal consultants to support the operating company's risk mitigation and often meet with stakeholders on a regular basis to have a firsthand understanding of the local context.

Across all archetypes, investors can make debt investments in infrastructure assets. Debt investors' approach to risk exposure and risk management differs noticeably from that of equity investors in several ways. First, debt investors have less direct exposure to the risks and have better coverage due to the preferred position of debt over equity. Second, they do not have the ability to directly control risk mitigation. Consequently, debt investors manage risk mostly by screening for compliance and eligibility in the investment phase. In the holding period, risk management focuses on operating performance and regulatory compliance.

4 Interviews with institutional investors (2016)

5 The GRESB framework for assets is structured on 8 core aspects: management, policy and disclosure, risks and opportunities, implementation, monitoring and environmental management systems, performance indicators, certifications and awards, and stakeholder engagement (GRESB Infrastructure, n.d.).

6 Interviews with institutional investors (2016)

Irrespective of archetype, most interviewed institutional investors conduct some form of quantitative risk analysis, particularly of political risks and to some extent regulatory risks. Operating companies usually provide pragmatic risk analyses based on firsthand knowledge of the risks, while the investors' central risk function typically conducts comprehensive quantitative risk analyses. Such analyses typically comprise probability-severity heat-maps, value-at-risk, or risk factor models. However, the impact of these risks, especially reputational ones, can be challenging to quantify adequately. Investors note that it is challenging to capture the full perspective of the risk dynamics when quantifying the risks.

EXHIBIT 6:
HIGH-LEVEL RISK MITIGATION APPROACH PER ARCHETYPE

| | | Investment phase | Holding period |
|---|---|---|---|
| 1 | **Hybrid investor** | ▪ Clear risk exposure and investment selection criteria at portfolio level<br>▪ Careful fund selection including environmental, social, and governance review (e.g., using GRESB framework) | ▪ Require relevant and credible reporting on constant basis from fund to investor<br>▪ Reviews of fund performance on key risk management measures<br>▪ Site visits and stakeholder engagement with the most important assets (co-investments) |
| 2 | **Direct investor** | ▪ Specific emphasis on partner selection<br>▪ Thorough due diligence of the asset, leveraging partners with deep expertise<br>▪ Aligned interests with partners, e.g., through contract structure and incentives | ▪ Partners accountable on key performance indicators for risk management, especially stakeholder engagement<br>▪ Active board contribution, deep insight, and analysis of the asset performance and risks |
| 3 | **Asset type specialist** | ▪ First-class due diligence with own resources complemented with best available experts<br>▪ Firsthand experience on the local context and the stakeholders at different levels<br>▪ For greenfield: careful selection of the right partners for the design, permitting, and construction phases<br>▪ For emerging markets: investing with development banks to reduce exposure to political and regulatory risks | ▪ Continuous engagement with all key stakeholders<br>▪ Relevant, credible, and continuous reporting from management<br>▪ Active board contribution and cooperation with management<br>▪ Systematic processes to mitigate risks at the operating company, e.g., insurances and contracts |

## Investors apply negative and positive screening approaches

Investors of all three archetypes take into account exposure to political, regulatory, and reputational risks when selecting which assets to invest in. Most investors interviewed apply both negative and positive selection approaches in managing their risk exposure.

Applying negative selection, investors might outright exclude certain segments (sub-sectors, geographies, life cycle stages) depending on the desired risk and return profile. As part of the screening process, investors can also rule out assets that do not comply with their ESG standards (and similar) unless they believe that they can implement corrective actions rapidly. For example, some direct investors have made a conscious decision to deemphasize greenfield assets due to the higher risk exposure and need for specific asset management capabilities. Countries with weaker regulatory structures or political instability bear high risks. Several investors interviewed avoid investing in such countries unless they have specific capabilities to manage the risks or reduce the exposure to political and regulatory risks by investing with multilateral development banks. As a result, investors are not

extensively exposed to these risks. Several investors try to assess the extent to which an investment will be approved or accepted by society across the whole investment horizon. For example, this 'social license' for coal plants has changed over the last decades, as many societies have come to favor renewable energy sources. Investors aim to anticipate long-term changes which may impact political, regulatory, and reputational risks[7].

For positive selection, investors are more favorably predisposed to countries with positive attitudes towards private capital. In addition, they tend to look for assets with consistent and predictable regulation, which reduces long-term cash flow uncertainty, and favor extensive contracts that detail contingencies and risk allocations accurately and favorably. Furthermore, they often prefer assets that are scarce or irreplaceable, protected from competition (for example through regulation or significant barriers to entry), and have fundamental customer demand over the long-term (such as transportation and energy). Unsurprisingly, investors often prefer to invest in geographies they know or that are similar to their home market. Most investors note that having a comprehensive overview of the local context surrounding the assets, both through their own personnel and local partners, is essential in understanding and mitigating risks. Within these geographies, investors prefer sub-sectors that they have prior exposure to and experience with. In addition, investors seek to align interests with the governments in the countries in which they invest, including allowing or requiring governments to co-invest.

In addition, investors determine capital allocation targets within infrastructure based on the availability of feasible investment opportunities relevant to the investor's size and capabilities. It seems that the transportation sub-sector is strongly represented among leading investors' portfolios, possibly due to the size and stable regulatory and contractual nature of private transportation projects. Renewable energy is the most transacted sub-sector and well represented in portfolios of the investors analyzed. Several investors have holdings in wind power especially close to their home markets. The leading investors have relatively small and condensed direct investment exposure to emerging markets. It seems they select a few relevant geographies and potentially a few sectors in which they have the capabilities they need to manage investments. Some investors have not yet ventured into emerging markets, even if these markets are not explicitly excluded from their investment strategies.

### Investors typically have integrated deal and asset management teams

The organizational setup of infrastructure investments differs by archetype in several ways. For example, investors either have a small infrastructure portfolio management team or a larger integrated deal and asset management team. The portfolio risk management unit may have dedicated infrastructure specialists tracking and advising on infrastructure risks. In addition, infrastructure investments typically involve multiple supporting units in the investor's organization outside of the infrastructure team, such as an advisory board, the central risk function, tax and accounting personnel – the investor's Board of Directors is also typically actively involved in several large direct investments.

*Hybrid investors* typically have an infrastructure portfolio management team that invests in or alongside funds and monitors risks and performance. As they tend to do few direct investments, they do not often have direct asset management skills (such as specialized industry expertise and board capabilities as part of their infrastructure team. The team size in relation to capital invested is smaller than that of direct investors.

7 For example, the evolution of automated transportation might impact the future risk profile of toll roads.

*Direct investors* typically have integrated infrastructure deal and asset management teams. The integrated teams are responsible for sourcing deals, conducting investments, and actively managing the assets, for example through board representation in the operating company. Active ownership through the operating company's Board of Directors seems to be commonplace among the *direct investors.* Accordingly, such investors seek to have industry and managerial capabilities in the investment teams or acquire those through external board members. The infrastructure team is often separate from other real asset teams due to the specific characteristics of the infrastructure assets. The responsibilities inside the infrastructure team are usually divided by sub-sector or geography depending on the focus areas of the investor (similar to how private equity teams are typically organized).

As direct infrastructure investments tend to be large, investment decisions often, depending on the mandate and the governing principles of the investor, go to the Board of Directors of the investor for approvals[8]. Such investments may therefore impose new challenges for the Board, including establishing a new framework for risk management and reporting as well as basic knowledge on the asset types and geographies. As the Board may have to understand and make decisions on complex issues related to many of the investor's unlisted infrastructure investments, investors seek to ensure relevant infrastructure expertise among its board members.

In terms of supporting units, infrastructure teams usually work together with a central risk unit as well as tax and accounting specialists. The centralized risk management team supports the infrastructure team with risk assessments and financial models. The tax and compliance unit either collaborates with global specialists or brings in in-house capabilities specialized in each investment's particular jurisdiction. These additional capabilities required can raise holding costs. However, because the transaction frequency is often lower than in other asset classes and because the investments are fairly large, direct investors can manage infrastructure assets with a relatively lean organization.

*Asset type specialists* have a similar setup to *direct investors*, though with some differences. First, they have a more specific team focus on selected asset geographies or sub-sectors. Second, they are typically located with offices nearer the assets, which allows them to visit sites more frequently, build trust, and engage with management and local communities. Third, they may offer support from asset optimization teams to create value or specialized teams to improve negotiations with regulators. Fourth, they are more active than direct investors in their engagement with the operating company, for example through the operating company's board of directors. They can typically have 1-2 operating company board members from their own investment team and nominate the rest externally to bring sufficient industry expertise and other capabilities.

### Investors have more control of performance indicators and reporting when directly involved

The institutional investors interviewed monitor a wide variety of indicators for their infrastructure investments. Some typical indicators are: financial measures (such as return of investment, revenue, and profitability); operational measures, (such as asset utilization, operational efficiency, service level, and customer satisfaction); and risk and ESG measures (such as leading indicators on accidents, stakeholder engagement, and political and regulatory environment). While these indicators are commonly monitored across all investor archetypes, the investor's ability to impact reporting content and frequency varies by archetype.

8 Interviews with institutional investors (2016)

*Hybrid investors* are usually sent standard fund reports that can include various risk-related measures depending on the type of the assets in the funds' portfolios. For example, the typical risk measures reported for wind mill farms are unplanned outages (percentage of time), turbine blade breakage, hours per day when electricity is not dispatched, number of accidents, and injuries (including those involving subcontractors). *Hybrid investors'* ability to tailor reporting beyond the standard fund reporting can be limited. However, significant fund investors can steer the reporting and request additional information. Co-investing hybrid investors enjoy increased flexibility and information flow in addition to some access to board materials and management reports. Valuations of assets are typically conducted 1-2 times per year using mark-to-market methodologies by external accountants.

For *direct investors,* the most common and important information channel is management reports and board materials. The information flow is often defined through the investors' consortium, so a single minority investor cannot determine key reporting measures alone. The information flow tends to rely on partners for firsthand information. This can reduce the investor's ability to control and verify the primary sources, so several investors source additional, independent reports to verify partners' information. Minority investors are often constrained in the information they publish in their own reporting due to confidentiality agreements.

*Asset type specialists* generally have the most control of reporting and therefore enjoy the best access to information due to their majority positions in the assets. They can implement different reporting and performance measures for the operating company through its Board of Directors, and they can more freely define what information to publish to their stakeholders.

# 6. Examples of Events that Have Damaged the Reputation of Investors in Unlisted Infrastructure

This chapter outlines sanitized examples of events that have damaged the reputation of the investor(s) in unlisted infrastructure investments. Examples of such damage are relatively unusual and the operating companies seem to have received most of the negative publicity. Events with reputational damage mostly occur when investors fail to study risk and take appropriate mitigation measures.

### Event 1:
### Price increases in monopolistic utility grid cause a negative consumer reaction in Europe

In a European country, a utility company sold the power distribution grid to an investor consortium consisting of domestic and international institutional investors. The grid company announced a significant distribution price increase in accordance with the pricing regulation scheme. However, the increase caused heated public discussion as consumers felt the operating company was misusing its position as a monopolistic infrastructure company. The main point of criticism focused on the operating company for its monopolistic behaviour and on politicians for drafting an imperfect regulatory scheme. The investors also received a share of the negative publicity. The operating company ended up moderating and postponing the price increases.

### Event 2:
### Concerns regarding livelihood and land use severely delayed renewable energy project in emerging market

A European investor invested in a major renewable energy project in an emerging market country with a relatively stable governance profile and a predictable regulatory framework. The project faced social and political resistance as local communities were concerned with their livelihood and indigenous rights. The construction of the project was delayed by several years. The project and the investors faced negative publicity in the national and local press. The European investor decided to withdraw from the project and has been hesitant to invest in emerging markets since.

### Event 3:
### Service price increases and contracted charges to a city tarnished investors' reputation

A major city in a developed market privatized part of its transportation services to investors. The operating company upgraded the service level and increased service charges significantly, though within the regulatory framework. In addition, the operating company actively used its right to charge the city for several actions taken by the city that could negatively impact revenues from users. The service price increases and city charges provoked continuous negative discussion among the public and in the press, and led to other negative effects such as boycotts and vandalism. The critique focused on the investors' contract with the city, which was deemed imbalanced or unfair. Lastly, the investor was criticized for taking advantage of the operating company's monopolistic position.

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