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INFRASTRUCTURE INVESTING

-BEYOND THE FUND MODEL

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EXECUTIVE SUMMARY

Why is this important? Financing and executing infrastructure investments is a challenge for many countries. Based on a 2017 survey by OECD the global investment needs on infrastructure is USD 6.3 tn per year over the period 2016-2030. Our crude estimate for economic infrastructure spending in Finland is EUR 5 bn per year for the foreseeable future.[1] Based on interviews we conducted for this report (with the top management of Finnish pension insurers and officials directly linked to infrastructure assets) and academic research, our country could have much to win through increased cooperation between the public and private in the infrastructure field. The long-term investors benefit from the steady cash flows over inter-generational time spans and low correlation to other asset classes of infrastructure investments. The public may gain, not only from the financing, but from new insights in how the infrastructure investments are best governed and developed.

The problem. The required knowledge of various infrastructure assets and the large size of the deals combined with a scarce supply of investment opportunities make direct investments into infrastructure difficult. It is usually not cost effective to have a big in-house infrastructure team in place. Pension funds and other long-term investors have traditionally chosen to invest in infrastructure through funds specializing in acquiring and managing infrastructure assets. In these, the investors commit capital to the fund manager who invests and manages the investments. The problem with this structure is that the fund manager and the investors have different motives. As the problems associated with the fund model have materialized and become better known, long-term investors are trying to increase their direct investments into infrastructure assets and consequently face the question how to do this successfully. Our aim with this report is to attract authorities and pension funds to increase collaboration in the infrastructure space.

Solving the puzzle. A collaborative model developed by acclaimed researchers may lead the way for long-term investors to invest directly into infrastructure. At the core of this model, is the building of a social network around infrastructure investing. Increased knowledge sharing among the investors does not only give better negotiation power towards external fund managers, but also increases the readiness to develop investable infrastructure projects. Networking extends to other parties as well, such as authorities, politicians and interest groups needed to influence opinions and to get the change moving. Once trust is obtained, the collaborative model has investment structures at hand to be used to make the investments into the infrastructure assets.

The promise of a better future. The decreased dependency on the fund model should make it easier for long-term investors to make targeted infrastructure investments at lower costs. Maybe even more importantly, the collaborative model gives the investor a bigger say in how the infrastructure asset is managed and developed. As the time span of the investment is increased (from the 10-15 years usually used in the fund model) the investors have better possibilities to maximize the value of the infrastructure asset in the long term. This means a shift from a very high focus on cost and efficiency to emphasizing more how the infrastructure asset can be developed in a socially responsible way so that value is maximized on time frames spanning several decades. This change in governance will arguably be beneficial not only for the long-term investors, but for the society as well.

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1. THE CALLING

New infrastructure and maintenance of existing infrastructure assets will require significant investments in the next decades. Based on a 2017 survey by OECD the global investment needs on infrastructure is USD 6.3 tn per year over the period 2016-2030 (without considering further climate action). The yearly figure has more than doubled from the report on infrastructure OECD published in 2006/2007.[2] McKinsey estimates that the world needs to spend about USD 57 tn on infrastructure by 2030 to keep up with the expected GDP growth.[3] Based on an estimate we made for this paper (and specified in the appendix), the public spending for economic infrastructure in Finland is expected to average around EUR 5 bn per year for the foreseeable future.

The long-term investors' interest in infrastructure has been on the increase. The promise of steady cash flows over inter-generational time spans, low correlation to other asset classes combined with the current low interest rates make infrastructure investments attractive for sovereign wealth funds, family offices and pension funds. However, when considering the potentially good match of interests, these investors still have relatively low allocations to infrastructure investments.

As our aim with this report is to attract pension funds to increase collaboration in the infrastructure space, we searched for how much of pension funds is currently allocated to infrastructure investments. This allocation

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varies geographically. In Australia, pension funds started to flow into infrastructure investments early on and a few years back it was reported that 5% - 6% of Australian pension funds was allocated to infrastructure investments -clearly up from the level of 2% in 2002.[4] Based on a global survey to 80 large pension funds conducted and published by OECD the average allocation to unlisted infrastructure investments was 3.5% in 2014 and up from 2.8% in 2010.[5] Finnish pension funds tend to report the infrastructure investments together with other investments so we do not know how much of Finnish pension funds is allocated to infrastructure. We assume the allocations to infrastructure are still relatively low and in line with the figures from abroad. Based on public statements of the Finnish pension insurers, the investments into infrastructure is on the rise.

For the public sector, collaborating with long-term investors will give more than just another source of financing.

1.1. Gains for taxpayers

For the public sector, collaborating with long-term investors will give more than just another source of financing. Public-private partnerships (PPPs), in which the public cooperates with private sector actors to plan, develop, build and manage infrastructure investments, have been on the increase globally. Compared to the traditional design-bid-build (DBBs) projects, many researchers argue that it is beneficial for society to let private actors take bigger roles in infrastructure projects. PPPs should decrease risk of budget and time overruns, project mishaps and, maybe most importantly, increase sustainability (e.g. Monk et al., 2012).

The claims that there are less cost and time overruns in PPPs is backed by empirical data comparing PPPs with traditional infrastructure projects. An analysis comparing 21 PPPs with 33 traditional infrastructure projects in Australia shows that the PPPs on average had cost overruns (from approval to completion of the asset) of 11.6% whereas the comparable figure was 35.3% for traditional projects. The same study reports that PPPs

were completed on average 3.4% ahead of schedule (from signing of contract to completion) whereas the traditional projects were completed 23.5% behind of schedule.[6] It is somewhat more difficult to compare differences in actual completion times and costs between PPPs and traditional infrastructure projects as projects tend to be distinctive. There are studies claiming that the private sector can obtain up to 30% of cost savings compared to the public sector over the life cycle of the infrastructure project.[7]

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When the public and private actors are together responsible for the entire lifecycle costs of building, operating and maintaining infrastructure assets, the benefits for society is likely to be higher compared to the situation when the lifecycle costs lies on taxpayers alone (Monk et. al, 2012). In the PPP setting the private firms have higher incentive to maximize the utility of the asset, i.e. innovating and developing its value over a long time period and delivering overall good quality which

is likely to reduce future maintenance costs and improve usability of the asset. In addition to the probably improved public services, the World Bank sees PPPs to bring benefits to local firms and institutions as these learn from global infrastructure investors in how to manage and develop infrastructure projects. PPPs including cooperation between the authorities, domestic pension funds, global infrastructure investors and contractors, and local firms should affect the country's competitive position positively and give a boost to the industries linked to infrastructure development.[8]

1.2. Infrastructure investments

There are different ways to define investments in infrastructure. The investments can be into projects developing new infrastructure assets from scratch, i.e. building a new wind park, or investments to buy existing infrastructure assets. From the society's perspective, infrastructure assets which are necessary for maintaining decent living conditions and enabling the production, transfer and consumption of goods and services are economic infrastructure whereas more soft assets are called social infrastructure. Airports, roads, electricity distribution, communication networks and sewage systems are examples of economic infrastructure assets. Social infrastructure assets are for example schools, hospitals and soccer stadiums. The elasticity of demand is lower, and the lack of substitutes higher, for economic infrastructure resulting in better pricing power and lower risk for these assets.

Investors divide the infrastructure assets into four classes. **Core infrastructure** is boring assets yielding steady dividends. Revenue comes with limited downside risk and is often state-regulated. The investor only has to keep costs under control to get a meaningful return. Even greenfield projects under PPPs where the state guarantees the revenue side is typically considered core infrastructure. **Core plus infrastructure** has a somewhat higher risk than core infrastructure as it usually comes with a growth story requiring capital expenditure or the asset is situated in a somewhat more questionable jurisdiction. **Value add infrastructure** requires development or business re-profiling to get the asset to improve revenue. An example could be buying a regional airport with

the aim to increase its importance. **Opportunistic infrastructure** is the riskiest class usually with limited or no dividend yield and bigger downside risks. The required internal rate of return for this kind of infrastructure investment is from 15% upwards. This category is small and the assets can be on the borderline of being infrastructure at all.

At the present, the demand for investment opportunities in infrastructure is higher than the supply of these opportunities.

At the present, the demand for investment opportunities in infrastructure is higher than the supply of these opportunities. When an investment case presents itself, it usually gathers interest from several investors and results in an auction where the asset or project is acquired by the highest bidder or the one assumed most suitable. Local partners can be crucial to win bids (Torrance, 2009). For the investors, it is both time-consuming and costly to take part in a bidding process. Costs rise as not even the professional managers of infrastructure funds and their teams typically have the technical expertise in the areas needed to assess the value of the asset correctly. Thus, consultants need to be employed. Expensive legal services are acquired both from international and local law offices.

1.3. The fund model

Due to the needed knowledge of the infrastructure market and the relatively scarce supply of investment opportunities, pension funds most often choose to invest in infrastructure through funds specializing in acquiring and managing these type of assets. The fund managers of infrastructure funds are usually independent asset management firms (e.g. Global Infrastructure Partners, EQT Infrastructure) or fund management arms of large banks (e.g. West Street Infrastructure Partners which is a part of Goldman Sachs, North Haven Infrastructure Partners which is part of Morgan Stanley or Macquarie Infrastructure and Real assets which is part of Macquarie Bank).

The infrastructure funds have typically been closed-end with an average term of 10 years, more recently this time frame has been extended to 12-15 years. The fund is managed by the general partner of the fund, i.e. asset management firm, whereas the investors putting up the capital are the limited partners. At the start, the general partner puts trust in the limited partners that they will commit the capital, and after the fund is up and running the limited partners, in turn, need to trust that the general partner manages their investment in the best possible way.

The fee-structure is similar to the private equity deals with a yearly management fee in the range 1% - 2% and a performance fee (carry structure). The management fee is charged either on the investment amount or the fund net-asset-value (NAV). The carry is paid to the fund management firm based on the fund's success. Carry can be calculated on valuation basis or distributed cash basis and part of the carry typically goes to the persons responsible for running the fund. Usually the general partner only receives carry when the fund returns in excess of a pre-determined hurdle rate, for example 8% p.a.

The information asymmetry between the general partner and the limited partners leads to adverse selection and moral hazard problems (Monk et al., 2017). Once the limited partners have committed the capital they are dependent on the general partner to choose the right investments for the fund and to manage these assets so that the limited partners' interests are taken care of. The problem here is that the general partner often has different incentives than the limited partners.

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Several infrastructure assets have life spans exceeding 30 or even 50 years, which suits the pension funds well. However, the investment time for infrastructure funds is clearly lower. The liquidation of the asset and re-investment of the distributed capital at the time of the maturity of the fund induce costs for the long-term

investors. The fee structure including carry gives the general manager incentive to increase the risk of the fund. This can lead to selecting more risky infrastructure assets or increasing leverage. As a result, the risk of the fund may not be in line with what the limited partners expected when they made the commitment to invest. Sometimes the downside is realized and even if this would not mean that the investment is lost, it may lead to loss of interest on part of the fund manager. The manager sees that it is unlikely that the fund will achieve the hurdle rate so the manager invests less effort in the fund and only collects the management fee. The fee structure also puts pressure on the fund managers to invest the committed capital relatively fast, which may result in acquisition of poor assets or to overpricing at the bidding auctions.

1.4. Other ways to get exposure

Listed equities of infrastructure firms or providing debt financing to infrastructure firms and projects are convenient ways to invest in infrastructure. Getting equity exposure to a specific type of infrastructure asset in a limited geographic area, like the Nordic countries, through the stock market is difficult as there are very few firms to choose from. Buying equities often leads to exposure also to other businesses than only infrastructure and does not shield the pension fund from the volatility of the stock market. Seeking exposure to infrastructure through buying infrastructure debt may, in turn, result in taking on higher risk than intended because infrastructure projects are often substantially leveraged.

By investing directly into infrastructure assets, the pension funds and other long-term investors can overcome problems associated with the fund model.

1.5. Going directly

By investing directly into infrastructure assets, the pension funds and other long-term investors can overcome problems associated with the fund model. The challenges with going directly are the high transaction costs to infrastructure assets and the specific knowledge these assets require. Both may pose problems for the long-term investor with usually small infrastructure teams and fixed ways to organize its asset management function. Also on the supply side there are barriers to overcome. The authorities may, understandably, be somewhat reluctant to open up their projects to outsiders as they are used to operate as state run instances depending on public financing. However, there are many reasons for us to believe that the future will require private investors and the public to work together on new infrastructure developments. Increased cooperation both with investor peers and the authorities may be the way in the right direction.

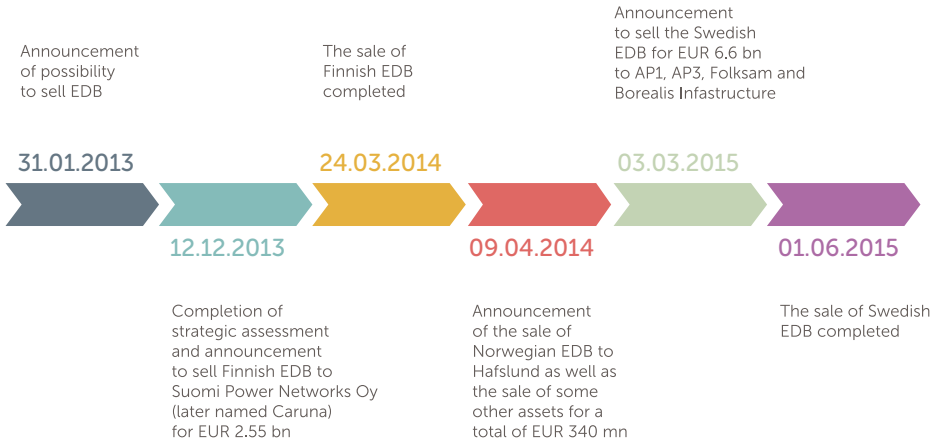
The next section presents a case where an existing (brownfield) asset was bought by long-term investors and from the outside it appears that it is a good example of robust governance, good networking and cooperation.

2. CASE STUDY: FORTUM'S DIVESTMENT OF EDB

2.1. The deal

In January 2013 Fortum announced that it would assess the future alternatives for its electricity distribution business (EDB). At the time Fortum was the leading electricity distribution company in the Nordic countries. In December of 2013 Fortum then announced that it would divest EDB and that the first deal, to sell the Finnish distribution, had already been agreed upon. The divestment would strengthen Fortum's balance sheet and prepare for growth in energy-efficient and low-carbon power generation. After this also the Swedish and Norwegian parts were sold and the process is time-lined in figure 1.[9]

FIGURE 1. TIME-LINE OF FORTUM'S STOCK EXCHANGE RELEASES REGARDING THE DIVESTMENT



Before the divestment, EDB employed 860 persons, accounted for 18% of Fortum's sales and 20% of its operating profit and served 1.6 million customers of which 55% in Sweden, 39% in Finland, 6% in Norway. The Finnish distribution had a network length of 79,000 kilometers and distributed electricity of 12.6 TWh per year, the comparable figures for the Swedish distribution were 71,000 kilometers and 13.7 TWh. Before the sell-outs, both the Finnish and Swedish distributions had investments on the same level (about EUR 140 mn per year). The Norwegian distribution, which was sold in 2014 were much smaller compared to the Finnish and Swedish businesses. Table 1 presents key figures for the total EDB as well

as separately for the Finnish and Swedish operations. For the total EDB and the Finnish EDB, the figures are for the last twelve months before the announcement of divestment (as of end of third quarter 2013) and for the Swedish EDB they are for the year 2014.

TABLE 1. EDB'S KEY FIGURES BEFORE THE SALE

Financials, LTM, EUR mn	EDB	Finnish EDB	Swedish EDB
Sales	1,105	325	632
Comparable EBITDA	575	154	365
Comparable operating profit (COP)	356	94	235
Net assets (period-end)	3,786	749	2,615
COP / Net assets (%)	9.4	12.6	9.0

The selling prices for the Finnish and Swedish businesses were EUR 2.6 bn and EUR 6.6 bn. The Swedish unit was valued clearly higher compared to the Finnish one on non-financials but on financials the valuation appears to be inline. A price comparison is in table 2.

TABLE 2. FINANCIAL AND NON-FINANCIAL VALUATION MULTIPLES

Valuation multiples	Finland	Sweden	Diff.
Sales	16.6	18.1	+9%
Comparable EBITDA	27.1	24.9	-8%
Comparable operating profit (COP)	3.5	2.5	-28%
Price/customer	3,984	7,285	+82%
Price/network km	32,278	92,958	+88%
Price/KWh	0.20	0.48	+138%

2.2. The buyers

Based on the interviews made for this report, several buyers were interested in buying the distribution businesses. Usually these were consortia consisting of large global players in the infrastructure field teamed up with domestic institutional investors taking smaller stakes. The bidding process was long and costly for a group taking part in it, the legal fees and other expert opinions needed to just place a bid ran in millions of euros.

The winning consortium for the Finnish distribution (and their stakes) were First State Investments (40%), Borealis Infrastructure (40%), Keva (12.5%) and Elo (7.5%). The company under which the new owners incorporated the distribution business is named Caruna Networks Oy. Borealis Infrastructure which since then has changed its name to OMERS Infrastructure Management Inc. is the infrastructure investment

advisory and management arm of the Canadian-based pension plan for Ontario's municipal employees. Ontario Municipal Employees Retirement system has 429,000 members and net assets of EUR 54 bn. First State Investments is an asset management division of the Commonwealth Bank of Australia which manages EUR 124 bn assets, it has previous experience in Finnish infrastructure through its investment in TV- and radio- network Digita Oy. Keva and Elo are Finnish pension insurance companies.

The buyers of the Swedish distribution (and their stakes) were Borealis Infrastructure (50%) Tredje AP-Fonden (20%) Första AP-Fonden (12.5%) Folksam (17.5%). The Swedish distribution is incorporated under Ellevio AB. Borealis Infrastructure is the same company taking a stake in the Finnish distribution, nowadays called OMERS Infrastructure Management Inc. Första AP-Fonden and Tredje AP-Fonden are buffer funds in the Swedish national pension system with a combined asset value of around EUR 64 bn. Folksam is a Swedish mutual insurance and pension savings company with EUR 40 bn in assets.[10]

2.3. The motives

Divesting EDB would give Fortum more strategic freedom and better possibilities for value creation. In the same time, the distribution business had value-potential that might be best captured by a different owner who would develop it as a stand-alone business. At the time of the deal, Fortum stated that it would use the proceeds from the divestment to concentrate and seek growth in low-carbon power generation, energy-efficient combined heat and power production and customer offerings. At the time of the divestment decision, Fortum had a ROCE target of 12% (reduced to 10% in 2016), clearly higher compared to the 8% to 9% return EDB delivered. Due to regulations on maximum return on electricity distribution assets (on average about 7% pa. in 2005-2019 in Finland and Sweden according to the Finnish Energy Authority) the upside was capped. Tapio Kuula, Fortum's CEO at the time when the divestment was announced, argued that EDB would benefit if developed on a stand-alone basis.[11] This statement was more or less repeated by Timo Karttinen, the former head of EDB, at the press conference held after the Swedish deal

was published. Mr. Karttinen said "even if distribution is good business for us, as a company and also for that business and its future it might be better if we divest and new owners come in."

As all buyers are at least partly managing investments to fund pensions it is clear that they appreciate a low-risk and steady income stream. The low interest rate regime increase the attractiveness for the buyers. All public comments found by the Finnish and Swedish domestic buyers have been in line with this. Folksam's CEO Jens Henriksson commented the investment into the electricity distribution by saying "it's a stable and boring investment".[12] Johan Magnusson, CEO of Första AP-Fonden stated in the fund's quarterly report 2016 press release that "infrastructure is a strategically important component of our long-term portfolio; cash flow is long and return relatively easy to predict. Also, the value is stable and does not track market fluctuations in the same way as many other investments do." Based on the public comments by Swedish and Finnish institutional investors they appear all interested to up their investments into infrastructure in the future. Among others, Markus Pauli, CIO of Alternative investments at Keva has stated that "it would be interesting to invest even more in infra as it provides stable, long-term returns and protections against inflation".[13]

As the domestic players' interest in investing in infrastructure is arguably driven also by the will to develop the society in which they operate this motive may be smaller among the global players. OMERS' global head of infrastructure Ralph Berg, who has or has had positions on both Caruna's and Ellevio's boards, states on OMERS' web page that OMERS invests in high-quality core infrastructure that is expected to generate stable and consistent returns. From the perspective of the Finnish electricity consumers a somewhat more troublesome statement has been made by the head of Infrastructure at First State Investments, Peter Meany, who has reportedly said "infrastructure gives the possibility to raise prices over time… think about the electricity net, there will never be another electricity net by its side".[14]

2.4. The success

Based on the 13 background interviews conducted when going through this case, Finnish institutional investors as a group would have been willing to take on even a bigger stake in Fortum's Finnish electricity business, now named Caruna, than realized. With hindsight, this would have been a good idea even though the paid (EV) valuation was x27 EBIT. Although Caruna has received negative publicity due to its price increases (of almost 30% for some customers) and a clearly increased CAPEX spending (now clearly over EUR 200 mn per year compared to about EUR 150 mn per year before the acquisition), Caruna has reportedly been a good investment to its owners so far. The owners have financed Caruna mainly with a shareholder loan (EUR 934 mn according to Caruna's annual report of 2017) with a 8.6% interest which is quite high compared to, for example, returns on pension insurers' real-estate investments (6% - 7%). When also the appreciation in value of the stake is taken into account, the investment in Caruna has, based on interviews conducted, to-date yielded a good return since inception.

Like Caruna, its Swedish counterpart Ellevio has also increased prices under its new owners and increased investments. In 2016 Ellevio reported CAPEX of over EUR 200 mn –clearly up from the EUR 134 mn in 2014 which was the last year the business belonged to Fortum. Also the capital structure is similar to Caruna relying heavily on debt and having a substantial loan from the shareholders having an interest rate of 8%. Guidance on how successful the investment has been was sought from the Swedish Pension funds' financial statements. Comparing the annual reports of Första AP-Fonden and Tredje AP-Fonden for years 2015-2017 it can be determined that their fair value estimates of their holdings in Ellevio increased on average by 17.4% pa. in 2016 and 2017.

Although, both the Finnish and Swedish distributions have raised their distribution prices since the new owners took over, the good returns on the investments are not only due to these price hikes. Caruna and Ellevio have new governance structures in place with an active and knowledgeable board of directors and management determined to develop the businesses. The sudden resignation of Caruna's CEO Ari Koponen in 2016 is a good example of the new owners' capability to take decisions to transform the business according their judgement.

3. BEYOND THE FUND MODEL

Institutional investors that have the possibility to in-source investments have been found to generate higher returns (MacIntosh and Scheibelhut, 2012, Fang et al., 2015). Going direct and skipping the general partner/limited partner fund management model has been advocated to be particularly suitable for infrastructure investments due to the size of these investments, their illiquidity and long return profiles (Clark et al., 2012). However, institutional investors face challenges to successfully increase the direct involvement in infrastructure investments.

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3.1. Barriers for going direct

For the institutional investor, the investing in infrastructure, especially when it is done in a geographically limited space, comes with a resource allocation problem. From the investors' perspective, suitable infrastructure projects materialize unfrequently and when they do, they tend to be big and require knowledge in a wide area. Against this background, it is understandable that institutional investors have adopted the approach of having only one or a few persons responsible for infrastructure investments.

Investing in infrastructure, especially when it is done in a geographically limited space, comes with a resource allocation problem.

The analysis is concentrated on selecting fund managers and funds to invest in, rather than on assets. An important factor of this analysis is the judgement of the track record and suitability of the

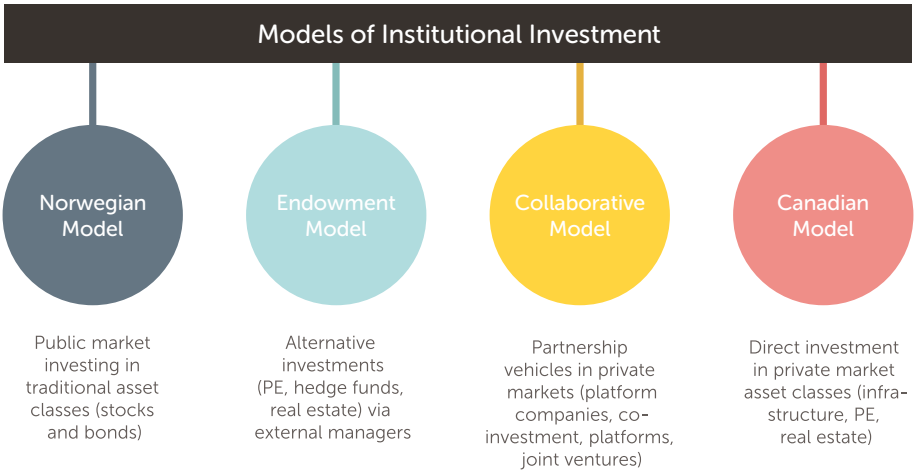
general partner running the fund and the description of the fund. After the commitment to a fund is made, the selection of the assets and the operational management of these assets are then outsourced to the fund manager who provide the limited partners with regular updates on the development of the fund. The fund manager can have an in-house team of tens of persons to chase infrastructure deals around the globe with in depth knowledge of different kinds of infrastructure and a network of consultants to hire if need be. This is obviously something that cannot be paralleled by the single institutional investor at reasonable cost.

For the institutional investor, the cost to hire personnel is not the only barrier to in-source infrastructure investing. Possible in-sourcing requires new processes to guide the investment decision making and risk management (Clark et al., 2012). Also the internal culture of a pension fund may make it difficult to deviate from the current way to invest in an asset class and to mobilize enough resources to make a change.

3.2. Ways to proceed

As the problems and the cost with the fund management model (as presented in section 1.3.) have become clearer and the interest to increase direct infrastructure allocation has been manifested, the question is how

FIGURE 2. THE COLLABORATIVE MODEL OF LONG-TERM INVESTING



to proceed. The following presentation relies much on the way forward presented by the 2017 book Reframing Finance authored by Monk, Sharma and Sinclair who advocate the collaborative model of institutional investing which is compared to other investment models in Figure 2. The Norwegian model has been named after the investment method used by the country's sovereign wealth fund -a low-cost passive strategy in allocating investments to publicly listed assets. In the endowment model investments are allocated into alternative non-public asset classes like private equity, hedge funds, real estate and infrastructure through external fund managers. While the endowment model builds on complete outsourcing of the investment management, the Canadian model also targets investments into alternative asset classes but relies mostly on its own investment function. OMERS, one of the investors in the case presented in section 2, is an example in which the Canadian model has been put into work.

The big fixed costs related to the Canadian model requires a large scale. In the end of 2016 OMERS had USD 85 bn in net assets. The endowment model, on the other hand, can operate with a very small in-house team but the costs come in the fees paid to the external asset managers and costs related to the governance problems of the investments. In contrast to OMERS, California public employees´ retirement system (CalPERS) relies on out-sourced investment management and based on its reporting, it paid USD 1.5 bn in invoiced fees to its external managers in the fiscal year ending 30 June, 2016. In addition to these fees, CalPERS is accused of not even knowing the total of performance and other fees that its asset managers withhold directly from the investments.[15]

The collaborative model lies in between the endowment model trusting external managers and going direct with in-house resources. At the core of it is building a social network enabling direct investments in alternative asset classes such as infrastructure. When institutional investors build their social capital this increases the negotiation power towards the

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external fund managers. This negotiation power can then be used to either form the contracts with the fund managers so that the long-term investors' interest is taken better into account or only use the knowledge of the fund manager in direct investment deals. After all, when trying to mitigate the problems of the fund management model it would be ideal if investment decisions could benefit from the network and knowledge the current external fund managers possess.

Monk et al. (2017) see three different stages in network building to peers –cooperation, collaboration and co-investment. At the first stage, cooperation, senior managers of the financial institutions share knowledge to improve their operating practices. Example of collaboration are discussions how mutual interest could be enhanced through roundtables and exchanges of research opinions and analysis of possible investments. Collaboration involves some kind of commitment to a project or mutual goal. Ultimately, the aim is that when trust is obtained and the work done, the investors could engage in co-investments.

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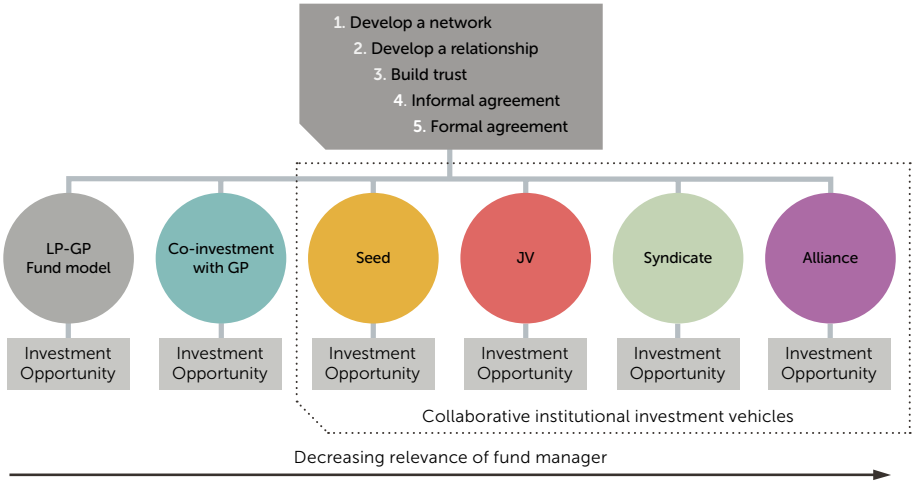
Monk et al. (2017) discuss the networking effects to ones peers at length in the VC space where the syndicating of investments with other VC firms is common and has been studied by many researchers. Previous studies show that the syndication of VC investments improves the quality of deal flow to the VC firms, brings benefits to the portfolio firms through the bigger network with wider knowledge and the partnering with other VC firms improves the analysis of the possible deals. It is argued that the positive effects of networking increases as the uncertainty of the portfolio firms increases, and this is mostly not due to risk sharing but from the bigger need of specific knowledge and the contacts a bigger network gives to the structure. Not surprisingly, the research show that better networked VC firms achieve better fund performance (Hochberg et al., 2007).

Network building does not stop by only the investing peers and other parties related to the asset management industry. Long-term investors sharing similar objectives in a geographically small infrastructure market face the challenge to enhance their networks to authorities who have considerable say in making the infrastructure deals possible. As constructing investable infrastructure deals, and enabling private interests to take part in these, is somewhat unknown and a thing coming on top of the ordinary tasks the authorities have to deal with, understandably, the authorities may be cautious. Networking with the authorities, politicians and interest groups is needed to influence opinions to get the change moving.

Figure 3 shows the intended outcomes of the networking. The building and developing the network is pictured in the upper part whereas the collaborative investment vehicles are in the lower part. Also in the collaborative model there is room for the traditional fund model. However, when working together and sharing information the institutional investors may influence the contracts made with the general partner through better negotiating power and increased knowledge.

FIGURE 3. COLLABORATIVE INVESTMENT VEHICLES FOR INSTITUTIONAL INVESTORS



Monk et al. (2017) lift up the importance of the right incentivization of the fund manager. As fund managers to date tend to be incentivized by the performance fee they get when the fund returns excess of the hurdle rate they have a "carrot" in the contract but there is an absence of a "stick". The institutional investors should try to incorporate punishment aspects

to the contract and these would, for example, be better permissions to remove the manager compared to what the contracts usually includes. Usually, it is very difficult to remove the fund manager which may lead to "zombie funds" that are unlikely to achieve the hurdle rate and for which the manager has lost interest.

The co-investment option, were the long-term investor invests in the investment opportunity alongside with the fund manager may better align the incentives between these two parties. This co-investment option arguably leads to better terms for the investor compared to the traditional fund model and has been increasing its popularity at least in private equity investments. However, Fang et al. (2015) provide evidence that the co-investments underperform traditional fund investments. Monk et al. (2017) state that the adverse selection problem may affect the profitability of co-investments. The fund manager may not bring the best investments up for co-investment as the fee intake on these is smaller. The best investments are saved to be managed under the carry structure whereby performance fees are maximized.

Seed is a way for the long-term investors to operate together by owning the company managing the investments. At start the company needs allowances from the long-term investors to hire an investment team to manage the assets. The company is structured in the way that the interests of the owners are taken into account better compared to the traditional fund management model. An example of a seed company is the Industry Funds Management (IFM) which was established over two decades ago in Australia and is owned by Australian institutional investors. IFM started out with a small team only investing in infrastructure funds but following increasing knowledge and growth of the operations it now invests directly into infrastructure and also other assets. With USD 75 bn of assets under management it now acts as a fund manager also for other investors than its owners. A slightly less ambitious seed arrangement is a platform company formed by institutional investors to operate only in a defined niche and/or takes the ownership of a port, dam, airport or toll road which is then developed. The platform company may also make new investments in relating areas to the original niche or asset. Caruna and Ellevio from the case presented in section 2 are examples of platform companies owned by long-term investors.

Joint venture occurs when two or more owners with the same interests incorporate some of their ownership into the same legal organization. Joint ventures are used to decrease transaction and other costs for the parties involved. In operating through a joint venture the partners also can transfer knowledge between each other. The joint ventures of long-term investors bring together substantial investment capital, asset management and development experience and provide a channel of direct investing in specific asset classes and themes for institutional investors.

Syndicate is a formal agreement between the investing organizations to share resources and investment deals. An agreement is possibly also made with an intermediary to screen investment opportunities for the members of the syndicate. Alliance is a loose forum between likeminded investors to share knowledge on an agreed investment theme. The alliance comes without any formal agreement between the members or without the involvement of an intermediary. When trust is built and the right opportunity presents itself, the alliance may transform itself to one of the more formal ways to invest together.

4. CONCLUSION

Infrastructure is an attractive asset class which offers long investment time-spans often combined with steady and low-risk cash flows. Pension funds and other long-term investors have a competitive advantage in infrastructure investments as they can commit large capital amounts and do not have to take liquidity considerations as much into account as many other asset managers. At the same time, several countries are faced with shortages in public resources to finance needed infrastructure investments which also underline the role of the government in shaping new forms of governance and financing. However, to transform this promising starting point to a situation where everybody wins (despite maybe the opportunistic fund manager) some challenges have to be mastered. While we in this report cannot provide exact answers to how to master these challenges, such as deviating from the ways we are used to operate and dealing with scarce in-house resources, we have aimed to lay out a path where to start.

Pension funds and other long-term investors also have a competitive advantage in infrastructure investments as they can commit large capital amounts and do not have to take liquidity considerations as much into account as many other asset managers.

Notes

[1] See appendix

[2] Estimates of infrastructure investment needs, OECD Technical note, July 2017

[3] McKinsey article July 2015, Megaprojects: The good, the bad, and the better, written by Garemo, N., Matzinger, S., and Palter, R.

[4] Private infrastructure finance and investment in Europe, EIB working papers 2/2013

[5] LPF and PPRF survey update and infrastructure as an asset class, OECD Workshop on data collection for long-term investment 10 May, 2017

[6] Performance of PPPs and traditional procurement in Australia, a report by The Allen Consulting Group and The University of Melbourne, 30 November, 2007

[7] Public-Private Partnerships: Benefits and opportunities for improvement within the United States –a study by Syracuse University directed by Terry Brown

[8] Public-Private-Partnership in Infrastructure resource Center. The World Bank, http://ppp.worldbank.org/public-private-partnership/overview/ppp-objectives

[9] All facts related to Fortum and the divestment of EDB come from stock exchange releases and investor presentation available on Fortum's web pages if not indicated otherwise

[10] The figures related to the buyers of Fortum's EDB are from the companies' web pages

[11] Web-cam available in Fortum's web page

[12] Affärsvärlden, 18 March, 2015, translated from Swedish

[13] Keva Magazine, April 2015

[14] Finnish news channel MTV3, 5 February, 2016

[15] Forbes, 24 May, 2017

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APPENDIX

Estimating Finnish infrastructure needs traditionally financed by the public

Infrastructure can be divided into economic and social infrastructure and when speaking of infrastructure investing the focus is often on the economic infrastructure. Economic infrastructure consists of assets that are needed for production processes and consumption in a society whereas social infrastructure consists of networks and facilities which supports communities such as schools, hospitals, housing, recreation and leisure. In the following, only economic infrastructure investments are considered.

It proved to be quite difficult to get assessments of the need for future infrastructure investments which would be comparable across the different types of infrastructure assets and come from reliable sources. Therefore, the choice was made to figure out how much has been invested in infrastructure in previous years and these amounts are shown in table A1. The expectation is that history puts the estimate of the future in the right magnitude.

TABLE A1. ESTIMATES OF YEARLY INFRASTRUCTURE INVESTMENTS IN FINLAND

EUR (mn)	Yearly investment	Source (explanation)
Roads and briges and seaways	659	The 2016 budget for Finnish Transport Agency (total minus rail tracks and stations and daily maintenance)
Electricity distribution	753	Energy Authority web page
Electricity and heat generation	1,247	Finnish Energy Society web page (total minus amount allocated to distribution above)
Water pipeline and sewerage treatment	489	Helsinki Region Environmental Agency annual reports (whole of Finland value obtained based on population)
Sea ports	87	Research from Finnish Transport Agency 9/2016 (figure is the yearly average for years 2011-2015)
Communications	680	Finnish Communications Regulatory Authority web page (information is for year 2015)
Airports	48	Finavia web page (yearly average for years 2000-2013)
Rail track and station	350	The Finnish Railway statistics 2016 (yearly average for 1990-2016)
Ferries	5	Publication of University of Turku B196, 2013 and Turun Sanomat 18 March, 2017 (50 ferries in Finland, yearly estimate based on ferry acquisition price and economic life)
Total	**4,318**	

Based on the picture obtained from the various sources used in this investigation, it appears that the investments in infrastructure are probably rising in the near future compared to the recent past. Especially when it comes to the Finnish roads and bridges as well as railways there seems to be upward pressure for the investments. All in all, average yearly investments of EUR 5 bn pouring into economic infrastructure assets should be in the right ballpark when looking 10 years forward.