

**ASSESSMENT OF SUMMARY OF
“EVALUATING INVESTMENTS IN UNLISTED EQUITY
FOR THE NORWEGIAN GOVERNMENT PENSION FUND
GLOBAL (GPFG), 2018”**

This version: Dec 13, 2023

Trond M. Døskeland,

Argentum Endowed Professor
NHH Norwegian School of Economics

Per Strömberg,

SSE Centennial Professor of Finance and Private Equity
Stockholm School of Economics

Mandate from the Ministry of Finance

Utdrag epost fra Finansdepartementet 10.11.23:

«Som del av den nye vurderingen av unoterte aksjer ønsker departementet å gi dere oppdraget med å lage et oppdatert kunnskapsgrunnlag i form av en kortfattet rapport med utgangspunkt i analysen fra 2018. Vi ser for oss at rapporten skal inkludere en vurdering av om oppsummeringen i rapporten fra 2018 fortsatt står seg, og hva som ev. er endret. Dere bes spesielt vurdere:

- *utviklingstrekk på dette investeringsområdet*
- *nye forskningsresultater*
- *avkastning, risiko og kostnader”*

(our translation):

As part of the new assessment of unlisted equity, the Ministry wishes to give you the task of creating an updated knowledge base in the form of a short report based on the analysis from 2018. The report will include an assessment of whether the summary in the report from 2018 still stands and what has been changed. In particular, you are asked to consider:

- trends in this investment area
- new research results
- returns, risks and costs

Conclusion

We still believe the executive summary is relevant and find our recommendations applicable for the implementation of unlisted equity. The summary can be found on pages 2-5 in the report from 2018 (Døskeland and Strömberg, 2018) or in the appendix to this document.

Below, we briefly update the “business case” for adding PE to the existing portfolio. Based on the mandate shown above, we focus on how recent trends and research impact the potential for improved risk-reward.

Additionally, we have compared our 14-point list of implications and recommendations for GPFG with the recommendation letters from Norges Bank to the Ministry of Finance (NBIM, 2023b) and (NBIM, 2023c). Without evaluating each point in this document, we conclude that the Fund's implementation choices closely align with our advice.

Short update

Outline

We organize the update around the three main reasons for adding private equity (PE) to the Fund's existing portfolio¹. We can improve the risk-reward for an existing portfolio by improving the return or reducing the risk. As we wrote in Section 5.1 (illustrated in Figure 5.1) in Døskeland and Strömberg (2018), there are three primary motivations for adding PE to an existing portfolio:

- 1) Reduce risk by increasing diversification,
- 2) improve the return from exposure to risk (factor) premiums, or
- 3) improve the return from creating alpha relative to priced risk.

Regarding diversification, we will discuss the development of the size of the PE market and the correlation between listed and unlisted markets. Regarding return, we will focus on the recent developments of realized risk and returns. Regarding the potential for adding alpha, we will examine the possibility of finding the top-performing funds and how to reduce costs relative to the average. Finally, we comment on a few trends in the “investment area.” Here, we specifically focus on the development of the non-financial risks that we mentioned in the 2018 report. Throughout the report, we focus on recent research results.

¹ Hereafter, we name the Government Pension Fund Global “the Fund.”

As a starting point, we emphasize that there is uncertainty about the effects of each of these elements. Even if we have some historical data, it is for a short period, and there are issues related to measuring PE performance. It is also uncertain whether history will repeat itself. Three reasons for change can be 1) a significant flow of capital into PE, 2) the changing role of the listed market, and 3) the critical transition to renewable energy. The Fund should invest in this asset class as a long-term investor seeking a robust high risk-reward.

Diversification

Fundamental financial theory suggests that the Fund should have as diversified a portfolio as possible. In that way, the Fund will be exposed to value creation from firms all around the World. As part of the Fund's risk management, the owner should monitor whether there are "spots" of value creation that are not covered by today's strategy.

One spot is unlisted equity. In Section 3 of Døskeland and Strömberg (2018), we estimated the size of the PE market both at the fund- and deal level. We found that the market had increased both itself and compared to the public market. Since we finished our analyses, the PE market has continued to grow. Even if, among other things, stale PE pricing makes it hard to find exact value, the growth is indisputable. For example, we can see the trend in Figure 3 in NBIM (2023a). Thus, PE is an increasing part of the investable market in which the Fund is not investing.

Even if the evidence indicates that based on historical returns series, private equity is like public equity, there are signals that private equity is partly "something" different, i.e., it is not perfectly correlated with the public market (discussed in Section 4 of Døskeland and Strömberg (2018)). It might also be that the differences have not yet shown up in the historical data, for example, regarding the changing role of the listed market (Ewens and Farre-Mensa, 2022).

Private equity investments access geographies and industries that are underrepresented in public equity markets. In terms of geographies, Asia has seen a disproportionately high level of PE investment, over the past decade, particularly China and (in the last two years) India. In terms of industries, we find technology and healthcare overweighted. More recently, investments relating to climate transition (e.g., green energy and industrial projects, such as Northvolt and H2GS) and AI and digitization (e.g., OpenAI) have disproportionately taken place in private markets.

Thus, the PE market may become more important for portfolio diversification due to the increasing size and potentially changing behavior. Furthermore, since developing a PE strategy takes a long time, it is operationally sound risk management to start early and build the necessary competence.

If the PE asset class continues to grow, developing competence will reduce the risk of missing out on the advantages of this asset class. However, suppose the PE asset class turns out to be *not* essential for exposure to value creation. In that case, the Fund "has paid" an insurance premium for an unfortunate event that did not materialize.

Exposure to risk premiums

When we consider return, we examine the average PE fund. We still think there are fundamental economic arguments for a premium related to the PE risk. In the report, we mention three risk-based explanations for why overall PE-market returns differ from public equity returns: 1) illiquidity premium, 2) different loading on risk premiums associated with premiums in public equities, and 3) public market returns do not perfectly span PE returns. For more details on demystifying PE returns, see Ilmanen et al. (2020) and Ilmanen (2022).

The most important of these is the illiquidity premium. This varies over time, depending on the market's willingness to take on liquidity risk. When the supply of illiquid capital is high, the illiquidity premium tends to be low. In the PE market, this is reflected in the fact that in years when relative PE fundraising is high and credit spreads are low, vintage returns to PE funds are lower, and prices for LP stakes in the secondary market are higher. Such conditions characterized the market in the years preceding Russia's invasion of Ukraine in February 2022. The opposite tends to hold when the supply of illiquid capital is low. Since 2022, the supply of illiquid capital has dropped significantly, as reflected in lower PE fundraising and investment activity and lower leverage levels in buyout transactions. As shown by Brown et al. (2021), investors can increase their annual PE returns by around 1% by sticking to a fixed PE commitment strategy rather than following the overall market and by about 2% with a countercyclical allocation strategy that captures the high illiquidity premium in times of relatively low market liquidity.² An investor with high capacity to bear illiquidity risk should therefore be able to realize significantly higher annual PE returns through a fixed or countercyclical allocation that overweighs investment at times when the expected illiquidity premium is higher.³

In addition, the Fund is well positioned to provide liquidity in secondary PE markets during times of low liquidity to increase PE investment further when the illiquidity premium is higher (Nadauld et al., 2019). Using data on secondary market transactions from 2006-2014, they find that secondary buyers realize an annualized PME of 1.023 compared with 0.976 for sellers, implying that buyers outperform sellers by a market-adjusted 5 percentage points annually.

In addition to the illiquidity risk premium, recent evidence suggests that private equity, particularly VC, can serve as a hedging asset during times of technological disruption. In particular, Peters (2018) provide evidence that VC returns loads on an "idiosyncratic risk" premium. Periods of paradigm shifts, such as the rise of biotech in the 1980s, the internet in the late 1990s, or AI and climate transition in recent years, tend to disrupt traditional incumbent firms and benefit new entrants. Such periods are associated with a higher cross-sectional spread in returns across publicly traded companies, as incumbent firms experience low stock returns, and younger entrants experience high stock returns. Herskovic et al. (2016) term this "idiosyncratic volatility." The firms receiving VC

² Using Burgiss data for buyout funds with vintage years 1987 through 2013, Brown et al. (2021) estimate that a procyclical strategy (based on investing when 3-year rolling average of PE fundraising is high) yields a realized PME of 1.10, compared to 1.15 for a fixed annual commitment strategy, and 1.20 for a countercyclical strategy. The corresponding annual excess returns (direct alpha) were 1.8%, 2.8%, and 4.0%, respectively.

³ The ability to make countercyclical allocations is limited by the fact that fewer PE funds raise money in low fundraising periods, almost by definition. As we discussed in Døskeland and Strömberg (2018), the ability to invest countercyclically can be enhanced through a direct- or co-investment strategy.

investments, as well as publicly traded “growth stocks”, tend to be the ones benefiting from such paradigm shifts. The returns to VC funds, and growth stocks tend to be high during years of high idiosyncratic volatility. Examples are the late 1990s (the rise of the internet) and the recent decade (the increase in e-commerce, particularly following the pandemic, and the rise of AI technology). During more normal years, VC and growth stock returns tend to be lower than public market returns, reflecting the value of VC and growth as a hedge against paradigm shifts.

Realized return

As mentioned above, the historically realized return is one predictor of future PE performance. There can be different “sources” of the return, for example, market risk, but also more PE-specific sources such as illiquidity; for more details, see Table 4.6 in Døskeland and Strömberg (2018).

In Table 4.2, we made a so-called PME analysis (Korteweg and Sorensen, 2023). We market-adjusted PE performance using the NBIM equity benchmark. We used Preqin data with vintage-year average from 1998-2011. NBIM (2023a) performs a similar analysis using Preqin data but differs from ours in that it is relative to a global equity index. Since the Funds benchmark is underweighted in the US market, it is unsurprising that NBIMs results from Table 2 are somewhat lower than our estimates. The NBIM data, see Table 2, also covers a more extended period.

However, the differences are minor, and all means of PME are above 1 for buyout. Similar results are found using the Burgiss data set; for example, Korteweg (2023) and Harris, Jenkinson, Kaplan, and Stucke (2023). Overall, the historical return from the PE asset class has been consistently higher than the public market net of fees.

Alpha – better than average investor

Some institutional investors, especially the Fund, can exploit its advantages to generate higher risk-adjusted returns. We highlight three sources:

- 1) We can increase returns by picking better-than-average funds.
- 2) The Fund has a particularly high capacity to take on liquidity risk.
- 3) There could be scope for the Fund to improve returns by reducing PE fund fees and costs.

Regarding “fund” picking, Section 4.6.1 examines the persistence of PE fund performance. Selection of which funds will perform well in the future remains a challenge. Harris et al. (2022) suggest that the ability to predict performance using metrics like previous fund performance has been declining for PE funds. Moreover, even if investors want to place capital in what is perceived as a high-performing fund, they may be unable to do so if the fund limits allocations to investors.

As Maurin et al. (2023) show, we can theoretically explain return persistence as a result from PE fund managers being willing to offer a higher expected return to investors better able to bear illiquidity

risk. They argue, however, that the benefit of attracting illiquidity-tolerant investors decreases as secondary markets become more liquid, which should reduce return persistence, consistent with Harris et al. (2023). We find most evidence of robust return persistence, also for recent years, in the VC market, where top VC fund managers have continued to generate above-average returns over time. Consistent with Maurin et al. (2023), funds managed by VC managers who have performed particularly well in the past are significantly oversubscribed (and thus difficult to access for LPs), rarely trade in secondary markets, and tend to overperform in their future funds (as shown in Harris et al., 2023).

With respect to benefitting from fund return persistence through access to ex-ante top-performing funds, we believe the potential for the Fund to generate higher returns is more limited. While the Fund is likely to be seen as an attractive investor, thanks to its reputation and near-unlimited liquidity, and thus has an above-average ability to access ex-ante top-performing PE funds, its size will be a limiting factor. Since the funds with high ex-ante returns tend to be smaller and oversubscribed, the size of the allocations is likely to be modest and thus have a limited impact on overall portfolio returns, even though the Fund may have superior access to oversubscribed funds.

Regarding costs, while many studies find private equity outperforms public equity net of expenses (Korteweg, 2023), the costs of investing in private equity are considerably higher than for public equity. Although the communicated fees are consistent across investors, some with negotiating power can achieve lower costs. Recent evidence by Begenau and Siriwardane (2022) confirm that some US pension funds pay significantly lower fees than their peers for investing in the same private equity funds. In Section 4 in NBIM (2023a), there is an analysis of the costs related to PE investments. As we discussed in our 2018 report, we also believe that the Fund should be able to reduce its costs further through co-investments and minority direct investments together with PE funds.

Thus, we believe that the Fund should be able to generate higher net returns to their PE investments than other LPs due to its ability to reduce costs through more favorable fund terms and co-investments for which management fees and carried interest charged by the PE funds do not apply.

Trends in this investment area

Private equity is a different asset class than public equity with its own characteristics. We think the non-financial risk categories outlined in Section 5.3. are still relevant. Below, we mention a few developments within the different risk areas.

- One issue is *conflict of interest*. The PE model helps mitigate the conflict between the company and its owners. Since GPs and LPs are not insiders, more info can be shared between portfolio companies and the owners, making PE an efficient ownership form when firms need substantial restructuring or long-term investment. A recent trend is increasing information between portfolio companies and GPs and LPs, including ESG disclosures (Abraham et al., 2023). However, this extra layer of financial intermediation creates a new potential agency conflict, this time between PE funds (GPs) and fund investors (LPs), see Section 2.5 in Døskeland and Strömberg (2018). The most tangible cost of this agency conflict is the fees charged by GPs, which is on the order of magnitude of 5-7% per annum as a

percentage of assets under management. A large investor such as the Fund should be able to reduce these costs thanks to higher bargaining power, which can reduce fees (as previously discussed) and a higher ability to monitor (e.g., through serving on LP advisory boards).

- Another issue relates to what we call *ESG and headline risk* (see Section 5.3.4 in Døskeland and Strömberg (2018)). This is relevant for the Fund since high transparency and public scrutiny increase headline risk. In the report, we mentioned a concern about buyout funds. These funds had been blamed for “*short-termism, excessive layoffs, tax evasion, and ignoring other stakeholders than shareholders.*” Most newer studies also find evidence favoring operational improvements, such as increasing efficiency (see, for example, Fracassi, Previtro, and Sheen, 2022). However, a few, particularly in regulated sectors such as health and higher education, suggest that financial results can undermine the quality of service (Sorensen and Yasuda, 2023; Gupta, Howell, Yannelis, and Gupta, 2023; Eaton, Howell, and Yannelis, 2020).
- We also examine climate and ESG. At the end of Section 5.3, we wrote that a recent trend was an: “increased emphasis on ESG issues when LPs evaluate whether to invest with a PE firm.” This trend has continued. While the research on climate and PE is only emerging (two exceptions are Bellon, 2022; and Abraham et al., 2023). However, we see signs indicating that PE companies are better suited to deal with the change necessary for the energy transition. The PE model is good at “getting things done fast.” PE firms’ high degree of control and long-term perspective can have a powerful impact on portfolio companies’ sustainability and create more substantial business outcomes (Bernstein, 2022). The recent study by Abraham et al (2023) shows that ESG disclosures of PE funds have increased significantly over time, reflecting a higher ESG awareness of PE firms. They also show that ESG disclosures are significantly related to ESG outcome improvements, such as lower emissions of CO2 and other pollutants in their portfolio companies. The higher ESG awareness of PE firms, primarily driven by increasing ESG concerns among LPs, should serve as a mitigating factor to the headline risk discussed above.
- Finally, there is increasing evidence that publicly traded stocks of firms with high GHG emissions have lower valuations and higher expected returns, driven by an increase in “negative screening” strategies among institutional investors (Bolton and Kacperczyk, 2021). As shown by Pedersen et al. (2021) and Pastor et al. (2022), sustainable investing in public markets should experience lower expected returns (in long-run equilibrium). However, the same relationships are not necessarily the case for sustainable investment strategies in private equity markets. The higher public market valuations of “green” firms make it possible to earn an excess return by improving the sustainability of “brown” firms. As discussed in Døskeland and Strömberg (2018), the strength of the PE governance model is that active ownership is particularly effective for firms that have to undertake major operational and strategic changes. This is particularly difficult to do with dispersed and arms-length shareholders who are forced to rely on publicly disclosed information (Bhide, 1993; Brown et al., 2022). Apart from the growth of so-called impact funds (who are potentially willing to give up returns to achieve sustainability goals; Cole et al., 2023) over the last decade, an increasing fraction of traditional PE firms have adopted climate transition as an explicit investment theme, with the goal of generating higher financial returns (Baran and Tang, 2023).

References

- Abraham, Jefferson Kaduvinal, Marcel Olbert, and Florin P. Vasvari. "ESG Disclosures in the Private Equity Industry." Available at SSRN 4265171 (2023).
- Baran, Dan and Di Tang. "Climate Tech's Evolution: The Maturation to a Competitive, Returns-Focused Thematic Investment Sector." Cambridge Associates (2023). Available at <https://www.cambridgeassociates.com/en-eu/insight/climate-techs-evolution/>.
- Begenau, Juliane, and Emil Siriwardane. "How do private equity fees vary across public pensions?" No. w29887. National Bureau of Economic Research, 2022.
- Bellon, Aymeric. Does private equity ownership make firms cleaner? the role of environmental liability risks. SSRN, 2022.
- Bernstein, Shai. "The effects of public and private equity markets on firm behavior." Annual Review of Financial Economics 14 (2022): 295-318.
- Bhide, Amar. "The hidden costs of stock market liquidity." Journal of Financial Economics 34 (1993): 31-51.
- Bolton, Patrick and Marcin Kacperczyk. "Do investors care about carbon risk?" Journal of Financial Economics 142 (2021): 517-549.
- Brown, Gregory, et al. "Can investors time their exposure to private equity?" Journal of Financial Economics 139.2 (2021): 561-577.
- Brown, Gregory, Andrea Carnelli, and Sarah Kenyon. "Public or private? Determining the optimal ownership structure." Journal of Portfolio Management 48 (2022): 203-220.
- Cole, Shawn, Leslie Jeng, Josh Lerner, Natalia Rigol, and Benjamin N. Roth. "What do impact investors do differently?" NBER Working Paper No. 31898 (2023).
- Døskeland, Trond, and Per Strömberg. "Evaluating investments in unlisted equity for the norwegian government pension fund global (gpgf)." Available at SSRN 4121735 (2018).
- Eaton, Charlie, Sabrina T. Howell, and Constantine Yannelis. "When investor incentives and consumer interests diverge: Private equity in higher education." The Review of Financial Studies 33.9 (2020): 4024-4060.
- Ewens, Michael, and Joan Farre-Mensa. "Private or public equity? The evolving entrepreneurial finance landscape." Annual Review of Financial Economics 14 (2022): 271-293.
- Fracassi, Cesare, Alessandro Previtro, and Albert Sheen. "Barbarians at the store? Private equity, products, and consumers." The Journal of Finance 77.3 (2022): 1439-1488.
- Gupta, Howell, Yannelis, and Gupta. "Does Private Equity Investment in Healthcare Benefit Patients? Evidence from Nursing Homes." Forthcoming Review of Financial Studies (2023).
- Harris, Robert S., et al. "Has persistence persisted in private equity? Evidence from buyout and venture capital funds." Journal of Corporate Finance (2023): 102361.
- Herskovic, Bernard, Bryan Kelly, Hanno Lustig, and Stijn Van Nieuwerburgh. "The common factor in idiosyncratic volatility: Quantitative asset pricing implications." Journal of Financial Economics, 119.2 (2016): 249-283.
- Ilmanen, Antti. Investing Amid Low Expected Returns: Making the Most when Markets Offer the Least. John Wiley & Sons, 2022.

Ilmanen, Antti, Swati Chandra, and Nicholas McQuinn. "Demystifying illiquid assets: Expected returns for private equity." *The Journal of Alternative Investments*, 2(3), 8-22, (2020).

Korteweg, Arthur. "Risk and return in private equity." *Handbook of the Economics of Corporate Finance: Private Equity and Entrepreneurial Finance* (2023): 343.

Korteweg, Arthur G., and Morten Sorensen. "Performance Measures in Private Equity." Available at SSRN (2023).

Maurin, Vincent, David Robinson, and Per Strömberg. "A Theory of Liquidity in Private Equity," *Management Science* 69.10 (2023): 5740-5771.

Nadauld, Taylor D., Berk A. Sensoy, Keith Vorkink, and Michael S. Weisbach. "The liquidity cost of private equity investments: Evidence from secondary market transactions." *Journal of Financial Economics* 132 (2019): 158-181.

NBIM. Private Equity Discussion Note 4/2023

<https://www.nbim.no/contentassets/90b5313efab34825a62df9762feb6f29/private-equity.pdf> (2023a)

NBIM. Investment strategy for the Government Pension Fund Global – unlisted equities

<https://www.nbim.no/contentassets/b373c58c1c6b4ffe89b0b600eb9f37ee/investment-strategy-for-the-government-pension-fund-global--unlisted-equities.pdf> (2023b)

NBIM. Regulation of unlisted investments in the management mandate for the Government Pension Fund

Global [https://www.nbim.no/contentassets/740a88049f1e4d8397100f5759c337dc/regulation-of-unlisted-investments-in-the-management-mandate-for-the-government-pension-fund-global .pdf](https://www.nbim.no/contentassets/740a88049f1e4d8397100f5759c337dc/regulation-of-unlisted-investments-in-the-management-mandate-for-the-government-pension-fund-global.pdf)

(2023c)

Pastor, Lubos, Robert F. Stambaugh, and Lucian A. Taylor. "Dissecting green returns." *Journal of Financial Economics* 146 (2022): 403-424.

Pedersen, Lasse H., Shaun Fitzgibbons, and Lukasz Pomorski. "Responsible investing: The ESG efficient frontier." *Journal of Financial Economics* 142 (2021): 572-597.

Peters, Ryan H. "Volatility and venture capital." Available at SSRN 3044000 (2018).

Sorensen, Morten, and Ayako Yasuda. "Stakeholder impact of private equity investments." *Handbook of the Economics of Corporate Finance: Private Equity and Entrepreneurial Finance* (2023): 299.

Appendix A:

Executive Summary from Døskeland and Strömberg (2018)

The purpose of this report is to provide analysis and recommendation to assist the Ministry of Finance in assessing whether the mandate to GPFPG should be altered to allow for investments in unlisted equity, or *Private Equity (PE)* investments.

The PE market consists of different segments that differ depending on the types of firms they invest in: venture capital (investing in young companies and startups), growth equity (investing in somewhat more established but fast-growing companies), buyouts (investing in mature companies), and distress (focusing on turnaround situations). Still, the PE model of ownership and governance is quite similar across these segments. The focus of PE investors is on creating real value through active ownership and governance of firms in a way that is difficult to replicate in a public setting. Top PE investors possess unique skills to add real value to the companies they own beyond just financial engineering, and these skills are difficult to acquire and/or imitate.

The bulk of PE investment is undertaken by specialized financial intermediaries, PE funds, in which PE fund managers raise capital from institutional investors. In the report we explain the legal structure, compensation, and incentive alignment between investors (LPs) and fund managers (GPs). The PE funds model is expensive, with PE fund managers capturing fees and performance pay amounting to 6-7% per year. We argue that there is substantial scope for large and sophisticated institutional investors in PE to improve returns through reducing fees and obtaining more LP-friendly contracts. Also, investing directly into companies, through co-investments or direct investments, is another way of avoiding these fees, although they put additional requirements on the investment organization.

We derived quantitative estimates for the investable market in PE, divided between investments in PE funds, LP co-investments together with GPs, and direct investments into unlisted companies. We estimated the total investable market (excluding unfunded commitments) to be USD 2.4 trillion, with PE funds accounting for USD 2 trillion and co- and direct investments for roughly USD 200 billion each. Buyouts constitute roughly 60% of the market, while VC and growth equity together constitute roughly 35%. For an investor of GPFPG's size, however, it will likely not be economically viable to invest in PE funds and direct deals that are too small. We therefore derive an alternative estimate of the market obtainable to a large investor of GPFPG's size, which amounts to approximately USD 1.5 trillion, where PE funds accounted for USD 1.2 billion, co-investments for USD 180 billion, and direct investments for USD 160 billion. Since many VC funds and deals are small, the fraction of VC and growth decreases to around 20%, and buyout increases to around 75% of the investable market for a large investor.

We document that the PE market has changed significantly over time with respect to the industries and geographies in which it invests. In particular, there is a notable increase in the fraction of PE investment going to growth industries (such as technology) and growing geographies (such as China). This has led to an overweighting of these sectors in PE compared to public equity markets. Moreover, growing companies in technology and similar sectors tend to stay longer in PE ownership, and the overall size of the private equity market is increasing relative to public markets. A conclusion from these observations and trends is that that PE can enable an investor to increase the exposure to growth segments of the market, compared to only investing in public equity. We also argue that the PE market may have become more important for portfolio diversification over time.

In order to assess the historical performance of PE investment, we use the so-called PME approach that is the dominant performance measure in academic research. This involves comparing the amount of capital generated by a PE strategy to an alternative strategy in a public market index. For U.S. data, the average buyout fund delivered 20% higher distributions over the life of the fund, compared to a strategy that invested similar amounts in the S&P500 index with the same timing. The average VC fund delivered 35% higher distributions than the corresponding S&P500 strategy over the life of the fund. This corresponded to a market-adjusted IRR of 3% per year above the index for buyouts and 2% per year for VC. These returns are all after PE fund fees, which imply that returns that PE managers generate before fees may be as much as 6-7% higher per year. While the performance of both PE segments has exceeded the public market index, buyout performance has been more consistent than VC performance. When it does well, however, VC has the potential to make a huge difference for portfolio returns during limited boom periods, as during the 1990's tech boom.

The return of the PE asset class above the public market should not be interpreted as an "alpha" or "risk-adjusted excess return." Since there is free entry of capital, the PE market as a whole cannot exhibit excess returns. Rather, the higher return of PE over the public index reflects the compensation that investors require for the additional risk in private versus public equity.

There are three risk-based explanations for why overall PE-market returns differ from public equity returns. A first reason is that PE is illiquid, and investors therefore require a "liquidity premium" over public equity to invest in these assets. The liquidity premium varies over time, however, and PE generates higher performance relative to public equity in years when investors are reluctant to commit capital to PE. A second reason is that the companies in which PE funds invest load differently on risk factors that have been shown to be associated with risk premiums in public equities. Although the risk loadings of PE returns are difficult to estimate, we show that PE performance relative to public equity is relatively robust when comparing to adjusted public indexes that proxy for differences leverage, growth-value, and size. This implies that the risk premium in private equity cannot be fully replicated with these public equity indexes. Consequently, a third reason for the PE return differential is that PE returns might not be perfectly spanned by public markets, which could lead to PE-specific risk premia. Some of the research studies we review find some preliminary evidence of such un-spanned risks.

In this context we also discussed the extent to which PE returns could be mimicked by a portfolio of public stocks. Even if the return premium in PE could be fully attributed to loadings on factors that are also priced in public markets, we believe that it is unlikely that a mimicking portfolio strategy is a viable alternative to a PE allocation for a large investor. This is because (a) the estimates of PE factor loadings are inconsistent across studies, and unlikely to be stable over time, and (b) such mimicking portfolios would involve investments in small and illiquid stocks, where only a limited amount of capital can be deployed. The development of public equity mimicking portfolios is an area to monitor, however, as asset managers have just recently started providing such products. At the least, such benchmarks could be useful for performance evaluation of a private equity program.

We then discussed some specific PE investment strategies of institutional investors for generating higher risk-adjusted returns. First, we argue that there might be some scope for increasing returns by carefully screening PE funds based on historical performance and other characteristics, since there is evidence that PE firms who have outperformed in the past will continue to do so in the future. One caveat is that this persistence seems to have declined over time for the buyout segment, although it is still strong in VC. Second, there could be an opportunity for investors with a particularly high capacity to take on liquidity risk to enhance returns by harvesting high liquidity premiums during periods when liquidity in PE is scarce. We argued that returns from taking on liquidity risk could be increased by acquiring PE fund interests from other institutional investors in downturns (in what is called secondary transactions).

We also believe there could be scope for large investors to improve returns by reducing PE fund fees and costs, given that these can be as high as 6-7% per annum. Such fee-reducing strategies include negotiate more LP-friendly contracts and separate accounts. Another approach could be to invest directly into portfolio companies, through co-investments and direct investments, which are free of fee and carried interest. In addition, direct investments have the additional benefit that larger amounts of capital can be deployed, and that the timing is more under the control of the investor, which could help to achieve higher PE allocations in periods when the liquidity premium is high.

We then describe two “best practice” models that have been pursued by leading institutional investors in order to generate higher PE returns, the “endowment model” and the “Canadian model”. Of these two, the second model, pioneered by large Canadian public pension funds, is likely to be relatively more appropriate for a large public investor such as GPF. This model is characterized by large allocations to PE and illiquid assets; large in-house teams for PE fund, secondary, and direct investment; and using scale to reduce fees and costs. To implement this model, an investor needs to develop capabilities with respect to governance, performance evaluation, and talent management. We also discuss the various non-financial risks an institutional investor will have to manage when investing in PE. The main risk management challenge is to ensure a strong governance structure and accountability; while at the same time adjusting performance evaluation to the illiquid nature of the investment, which implies a longer-term horizon in performance measurement and a higher tolerance for short-term performance shortfalls.

We finally discuss the implications and recommendations for GPF. We believe that the distinguishing features of GPF has to do with its large size, its relatively large capacity to take on liquidity risk, its high requirements for transparency and responsibility, and its strong reputation as an international investor. These unique characteristics imply that

1. GPF should have a comparative advantage of building strong in-house teams for PE investment, given economies of scale, reputation, and track record (e.g. from real estate).
2. The ability to take on liquidity risk enables the GPF to invest more aggressively in PE during market downturns when the liquidity premium is high.
3. Its strong reputation and record for transparency and ESG should make it a prestige partner for large private equity firms, particularly in the buyout segment. This, together with its size, should give GPF strong bargaining power with such funds when it comes to negotiating fees and other fund terms. The same factors, however, could potentially be a disadvantage in getting access to the top VC funds, which tend to be heavily oversubscribed and often perceive transparency and ESG requirements as imposing additional costs.

4. More generally, size is a disadvantage when investing in small funds. As a result, allocations will by necessity have a strong buyout and growth equity tilt, and underweight VC.
5. Higher transparency and public scrutiny increase headline risk, which in turn has investment implications. The need to allocate to buyout might pose additional risks, given that buyouts (sometimes undeservedly so) have been associated with a negative public perception in the past. Given the limited ability of LPs to affect PE fund investment decisions ex post, this could lead to GPFPG having to sell fund interests on the illiquid secondary market, incurring additional costs. On the other hand, developing routines for managing such risks can also become an opportunity for GPFPG to become world-class responsible investor at the forefront in incorporating ESG and transparency in PE investing.
6. In terms of investing directly into unlisted firms, GPFPG should focus on co-investments or direct investments where it is a minority syndicate member, together with reputable PE investors. This is because it is hard for public institutional investors to develop the unique value-added skills that the top private PE firms possess.
7. The potential of increasing returns through reducing fees through strategic relationships and direct investing could be substantial, given GPFPG's potential economies of scale, international reputation, and bargaining power.
8. If GPFPG starts pursuing a PE strategy, they should with fund investing. We believe GPFPG should be well-positioned build a strong team for funds, secondaries and co-investments. GPFPG needs to develop skills in PE performance measurement, including an independent quant team for evaluating performance of illiquid investments.
9. In a second step, GPFPG should develop a direct investment team. This might take more time and effort than a fund investment team, but the experiences from other Nordic public pensions investing in PE are encouraging in this regard. As we believe that GPFPG should refrain from operational involvement in direct investment, and leave this to syndicate partners, it should be easier to build a direct investment team, given that investment evaluation and transactional skills should be less scarce (and less expensive) than value-added skills in the private market.
10. Given GPFPG's comparative advantage in responsible investing and sustainability, it would also do well in investing in a world-class ESG team. We would expect GPFPG to have a relatively easy time attracting such individuals.
11. The investment mandate of GPFPG would need to be changed to allow for unlisted investment. It is important to allow for a maximum PE mandate that is considerably larger than the target allocation, in order to avoid the need for costly downscaling of the PE investment during downturns.
12. Since performance of PE investments are much harder to measure and benchmark compared to public equity, it is crucial to develop performance measurement methodologies that both allow accountability, and also avoid overreactions to short-term performance. We believe that the return to PE should be evaluated both relative to a properly risk-adjusted public equity benchmark, as well as relative to benchmark based on aggregate PE fund performance. It will

also be important to appropriately communicate PE performance to the general public, given that it might take up to 10 years before this performance can be properly evaluated.

13. Routines for the governance of funds and direct investment also need to be developed, including fund terms, advisory boards, the involvement in governance of direct investment, and evaluation of investment partners. We believe there are ample opportunities to coordinate with other similar public institutional investors in PE, as well as with industry organizations such as ILPA.

14. If the Ministry decides to allow for PE investments, GPFG should not rush into this asset class, but take the time to build the teams and processes needed to gradually reach a target allocation. This is particularly important given today's booming PE market. We believe a combination of a disciplined, systematic approach, but with a readiness to act quickly if liquidity premiums rise dramatically, is the model that should be pursued.