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An Introduction to Private Equity And Infrastructure Investing

By John W. Gray and David Rogers

Given the challenging investment return environment that we are living in, investors have turned to alternative assets in order to generate extra return, capture additional yield and diversify their portfolio. These assets include private equity and infrastructure. The risk and return profiles of these emerging asset classes matter to actuaries in various functions: asset-liability management, pension valuation, risk management and asset management. At the last Society of Actuaries Investment Symposium, held in Philadelphia on March 26-27, John Gray, a partner with Adams Street Partners, a private equity firm based in Chicago, and David Rogers, a founding partner with Caledon Capital Management, an advisory firm dedicated to the private equity and infrastructure market and located in Toronto, provided an overview of these asset classes. Following the positive reviews received from symposium attendees, they have agreed to write an article based on their presentation. The article will start with a review of private equity investing and will conclude with an overview of the infrastructure market.

PRIVATE EQUITY OVERVIEW

Although private equity investing has been around for more than 40 years, in its infancy it was considered a boutique asset class, comprising a relatively small percentage of the investable universe of available assets. Even today as awareness of private equity has increased, and it has become an accepted and commonly used investment by many institutional plans, private equity still only represents about 4 percent of the investable pool of global assets.

In the early days, the private equity universe was limited to venture capital (VC) funds—often located either on the West Coast (Silicon Valley) or the Northeast corridor of the United States (near Harvard University and MIT). As private equity gained greater exposure and acceptance, so have the

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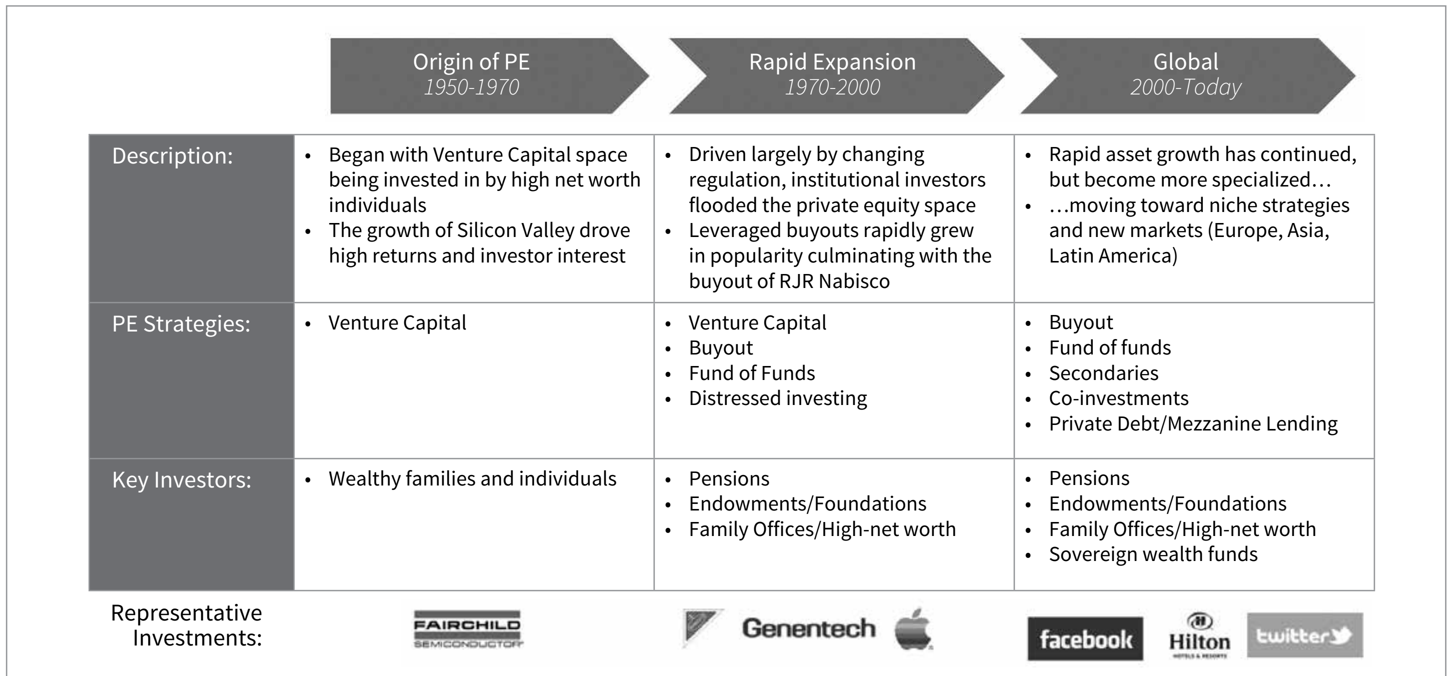
number of private equity vehicles, strategies, consultants and investor groups.

In today's environment, investors can access private equity through VC funds or a leveraged buyout (LBO) fund, or a hybrid of the VC/LBO—such as a co-investment vehicle or secondary vehicle. Each of these types of funds has a unique combination of private equity assets and each generates unique risk return characteristic.

The following graphic illustrates the evolution of private equity as an assets class:



	Origin of PE *1950-1970*	Rapid Expansion *1970-2000*	Global *2000-Today*
Description:	• Began with Venture Capital space being invested in by high net worth individuals • The growth of Silicon Valley drove high returns and investor interest	• Driven largely by changing regulation, institutional investors flooded the private equity space • Leveraged buyouts rapidly grew in popularity culminating with the buyout of RJR Nabisco	• Rapid asset growth has continued, but become more specialized… • …moving toward niche strategies and new markets (Europe, Asia, Latin America)
PE Strategies:	• Venture Capital	• Venture Capital • Buyout • Fund of Funds • Distressed investing	• Buyout • Fund of funds • Secondaries • Co-investments • Private Debt/Mezzanine Lending
Key Investors:	• Wealthy families and individuals	• Pensions • Endowments/Foundations • Family Offices/High-net worth	• Pensions • Endowments/Foundations • Family Offices/High-net worth • Sovereign wealth funds
Representative Investments:	FAIRCHILD SEMICONDUCTOR	Genentech	facebook, Hilton, twitter

As an asset class, private equity does not scale as easily as other mainstream asset classes such as publicly traded equity or fixed income markets. In fact, one characteristic we have strong convictions about, based on our observations of many private equity cycles is that **size is the enemy of return in private equity.** In the chart on page 6, we track the amount of assets raised annually in various private equity vehicles (as represented by the vertical bars). The dots represent vintage year returns (a combination of all fund returns that come to market in a specific year). As one can clearly see, in the years leading to the peak of assets raised there is a corresponding decline in returns for the aggregate market of private equity assets.

So what makes private equity interesting and would lead an investor to include it as part of a diversified portfolio? The simple answer is the potential for higher risk-adjusted returns which are not perfectly correlated with other asset classes. The additional alpha (the return in excess of the compensation for the risk borne), is achieved because of market inefficiency and negotiated transactions.

There are a number of attributes of the private equity model that foster an environment of strong long term investment performance. First, the long holding periods allow the General Partners (GPs) to focus on fundamentally building the business to maximize results in the long-term—since they are not concerned about meeting quarterly earnings estimates. On the other hand, if you invest in an LBO fund that will buy eight to 12 companies over the next four years, your investment is subject to each one of those companies maturing and/or restructuring over several more years. In most cases, you will experience a long holding period for some portion of your original investment that may be in excess of 12 to 15 years.

Nonetheless, to draw the conclusion from this long-winded answer that private equity is an illiquid asset that can be subject to high volatility is short-sighted. There have been many studies by leading academics that prove that higher private equity returns more than compensate an investor for the illiquidity that comes with the asset class. In fact, based on industry data and academic studies, private equity has consistently outperformed the public markets, making it a very attractive asset class for investors with long-term investment objectives such as funding and meeting pension plan obligations. In addition, an investor that builds a private equity portfolio with multiple high quality and proven managers, diverse private equity sub-classes, and numerous vintage years can protect against poor outcomes and potentially capture outsized returns.

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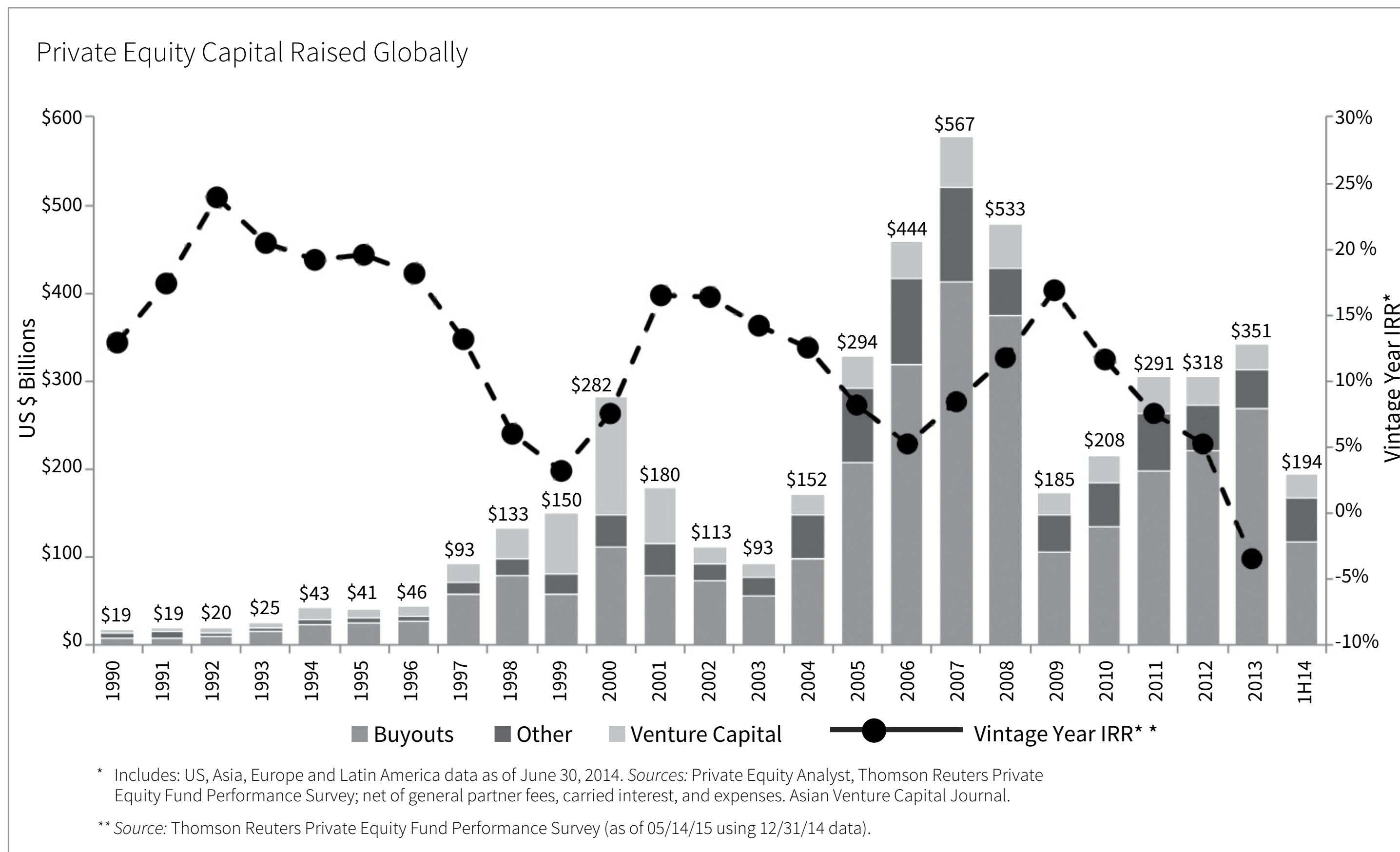


* Includes: US, Asia, Europe and Latin America data as of June 30, 2014. *Sources:* Private Equity Analyst, Thomson Reuters Private Equity Fund Performance Survey; net of general partner fees, carried interest, and expenses. Asian Venture Capital Journal.

** *Source:* Thomson Reuters Private Equity Fund Performance Survey (as of 05/14/15 using 12/31/14 data).

With regard to portfolio construction, we used our company's risk model to estimate the impact of private equity[1, 2] exposure[3] on a standard equity[4]/bond[5] portfolio's Sharpe Ratio (The Sharpe ratio is the average return earned in excess of the risk-free rate per unit of volatility or total risk. The higher the Sharpe Ratio, the better the fund's historical risk-adjusted performance).

Our research indicated that if an institution is not subject to illiquidity risk, additional private equity assets[6] added to the portfolio will increase the overall return as well as increase the Sharpe Ratio.[7] After approximately 40 percent of the stock/bond portfolio was invested in private equity, the overall volatility reversed and began to increase with any additional private equity added to the portfolio.

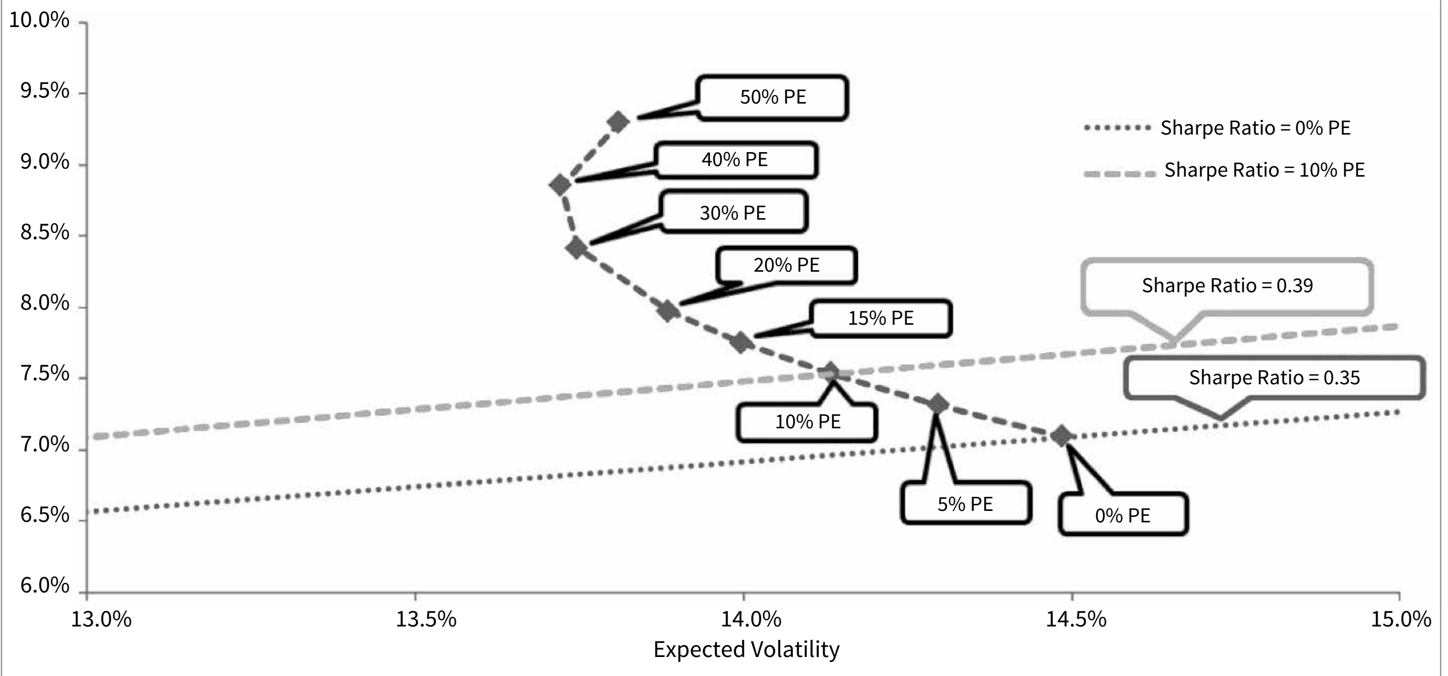
Up until now we have focused on "private equity" as an asset class without explaining the different types of fund investments or strategies that are available to private equity investors. An institution can be a private equity investor a number of different ways, such as:

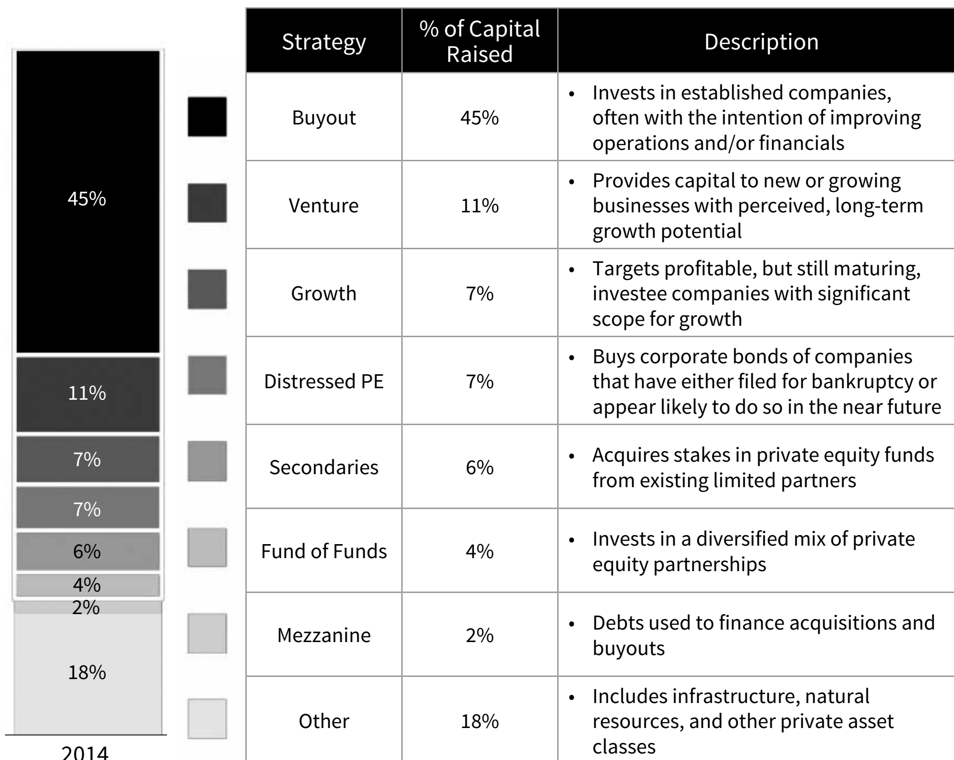
- **buying a private company** and managing it internally (sometimes referred to as a "portfolio company");
- **investing in a fund** that will buy and manage companies; or
- **hiring a fund-of-funds manager** that pools your capital with others and has more buying power and diversification, and hopefully more private equity knowledge.

Some of the most common private equity subclasses are outlined below.

By investing directly into a VC Fund or LBO Fund, one is making a legal commitment through the life of the vehicle (12 to 15 years). Although secondary buyers have created a way of transferring this legal obligation, one should assume that once you commit you will have a "long only" position in the asset class through this obligation—all the way to the maturity of the investment, when portfolio funds and companies have been liquidated and the distribution of their proceeds has been returned to its investors or Limited Partners (LPs).

The long life of a fund is troublesome for portfolio construction and tactical asset allocation. If an investor evaluates their portfolio's asset allocation and determines that the expected return for private equity may be lower relative to historical returns, there is a cost to sell a long-only position in the marketplace. To turn the example around, a shift in market trends and relationships may give rise to an opportunity for private equity managers,





2014 PE Capital Raised by Strategy

Strategy	% of Capital Raised	Description
Buyout	45%	• Invests in established companies, often with the intention of improving operations and/or financials
Venture	11%	• Provides capital to new or growing businesses with perceived, long-term growth potential
Growth	7%	• Targets profitable, but still maturing, investee companies with significant scope for growth
Distressed PE	7%	• Buys corporate bonds of companies that have either filed for bankruptcy or appear likely to do so in the near future
Secondaries	6%	• Acquires stakes in private equity funds from existing limited partners
Fund of Funds	4%	• Invests in a diversified mix of private equity partnerships
Mezzanine	2%	• Debts used to finance acquisitions and buyouts
Other	18%	• Includes infrastructure, natural resources, and other private asset classes

Source: Preqin

which you can access through private equity funds. However, the factors that gave rise to the opportunity can change quickly; after 24 months of good returns you may have to live with that fund for another 10 years or more. Therefore, it is very difficult to "time" investments in private equity. In fact, we believe strongly that private equity investors should maintain a steady, balanced approach to investing in the asset class.

Secondary funds have a place in a private equity portfolio, and they can invest tactically based on economic market conditions. A secondary fund will buy a private equity fund from another investor (or Limited Partner) that needs liquidity. The fund will hold or own interests in companies that the GP purchased during its invest-

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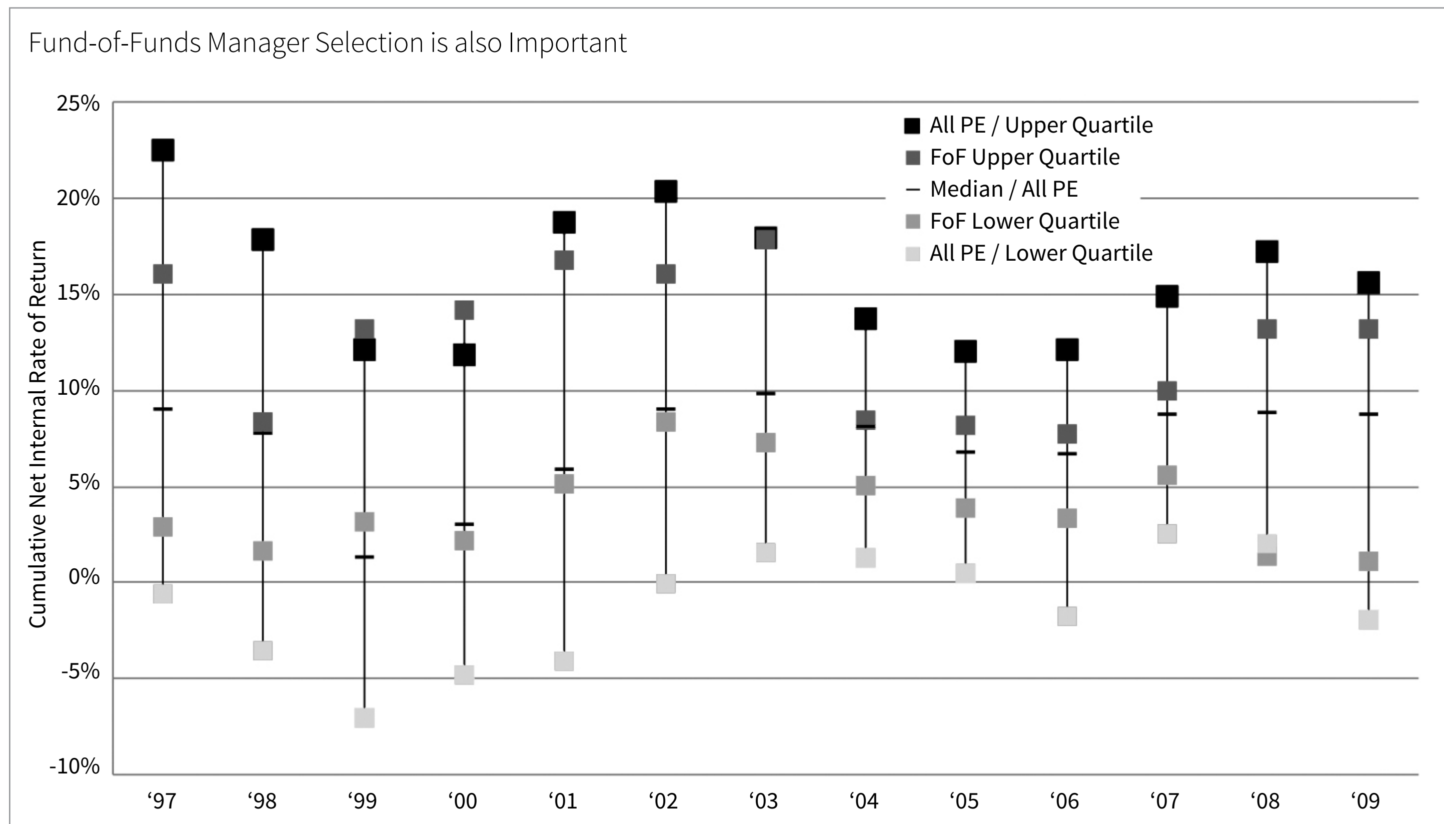
ment period (typically three to five years). Since the secondary manager has the ability to price the underlying companies based on their analysis, and negotiate with the seller, they have the ability to take advantage and set pricing based on economic conditions and current growth prospects for the companies. During the financial crisis of 2008, there were numerous opportunities for secondary managers to create liquidity for distressed sellers at a deep discount to the market value of their portfolio. It may have come with risk, but it was an example of how the secondary funds were tactical in private equity investing.

What are the options available to an institution for building a private equity portfolio? One could invest in private equity by purchasing companies, growing revenues, making them more efficient on the cost side and then selling them at a price higher than the purchase price. The large Canadian public pension plans (Ontario Teachers, CPP, OMERS, etc.) have been investing in companies for years and have been very successful. However, the organizations that have done this successfully are large programs, with experienced and well-paid professionals conducting the activity and have enough resources to diversify away the risk with multiple companies. This strategy is difficult to replicate without substantial resources in assets and expensive investment professionals. Therefore, there are really three primary ways of beginning a private equity program:

1. hire a staff of private equity experts and pick funds;
2. hire a non-discretionary manager to choose funds on your behalf and piggyback off of their research; or
3. hire a fund-of-funds advisor to pool your capital with others and build a diverse portfolio of funds, secondaries and co-investments.

From a cost perspective, the most cost effective option depends on the size of the private equity allocation. As an example, if you determine you would like to invest $20 million dollars every other year into the asset class and you want to pick funds yourself, you may have difficulty achieving the proper amount of diversification. You may also have an issue with regard to accessing the best—the highest quality and potentially top-performing funds, as these are more likely than not going to be oversubscribed—leaving you with only second or third tier managers as investment options. Access to the top tier funds remains an issue no matter what route one chooses. The graph that follows is quite busy, but it displays the range of returns of vintage year funds for different managers. The chart shows the top tier (i.e., quartile) fund versus the bottom tier fund, as well as top tier for fund-of-fund providers versus the bottom tier. The critical point that this graph makes is the differential in the range of returns. In some years,



there is nearly a 25 percent gap between upper tier and bottom tier performers, highlighting the need for quality fund selection. Consistent quality fund selection and access to the top oversubscribed funds are most critical in building a successful private equity program.

No matter what route you choose to build a private equity portfolio, the key components to consider in a manager are: direct access into top tier funds, a well-written trade allocation policy that distributes the funds fairly, and one that is multidisciplinary to help diversify away the risks associated with private equity volatility.

Finally, although private equity investments are long-term binding commitments, portfolio monitoring can still also add value. Monitoring involves playing an active role after investments have been made, with the objective of reducing risk, improving/creating liquidity, properly gauging valuations, evaluating reporting performance and ensuring conformance with various terms and covenants. Examples of portfolio monitoring activities include analyzing quarterly reports, attending annual meetings and making visits to the underlying portfolio companies as required. In addition, private equity investors are often invited to sit on advisory boards.

INFRASTRUCTURE—A GROWING ASSET CLASS

Infrastructure as an asset class is growing increasingly attractive as institutional investors seek investments that are more resilient to economic cycles, have lower correlations with traditional asset classes, provide predictable current yield, offer less volatility and provide some inflation protection. There's no question that infrastructure investing is becoming more popular in institutional portfolios.

The deterioration of aging infrastructure in developed markets coupled with a surge of new projects in developing and emerging markets is expected to generate a steady four percent annual growth rate for infrastructure investment into the second half of this decade, pushing total investment requirements to $4 trillion dollars, according to Bain & Company.

Pension fund investors and other institutional investors continue to look to infrastructure as a growing part of their asset allocation mix as it can assist them in hedging some of their long term liabilities, while providing ongoing yield.

WHAT IS INFRASTRUCTURE?

From an investment perspective, infrastructure can be defined as asset-based businesses providing essential services that offer predictable returns. Infrastructure assets are often divided between economic and social infrastructure assets.

Economic infrastructure encompasses assets that support and sustain the economic activities of a region. These assets, such as roads, bridges, airports, ports, electric, gas and water utilities, pipelines, and power generation stations, can be developed and owned by either government or private sector enterprises. Private financing for economic infrastructure, particularly new projects has been one way of financing infrastructure in OECD countries and is now becoming more common in emerging economies.

Social infrastructure broadly refers to facilities that provide services to a community, such as hospitals, courthouses and schools. Historically, social infrastructure has been financed exclusively by governments. Several developed countries, however, have a relatively long track-record of allowing private financing for social infrastructure, generically referred to as public-private partnerships (PPP). We will discuss PPPs later in this article.

To drill down deeper within economic and social infrastructure, a further categorization exists based on the stage of development of an infrastructure project. Greenfield assets are those that are in the development or construction phase, while brownfield assets are fully developed, operating and generating revenue. While brownfield assets tend to provide returns immediately after acquisition via cash yield, greenfield assets require a longer time frame to be developed and constructed. Investment in greenfield assets assumes construction and ramp-up risk and thus should provide for higher returns.

BENEFITS OF INFRASTRUCTURE INVESTING

Diversification Benefit – Infrastructure has historically had a low correlation to other asset classes, which consequently provides good diversification for an institutional portfolio containing equities and bonds. Given the monopolistic characteristics of many infrastructure assets and the relatively low elasticity of demand for the services provided, infrastructure assets tend to weather the downward storms that are inevitably reflected in the public markets. In this respect, infrastructure can provide a defensive component to an investment portfolio and is an effective way to help diversify market risk.

Liability Matching – Infrastructure as an asset class can be instrumental in providing long-term return profiles that resemble the long-term liabilities of many institutions. Some public pension funds will even place their infrastructure investments in the liability hedging bucket. Infrastructure contracts and industry regulations, often include provisions that tie service price increases to the rate of inflation or allow the operator to pass along higher costs, helping to maintain profit margins as inflation changes. This is particularly of benefit to pension funds and insurance companies with inflation-linked liabilities.

Low volatility – Infrastructure investments should provide relatively stable cash flow profiles that are emphasized over cap-

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ital gains in the overall return equation. This return profile, therefore, provides attractive risk-adjusted returns with relatively low volatility compared to public markets.

Yield – With the continuing low interest environment, institutional investors are hungry for yield enhancing investments. With the right partner and asset, infrastructure is able to provide stable and attractive yields with limited risk in low interest rate environments.

Duration – Infrastructure assets tend to be long lived. When matched with appropriate commercial and/or regulatory environments, infrastructure investments can provide the preceding characteristics over a relatively long time horizon.

RISK/RETURN PROFILE OF INFRASTRUCTURE INVESTMENTS

Now that we understand what infrastructure is and why institutions have chosen to invest in it, we can begin to deconstruct the asset class and start assessing the different categories that exist within it. As you can see in the chart attached, we have broken out certain assets into categories that reflect their typical risk-return profile.

i) Social Infrastructure: As mentioned above, social infrastructure refers to facilities and structures that are built to support communities. While social infrastructure projects in the U.S. have generally been built by governments, in Canada, Australia and the U.K., governments have been active in using the PPP model for new projects. In this model the role of government is essentially transformed from that of a project developer who retains and manages the risks of the construction, delivery, and operation and maintenance of a facility, to that of the long-term purchaser of the services provided by the project sponsors who are contracted to build and maintain the facility. Under this model, the government agency provides an availability-based payment in return for the facility being made available for public use on time and on budget. In order to maintain integrity in the bidding process for these projects, it must be conducted in a fair and open manner, where strong governance is set initially and the process is run transparently, thus reducing the risk of third party improprieties. While the benefits of this model to government are arguably extensive, they are beyond the scope of this article.

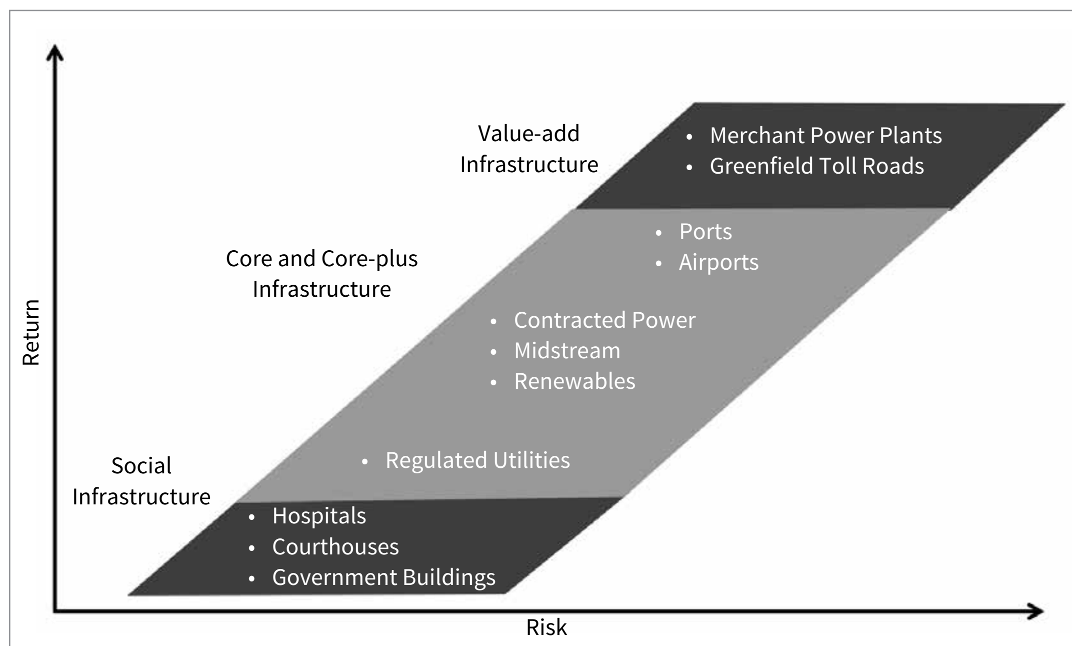
ii) Core and Core-Plus: Core infrastructure assets are relatively stable in nature and often have high sustainable barriers to entry. It allows for a long-term hold period which provides pension fund investors the flexibility of using the cash flows from the asset to offset their long duration liabilities. Core infrastructure assets are considered low risk and generally provide most of their return through a healthy yield. Core-Plus infrastructure assets may also be regulated, however, they are much more susceptible to demand risks. Assets that fall under this category include airports, ports and railways. One key attribute for both core and core plus infrastructure assets is the ability to generate inflation linked cash flows which may prove instrumental in hedging inflation linked liabilities.

iii) Value-add: These types of assets reside higher on the risk curve and can be greenfield or are operating in unregulated industries/markets. These higher risks though are justified by the higher return targets these assets seek to generate through both yield and capital appreciation.

ACCESSING INFRASTRUCTURE

How does one obtain exposure to infrastructure? An institutional investor can utilize various structures to gain exposure to this asset class. The most feasible approach depends on the investor's strategy, liquidity requirements, budget, size and experience of the in-house investment team.

Unlisted Infrastructure Funds: This approach is very similar to a private equity funds model. A high-caliber fund manager provides access to quality infrastructure assets and enhanced risk-adjusted returns. However, with annual management fees and performance fees, this ap-



proach is typically the highest cost method to access the space. This approach does not require a large in-house team of infrastructure investment professionals and relies on the investor identifying top quartile fund managers, which can often be a difficult task. One drawback of this structure for closed-end funds is the tradeoff between short- and long-term commitment as many unlisted funds start divesting after holding an asset for a relatively short time. A possibility exists to invest in open-end unlisted funds which theoretically put an investor's money to work immediately and have the flexibility to hold assets indefinitely. However, competition for access to open-end funds has grown recently with investors waiting in long queues before their money is put to work. Liquidity may also become a concern as it is limited to specific time periods and may not be offered if an investor is seeking a quick exit.

Direct Infrastructure Investments: Another method of access is unlisted direct infrastructure investments. This consists of direct investments in the equity or debt of infrastructure assets, and it requires a strong degree of expertise in infrastructure investing and a higher risk appetite. Compared to the fund method it is a lower cost alternative and can be done through either leading or co-investing with partners in a particular asset. This approach can also be implemented by entering into a separately managed account with an experienced asset manager.

Listed Infrastructure: This approach is ideal for investors with significant liquidity requirements. The investor simply buys shares or an index of listed infrastructure companies on an exchange. While this is the lowest cost approach, these investments are subject to public market volatility and have the highest correlation to equity markets.

CONCLUSION

As institutional investors search for further portfolio diversification, improved yield and inflation hedges, infrastructure should continue to grow as an asset class. The strong growth profile it provides combined with an increasing number of investment opportunities and strong return characteristics, will make it an attractive asset class for many years to come. ■

John W. Gray, CFA, is a Partner and member of the Adams Street's Client Service Team. He works closely with clients and their consultants in the management and development of their private equity portfolios. Additionally, he is actively involved in the portfolio construction, monitoring and reporting of the various ASP programs and separate accounts. John is a sports enthusiast and coach to local community and his three grown children. He can be reached at *jgray@aspllc.com*

David Rogers, CPA, CA, CBV, is the founding partner of Caledon Capital Management, an independent customized portfolio management and investment solutions provider. He was one of the founding members of the Institutional Limited Partners Association ("ILPA") where he helped establish best practices for limited partners investing in alterative asset classes. When David is not working, he enjoys spending time with his family in the great white north. He can be reached at *drogers@caledoncapital.com.*

ENDNOTES

[1] Defined as a globally diversified set of private equity investments—companies (or funds that invest in companies) that are not listed on a publicly-traded exchange.

[2] Based on total return for the trailing 10 year period ended 9/30/2014

[3] Based on Adams Street Partners' factor-based risk model. Additional details on the methodology are available upon request.

[4] Represented by the MSCI World Total Return Index

[5] Represented by the Barclays US Aggregate Bond Index

[6] Source: Burgiss. The Burgiss data presented here includes a global set of funds which are invested on a primary basis in buyout and excludes secondary investments. Numbers are subject to updates by Burgiss. Burgiss is a recognized source of private equity data, and the Burgiss Manager Universe includes funds representing the full range of private capital strategies; it may not include all private equity funds and may include some funds which have investment focuses that Adams Street Partners does not invest in. Data and caluclations by Burgiss, sourced on February 5, 2015.

[7] Calculated as (Expected Return — Risk Free Rate)/(Expected Volatility). Risk Free Rate is assumed to be 2%.