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Private Equity for Institutional Investors

Current Environment and Trends

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Executive Summary

Pension plans and other institutional investors are pouring money into private equity at an astounding rate. At this time, the private equity industry accounts for approximately $1.5 trillion in invested capital, and private equity firms raised $300 billion in fresh capital in 2007. Undoubtedly, there will be both winners and losers in this high stakes, modern day gold rush.

In our view, private equity involves a complicated risk and return proposition. Private equity investors may be attracted to the potential for impressive returns that are not highly correlated with traditional equity and fixed income investments. Skeptics point to the multiple risks due to the illiquid and opaque nature of the funds.

The J.P. Morgan Investment Analytics and Consulting group analyzed more than 5,500 private equity funds for vintage years from 1990 through 2005, including both U.S. and global funds and representing every major style. Our analysis indicates that there is a wide range of performance between top quartile and median funds among every major style. Moreover, the relative performance of private equity funds versus the public equity markets has been mixed.

In our view, institutional investors face several hurdles to investment success in private equity. Institutional investors have to identify the funds, management teams, and deal structures that are likely to result in positive results. Moreover, once attractive funds and strong managers are identified, it is often difficult to gain access to the most attractive funds. Finally, private equity partnerships typically involve annual fees of approximately 2% and carried interest of 20% of profits.

Nonetheless, investors seem willing to take their chances in this challenging asset class. According to a recent survey conducted by J.P. Morgan and Greenwich Associates, approximately 62% of current investors in private equity expect to increase their allocations in the near term. In our view, plan sponsors should only consider allocations to private equity if they believe they are able to identify, and gain access to, managers that are likely to be in the top quartile.
The Investment Case

In many ways, private equity holds the potential for huge gains. Clearly, high rates of return are possible, particularly among top-quartile funds. For example, top quartile venture capital funds that were raised between 1993-1997 generated average internal rates of return of 52%. Likewise, buyout funds that were raised between 2001-2005 generated average internal rates of return of 40% for the top quartile. In good times, private equity can generate outstanding investment results. In Exhibit 1, we summarize recent results for private equity.

However, the risks are daunting! First, investment in private equity is illiquid, and the money is often tied up for ten years or more. Second, the funds are often highly concentrated and involve significant company-specific risks. Third, private equity funds are not transparent, and there is frequently a lack of reliable, publicly-available information. Fourth, and perhaps most importantly, there is a wide dispersion between the top performing funds and the rest of the pack.

The amount of capital raised in private equity funds has skyrocketed over the past five years. As shown in Exhibit 2, the total amount of capital raised in private equity funds increased to approximately $300 billion in 2007. Buyout funds have reaped the majority of funds raised in the private equity universe in recent years.

In our view, fundraising could remain strong going forward. It is interesting to note that private equity is still relatively small compared to the public markets. Based on our analysis, the total capital invested in private equity represents less than 5% of total global equity market capitalization. The amount of capital committed to private equity could continue to grow due to interest from new limited partners, such as sovereign wealth funds and others.

### Exhibit 1 – Private Equity Performance (as of Dec. 31, 2007)

<table>
<thead>
<tr>
<th>Index</th>
<th>1 Year</th>
<th>3 Year</th>
<th>5 Year</th>
<th>10 Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Venture Capital Index</td>
<td>16.3%</td>
<td>14.1%</td>
<td>11.3%</td>
<td>35.2%</td>
</tr>
<tr>
<td>U.S. Private Equity Index</td>
<td>20.4%</td>
<td>25.1%</td>
<td>24.5%</td>
<td>14.1%</td>
</tr>
<tr>
<td>Global (ex-U.S.) Private Equity and Venture Capital</td>
<td>35.3%</td>
<td>36.0%</td>
<td>30.9%</td>
<td>19.7%</td>
</tr>
<tr>
<td>CSFB/Tremont Hedge Fund Index</td>
<td>6.7%</td>
<td>10.2%</td>
<td>10.8%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Russell 2000</td>
<td>-1.6%</td>
<td>6.9%</td>
<td>16.3%</td>
<td>7.2%</td>
</tr>
</tbody>
</table>


### Exhibit 2 – Fundraising

With the huge amount of capital raised, private equity funds are searching for new markets to deploy the cash. For example, emerging markets funds raised approximately $59 billion in 2007. In our opinion, the large inflow of capital into private equity funds begs some important questions:

- How will private equity firms put the money to work?
- Will future results be as attractive as they have been historically?

**Historical Returns – The Evidence is Mixed**

Our analysis suggests that investment success in private equity is not a “lay-up.” First, there is a wide dispersion of returns for similar funds, and top quartile funds tend to perform much better than the median. Also, the relative performance of private equity and the public markets is mixed. Most importantly, our analysis suggests that the ultimate returns of private equity funds that are raised in years with high levels of fundraising are likely to be poor.

In general, the performance of various private equity categories is cyclical and highly variable. For example, Venture Capital generated outstanding results in the late 1990’s, but has lagged recently. Buyout funds have generated the highest results in recent years. Over time, Private Equity Fund-of-Funds have produced a more consistent return stream.

**Exhibit 3 – Venture Capital**

**Exhibit 4 – Buyout Funds**

**Exhibit 5 – Venture Capital**

**Exhibit 6 – Buyout Funds**
Clearly, there is a wide dispersion between top performing funds and the median. Our analysis focuses on Venture Capital and Buyout funds, which together account for more than 80% of assets invested in private equity. In Exhibits 3 and 4, we illustrate the top quartile and median returns for venture capital and buyout funds with vintage years between 1990 and 2005.

As indicated in Exhibit 3, top-quartile venture capital funds out-performed median funds by 1,750 basis points for vintage years between 1990 and 2005. Also, top-quartile buyout funds (Exhibit 4) out-performed the median by 1,230 basis points during this time period.

The performance of private equity funds versus the public equity markets has been mixed. We compared the internal rate of return for private equity funds versus the annualized time-weighted rate of return for the Russell 2000 over comparable time periods. Although comparing results between public and private equity is problematic due to the different performance measurement methodologies, we believe the comparison as shown in Exhibits 4 and 5 is directionally correct and provides some useful information.

As indicated in Exhibit 5, venture capital funds that were raised in the mid-1990s posted returns in excess of the Russell 2000. In our opinion, it is likely that many ventures that were funded in the mid-1990s were harvested in the late-1990s technology bubble. It is interesting to note that funds raised in 1998-2002 (i.e., the strong fundraising years) produced internal rates of return that were materially lower than the public markets. In fact, based on our analysis, the median venture capital fund has under-performed the Russell 2000 for most of the past decade.

Buyout funds raised over the past decade have out-performed the Russell 2000 over the time period from 1995-2005 (see Exhibit 6). In recent years, fundraising for buyout funds sky-rocketed. Meanwhile, the differential between median buyout funds and the Russell 2000 has been declining in the most recent years.

**Diversification Benefits**

In order to assess the diversification benefits of private equity, we analyzed the 20-year track record of the Cambridge Venture Capital and Private Equity indices relative to several traditional and alternative asset classes. The results of our correlation analysis are summarized in Exhibit 7.

The correlation of private equity to other asset classes is low, which does indicate that there may be some diversification benefit to participating in this asset class. However, we would note that many of the correlations for other alternative assets, such as Timber and Funds of Hedge Funds, are lower than those experienced by private equity. Also, we believe the correlations may be under-stated due to the infrequency of reporting for private equity and use of estimates in calculating private equity returns. Therefore, diversification should not be the sole reason to invest in private equity.
PRIVATE EQUITY FOR INSTITUTIONAL INVESTORS

Background on Private Equity

Private Equity is an asset class consisting of equity investments in companies that are not traded on a public exchange. Currently, private equity funds manage approximately $1.5 trillion of capital. The private equity universe includes a wide variety of debt and equity structures that may participate in different stages of a company’s life cycle. The major types of private equity funds include the following:

- **Buyout Funds** represent about two-thirds of the total assets under management in private equity. Typically, buyout funds invest in established companies. These funds often attempt to unlock hidden value or exploit unforeseen or under-funded opportunities.

- **Venture Capital Funds** are the second largest pool of assets. These funds invest in start-up companies that are in an early stage and may be too risky for public equity markets.

- **Mezzanine Funds** provide financing shortly before companies execute an Initial Public Offering. These funds are usually structured with a combination of debt and equity.

- **Distressed Securities Funds** provide financing to financially troubled companies. Investors often try to influence the issuer’s capital structure, strategic focus, or operational efficiency.

In addition, many specialty private equity funds have raised and invested capital in recent years. Specifically, private equity firms have raised and invested money in the infrastructure, energy, real estate, and other areas.

Private equity investments are structured as partnerships. Typically, private equity firms act as General Partners that raise, and subsequently invest, pools of capital. The General Partners charge a management fee (approximately 2%) and retain a percentage of the profits (say, 20%). Institutional investors, such as pension funds, endowments and foundations, invest in the funds as Limited Partners. The funds have a lifespan of approximately 10 years, extendable on a year-to-year basis.

Institutional investors represent the bulk of capital invested in private equity. According to Private Equity Analyst, public and corporate pension plans represent about 40% of the capital invested in private equity. Other institutions, such as endowments, foundations, and family offices, represent about a quarter of the total capital invested. Meanwhile, fund-of-funds represent about 14% of capital, although this allocation has been growing in recent years.
Investors have two primary options to allocate capital to private equity – direct investment and Fund-of-Funds. In the first instance, plan sponsors invest directly with a private equity firm. This approach requires a high level of internal expertise, and may involve higher levels of risk. Alternatively, plan sponsors may invest in a Fund-of-Funds, which, in turn, invests directly in private equity funds. The second option may offer some diversification benefits, although the ultimate returns will be dampened by an extra layer of fees charged by the Fund-of-Funds.

Performance Measurement

There are inherent problems and issues for the performance measurement of private equity funds. The returns of private equity funds often vary depending on the stage in each fund’s life cycle. Also, it is difficult to find high-quality and reliable information regarding the aggregate performance of the asset class.

Private Equity returns typically exhibit a “J Curve” Effect. That is, the returns are typically negative in the early years (the “investment phase”), break-even in middle years (the “maturation phase”), and positive in later years (the “harvesting phase”). In the investment phase, private equity funds invest capital in portfolio companies, resulting in low or negative returns. In the maturation phase, portfolio companies may or may not be profitable. In the harvesting phase, fund managers may decide to sell portfolio companies, or attempt an Initial Public Offering. The entire life cycle of a private equity fund may last a decade or more.

It is important to recognize that there is an inherent difference between performance reporting for private and public equity. Due to the J Curve effect, private equity firms report an Internal Rate of Return, which represents the Discount Rate at which the present value of future cash flows of an investment equals the cost of the investment. Conversely, public equity returns are calculated using a Time-Weighted Rate of Return, which measures investment performance as a percentage of capital “at work.” This difference in performance measurement methodology makes comparison between asset classes difficult.

Due to the volatile nature of returns, institutional investors have a difficult time in attempting to measure and monitor performance. Investors generally use one of two methodologies for private equity benchmarks:

1. **Public benchmark + Spread**: Investors may compare private equity returns to the Russell 2000, with an additional spread to reflect volatility and liquidity risks.

2. **Average return**: Investors may use an average return of a universe of managers, such as the Cambridge Private Equity and Venture Capital Indices.

In either case, investors should be aware that both methodologies merely reflect estimates, and the information should be analyzed with skepticism. In addition, many institutions supplement policy benchmark with other measures such as inflation plus spending rate. Also, many institutions track performance versus peer organizations.

One problem is that the approaches may not adequately reflect the risk of the asset class – or, in other words, choosing the appropriate risk-adjusting spread is arbitrary.
and difficult to justify. Also, returns are flawed since manager databases and universes are often prone to various biases.

**Information Problems**

It is important to note that there are several data issues and other challenges involved in analyzing the long-term performance of private equity funds. Although there are several public databases available, these databases may suffer from the following issues:

- **Reporting Bias**: All databases are subject to manager’s willingness to report performance. In some instances, poor performers may elect not to report. Also, top performers may not report because they are closed to outside capital.
- **Survivorship Bias**: Most databases include only active managers. Therefore, failed private equity firms may be erased from history.
- **Backfill Bias**: Databases add private equity funds once they have achieved success and may include their entire history.
- **Mark-to-Market Bias**: Private equity performance may be more volatile than reported.

Furthermore, any analysis of the historical performance of private equity firms should consider the overall lack of transparency of the funds. Private Equity funds may elect not to report positions, use of leverage or strategies. Also, there may be issues or problems associated with the timeliness or accuracy of reported market values and prices.

**Conclusions**

In our view, an allocation to private equity may make sense in the context of a large institutional portfolio. However, investors in private equity should be aware of the wide dispersion in results among funds with similar strategies. In our view, the high levels of fundraising in recent years may hinder the ability of private equity firms to generate stellar results going forward.

We believe investors in private equity should take a long-term view. It may make sense to spread out capital allocations over many years to dampen the impact of fundraising cycles. We believe plan sponsors must analyze the details of any individual private equity fund, and consider how that fund is likely to perform in various market conditions. Furthermore, plan sponsors should only consider allocations to private equity if they believe they are able to identify, and gain access to, managers that are likely to be in the top quartile. In all, we believe it is worth the effort to analyze private equity funds and consider allocating a percentage of portfolio assets to this asset class.
# Appendix #1: Private vs. Public Equity Comparison

<table>
<thead>
<tr>
<th></th>
<th>Private equity</th>
<th>Public equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of information</td>
<td>Information about target companies is less transparent and more available to those with specific knowledge and resources</td>
<td>Information is regulated and readily available to many potential investors</td>
</tr>
<tr>
<td>Rate at which capital is deployed</td>
<td>Investments are made opportunistically over a number of years as attractive investments are identified</td>
<td>Typically fully invested at all times</td>
</tr>
<tr>
<td>Relationship with company management</td>
<td>Active: fund managers work closely with existing or new management.</td>
<td>Typically passive</td>
</tr>
<tr>
<td>Capital gains</td>
<td>Typically long-term, as most investments generally take a number of years to reflect operational improvements or to show the results of a turn-around</td>
<td>May be short- or long-term, based on the length of the holding period</td>
</tr>
<tr>
<td>Chief driver of manager’s compensation</td>
<td>Profitable realizations of portfolio companies (IPO, sale to strategic buyer, etc.)</td>
<td>Assets under management</td>
</tr>
<tr>
<td>Dispersion</td>
<td>Wide dispersion among managers</td>
<td>Minimal dispersion among managers</td>
</tr>
</tbody>
</table>

Source: JPMorgan.
Appendix #2: The Largest 25 Private Equity Firms

1. The Carlyle Group
2. Goldman Sachs Principle Investment Area
3. TPG Capital (formerly Texas Pacific Group)
4. Kohlberg Kravis Roberts
5. CVC Capital Partners
6. Apollo Management
7. Bain Capital
8. Permira
9. Apax Partners
10. The Blackstone Group
11. Warburg Pincus
12. 3i Group
13. Advent International
14. Terra Firma Capital Partners
15. American Capital
16. Providence Equity Partners
17. Silver Lake Partners
18. Cerberus Capital Management
19. AIG Investments
20. Fortress Investment Group
21. General Atlantic
22. PAI partners
23. First Reserve Corporation
24. EQT Partners
25. Hellman & Friedman

Source: Private Equity Intelligence.
Appendix #3: Largest 25 Private Equity Fund of Funds

1. AlpInvest Partners
2. AXA Private Equity
3. AIG Investments
4. Goldman Sachs PE Group
5. Pantheon Ventures
6. Pathway Capital Management
7. Capital Dynamics
8. Lehman Brothers
9. HarborVest partners
10. Partners Group
11. PCG Asset Management
12. Credit Suisse Customized Fund Investment Group
13. Adams Street Partners
14. Horizon 21 Alternative Investments
15. LGT Capital Partners
16. Altius Associates
17. SL Capital Partners
18. Allianz Private Equity Partners
19. Portfolio Advisors
20. Commonfund Capital
21. Horsley Bridge Partners
22. EIF
23. SVG Advisors
24. Macquarie Funds Management Group
25. Abbott Capital Management

Source: Private Equity Intelligence.
Appendix #4: The J-Curve Effect

![Fund Life Cycle and the J-Curve](image)

Source: JPMorgan.
ABOUT KARL MERGENTHALER

Vice President
Senior Consultant, CFA
J.P. Morgan Investment Analytics and Consulting

Karl Mergenthaler is a Vice President and Senior Consultant within the JPMorgan Investment Analytics & Consulting group. Mr. Mergenthaler is responsible for providing analytical and consulting services in the areas of analytics and attribution, ex-ante risk, investment manager analysis and universe comparison, and liability and asset allocation strategy.

Mr. Mergenthaler’s published work includes How Quants Stack Up Against Fundamentals (Pensions & Investments), An ETF Solution for 401(k) Plans (Plan Sponsor), and Those Defiant Knights of ‘Ni’ (Barron’s), in addition to numerous First Call notes and Equity Research reports.

Mr. Mergenthaler has served in the financial services industry for 13 years. He is a former Equity Analyst and Portfolio Manager for Avatar Associates, where he specialized in Exchange Traded Funds and Tactical Asset Allocation. In past positions, Mr. Mergenthaler was an Equity Analyst for Banc of America Securities and an Analyst for GM Investment Management.

Mr. Mergenthaler earned a BS in Economics from Wesleyan University and an MBA in Finance from the Columbia Business School. He is a Chartered Financial Analyst, and a member of the New York Society of Security Analysts (NYSSA) as well as the Chartered Financial Analyst Institute.