An Overview of Private Equity Investing

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An Overview of Private Equity Investing

Private equity investment is an important driver of economic growth worldwide. Private equity is an asset class consisting of equity and debt investments in companies, infrastructure projects and real estate. This alternative asset class has existed in some form for decades. From early stage healthcare technologies to mature, global businesses, new office buildings to building toll roads, private equity plays an integral part in the global economy. With $7.1 trillion of capital invested, and available to invest, across a broad range of industries and strategies, private equity firms play an important role in the global economy and in investors’ portfolios.

A broad range of institutions invest in private equity because it exhibits a range of attractive investment characteristics, including:

- Demonstrated track record of providing higher long-term absolute historical returns versus the S&P 500 and the Bloomberg Barclays U.S. Aggregate Bond Index, see figures 1, 4, 5 and 11
- Potential for increased portfolio diversification, see pages 8 and 9
- Access to investment opportunities that are not generally available, see page 10

Portfolio allocations to private equity are also an ideal way to match longer-duration assets with longer-duration investment objectives, such as retirement and long-term care liabilities.

Global private equity has outperformed equities and bonds over the past 10 years.

Private equity investments have historically outperformed public equities, while exhibiting lower volatility. As illustrated in the Figure 1 chart, global private equity has outperformed the S&P 500, as well as the Bloomberg Barclays U.S. Aggregate Bond Index, over several long-term periods. Moreover, private equity’s outperformance has been generated with lower volatility than public equities.²

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²For the 20-year period from December 31, 1996 to December 31, 2018, the standard deviation (the measurement of volatility, where the larger the percentage of variance the greater the volatility) of the S&P 500 Total Return Index was 17.6%, whereas the volatility of U.S. private equity was 14.4%. Source: Index return and cash flow summary report data from Cambridge Associates and S&P Capital IQ.
An investment in private equity may be considered as either a complement to publicly-traded equity investments or as a substitute for other alternative investments.

While past performance is not a guarantee of future success, investors seeking attractive risk-adjusted returns, on either a nominal basis or in relation to other asset classes, may benefit from an allocation to private equity. Experience has shown that, when added to a portfolio either as a complement to other equity assets or as a substitute for other alternative assets, private equity has demonstrated the potential to reduce overall portfolio volatility while maintaining or even improving returns. However, private equity is not a homogeneous asset class, and each investor’s results will vary based on actual circumstances.

This white paper provides an overview of the private equity asset class, including how and why investors access these investments.
What is Private Equity?

Private equity is an asset class consisting of equity and debt investments in companies, infrastructure, real estate and other assets. Capital invested in this asset class is typically raised from a range of investors through private, rather than public, means. More than 8,000 investment firms worldwide specialize in private equity type investments, managing more than $7.1 trillion of capital allocated across the asset class. As illustrated in the chart below, private equity firms, or general partners (GPs), raise capital from investors, called limited partners (LPs), and pool that capital together in a fund that invests on behalf of the LPs.

The terms of private equity funds, including the funds' corresponding lifecycles, are typically similar, with minor variances depending on the fund strategy and other factors.

Figure 2. Lifecycle of a Typical Private Equity Fund

- Capital is gradually drawn down over a 3-5 year investment period as opportunities are identified and executed on.
- Over years 5-12, an investment manager may decide to sell its portfolio investments, which would potentially result in distributions to LPs.

<table>
<thead>
<tr>
<th>1 Year</th>
<th>10 Years</th>
<th>2 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investors commit capital</td>
<td>Capital is called from investors over a period of time</td>
<td>Cash flows back to investors (distributions)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only occurs with vote of approval from LPs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indication of fund performance</td>
</tr>
</tbody>
</table>

Marketing | Drawdown/Investment | Realization/Returns/Exit | Extension

**Private Equity Strategies**

Private equity firms typically seek to invest in quality assets at attractive valuations and use strategic, operational, and financial expertise to add value. After a suitable holding period, a private equity firm seeks to monetize its investment at a premium to its acquisition cost, generating positive returns for its investors.

Private equity is often categorized as an “alternative investment”, which typically denotes an asset class or strategy that is an alternative to the stock and bond portfolios traditionally used by investors. Investments in private equity can differ by strategy, the most common of which are described in the chart below. Each strategy differs in its fundamental characteristics and can produce significantly different returns than traditional investments.

<table>
<thead>
<tr>
<th>Private Equity Strategies</th>
<th>Venture Capital</th>
<th>Growth Capital</th>
<th>Buyouts</th>
<th>Mezzanine</th>
<th>Distressed</th>
<th>Infrastructure</th>
<th>Real Estate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture capital investments, which include seed, early stage, and late stage investments, are usually made as equity or equity-like investments in companies that are in the early stages of growth.</td>
<td>Growth capital investments typically involve minority investments in established companies with strong growth characteristics.</td>
<td>Buyout investments are typically acquisitions of public or private companies, or divisions of larger companies, that are repositioned for sale at a multiple of the equity invested by unlocking value and enhancing opportunities through financial, managerial and/or operational improvements.</td>
<td>Mezzanine investments are debt investments that are unsecured and are subordinate in right of payment to all other debt.</td>
<td>Distressed investments generally involve the purchase of equity or debt securities in a company that is experiencing hardship.</td>
<td>Infrastructure investments generally involve financing large private infrastructure assets such as utilities (e.g., conventional and renewable power and transmission, electricity, gas and water networks) and/or transportation infrastructure (e.g., airports, ports, railways, and roads).</td>
<td>Real estate investments include a variety of property, location, and maturity types, as well as investments in operating companies with significant real estate portfolios, that may afford investors a relatively diverse set of risk/reward characteristics.</td>
<td></td>
</tr>
</tbody>
</table>

Characterized by a higher risk and a small number of outsize successes, venture capital has the most volatile risk/reward profile of the private equity asset class.

These companies typically maintain positive cash flow and therefore present a more stable risk/reward profile compared to venture capital investments.

Buyout investments are generally exited through an initial public offering, or IPO, a sale to a strategic rival or another private equity fund, or through a debt-financing special dividend, called a dividend recapitalization.

As the most junior form of debt, mezzanine debt has the most repayment risk if the borrower files for bankruptcy. However, in return for that risk, mezzanine debt generally pays a higher interest rate and comes with warrants that give investors the ability to participate in the capital appreciation of the borrower, if any.

Distressed investments offer the opportunity to invest in debt securities that trade at discounted or distressed levels with the potential for higher future value if the company recovers.

Infrastructure investments are typically characterized as providing steady cash flows and having high barriers to entry.

Real estate investments include the potential of benefiting from the appreciation of the related real property, as well as any income earned from the use of the property during the time that it is held.
Why Invest in Private Equity?

As illustrated in the chart below, a broad range of institutions, including family offices, endowments, foundations, pension plans, and other investors invest in private equity.

**Figure 3. Current Average Private Equity Allocation by Investor Type**

These investors invest in private equity because it exhibits attractive investment characteristics, including:

- Demonstrated track record of providing higher long-term absolute historical returns versus the S&P 500 and the Barclays U.S. Aggregate Bond Index, see figures 1, 4, 5 and 6
- Potential for increased portfolio diversification, see pages 8 and 9
- Access to investment opportunities that are not generally available, see page 10

Portfolio allocations to private equity may be suitable as a match to longer-duration assets with longer-duration investment objectives, such as retirement and long-term care liabilities.

Private equity investors seek to create longer-term absolute returns, outperforming relevant public benchmarks with a lower volatility profile. As discussed above, not only has global private equity outperformed the S&P 500 over the past 10 years on a total return basis, it has done so with a lower volatility profile than public equities as well.

**Figure 4. Private Equity Returns vs S&P 500, December 2000 - December 2018**

Source: Cambridge Associates, The Cambridge Associates U.S. Private Equity Index® (Data as of 12/31/18) and S&P 500 Total Return data from S&P Capital IQ (www.capitalIQ.com). Please refer to disclaimers at the end of this document for more information on these indices.

The Cambridge Associates LLC U.S. Private Equity Index is a horizon calculation based on data compiled from 1,486 U.S. private equity funds (buyout, growth equity, private equity energy and mezzanine funds), including fully liquidated partnerships, formed between 1986 and 2018. The chart shows the growth of a $25,000 hypothetical initial investment in the referenced indexes on January 1, 2000. Past performance is no guarantee of future results.
Figure 5. U.S. Private Equity Has Produced Higher Returns With Less Volatility than the S&P 500 Over the Last 20 Years

![Chart showing average annual return and annualized volatility for Cambridge PE and S&P 500]

Source: Cambridge Associates, U.S. Private Equity Index (Data as of 12/31/18) and S&P 500 Total Return data from S&P Capital IQ. 
Past performance is no guarantee of future results.

Private equity performance can be attributed to a number of factors, including the extensive hands-on operational and financial management, as well as industry experience that general partners (GPs) bring to bear on their investments, which can help enhance investment returns. For example, by upgrading management, fine-tuning “go to” market strategies, and creating a more efficient operational and financial structure, general partners have a history of creating considerable value from their investments and for their investors.

While overall returns in the asset class have been robust, over time, every individual fund manager may not equal the returns of the asset class as a whole. While past performance is not indicative of future results, selection of the right GPs is critical to generating superior investment performance as top-quartile managers have historically outperformed median and lower quartile managers by a significant margin.⁴

Private equity provides the potential for portfolio diversification.

Traditional investment portfolios have generally adopted an allocation of 60% of assets to publicly listed stock and 40% to fixed income investments comprised mainly of government, corporate and securitized bonds. A common way to evaluate the potential contribution of an asset class to the diversification of a portfolio is by calculating the correlation between the asset class components. The correlation of private equity to stocks and bonds is illustrated below. While useful, correlation is limited in that it is sensitive only to the direction and not to the magnitude of returns, and correlations over time are not stable.

**Figure 6. Correlations Ignore the Magnitude of Returns and Have Varied Widely Over Time**

![Correlation Chart](image)

Source: Cambridge Associates, U.S. Private Equity Index (Data as of 12/31/18), Bloomberg and S&P 500 Total Return data from S&P Capital IQ. Please refer to disclaimers at the end of this document for more information on these indices. The U.S. Private Equity calculations use quarterly horizon pooled returns. The S&P 500 calculations use the total return index quarterly returns from December 31, 1998 through December 31, 2018. The Bloomberg Barclays U.S. Aggregate Bond Index calculations use quarterly returns from December 31, 1998 through December 31, 2018. Correlations were calculated using trailing three-year correlations between the applicable indexes.

Past performance is no guarantee of future results.

Examination of historical returns and risk in a total portfolio context is more revealing. Such analysis shows that traditional portfolios — including only stocks and bonds — have exhibited significant levels of risk, measured by volatility, particularly during periods of market stress. An illustration of two of the most extreme such periods shows a dramatic contrast between the returns of portfolios of publicly-traded equity and private equity as well as the effects on hypothetical portfolios with different asset mixes.

**Figure 7. Traditional Portfolio vs. Portfolio with Private Equity**

![Portfolio Comparison](image)

Source: Goldman Sachs, for illustrative purposes only.
Past performance is no guarantee of future results.

The introduction of private equity has the potential to reduce risk while maintaining or even improving returns. As illustrated in the chart below, private equity has historically been a lower volatility asset class that generates similar levels of return. Of course, neither the addition of private equity to a portfolio, nor the process of asset allocation in general, can protect against all losses, and the future may hold different risks and opportunities than the past.

Figure 10. Returns and Volatility

Source: Cambridge Associates, U.S. Private Equity Index (Data as of 12/31/18), Bloomberg, Capital IQ, and Pomona Capital. Please refer to disclaimers at the end of this document for more information on these indices. Returns are based on actual quarterly returns. The U.S. Private Equity calculations use quarterly horizon pooled returns. The Bloomberg Barclays U.S. Aggregate Bond Index and the S&P 500 calculations use total return index quarterly returns. Volatility is calculated based on, the portfolio is rebalanced over, rolling three-year periods over 20 years from January 1, 1999 to December 31, 2018. Past performance is no guarantee of future results.
Investment opportunities not generally available through traditional asset classes.

Traditional asset classes, such as listed stocks, bonds and money market instruments (and investment funds that invest in those types of assets), do not generally give investors the opportunity to take advantage of the types of investment opportunities made available by private equity firms.

Why are these opportunities so important? Because private equity investment opportunities afford experienced investors (e.g., GPs) the opportunity to use a variety of skills, such as investment and operational expertise, and information, such as industry contacts and knowledge, to extract value from assets that frequently are under-managed or under-appreciated by the market as a whole.

This disparate view on the attractiveness of the assets also means that investment targets are generally difficult to value. This advantage can also be beneficial throughout the investment process, as GPs are able to:

- Source unique investment opportunities because of industry contacts;
- Make more informed investment decisions as a result of a rigorous due diligence process; and
- Make long-term improvements to the companies, real estate ventures and infrastructure projects that they invest in without public pressure to meet short-term earnings expectations.

Additionally, because private equity funds pool investors’ money to make investments, private equity funds typically have significant buying power to take advantage of investment opportunities that might otherwise not be available to investors acting alone.

Private equity investments are subject to various risks. These risks are generally related to: (i) the ability of the manager to select and manage successful investment opportunities; (ii) the quality of the management of each company in which a private equity fund invests; (iii) the ability of a private equity fund to liquidate its investments; and (iv) general economic conditions. Private equity funds that focus on buyouts have generally been dependent on the availability of debt or equity financing to fund the acquisitions of their investments. Depending on market conditions, however, the availability of such financing may be reduced dramatically, limiting the ability of such private equity funds to obtain the required financing or reducing their expected rate of return. Securities or private equity funds, as well as the portfolio companies these funds invest in, tend to be more illiquid, and highly speculative.
How to Access Private Equity

As illustrated in the chart below, investors can access private equity investments through a variety of private methods as well as through publicly registered vehicles.

<table>
<thead>
<tr>
<th>Private methods</th>
<th>Publicly-registered vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Investors</strong></td>
<td></td>
</tr>
<tr>
<td>Make a direct investment</td>
<td>Buy shares</td>
</tr>
<tr>
<td>Make a co-investment</td>
<td>Listed private equity funds</td>
</tr>
<tr>
<td><strong>Portfolio Investments</strong></td>
<td></td>
</tr>
<tr>
<td>Private equity funds</td>
<td>Public private equity fund managers</td>
</tr>
</tbody>
</table>

Direct investment in an asset, such as an operating company, offers pure private equity exposure with operating control, but the significant capital outlay, management and time resources, and lack of liquidity likely limit the potential diversification benefits that private equity can offer. Co-investment, which is essentially direct investment alongside a GP that takes on the majority of the investment management and monitoring responsibilities, can mitigate the ongoing capital, management and time resources spent on a direct investment, but it generally requires the investor to spend weeks analyzing potential investments on an operating company level.

Primary investments, which are investments in private equity funds that are in the marketing phase, provide access to professional management and optimization of private equity’s return and diversification benefits, but at the cost of blind pool risk, “J-curve” performance, and other disadvantages. Secondary investments are purchases of primary funds that have a mature investment portfolio, as well as secondary acquisitions of direct and co-investments. Secondary investments mitigate the blind pool risk and J-curve performance associated with primary investments, and also provide a means to access selective funds. In addition, secondary investments have the potential of providing early cash flows and gains from returns on investment, whereas primary investments potentially provide a higher overall total return. Similar to funds that focus on secondary fund investments, primary fund-of-funds (a fund that invests in primary investments) can ease the implementation of private equity exposure due to the GP’s expertise in selecting underlying GPs and investment funds and provide additional diversification, but at the cost of additional fees.
### Figure 11. Methods of Investing in Private Equity

<table>
<thead>
<tr>
<th>Method of Investing</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct</strong></td>
<td>Control</td>
<td>Very capital intensive</td>
</tr>
<tr>
<td></td>
<td>No fees</td>
<td>Requires extensive management resources and experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High concentration risk</td>
</tr>
<tr>
<td><strong>Co-Investment</strong></td>
<td>Control</td>
<td>Capital intensive</td>
</tr>
<tr>
<td></td>
<td>No or low fees</td>
<td>Requires extensive management resources and experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Concentration risk</td>
</tr>
<tr>
<td><strong>Primary Investment</strong></td>
<td>Professional management</td>
<td>Blind pool risk</td>
</tr>
<tr>
<td></td>
<td>Optimal means to capture total return</td>
<td>J-curve performance</td>
</tr>
<tr>
<td></td>
<td>Mitigates disadvantages of direct and co-investing</td>
<td>Illiquidity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ongoing capital commitments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fees</td>
</tr>
<tr>
<td><strong>Secondary Investment</strong></td>
<td>Diversification</td>
<td>Typically lower total return than primary investment</td>
</tr>
<tr>
<td></td>
<td>Professional management</td>
<td>Subject to volume and quality of assets available in secondary market</td>
</tr>
<tr>
<td></td>
<td>Mitigation of blind pool risk and J-curve performance</td>
<td>Illiquidity</td>
</tr>
<tr>
<td></td>
<td>Reduced investment risk through negotiated pricing</td>
<td>Ongoing capital commitments</td>
</tr>
<tr>
<td></td>
<td>Potential access to selective funds</td>
<td>Fees</td>
</tr>
<tr>
<td><strong>Primary Fund-of-Funds Investment</strong></td>
<td>Ease of implementation of private equity exposure</td>
<td>Higher fees</td>
</tr>
<tr>
<td></td>
<td>Diversification</td>
<td>Typically lower total return than primary investment</td>
</tr>
<tr>
<td></td>
<td>Professional management</td>
<td>Illiquidity</td>
</tr>
<tr>
<td></td>
<td>Potential mitigation of investment risk</td>
<td>Ongoing capital commitments</td>
</tr>
<tr>
<td></td>
<td>Potential access to selective funds</td>
<td></td>
</tr>
<tr>
<td><strong>Listed Private Equity</strong></td>
<td>Ease of access to private equity exposure</td>
<td>Indirect and potentially imperfect exposure to asset class</td>
</tr>
<tr>
<td></td>
<td>Greatest potential for liquidity</td>
<td>High fees</td>
</tr>
<tr>
<td></td>
<td>Statutory investor protections</td>
<td>Typically lower total return than primary investing</td>
</tr>
<tr>
<td></td>
<td>Transparency</td>
<td>Valuation lag/potential volatility</td>
</tr>
</tbody>
</table>
A Primer on the J-Curve and Secondary Investments

As illustrated in the chart below, the early years of a traditional primary fund will exhibit low or negative returns because the fund’s capital is employed to make investments, add-on investments (i.e., for capital improvements or acquisitions) and pay expenses, including fees to the GP for managing the fund. As the fund’s investments mature over time, the investments generate cash flows that offset costs, including fees and expenses. As the fund matures into its harvest phase, increased cash flows from investments offset decreasing capital requirements and costs, exhibiting what is generally referred to as a “J-Curve.”

Figure 12. Typical Fund Annual Cash Flows to Investors

The chart shown above is for illustrative purposes and does not represent past or projected performance of an actual product. There is no guarantee performance will match this illustration. There is no guarantee whether expressed or implied that actual cash flow will follow this pattern. Technically, a secondary can occur any time between time ‘0’ and ‘12’ in this illustration. Source: Pomona Capital

A secondary investment may still have unfunded commitments for new or add-on investments if the fund is not already fully invested; however, by investing in a fund at a later stage of its life (i.e., in a secondary rather than a primary investment), where distributed cash flows may exceed drawdowns for investments, the J curve effect can be partially or even entirely eliminated. In this case, a secondary investment may result in a shortened investment period and accelerated distributions as compared to a primary investment. In addition, because secondary investments can sometimes be purchased at a discount to net asset value, secondary investments can provide a unique opportunity for an investor to access private equity at a discounted purchase price, potentially improving the investor’s risk adjusted return, as well as reducing the blind pool risk inherent in a primary investment.
Annual fundraising figures for private equity have steadily increased as investors from around the world commit further capital to the asset class. As shown in the chart below, as of December 2018, the total level of private equity assets under management reached $7.1 trillion dollars, its highest level yet.

Figure 13. All Private Equity Assets Under Management, December 2008–December 2018

Dry powder refers to capital commitments to private equity funds that can, but have not yet been called, by such funds. In other words, dry powder refers to the amount of money pledged by investors to private equity firms, but has yet to be invested.

Amid these rising levels of assets, private equity fund capital continues to be sourced primarily from North America, and to a lesser extent Europe and Asia.

Figure 14. Private Equity Fundraising by Region, 2008–2018

Similarly, a significant amount of private equity fund capital continues to be deployed primarily in North America, and to a lesser extent Europe and Asia.
Conclusion

Private equity has delivered attractive, risk-adjusted returns over the long term, historically outperforming public equity markets while exhibiting lower levels of volatility. Allocating investment assets to private equity is an ideal way for investors to match an attractive longer-duration asset class with longer-duration investment objectives, such as retirement and long-term care liabilities, while remaining well positioned to achieve strong risk-adjusted returns from a combination of current income and capital appreciation.

Past performance is no guarantee of future results.

Investments in private equity may not be suitable for all types of investors. An investment in private equity may not be suitable for an investor’s goals, objectives, and risk tolerance.
Investment Risks

There are no guarantees a diversified portfolio will outperform a non-diversified portfolio.

Private equity may not be suitable for every investor, may involve a high degree of risk, and may be appropriate investments only for sophisticated investors who are capable of understanding and assuming the risks involved.

All investments in bonds are subject to market risks. Bonds have fixed principal and return if held to maturity, but may fluctuate in the interim. Generally, when interest rates rise, bond prices fall. Bonds with longer maturities tend to be more sensitive to changes in interest rates.

All equity investing involves risks of fluctuating prices and the uncertainties of rates of return and yield inherent in investing. Foreign Investing does pose special risks including currency fluctuation, economic and political risks not found in investments that are solely domestic. Emerging Market stocks may be especially volatile. Stock of an issuer in the Fund’s portfolio may decline in price if the issuer fails to make anticipated Dividend Payments because, among other reasons, the issuer of the security experiences a decline in its financial condition. Securities of Small- and Mid-Sized Companies may entail greater price volatility and less liquidity than investing in stocks of larger companies.

Private equity investments are subject to various risks. These risks are generally related to: (i) the ability of the manager to select and manage successful investment opportunities; (ii) the quality of the management of each company in which a private equity fund invests; (iii) the ability of a private equity fund to liquidate its investments; and (iv) general economic conditions. Private equity funds that focus on buyouts have generally been dependent on the availability of debt or equity financing to fund the acquisitions of their investments. Depending on market conditions, however, the availability of such financing may be reduced dramatically, limiting the ability of such private equity funds to obtain the required financing or reducing their expected rate of return. Private equity funds as well as securities that invest in such funds and companies in which such funds or securities may invest tend to lack the liquidity associated with the securities of publicly traded companies and as a result are inherently more speculative.

Diversification does not guarantee a profit or ensure against loss. Past performance is no guarantee of future results.

Important Information

Please note that all indices are unmanaged and an investor cannot invest directly in an index. Index returns do not include fees or expenses.

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The Cambridge Associates U.S. Private Equity Index is based on quarterly performance data compiled from 1,486 U.S. private equity funds (buyout, growth equity, private equity energy and mezzanine funds), including fully liquidated partnerships, formed between 1986 and 2018. The index has limitations (some of which are typical to other widely used indices) and cannot be used to predict performance of the Fund. These limitations include survivorship bias (the returns of the index may not be representative of all private equity funds in the universe because of the tendency of lower performing funds to not report returns to the index), heterogeneity (not all private equity funds are alike or comparable to one another, and the index may not accurately reflect the performance of a described style); and limited data (many funds do not report to indices, and the index may omit funds, the inclusion of which might significantly affect the performance shown). The index has not been selected to represent an appropriate benchmark to compare an investor’s performance, but rather is provided to allow for comparison to that of certain well-known and widely recognized indices. See Cambridge Associates for a complete explanation on IRR calculations and assumptions.

The S&P 500 Total Return Index measures the value of stocks of the 500 largest corporations by market capitalization listed on the New York Stock Exchange or NASDAQ Composite. The index is calculated on an annualized total return basis, with performance reflecting the reinvestment of dividends and other distributions.

The Bloomberg Barclays U.S. Aggregate Bond Index measures the performance of the U.S. investment-grade bond market, which includes the following types of securities and typically only includes securities that have $250 million or more of outstanding face value and at least one year remaining to maturity: investment-grade U.S. Treasury bonds, government-related bonds, investment-grade corporate bonds, mortgage pass-through securities, commercial mortgage-backed securities and asset-backed securities that are publicly offered for sale in the U.S. This material may not be reproduced in whole or in part in any form whatsoever without the prior written permission of Voya Investment Management.