

The diversification benefits of private equity

Vanguard believes that the inclusion of private equity in a portfolio may provide investors with diversification benefits and expanded equity market coverage.¹

- Private equity represents more than 10% of the investable equity market.²
- More than 85% of U.S. and international companies remain inaccessible to public market investors.³
- Private and public equity share common sources of risk and return, but private equity may also provide investors with complementary exposure across sectors, geographies, and company size relative to public markets. Investors also have the potential to achieve higher risk-adjusted returns, as measured by Sharpe ratios, with the inclusion of private equity in their portfolios.⁴ We explore these factors and more in the following pages.

¹ Unless otherwise noted, private equity includes buyout, growth, and venture.

² Vanguard calculations, based on data from Preqin and Morningstar as of December 31, 2022. See Figure 1 on page 2.

³ Bain Global Private Equity Report 2023. Bain's analysis is based on S&P Capital IQ data as of December 2022 and the most recent data from Statistics of U.S. Businesses (2017). See Figure 2 on page 3.

⁴ The Sharpe ratio is one of the most widely used methods for measuring risk-adjusted returns. The ratio is calculated as the portfolio return divided by the standard deviation of the portfolio's returns. We exclude the risk-free rate in our analysis. See Figure 4 on page 5.

Diversification is key in public and private markets

When it comes to public markets, Vanguard believes that a sound investment strategy starts with an asset allocation that is built upon reasonable expectations for risk and returns and uses diversified investments to avoid exposure to unnecessary risks. Most investors are best served by significant allocations to investments that represent broad markets, with varying degrees of correlation with one another.

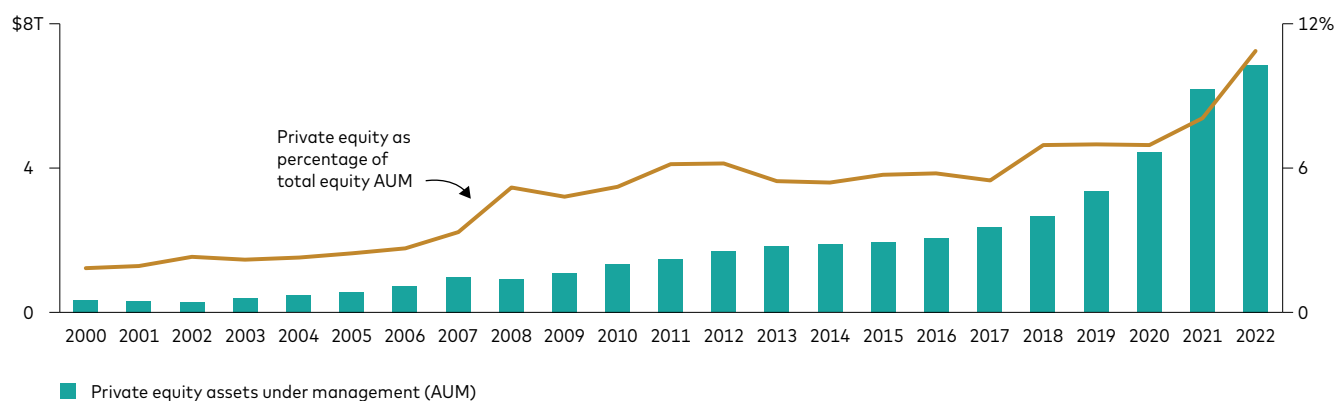
Similarly, if a client chooses to invest in private equity, Vanguard recommends exposure to a broad and highly diversified mix of investments. The private equity universe, like the public equity markets, includes a diverse set of companies. A broad-based private equity program would include investments in venture, growth, and buyout, and would represent companies across the business life cycle. The correlation between private equity returns and broad public equity indexes is subject to academic debate and can range between 0.5 (positive, but less correlated) and 1.0 (perfectly correlated), depending on the period analyzed and the methods used to adjust private equity returns. Growth, venture, small to mid-size buyout, and secondary private equity investments may

have lower correlation with public markets, and larger buyouts may have a higher correlation with public markets. Vanguard believes that the fundamental drivers of cash flow production—and, ultimately, returns to shareholders—are very similar between public and private companies (Aliaga-Díaz, et al., 2022). Our simulation analysis assumes a correlation of returns of 0.9 between global private equity and global public equity.⁵ The benefits of diversification from private equity are derived from this varying correlation, expanded equity market coverage, and potential for higher risk-adjusted returns. These benefits are discussed in further detail in the following sections.

Expanded equity market coverage through private equity

The private equity market has grown substantially over the last two decades. According to data from PitchBook (2023), the number of private equity-backed companies in the U.S. grew more than fivefold—to over 10,000—between 2000 and 2022. **Figure 1** shows that the investable universe for private equity has grown significantly on an absolute basis and relative to the public equity market over the last two decades, having risen from 2% to greater than 10% of total investable global equity assets.

FIGURE 1
Private equity continues to grow in absolute and relative terms



Notes: Private equity includes balanced, venture, growth, buyout, turnaround, and secondary funds, as well as co-investment and co-investment multi-manager. The size of the public equity market is proxied by the MSCI All Country World Index.

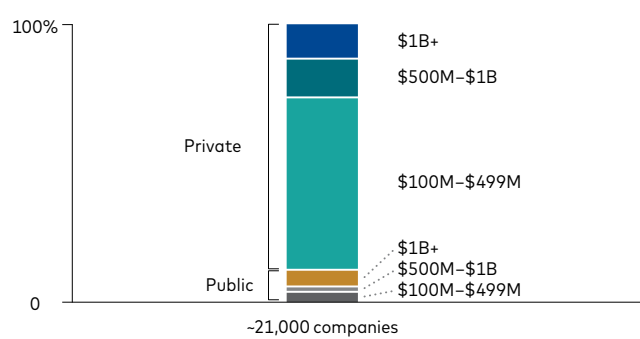
Sources: Vanguard calculations, based on data from Preqin and Morningstar, as of December 31, 2022.

⁵ For more information regarding the Vanguard Capital Markets Model®, see the additional information on page 8.

Most U.S. and international companies are private. For example, in the United States, more than 85% of the approximately 21,000 companies with revenue over \$100 million are privately held, as shown in **Figure 2**. This means that public investors have narrow exposure to the broader economy. Private equity investments can provide access to a portion of this large and growing private-company universe.

FIGURE 2
Most U.S. companies with revenue greater than \$100 million are privately held

Number of U.S. companies with \$100 million or more in annual revenue



Sources: Bain Global Private Equity Report 2023. Bain's analysis is based on S&P Capital IQ data as of December 2022 and the most recent data from Statistics of U.S. Businesses (2017).

Private equity differs in regional exposure by sector and company size

While the fundamental drivers of public and private equity markets are similar, the composition of private equity-backed companies differs from public markets across varying geographies in both size and sector.

Private equity provides greater exposure to the small and mid-size market. Of U.S. private equity-backed deals invested from 2017 to 2021, the median enterprise value was \$222 million, while the median public market cap in the U.S. is \$1.9 billion.⁶ Exposure to private equity allows investors to capture company growth in earlier stages, often before the company has the chance to sell shares to the public via an initial public offering. Similarly, the private equity universe compares favorably to public equity markets in firm-level concentration. For example, the largest 10 holdings of the MSCI All Country World Index represent 19% of the benchmark's weight, out of approximately 2,850 companies in the index.⁷

⁶ Burgiss, HarbourVest, and MSCI as of April 30, 2023.

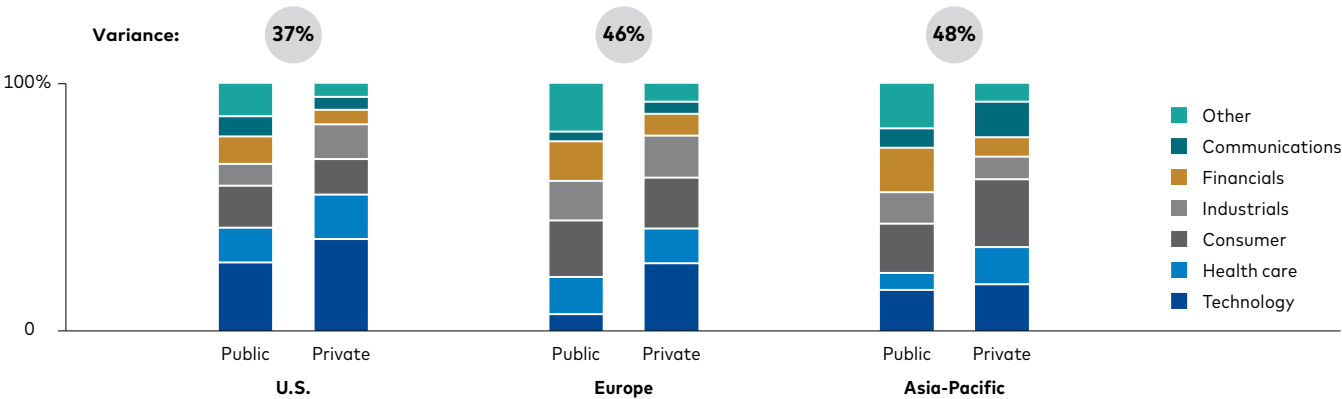
⁷ Vanguard calculations as of June 30, 2023.

Private equity can be a critical component to ensuring full equity market coverage across key sectors. **Figure 3** shows the significant variance in sector exposure across public and private equity markets in the three major geographies, ranging from 37% in the United States to 48% in the Asia-Pacific region. For example, investors in Europe have a 7% allocation to the technology

sector in the public equity markets due to various factors, including the significant market power of large U.S. technology companies. On the other hand, technology represents 28% of the European private equity market. A similar dynamic can be observed in the U.S., and to a lesser extent, the Asia-Pacific region.

FIGURE 3
By region, the composition of public and private equity sectors varies considerably

Private versus public equity sector variance



Note: Variance is defined as the sum of the absolute differences between private and public sector exposure.

Sources: Burgiss, HarbourVest, and MSCI. Public index sector exposure is represented by the MSCI USA Index, MSCI Europe Index, and MSCI Pacific Investable Market Index as of April 30, 2023. Private equity sector exposure is as of December 31, 2022.

Potential for higher risk-adjusted returns

Private equity has historically generated excess returns relative to the public equity market across varying market cycles (Vanguard, 2023). Investors have the potential to achieve these higher returns—with lower commensurate increases in risk—with the inclusion of private equity in their portfolio. **Figure 4** shows that investors who allocate between 10% and 30% of their equity allocation to private equity can improve their risk-adjusted returns, as measured by Sharpe ratios. Sharpe ratios are a useful metric for portfolio analysis because they weigh the potential increased returns against the potential increased volatility of private equity in an investor’s portfolio.

For example, an investor who allocates 30% of their equity portfolio to private equity with a 70% equity and 30% fixed income portfolio allocation

could potentially achieve a Sharpe ratio of 0.31x. This represents a 24% improvement over a Sharpe ratio of 0.25x for a portfolio without private equity. The investor could potentially achieve higher nominal annualized portfolio returns of 6.8% versus 5.9% for a portfolio without private equity. Similarly, the investor has a 65% probability of achieving greater than a 6% annualized nominal return over the next 10 years in the 30% private equity scenario, versus 48% without private equity. In this scenario, the investor could potentially increase nominal annual returns by 14.2%, while increasing portfolio volatility by only 10.5%.

Similar potential increases in Sharpe ratios can be observed for portfolios with 10% and 20% of equity allocations invested in private equity.

FIGURE 4
Private equity offers investors the opportunity for enhanced risk-adjusted returns

Portfolio risk and return projections with inclusion of private equity

Median 10-year expected risk and return projections	70/30 portfolio*	Private equity share of total equity allocation			Difference between 30% private equity scenario and 70/30 portfolio*	
		10%	20%	30%	Absolute	Percentage
Return	5.9%	6.2%	6.5%	6.8%	+0.8%	+14.2%
Probability of meeting >6% annualized return	48.3%	53.3%	58.7%	65.0%	+16.7%	+34.6%
Volatility	11.4%	11.7%	12.1%	12.6%	+1.2%	+10.5%
Sharpe ratio	0.25x	0.27x	0.29x	0.31x	+0.06x	+24.0%

* 70/30 portfolio consists of a 70% allocation to equities (42% to U.S. equities, 28% to non-U.S. equities) and 30% allocation to fixed income (21% to U.S. bonds and 9% to non-U.S. bonds).

Notes: Expected returns, volatilities, and Sharpe ratios are median values from a distribution of 10,000 simulations. Portfolios have been optimized over a 10-year investment horizon.

Source: Vanguard calculations, using asset-return projections from the Vanguard Capital Markets Model.

IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from the VCMM are derived from 10,000 simulations for each modeled asset class. Simulations are as of March 31, 2023. Results from the model may vary with each use and over time. For more information, see page 8.

Conclusion

Private equity provides investors with the opportunity for expanded equity market coverage and potential diversification across several investment factors, including company size, sector, and geography. Our analysis shows that the private equity market is increasing in size and importance. Additionally, it shows that there is opportunity to deliver enhanced risk-adjusted returns, which can have a sizable impact for client portfolios over the long term. For advised Institutional and Personal Investor clients, Vanguard can customize a private equity investment program tailored to specific goals and objectives. We encourage Vanguard self-directed Personal Investor clients who are interested in private equity to reach out to their Vanguard relationship manager.

References

Aliaga-Díaz, Roger, Giulio Renzi-Ricci, Brennan O'Connor, and Harshdeep Ahluwalia, 2022. Integrating Private Equity in a Liquid Multi-Asset Portfolio. *The Journal of Portfolio Management* 48(9): 39-60. 10.3905/jpm.2022.48.9.039.

Pitchbook's Data: Private & Public Market Data. PitchBook. Accessed October 12, 2023. Available at <https://pitchbook.com/data>

Vanguard, 2023. *Private Equity Perspectives: Potential in Persistence: Staying the Course with Private Equity Commitments*. Available at <https://institutional.vanguard.com/insights-and-research/report/the-importance-of-persistence-with-private-equity.html>

Legal notices

All investing is subject to risk, including the possible loss of the money you invest. Be aware that fluctuations in the financial markets and other factors may cause declines in the value of your account. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income. Diversification does not ensure a profit or protect against a loss.

Investments in stocks or bonds issued by non-U.S. companies are subject to risks including country/regional risk and currency risk. Prices of mid- and small-cap stocks often fluctuate more than those of large-company stocks.

This communication is for informational purposes only and does not constitute an offer or solicitation to purchase any investments solutions or a recommendation to buy or sell a security nor is it to be construed as legal, tax or investment advice. Private investments involve a high degree of risk and, therefore, should be undertaken only by prospective investors capable of evaluating and bearing the risks such an investment represents. Investors in private equity generally must meet certain minimum financial qualifications that may make it unsuitable for specific market participants.

With private equity ("PE") investments, there are five primary risk considerations: market, asset liquidity, funding liquidity, valuation, and selection. Certain risks are believed to be compensated risks in the form of higher long-term expected returns, with the possible exceptions being valuation risk and selection risk. For selection risk, excess returns would be the potential compensation, however, limited partners ("LPs") must perform robust diligence to identify and gain access to managers with the skill to outperform. PE investments are speculative in nature and may lose value.

Market risk: Private equity, as a form of equity capital, shares similar economic exposures as public equities. As such, investments in each can be expected to earn the equity risk premium, or compensation for assuming the nondiversifiable portion of equity risk. However, unlike public equity, private equity's sensitivity to public markets is likely greatest during the late stages of the fund's life because the level of equity markets around the time of portfolio company exits can negatively affect PE realizations. Though PE managers have the flexibility to potentially time portfolio company exits to complete transactions in more favorable market environments, there's still the risk of capital loss from adverse financial conditions.

Asset liquidity risk: Various attributes can influence a security's liquidity; specifically, the ability to buy and sell a security in a timely manner and at a fair price. Transaction costs, complexity, and the number of willing buyers and sellers are only a few examples of the factors that can affect liquidity. In the case of private equity, while secondary markets for PE fund interests exist and have matured, liquidity remains extremely limited and highly correlated with business conditions. LPs hoping to dispose of their fund interests early—especially during periods of market stress—are likely to do so at a discount.

Funding liquidity risk: The uncertainty of PE fund cash flows and the contractual obligation LPs have to meet their respective capital commitments—regardless of the market environment—make funding risk (also known as commitment risk) a key risk LPs must manage appropriately. LPs must be diligent about maintaining ample liquidity in other areas of the portfolio, or external sources, to meet capital calls upon request from the General Partners ("GPs").

Valuation risk: Relative to public equity, where company share prices are published throughout the day and are determined by market transactions, private equity NAVs are reported quarterly, or less frequently, and reflect GP and/or third-party valuation provider estimates of portfolio fair value. Though the private equity industry has improved its practices for estimating the current value of portfolio holdings, reported NAVs likely differ from what would be the current "market price," if holdings were transacted.

Selection risk: Whether making direct investments in private companies, PE funds, or outsourcing PE fund selection and portfolio construction to a third party, investors assume selection risk. This is because private equity doesn't have an investable index, or rather a passive implementation option for investors to select as a means to gain broad private equity exposure. While there are measures an investor can take to limit risk, such as broad diversification and robust manager diligence, this idiosyncratic risk can't be removed entirely or separated from other systematic drivers of return. Thus, in the absence of a passive alternative and significant performance dispersion, consistent access to top managers is essential for PE program success.

Private equity is generally only accessible to ultra-high-net-worth investors, either through direct investment or partnership with a private equity firm that invests in a private equity fund. Only accredited investors who meet specific qualifications outlined in federal securities laws qualify to invest in private equity funds. Certain private equity funds require investors to meet the definition of "qualified purchaser" in addition to being an accredited investor.

IMPORTANT: The projections and other information generated by the Vanguard Capital Markets Model regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. VCMM results will vary with each use and overtime.

The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More important, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include U.S. and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, U.S. money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the

returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta). At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

Asset classes and proxy indexes

- **U.S. equity:** MSCI US Broad Market Index
- **Non-U.S. equity:** MSCI All Country World ex USA Index
- **U.S. bonds:** Bloomberg U.S. Aggregate Index
- **Non-U.S. bonds:** Bloomberg Global Aggregate ex-USD Index
- **Private equity:** MSCI ACWI + 350 basis points

Connect with Vanguard®
vanguard.com

Advice services provided by Vanguard Advisers, Inc. (VAI), a federally registered investment advisor, or by Vanguard National Trust Company (VNTC), a federally chartered, limited-purpose trust company.

Vanguard®

© 2023 The Vanguard Group, Inc.
All rights reserved. Vanguard Marketing
Corporation, Distributor.

IMPEPDF 112023