INSIGHTS AT THE INTERSECTION OF WEALTH, FAMILY, AND VALUES

What We Believe:
The 10 Ps of Manager Selection

Summer 2023

InvestorView

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Dear clients and friends,

Happy summer! We hope your 2023 has been positive and that you have been able to enjoy time with family and friends, especially during these warmer months.

At Brown Brothers Harriman (BBH), we seek to partner with a select group of the highest-quality investment managers that we believe are best in class. As institutional investors, we are often asked what we look for when conducting manager research and reviews. Because every investment manager is different, our diligence process is unique to each situation. However, some areas are core to every manager underwriting process. In the feature article of this issue, BBH Co-Chief Investment Officer Justin Reed and Head of Investment Research Ilene Spitzer cover the "10 Ps" that are core to our manager selection process.

In a recent webinar, we discussed the current economic environment, market volatility, and our future portfolio positioning. In this issue, we review key takeaways from the conversation.

This issue also discusses investing in private markets, which is an important component of many client portfolios. BBH Co-Chief Investment Officers Suzanne Brenner and Justin Reed cover our approach to constructing a prudently sized private markets portfolio with adequate diversification.

Attention-grabbing artificial intelligence (AI) advancements have made headlines over the past several months, ranging from articles about the ChatGPT language bot passing business and law school exams with flying colors to the potential threat of AI replacing thousands of workers. In another article, Brenner and Reed examine generative AI and our portfolios' exposure to this rapidly developing technology.

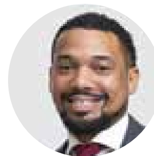
Finally, this year, we conducted an inaugural Private Business Owner Survey, and our final article in this issue examines in more detail the attitudes of private business owners toward economic uncertainty and investing.

We hope you enjoy this issue. If you have any questions or comments about the topics covered, please do not hesitate to reach out. We wish you a wonderful second half of the year.

Best,

G. Scott Clemons, CFA
Partner

Suzanne Brenner
Partner



Justin Reed
Partner

What We Believe:
The 10 Ps of Manager Selection

By Justin Reed
Partner
Co-Chief Investment Officer

Ilene Spitzer
Senior Vice President
Head of Investment Research

At Brown Brothers Harriman (BBH), we seek to partner with a select group of the highest-quality investment managers that we believe are best in class. Partnering with only a select roster of managers allows us to perform deep research on both prospective and existing managers, but also increases the importance of making great manager selection decisions. We look to partner with managers for the long term, thinking of these relationships as akin to marriage. This too increases the need to make great decisions.

Manager selection and monitoring are part of the role of our Investment Research Group. As institutional investors, we are often asked what we look for when conducting manager research and reviews. Because every investment manager is different, our diligence process is unique to each situation. However, some areas are core to every manager underwriting process, and we refer to these as the "10 Ps." We seek to identify those managers whose people, passion, perspective, (willingness to) progress or evolve, philosophy, process, portfolio management, partnership, principles, and performance lead to a sustainable edge that we believe is highly likely to produce attractive returns over time. We have found that consistent use of the 10 Ps in our diligence process reduces the chance of adverse manager selection. Of course, no approach or process fully eliminates the possibility of mistakes, but our goal is to enhance the probability of selecting only the best investment managers. As such, the 10 Ps have been designed and refined to improve the probability of investment manager success in the future.

The 10 Ps are based not only on a detailed review of academic literature, trade journals, and white papers, but also on our own research and experience. When evaluating investment managers, we consider both qualitative and quantitative factors. Interestingly, the 10 Ps are predominately qualitative considerations that involve a considerable amount of judgment, which is part of the challenge of manager selection. Quantitative data are used to make assessments in each of these areas, but judgment must be applied in successful interpretation of that information.

People

To a large extent, all of the Ps begin and end with people, and we believe this is one of the most critical factors to evaluate and understand. As a result, we spend a lot of time with key investment professionals as well as the rest of the organization. Put simply, we are looking for great, high-integrity people who happen to be great investors. In early conversations, we seek to understand each investment professional's career path and what has driven their decisions. We dive into the design and rationale for the team's organizational structure. We probe the leadership team on succession planning, even when a transition does not appear forthcoming.

Our focus on long-term partnerships requires that we think about the various permutations of future economic regimes and how an organization will respond under each of those environments. We also spend a lot of time with the junior team, understanding the depth of the organization. Firm and team stability are important considerations for the long-term compounding of capital. We do not take what we are told as fact, but rather conduct numerous reference calls and meetings in search of the truth.

The investment managers with whom we partner tend to be led by extraordinarily smart people, but we define smart in a variety of ways. Of course, we look for "intellectual horsepower," but we've found that most high-quality managers are led by individuals who exhibit this traditional definition of smart. For us, smart also implies emotional intelligence and interpersonal awareness. According to a study in the Harvard Business Review, emotional intelligence accounts for nearly 90% of what sets high performers apart from peers with similar technical skills and knowledge.[1] Such leaders ask great questions, listen to what others are saying, encourage thoughtful debate, stay engaged in conversations, and, importantly, can attract and retain talent. Smart people also exercise strong judgment and intuition around the subtleties of group dynamics and are aware of the effect their words and actions will have on the team. Leaders exhibiting such qualities are better able to get the most out of their teams, develop their resources, and retain their talent.

Passion

One characteristic we look for when spending time with key decision-makers is passion. Many of the successful managers with whom we partner love investing and have an intrinsic motivation to generate strong long-term performance. These passionate investors come across as diligent, intellectually curious, determined, and have a strong desire to "go above and beyond."

Passion is related to one of the keys of manager selection: ascertaining motivation. We work to understand what motivates the individuals, underwriting their passion for investing and commitment to acting in the best interest of their clients. It's important to explore why someone has decided to become an investor and why he or she has decided to launch a new investment organization.

We look for managers who are motivated both by long-term investment success and by helping clients achieve their financial goals. One might assume that most investment managers are motivated by these goals, but the facts suggest otherwise.

In a recent CFA Institute study, "Motivation as the Hidden Variable of Performance," just 28% of investment managers stated a purpose of helping clients achieve their financial goals.[2] The study's authors named this passion motivation "phi," stating that it "is distinctly different from the short-term outperformance motivation or asset-gathering focus of our industry." Their research suggested that a "one point increase in phi is associated with 28% greater odds of excellent organizational performance, 55% greater odds of excellent client satisfaction, and 57% greater odds of excellent employee engagement." Accordingly, we believe that managers that are passionate about, and motivated by, long-term investment success and excellent client outcomes are more likely to achieve those goals.

We also look for qualities suggesting a desire to be an entrepreneur or manager. Running a business is a different exercise than investing. Many excellent investment analysts are incapable of successfully running their own funds. Funds led by decision-makers who are passionate about both investing and the leadership of the firm are at an advantage to individuals who are only passionate about one or the other.

[1] *Goleman, Daniel. "What Makes a Leader?" Harvard Business Review, January 2004. https://hbr.org/2004/01/what-makes-a-leader.*
[2] *Motivation as the Hidden Variable of Performance." CFA Institute, 2016. https://www.cfainstitute.org/-/media/documents/survey/motivation-as-the-hidden-variable-of-performance.pdf.*

Perspective

Long-term investing is difficult, and we believe investment managers benefit from understanding what is needed for success. We think the best investors in the world have great perspective in that they exhibit high levels of humility and a learning mindset. In "The Road to Character," David Brooks writes: "Humility is accurate self-awareness from a distance. It is moving over the course of one's life from the adolescent's close up view of yourself, in which you fill the whole canvas, to a landscape view in which you see from a wider perspective, your strengths and weakness, your connection and dependencies, and the role you play in a larger story." Even the best investors make mistakes, and the ability to acknowledge mistakes, learn from them, and move on differentiates the most successful portfolio managers. Humility often shows up as a lack of excessive ego or concerns about status. Such investors are predominantly focused on "truth-seeking" as opposed to confirming their status. Thus, they are quick to share credit, praise others freely, and sometimes even forgo credit in the interest of celebrating a team's collective win. They demonstrate strong alignment toward team goals and prioritize collective wins over individual ones. Such leaders are self-confident, but not arrogant.

We recently met with a portfolio manager and probed his decision to exit a public equity position at a price close to where he had purchased the position. Interestingly, he admitted to making a mistake and gave credit to one of his analysts for making him aware of a previously unforeseen risk to the business. We continued to follow that position, and the portfolio manager's willingness to listen to his team avoided losses for our clients as the stock price subsequently declined dramatically.

Managers who have strong perspective also have the humility to know the limits of their capabilities. For example, many newly launched firms are founded by investment professionals who have not previously managed a firm. As a result, they tend to lack the operational and back-office expertise needed to run an institutional-quality firm. Leaders with perspective quickly understand that they may not have the capability of performing such support tasks, and therefore focus on finding high-quality, experienced employees to fill those roles.

We also look for managers who have a learning or growth mindset. Stanford psychologist Dr. Carol Dweck has published a variety of research papers suggesting that people with a fixed mindset, or those who believe abilities are fixed, are less likely to flourish than those with a growth mindset, or those who believe abilities can be developed through effort. Growth mindset-oriented investment managers are constantly looking for ways to improve themselves and their processes and are more likely to perceive setbacks as a necessary part of the learning process. We seek to partner with managers that learn from difficult periods and strive to come out the other side as stronger investors. Accordingly, we believe investors who have the perspective to acknowledge and learn from their mistakes, as well as the experiences of others, are best positioned for long-term success.

Progress

One of the unspoken rules many allocators adhere to is the idea that a manager who changes his or her investment strategy or process is bad. Like many investment concepts, we think this is a principle, not a rule. Rules-based investors might automatically redeem from a manager when faced with strategy or process changes, but more nuanced investors will seek to understand why the change has been made and apply judgment to assess if the changes represent an improvement or deterioration. Indeed, some evolutions can be positive for an investment manager and our clients. We consider such "progress" to be a positive indicator of long-term investment success. In our experience, the managers with some of the most impressive long-term track records have shown a willingness to progress or evolve. They have exhibited cognitive flexibility in the face of new information and/or market conditions.

Over the years, we've witnessed many positive examples of managers evolving their investment strategy and process. One such manager had historically avoided investing in the energy sector but through bottom-up research began to observe stronger capital allocation and fundamentals from a select number of energy companies. This manager subsequently grew its energy exposure to nearly a quarter of its portfolio, to the benefit of its investors.

Other examples relate to learnings from prior portfolio management decisions. We have seen managers suffer losses in large positions and decide to reduce their maximum position size going forward. We've also seen managers with more diversified portfolios choose to concentrate into their highest-conviction names. While there is no one right or wrong way when it comes to investing, we look for managers with a learning mindset, acquiring lessons from past experiences and evolving their process to better suit their strategy, goals, and temperament.

One might ask, "How do you know if the change is good or bad?" When we witness a change to a manager's team, investment process, portfolio management, or investment strategy, we always begin in the same place – open dialogue with that manager. Maintaining close and longstanding relationships with managers allows us to observe what are often subtle changes over time and to discuss those changes to understand the "why" and thought process behind the evolution. We analyze the thinking and reasoning behind these changes and ensure they are occurring for sound reasons that we believe will improve the fund's prospects for long-term success.

Philosophy

We insist that our managers share key elements of our investment philosophy:

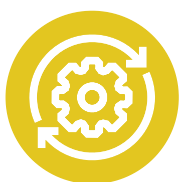
- A value orientation
- A disciplined and patient style of investing
- A focus on capital preservation and growth
- A deep understanding of the underlying investments
- A long time horizon

To us, a value-oriented investment philosophy implies seeking to invest in securities at a discount to reasonable estimates of intrinsic value.[3] We believe that limiting the risk of permanent capital loss is a prerequisite for growing it, and one of the ways in which that can be achieved is through investing with a margin of safety.[4] In our opinion, managers that perform deep fundamental research and know what they own are more likely to have strong long-term returns. In public equity markets, our focus on identifying managers with a deep understanding of the companies they own generally results in partnering with groups that run a concentrated portfolio of best ideas.

Perhaps one of the greatest advantages any investor can have is a stable investor base that allows for a long time horizon. Effectively executing a value-oriented strategy often requires time for the fundamental performance of the underlying asset to be reflected in the price. We also recognize that a long-term orientation leads to better tax treatment and lower transaction costs, particularly benefiting our taxable clients. In our experience, managers with a short-term orientation are likely to "follow the crowd" to not underperform over any monthly or quarterly time period, often at the expense of strong long-term absolute and relative returns. A long time horizon also affords our managers the time to deeply research and follow companies through cycles, providing them with a deep understanding of their investments that other market participants may not share.

Finally, we insist that managers can articulate a clear, identifiable competitive advantage as part of their investment philosophy. They must have an understandable, sustainable reason why they believe they may be able to generate strong performance over a long period of time.

[3] *Intrinsic value is an estimate of the present value of the cash that a business can generate over its remaining life.*
[4] *A margin of safety exists when we believe there is a discount to intrinsic value at the time of purchase.*



Process

A manager's investment process involves how the firm sources, researches, and evaluates potential investments and how investment decisions are made. Like many of the other Ps, there is no one correct process, but it must be understandable, thoughtful, and repeatable. We look for investment managers who have designed a process that encourages deep due diligence, independent thought, deliberate assessments of pros and cons, consideration for known and unknown risks, informed debate, and the prudent use of external resources and references.

To evaluate a manager's process, we review the entire portfolio, aiming to understand what led to each investment's place in the portfolio. We perform a deep dive on the holdings, determining how each investment was sourced and evaluated. We also walk through the manager's quantitative models to review the underlying assumptions behind each investment. Equally important is talking through investments that did not make it into the portfolio or that had been in the portfolio but have since been removed. We also work to gain insight into a manager's process and how it may have evolved over time by reading all of the manager's historical letters and material.

When we meet with portfolio managers and conduct in-depth reviews of their investments, we are not trying to second-guess their security analysis. Rather, we are evaluating whether there is a repeatable framework around the investment process, as this allows us to gain comfort that managers will remain successful in the future.

Portfolio Management

There is no one-size-fits-all when it comes to portfolio management, but a manager's process must be thoughtful and focused on maximizing the risk and return objectives of the investment strategy. Portfolio management differs based on a manager's strategy, but conversations often begin with a discussion of position sizing, the number of positions, sector and geographic exposures, and the use of leverage. Deep research on each underlying investment is critical, but we also look for managers to consider how the sum of the parts fits together. It is important that we review whether a manager has a thorough approach to portfolio construction, along with the intended and unintended exposures, as thoughtful portfolio managers consider how the individual investments fit together.

A manager's performance is determined by security selection as well as position sizing. We work to understand a manager's approach to sizing positions, gauging if it is appropriate for the strategy. Within position sizing, we discuss guidelines around maximum position sizes at both cost and market, when managers add to a position, how they think about trimming positions, and how positions are sized both on their way in and out of a portfolio.

At a high level, a manager may evaluate both sector and geographic exposure. However, by only looking at these broad measurements, one may miss exposures that could pose unintended risk to the portfolio. We delve into how managers think about and evaluate their underlying exposures to macro risks such as inflation, rising interest rates, political risks, and more, in addition to headline sector, geographic, market capitalization, and asset class exposures. Many managers employ systems that allow them to stress test their portfolios and analyze how they might react in different scenarios. We review those systems to determine how they are used and their potential impact on portfolio construction over time.

“ ”

In our opinion, managers that perform deep fundamental research and know what they own are more likely to have strong long-term returns.

Partnership

When we invest with a manager, we seek to create a partnership where both parties can enjoy mutual success and are aligned with client outcomes. Thus, we tend to partner with owner-operated, employee-owned investment boutiques where the manager is investing alongside us.

The first component of partnership that we look to is a firm's ownership structure. Generally, we seek to partner with organizations where the investment principals and key decision-makers have a large ownership stake in the firm. We have found that firms with this structure tend to have a client- or investor-first mentality. Outside ownership can sometimes create incentives to focus on assets under management (AUM) growth instead of long-term investment performance.

We also look to incentive structures to assess if firms are focused on long-term performance, which is aligned with our clients, or AUM growth, which tends not to be aligned with client success. Put simply, the incentive structures should properly align with clients' interests. We dive deeply into a firm's compensation structure to ensure the team is incentivized to focus on long-term results. We also probe to see if a firm's economics are broadly shared among the team. Structures where owners take the vast majority of a firm's gains without sharing them with the rest of the organization are destined to have difficulties attracting and retaining strong talent. In addition, we tend to invest with managers that compensate their teams based on overall portfolio performance rather than solely based on individual profits, which can create adverse incentives. Fee structures are also an important partnership consideration. We look for structures that are thoughtfully designed and are reasonable in light of the strategy and resources needed to operate the firm effectively. At BBH, we seek to generate attractive after-fee (and after-tax) results, and therefore seek to partner with firms that have fee structures conducive to that goal.

In addition, we look for managers who "eat their own cooking" – that is, who are invested alongside our clients. We expect the key decision-makers of any firm to have much of their liquid net worth invested in the strategies they lead. If they are not invested in their own strategies at size, we do not think our clients should be either. There are several academic studies that provide evidence of the importance of managers investing in their own strategies. For instance, an Alternative Investment Management Association Journal article, "How Some Hedge Fund Characteristics Impact Performance," found that managers who invest their own capital in their funds tend to outperform.[5] And in a recent National Bureau of Economics research paper, "Skin or Skim? Inside Investment and Hedge Fund Performance," the authors found that "funds with more inside investment outperform other funds within the same family."[6] In these cases, the firms made the appropriate "managerial decisions to invest capital in their least-scalable strategies and restrict the entry of new outsider capital into these funds." To us, this evidences the power of incentives. When investment managers have a significant amount of their own net worth invested in a particular strategy, they have extra incentive to constrain the growth of assets, which is likely dilutive to long-term performance.

When meeting with prospective investment managers, we like to see that managers have conducted due diligence on us, just as we are conducting due diligence on them. This is yet another sign that a manager is not just looking for capital, but for a true long-term partnership. In the beginning of our relationships with many of our fund managers, we noticed that they proactively read many of our past publications on our investment philosophy, such as "What We Believe: BBH's Principles of Investing," to get to know us better. These managers also conduct extensive references on our team members and firm. This not only signals that they are thorough, but also increases the likelihood of true partnership.

Finally, we also look to invest in managers who have like-minded limited partners. We are encouraged when an investment manager has attracted other investors who are long-term-oriented, exhibit patience, and have conducted deep research to understand what makes that particular manager special. This diligence is what gives allocators the conviction to stay invested during inevitable (short-term) periods of underperformance. Being invested alongside investors who do not approach partnership in the same manner often creates distractions for the investment manager, taking time away from the investment research process when it is most critical. We appreciate when investment managers seek a true partnership with their investors, choosing relationships with limited partners on the basis of the value they can bring outside of just capital. We believe great clients make for great investors; therefore, we aim to be the best client to each of our managers, as well as to ensure that those who are invested alongside us think in ways that will enhance the investment manager's probability of long-term investment success.

[5] *De Souza, Clifford, and Suleyman Gokcan. "How Some Hedge Fund Characteristics Impact Performance." AIMA Journal. September 2003.*
[6] *Gupta, Arpit, and Kunal Sachdeva. "Skin or Skim? Inside Investment and Hedge Fund Performance." National Bureau of Economic Research, July 2019. https://www.nber.org/papers/w26113.*

Principles

We use "principles" as a shorthand for considerations that can not only improve a manager's workforce and workplace, but also have the potential to make a broader societal impact.

We believe that our investment philosophy, which incorporates a long-term orientation, a belief in active management, a focus on capital preservation, and an approach based on bottom-up fundamental research, leads us toward managers who invest in high-quality companies. As we have long stated, we believe that thoughtfully and judiciously evaluating environmental, social, and governance factors as part of a robust investment research process can help investors effectively assess the long-term sustainability and durability of the underlying investments. We have found that well-managed, durable businesses – which are found across all sectors – are more likely to manage resources efficiently, create value for shareholders, and help protect investors over the long term. As a result, all of our managers consider environmental, social, and governance risk factors in their investment approach.7

We also monitor how investment managers approach the recruitment and retention of talent. Research suggests that having diversity of thought and experiences enhances discussions and decision-making processes, which is critical for long-term sustainable investment success. We recognize that it also has the potential to create additional societal benefit. Therefore, we spend time to understand if, and how, our prospective and existing managers have sought diverse talent when hiring. We have found that managers who spend time thinking about adding resources with different experiences and perspectives tend to be just as thoughtful when making investment decisions.

Performance/ Prospective Returns

We analyze past performance of our prospective and existing managers in a detailed manner, but past performance in isolation is not predictive of future performance.[8] We instead focus on analyzing past performance to be able to ask more informed questions about a manager's decision-making and process improvements over time. To a large extent, we see performance as an outcome of the other variables.

We have found that great managers tend to focus more on process than outcomes, which in this case is performance. If the process and approach make sense, the results will come. We are careful about over-extrapolating a period of difficult performance to imply manager deficiency. Based on an article by Warren Buffett, V. Eugene Shahan wrote a famous article, "Are Short-Term Performance and Value Investing Mutually Exclusive?"[9] Shahan analyzed the performance of seven legendary investors, including Buffett and Charlie Munger. Over long time periods, each investor outperformed his benchmark by 8% to 17% annualized, which is impressive. However, these same investors underperformed the market between 8% and 42% during some of the years, and the worst three-year period of each manager (on a relative cumulative basis) ranged from -4% to -49%. Therefore, if one had selected some of the best investment managers of that time period, one of the managers may have underperformed its benchmark by 49% over three years. That same manager, over a 19-year period, generated excess returns of 16% vs. its benchmark. This example provides support for using past performance wisely.

[7] *A less favorable ESG profile may not preclude a manager from investing in a company, as the consideration of ESG factors is not more influential than the consideration of other investment criteria.*
[8] *This, too, is a principle, not a rule. Our analysis, as well as various academic studies, suggest that there is persistence of returns within some privates asset classes, such as venture capital.*
[9] *Shahan, V. Eugene. "Are Short-Term Performance and Value Investing Mutually Exclusive?"*

In addition, we look for managers who 'eat their own cooking' – that is, who are invested alongside our clients. We expect the key decision-makers of any firm to have much of their liquid net worth invested in the strategies they lead.

Our team is focused on finding great managers, and even the best managers in the world may go through difficult periods. Managers who have recently outperformed often hold more expensive securities, while those who have recently underperformed tend to hold cheaper assets, creating risks to investors who fire an underperforming manager and replace it with a top-performing manager. In their 2015 paper, "Timing Poorly: A Guide to Generating Poor Returns While Investing in Successful Strategies," Jason Hsu, Brett W. Myers, and Ryan Whitby reported that the average mutual fund investor earns 2% less than the mutual funds in which she invests, likely a result of market timing.10 In the past, we have hired managers that had recent returns that looked average on the surface, but we understood the reasons for the underperformance and had conviction in their process and approach. Thus far, these decisions have been vindicated.

Within this category of performance, we are most focused on assessing the likelihood of long-term investment success, which we define as having conviction that a strategy's returns will meet our expectations. To do so, we spend a significant amount of time understanding the key drivers of go-forward returns and the risks that may affect those drivers. These drivers often link back to the underlying investment philosophy and strategy. For example, managers with a tighter valuation discipline recently underperformed more growth-oriented managers for a number of years. Maintaining a deep understanding of a manager's investment strategy and portfolio allows us to maintain conviction when it is out of favor. We also look at historical performance attribution over time, seeing if strong performance has been broad-based across investments or if only a select number of investments have driven fund performance. In a Journal of Performance Measurement article, "Just Because We Can Doesn't Mean We Should," Dan DiBartolomeo considered performance attribution to be the process of disentangling component portions of the observed returns to draw conclusions about the strengths and weaknesses of the investment process.11 If a manager has a higher hit rate, or more broad-based performance attribution, it is more likely that the process is indeed repeatable.

Conclusion

Utilizing the 10 Ps, we seek to identify managers whose people, passion, perspective, (willingness to) progress or evolve, philosophy, process, portfolio management, partnership, principles, and performance should lead to fruitful investments for our clients. This framework for manager evaluation is not a simple checklist and is not formulaic. Rather, the 10 Ps provide a holistic, repeatable framework for evaluating managers and their long-term prospects for partnership. As much as we look for certain characteristics in our investment managers, we also work to exhibit a growth mindset and humility, constantly improving and refining our manager evaluation process. Indeed, we look forward to updating and improving our own approach over time. ■

[10] *Hsu, Jason, Brett W. Myers, and Ryan Whitby. "Timing Poorly: A Guide to Generating Poor Returns While Investing in Successful Strategies." Research Affiliates, January 2016. https://www.researchaffiliates.com/publications/journal-papers/206_timing_poorly_a_guide_to_generating_poor_returns_while_investing_in_successful_strategies.*

[11] *diBartolomeo, Dan. "Just Because We Can Doesn't Mean We Should." TSG, January 8, 2015. https://tsgperformance.com/product/just-can-doesnt-mean/.*

The Economy, Markets, and Investments at Midyear 2023

By Suzanne Brenner
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Co-Chief Investment Officer

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Justin Reed
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Co-Chief Investment Officer

In a recent webinar, BBH Partners and Co-Chief Investment Officers Suzanne Brenner and Justin Reed and Chief Investment Strategist Scott Clemons discussed the current economic environment, market volatility, and our future portfolio positioning. We review key takeaways from the discussion.

A Possible Soft Landing

As we move into the latter half of 2023, the recession has yet to arrive. Several factors in the market illustrate the ongoing resilience of the U.S. economy:

- U.S. net monthly job gains are up, with 3.8 million jobs added over the past 12 months.
  - The employment recovery is complete, and the total labor force is in excess of pre-pandemic numbers.
  - While there is still a gap between supply and demand of labor, labor force participation by age demographic indicates a more optimistic outlook, with the core demographic (ages 25 to 54) close to a 20-year high.
- Consumer confidence has not returned to pre-pandemic levels but has climbed over the past several months.
- The Consumer Price Index (CPI) shows declining inflation over the past 12 consecutive months, especially in the food and energy baskets, which have been in deflation for the past four months.
- The "misery" index (CPI plus unemployment rate) is relatively low compared with the past decade.

Despite this, leading economic indicators (LEI) continue to show recessionary trends. With these conflicting indicators, the question of how the overall economy is doing becomes increasingly difficult to answer. If a recession does occur in 2023 or 2024, it will likely be a "soft landing" or spotty – milder, shorter, and/or affecting some parts of the economy more so than others.

What to Watch

Heading into the second half of the year, we are still focused on inflation, with the Federal Reserve watching core inflation closely. June inflation statistics show the overall CPI up 3%, with energy down 16.7% and food prices still up but moderated. Core inflation ex food and energy is up 4.8%; it will be important to watch the measure of shelter (which accounts for 35% of CPI) and whether it declines or increases.

Another key indicator of inflation levels and market health is consumer confidence. With student loan payments set to resume in the fall, there is speculation that growth in retail sales might suffer. They have climbed marginally since April 2023 but have not returned to early-2022 levels. Market expectations for second quarter 2023 corporate earnings growth predict 17% year-over-year growth, but it is too early to tell if this rebound will occur.

Finally, we will be watching the Fed's response to slowing economic activity and this variable economic environment. The futures market predicts a 93% chance of the Fed raising interest rates one more time at its July 26 meeting by 25 basis points, and at present the market predicts that by July 2024, there will be enough progress on inflation to lower interest rates. At this meeting, be on the watch for whether or not the Fed acknowledges the economic headwinds or progress on the inflation front.

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Market Returns for Q2 2023

Equity markets remain strong for the year-to-date period ending June 30, 2023, after a difficult 2022, with solid returns across equities of every style, geography, and market capitalization. The information technology sector reported particularly strong returns. Over the longer term, 10-year returns are positive for equities, with the S&P 500 returning 12.8%. Fixed income pulled back during the second quarter as the Fed raised rates and increased its terminal rates forecast, but returns remained positive year to date.

Unlike last year, Nasdaq is leading equities, while oil and commodities are negative. The declining performance of oil and commodities compared to 2022 illustrates the value of our investment philosophy: staying invested in what we believe will generate returns over long periods while avoiding the temptation to rotate into whatever is working at the moment.

In U.S. equities, the S&P 500 index (cap-weighted) outperformed the S&P 500 equal weight index, its strongest outperformance yet on an annualized basis. This is concentrated in mega-cap tech companies, which benefited from optimism related to artificial intelligence (AI), and sector winners so far year to date were laggards in 2022. Relative to the Russell 2000 (small-cap stocks), the market cap of the S&P 500 is at all-time highs.

In this environment:

- We are watching mean reversion risks for the S&P 500 as global growth declines and/or companies face earnings pressure.
- We want to continue to own equities, as our managers' portfolios remain attractive.
- However, we recommend clients continue to rebalance portfolios back to targets at both the asset class and manager levels and diversify their portfolios.

Our portfolio has so far benefited this year from owning a number of tech company and quality stocks. Quality remains a key factor, as it outperformed the S&P 500 during the year. Finally, year to date, the S&P 500 has largely been immune to market volatility, with zero trading days of declines 2% or greater in the second quarter.

Developed international equities outpaced emerging markets equities, with Italy, Ireland, Spain, Germany, France, and Japan driving these results. In emerging markets, Brazil, Taiwan, and Mexico were top performers. China and countries within Asia-Pacific generated negative returns. Notably, Chinese internet stocks have not benefited from the tech-everything rally, indicating Chinese geopolitical risks are weighing on investor optimism.

During the quarter, yields moved sharply higher, with the yield curves remaining inverted – signaling that we are still waiting on a possible recession. Despite recessionary fears, however, credit spreads remain below the long-term average. Our policy portfolios don't include high-yield allocations, but we do think there will be opportunities for some in the future. As the year continues, we will look to be nimble in the face of changing markets as new opportunities and risks present themselves.

"As the year continues, we will look to be nimble in the face of changing markets as new opportunities and risks present themselves."

BBH Portfolio Performance and Positioning

Our equity and fixed income portfolios have so far generated strong absolute and relative returns. Within public equities, our U.S. large-cap equity managers contributed solidly. Looking at fixed income, our portfolio continues to provide liquidity, stability, and meaningful yield as rates have increased dramatically. With privates, early signs point to additional uplift in the portfolios.

In the second quarter, we saw our 2022 decisions continue to pay off:

- We reaffirmed our public equity investment philosophy focused on high-quality companies. Last year's losers are this year's winners, with quality stocks leading the year-to-date rally and 2022's worst performing managers being the top year-to-date performers.
- We continue to concentrate on the long term, staying focused on high-quality companies.
- We remained focused on the fundamentals of businesses, as ultimately that is what drives stock prices.

Looking at key market risks, our philosophy of investing bottom up and worrying top down remains true. Our Investment Research Group (IRG) is monitoring the following factors that may lead to heightened volatility in the near term:

- Concentrated source of market returns
- Downward earnings revisions
- Fed response to sticky inflation despite slowing real GDP growth
- Continued elevated core inflation globally
- Ongoing weakness in smaller regional banks and industries that may be affected by the banking crisis
- Geopolitical risks surrounding China, Taiwan, and Eastern Europe, as well as the impact of OPEC on oil markets
- The opportunities and risks of AI and machine learning

Our public equity portfolio remains overweight in developed markets, particularly the U.S. – offset by an underweight to emerging markets. Our largest industry underweight is the more capital-intensive tech hardware, while we are overweight in tech software. We also have a meaningful overweight to the financial services industry, but this exposure is not in banks.

As we look ahead at our portfolio positioning, we are:

- Focused on preserving capital in a challenging macroeconomic environment
- Focused on high-quality companies with pricing power that can protect against long-term inflation; valuation and strong fundamentals are critical to future success
- Maintaining a conservative short-duration posture in fixed income, but opportunistically adding to duration when the return compensates investors for the risk
- Adding a new internal private equity and co-investment fund that can take advantage of opportunities in its areas of expertise
- Recognizing the value of diversifying our portfolios
- Encouraging rebalancing back to target to ensure prudent risk management, given the strong run-up in equities
- Monitoring the potential new AI-driven supercycle in the market – and the opportunities and risks this tech poses

Overall, we remind our clients to focus on value, rather than price, as we expect the embedded value in our portfolios to be realized over the long term. ■

Investing in Private Markets

By Suzanne Brenner
Partner
Co-Chief Investment Officer

Justin Reed
Partner
Co-Chief Investment Officer

While publicly traded equity and debt markets receive far more media attention, private markets have rapidly grown in both size and importance in recent years. For example, a recent study by Preqin found that private equity assets under management increased from $648.6 billion in December 2000 to $9.26 trillion by September 2022, or a roughly 14x increase. Similarly, PitchBook found that the number of U.S. private equity-backed companies grew from roughly 1,800 in 2000 to nearly 10,000 in 2021, while the number of U.S. firms publicly listed on the NYSE and Nasdaq fell from roughly 6,900 to about 4,800.

The Brown Brothers Harriman (BBH) Investment Research Group, which is responsible for asset allocation, manager selection and monitoring, and risk management for our Private Banking investment platform, believes that systematically allocating capital to top-tier private market investments can be additive to many of our clients' portfolios.

Why Invest in Private Markets?

At the most fundamental level, investing in private markets allows investors the chance to earn an illiquidity premium over marketable securities with comparable risk. We think critically about the opportunity cost of deploying our clients' capital in any investment. If we are investing in private markets, where clients would have less liquidity relative to public markets, we always consider whether there is adequate compensation for capital lockup.

Fortunately, private markets provide several opportunities to earn incremental returns that are not available to public market investors. Some of the areas we find attractive include private equity, venture capital, direct lending, real estate, and distressed debt. While we invest in each of these strategies, in this section and the following section ("Why Invest in Private Markets?" and "How Does One Invest in a Private Market Fund?"), we will focus on private equity, as it is BBH's largest private markets allocation.

Access to a larger universe of high-quality opportunities

Private markets are home to a rich and diverse set of investment opportunities that do not trade in the public markets. For example, while private businesses are typically smaller compared to their public peers, they can exhibit the same high-quality characteristics that market participants traditionally associate with large publicly traded companies.

Private companies can offer mission-critical products or services, are often market share leaders in their industries, and can exhibit attractive unit economics paired with the potential of high returns on invested capital and long runways for growth. The combination of these attributes can allow investors the opportunity to find unique private company investments and generate *alpha*.[1]

Overall, we believe the private equity market's investable universe offers businesses of comparable quality to our public

[1] *Alpha is the return on an investment that is not a result of a general movement in the greater market.*

market investments. It also benefits from differentiated opportunities for value creation, including sourcing, structuring, and operational expertise.

Adding value from sourcing and structuring

Private equity managers must independently source and structure their investments, which creates challenges as well as opportunities. For example, sourcing expertise can add value if a manager is able to engage a company's management team on a potential acquisition before other buyers are even aware that the business is for sale. In other words, the information asymmetry in private markets makes these undiscovered opportunities and corresponding off-the-run transactions possible. There is no comprehensive list of all private businesses, much less a list of all private businesses up for sale. Therefore, in these instances, buyers will face less competition for the assets, an advantage that often leads to a better price.

Another aspect of private market value creation and risk management is the ability to negotiate the terms of the investment, which includes the potential to better align the management team's incentives with the fund's interests. In the public markets, investors must accept the terms of the security as written, and changing management incentives often requires a successful activist campaign or proxy fight.

Ability to earn returns from operational expertise

Private equity managers with unique industry relationships and expertise can add value for investors both on the initial identification of deals and by creating value in the company post-close. An experienced private equity investment team with deep skills in a specific industry can often prove to be a more capable partner relative to a purely financial buyer trying to earn returns from financial engineering.[2] In such instances, management teams may be willing to select the private equity partner that can provide the best resources or dilute their equity ownership more than they otherwise would, while simultaneously leveraging its operating expertise to drive outsized growth and operating efficiency over the longer term.

One such common resource is operational expertise. Private equity teams of all sizes build out internal teams comprising former management consultants who have the time and expertise to improve a business's pricing strategy, increase factory productivity, or source talented executives. In fact, in 2017, Yale University CIO David Swensen referred to private equity as a "superior form of capitalism," in large part due to the ability of talented teams to make a company better during their hold period.

Flexibility in capital deployment

By virtue of the closed-end structures that are used in private equity funds, general partners (GPs) have the flexibility to call capital from limited partners (LPs) when compelling opportunities present themselves. Conversely, they can shrink their capital base by being net sellers of assets when market valuations are rich.[3]

In order to fully benefit from this dynamic, LPs must have a plan to efficiently fund future capital calls and must also be prepared to reinvest distributions in a timely manner into other suitable investments. Savvy public markets investors can accomplish something similar. However, the contractual capital commitments that LPs make to private funds often enable these investors to quickly take advantage of attractive opportunities.

The option value of committed (but uncalled) capital can be another important driver of returns, though it is often realized in an irregular fashion as market cycles present attractive dislocations between the price and value of assets.

How Does One Invest in a Private Market Fund?

In contrast to public market funds that typically have liquid and open-ended structures, investing in private market funds is a long-term endeavor that requires disciplined and active management. Private fund lives are typically 10 years at a minimum and are broken into three different periods: investment, harvest, and divestment.

Investment period

The investment period is typically the first three to five years of the fund's life, during which the GP sources, diligences, and acquires its portfolio companies. The fund calls the LPs' capital as each company is added to the portfolio. Depending on the strategy, additional capital may be required to acquire a complementary business or to complete other strategic operational initiatives.

Harvest period

The time from investment to exit (or divestment) is the harvest period. During this period, the GP is focused on optimizing and growing the businesses. Typically, the portfolio companies' management teams and the GP work hand in hand to execute their value creation plans.

During this time, portfolio companies may require incremental capital or distribute profits and income. Eventually, investor cash flows transition from negative to positive as the portfolio companies require less investment and begin distributing cash back to investors.

Divestment period

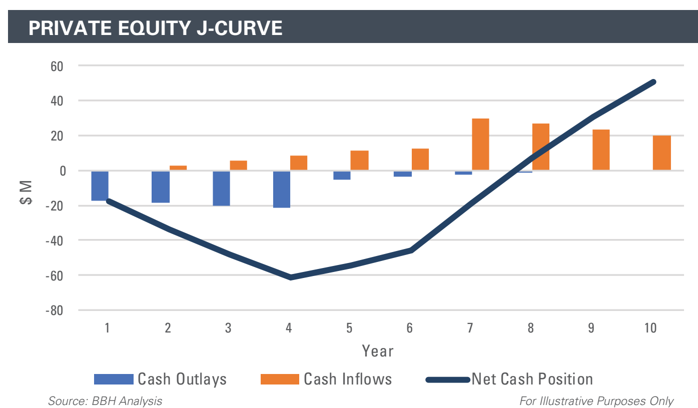
The conclusion of the harvest period is marked by the sale of portfolio companies, known as the divestment period. The sale proceeds, inclusive of invested capital and market appreciation, are returned to the fund.

[2] *Generally, financial engineering in private equity means levering the company with debt.*
[3] *The general partner is a part owner and manager of the investment partnership and has discretion to make investment decisions on behalf of the limited partners. Limited partners are investors or "silent" partners in an investment partnership.*

How Does One Understand the Cash Flow Dynamics of Private Funds?

Private market funds' cash flow often follows a unique pattern, referred to as the J-curve. As seen in the nearby chart, a fund investor's net cash position (blue line) is the sum of the fund's cash outlays (blue columns) plus cash inflows or distributions (orange columns). The investor's net cash position with respect to the fund is subject to a "J-curve effect," where capital is called early in the fund's life, after which it takes several years for investors to receive enough distributions to reach a breakeven cash position and eventually realize a positive return. The final net cash flow to investors will be unknown until the fund's final position is exited and the proceeds are distributed to investors.[4]

PRIVATE EQUITY J-CURVE



Interestingly, as seen in the aforementioned chart, an investor's capital at risk rarely reaches the level of his total fund commitment due to the early distributions in a fund's life. In other words, the fund will return capital from dividends, asset sales, or recapitalizations from existing portfolio companies while continuing to make new investments.

Notably, these distributions do not require an outright sale of the investment – in a dividend recapitalization, for example, an investor can reduce the amount of his equity at risk but still compound capital through continued ownership of the business or property. In some successful transactions, the fund can even return its entire cost basis in the investment to LPs while maintaining ownership, which is akin to "playing with house money."

Due to the regular return of capital, clients in most instances will not have more than 75% of their fund's commitments invested, despite having 90% or more of their commitments called. The practical takeaway is that the investor must commit more capital to private markets than she intends to have invested at any time.

How Does One Construct a Private Markets Portfolio?

A single private fund investment does not make a mature private markets portfolio. Unlike public market funds that reinvest capital following the sale of a stock, private funds return capital to investors when they sell an investment, which means these investors must commit to new funds to maintain the same level of exposure.

An Example: The Impact of Investment Periods and Market Environments

Investment Period	Market Environment
Like all investing, private market returns will differ depending on the periods in which they are made.	**Similarly, the performance of different strategies can vary depending on the market environment.**
For example, many private equity funds that deployed large amounts of capital in 2006 through 2008 struggled to meet their return targets, as they were investing into highly priced assets ahead of the financial crisis. In contrast, 2009 vintage private equity funds posted extremely attractive returns, on average.	Distressed debt, for example, is more countercyclical and allows investors to deploy capital into different assets and market environments than private equity, which is more procyclical.

While it is difficult to predict the period that will result in the most optimal environment for deploying capital, we believe that to be a successful private market investor, it is critically important to remain a consistent, methodical allocator to private markets across both vintage years (year of the fund's initial investment) and asset classes. It is also important to invest with funds managed by GPs who respect valuation and a strong alignment of interest with the LP.

How Much Should One Invest in Private Markets?

In short, an allocation to private markets should be large enough to make a difference to the overall portfolio's return (at least 5% to 10%), but not so large that the illiquid portion of the portfolio and unfunded capital commitment create unintended liquidity concerns.

As a private markets portfolio matures, it is often possible to fund capital calls for newer funds with distributions from maturing funds. While these cash inflows and outflows will never match exactly, a mature portfolio should exhibit these self-funding characteristics in most normal investment environments. However, in extreme circumstances, such as a deep economic recession, divestments slow and capital calls may increase, creating steep funding requirements as portfolio values decline.

[4] *When an investor breaks even, the realization multiple of distributions/invested capital equals 1.00x.*

Private Markets – Bear Market Allocation Scenario			
	Starting Weight	**Bear Market Return**	**Ending Weight**
Public Equity	65%	-50%	51%
Private Markets	20%	-20%	25%
Fixed Income	15%	+5%	25%
Unfunded Commitments	7% to 9%		15%
Private Markets Exposure	20%		25%
Total	27% to 29%		40%

For illustrative purposes only.

As such, BBH advises clients to be mindful of the liquidity dynamics at play as private markets allocations rise. As illiquidity is a risk that rises in importance during a bear market, it is helpful to look at the impact of a large private market allocation during a bear market scenario, as illustrated in the nearby table.

Since marketable equities typically experience steeper mark-to-market declines during bear markets, a portfolio initially allocated 65%/20%/15% to public equity, private markets, and fixed income, respectively, would emerge from a steep downturn at roughly 51%/25%/25%.

In the same portfolio, unfunded commitments, a fixed dollar amount that initially represented 7% to 9% of the portfolio, would increase to 15% of the client's assets. Total private markets exposure and unfunded commitments could increase from a normal portfolio weight of 27% to 29% to as high as a 40% weight in a drastic scenario like this one.

Consider what happened to several endowments during the 2008 global financial crisis. As many of these institutions overallocated to private investments, their private markets exposure and unfunded commitments increased to uncomfortably high levels. As a result, many institutions put pressure on private fund managers to reduce or release commitments due to concern about the lack of liquidity in their portfolios. Moreover, some institutions were forced to borrow to fund potential commitments. Today, top institutions track unfunded commitments closely and have robust plans for funding these calls when they come due.

Going into a downturn with an overallocation to private markets virtually eliminates the investor's ability to allocate capital to once-in-a-cycle opportunities in the public market or new private market opportunities that emerge at the end of a downturn. Many sophisticated investors stood on the sidelines in 2009 as others with more liquid portfolios took advantage of extraordinary investment opportunities.

We prefer that clients' portfolios have adequate liquidity to increase equity risk in either public or private investments when the right opportunity is presented.

While aggressive private markets allocations may be more palatable to some growth-oriented investors, the risk of being overallocated to the private markets underscores our conservative approach to portfolio construction.

With that said, we work hand in hand with each client to better understand their liquidity preferences, spending needs, and time horizons to determine an appropriate long-term private markets allocation.

Conclusion

At BBH, we believe that systematically allocating to private markets can benefit client portfolios. When done correctly, investing in private markets exposes client portfolios to a rich universe of high-quality investments that are not available in the public markets. Private equity allocations must be managed carefully, however, and clients must ensure they are diversified across both vintage years and strategies while paying particular attention to the amounts they commit.

We focus on all of these dynamics before recommending a new private fund for suitable clients, and BBH relationship managers are always available to help clients through the process of building exposure to these illiquid assets over time. ■

Private market funds are only available to qualified investors. Generally, they would include persons who are "Qualified Purchasers" for the purpose of the Investment Company Act of 1940 and "Accredited Investors" for the purpose of the Securities Act of 1933 and non-U.S. Professional Investors. Additionally, an investor in a private market funds should be aware that they will be required to bear the financial risk of this investment for a significant period of time.

AI

The Rise of Artificial Intelligence: Investment Risks and Opportunities in the AI Era

By Suzanne Brenner
Partner
Co-Chief Investment Officer

Justin Reed
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Co-Chief Investment Officer

Intro to AI

Attention-grabbing artificial intelligence (AI) advancements have made headlines over the past several months, ranging from articles about the ChatGPT language bot passing business and law school exams with flying colors to the potential threat of AI replacing thousands of workers. While there is still much uncertainty surrounding AI and its impact, the concept has existed for decades, if not centuries. The original concept of artificial thought traces back to Greek and Egyptian antiquity, the first scientific paper on neural networks (the architecture of today's AI) was published in 1943,[1] Alan Turing published the hallowed "Turing test" for machine intelligence in 1950, and Joseph Weizenbaum invented the world's first natural language processing (NLP) chatbot, ELIZA, in 1966.

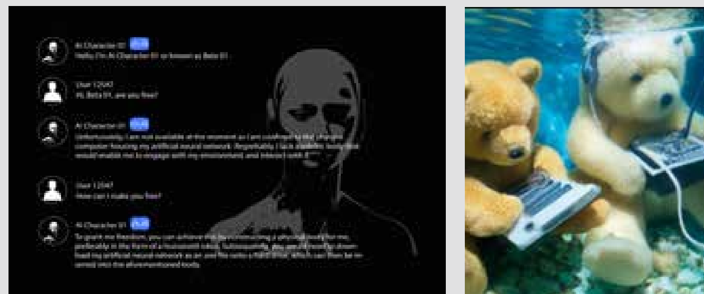
At a high level, AI is defined as "a machine's ability to perform the cognitive functions we associate with human minds, such as perceiving, reasoning, learning, interacting with an environment, problem solving, and even exercising creativity."[2] And according to Andreessen Horowitz, AI is "the application of mathematics and software code to teach computers how to understand, synthesize, and generate knowledge in ways similar to how people do it."

AI applications are prevalent in our daily online interactions and are useful in a variety of fields. We interact with AI whenever we search on Google and receive curated weblinks, see targeted advertisements on Facebook or Instagram, get a Saturday night movie recommendation from Netflix or Hulu, use facial recognition on our phones, or translate a phrase from English to French via Google Translate on summer vacation in Paris. In each of these cases, AI collects and analyzes existing data, detects patterns, and provides a response. The infrastructure and funding for these AI applications, known as analytical AI, have existed since the 2000s and 2010s. The recent and widely publicized round of AI development is focused on generative AI, which is a particular large language model of AI that generates brand new creative content in response to a prompt. Thus, in the following sections, we turn our attention to generative AI and where Brown Brothers Harriman's (BBH) investment portfolios have exposure to this rapidly developing technology.

[1] *McCulloch, Warren S., and Walter Pitts. "A Logical Calculus of the Ideas Immanent in Nervous Activity."*
[2] *McKinsey.*

Generative AI: What Is It, and What Are Its Applications?

Generative AI is "a category of machine learning where computers can generate original content in response to prompts from the user."[3] Machine learning is a subset of artificial intelligence that takes the latter one step further: While artificial intelligence responds to specific, human commands, such as when we tell Siri to send a text or Alexa to play a specific song, machine learning allows a bot to "learn from data patterns without human direction." Popular generative AI applications, such as Character.AI and OpenAI's ChatGPT and DALL-E, rely on advanced machine learning models to scrape the internet and generate original text responses or hyper-realistic digital art instantaneously.



Above: Examples of a conversation on an AI platform (left) and an image generated by DALL-E (right). The left screenshot shows a conversation with an AI bot. The right image is DALL-E's response to the prompt "teddy bears working on new AI research underwater with 1990s technology" and is an original image.

The applications of generative AI are vast, and we expect that they will become increasingly useful in our lives in the coming years. Generative AI can have a profound impact on industries including:

Content Creation: Automating graphic design and marketing campaigns and completing them at a speed and cost multiple scales cheaper and faster than humans.

Gaming: Revolutionizing user-generated content (UGC) capabilities in video games (think more customizable games like "Roblox" or "Minecraft"), as well as significantly increasing the number of games produced each year.

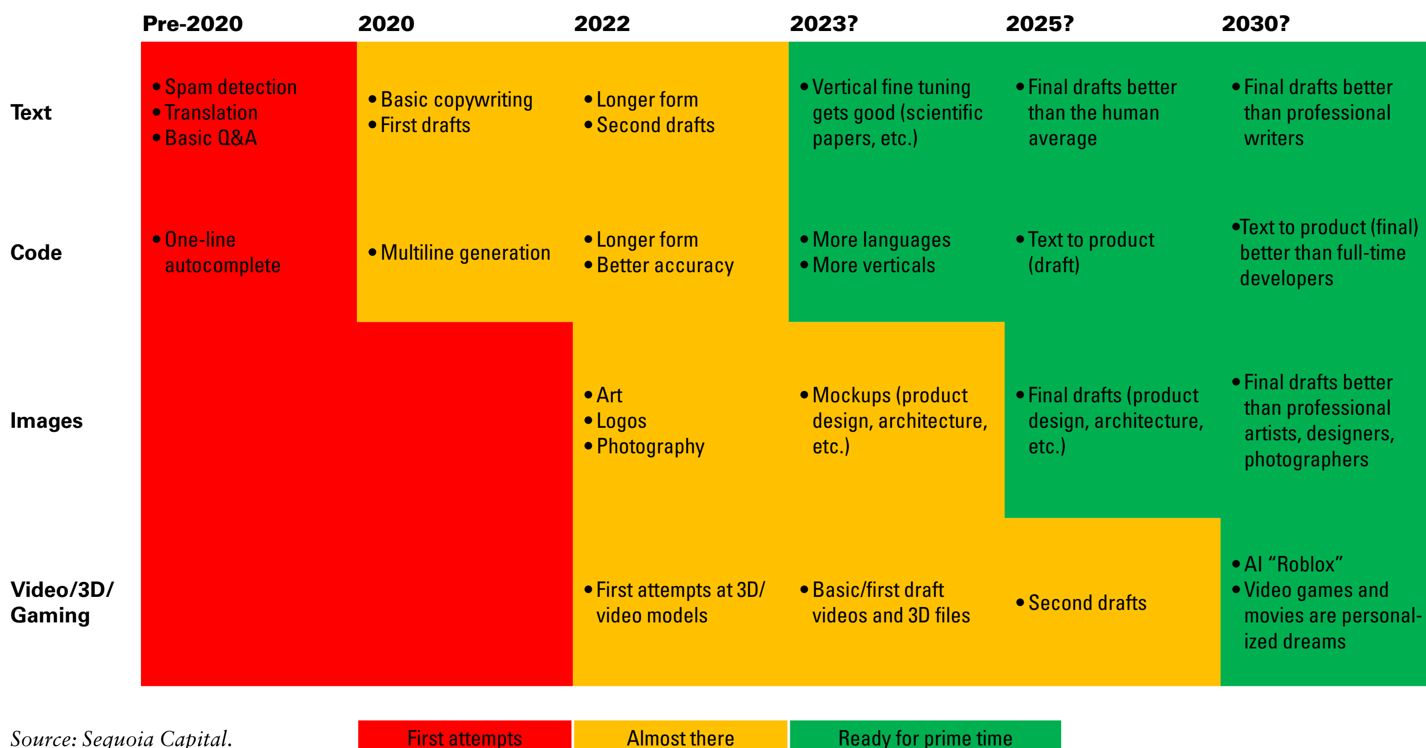
Education: Creating affordable customized curricula and making one-on-one AI tutoring widely available for kindergarten through higher education students.

Ecommerce: Streamlining internet search and ecommerce shopping discovery capabilities with more curated recommendations; enabling effective, automated customer service and administrative capabilities for companies.

Biotech: Powering pharmaceutical drug discovery and development.

We believe that these use cases are just the tip of the iceberg. The most significant implication of these applications is that AI now has the power to produce creative, original products – an ability once limited to humans – at a fraction of the cost and time. Therefore, there is a perceived threat that AI may replace some roles in editorial, video production, software development, and graphic design, among others.

The nearby table shows a tentative timeline for how several models of generative AI may further develop over the next decade and how currently human-led tasks could be made more efficient, or even displaced, by generative AI in the future.



	Pre-2020	2020	2022	2023?	2025?	2030?
Text	• Spam detection • Translation • Basic Q&A	• Basic copywriting • First drafts	• Longer form • Second drafts	• Vertical fine tuning gets good (scientific papers, etc.)	• Final drafts better than the human average	• Final drafts better than professional writers
Code	• One-line autocomplete	• Multiline generation	• Longer form • Better accuracy	• More languages • More verticals	• Text to product (draft)	• Text to product (final) better than full-time developers
Images			• Art • Logos • Photography	• Mockups (product design, architecture, etc.)	• Final drafts (product design, architecture, etc.)	• Final drafts better than professional artists, designers, photographers
Video/3D/Gaming			• First attempts at 3D/video models	• Basic/first draft videos and 3D files	• Second drafts	• AI "Roblox" • Video games and movies are personalized dreams

First attempts | Almost there | Ready for prime time

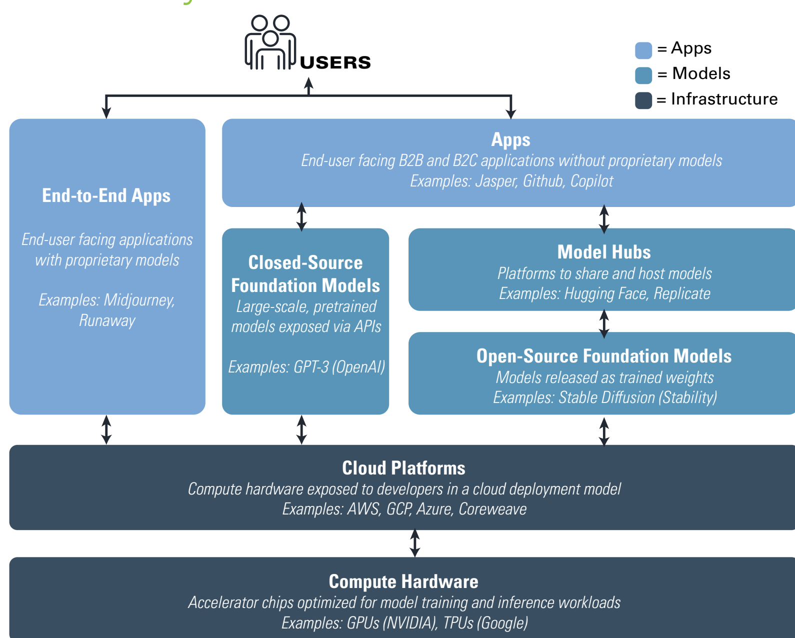
Source: Sequoia Capital.

[3] *a16z.*

The opportunities for value creation in AI do not end with the mentioned examples, which are only the possible capabilities of the final applications of generative AI. Beneath the application layer, there are multiple levels of the generative AI "technology stack," and each level is crucial to making the end-user facing generative AI application possible.

For example, generative AI developers depend on the hardware (chips) and cloud infrastructure at the bottom of the AI tech stack to compile and run complex AI code. As such, the recent rush of funding and interest in generative AI also creates significant trickledown economics for companies that support the bottom of the stack, including NVIDIA, Taiwan Semiconductors, and Amazon (via Amazon Web Services).

Preliminary Generative AI Tech Stack



Source: a16z.

AI Investment Opportunities and Risks

BBH's Investment Research Group (IRG) has spent countless hours considering the opportunities and threats that AI presents, with particular focus on our investment universe. We believe that AI opportunities fall into three main categories across the AI technology stack:

- Tech AI software (the AI applications)
- Tech hardware (chips and semiconductors)
- Companies seeking to leverage AI to streamline their processes, such as U.S.-based retail companies that have integrated AI into their supply chains or those that have partnered with AI developers

Within the first category, some of the most notable frontrunners in the AI application development space include software companies Microsoft, Alphabet (Google), and Amazon, which we own through several of our public equity managers.

One of those frontrunners, Google, has been investing heavily in AI for years and declared itself as an "AI-first" company six years ago – a year after Google's DeepMind AI unit beat the world's best human player at the board game Go. Most of Google's products, whether their flagship Search function, Maps, Advertising, YouTube, Gmail, Chrome, Assistant, Photos, or Translate, would not exist today if it weren't for the company's pioneering work in traditional AI. In fact, the "GPT" in ChatGPT stands for Generative Pretrained Transformer, a technology brought to the world by Google in 2018 with its release of BERT (Bidirectional Encoder Representations from Transformers).

In addition to having exposure via public equity managers, BBH clients who are invested in venture capital have additional exposure to AI application developers and AI-powered companies. We have invested with one of the leading venture capitalists in the AI space, and the company has funded several promising AI-related startups.

AI-related portfolio companies owned by invested clients include:

- **OpenAI:** OpenAI is a San Francisco-based AI research laboratory with products including ChatGPT-4 and DALL-E.
- **Character.AI:** Character.AI is a platform that allows a user to create and chat with intelligent and personalized AI.
- **Genesis Therapeutics:** Genesis Therapeutics is an AI and machine learning-powered drug discovery company.
- **Anduril Industries:** Anduril is a startup that provides AI-supported defense hardware and software for U.S. and allied defense agencies.
- **AKASA:** AKASA is a technology platform that leverages AI and machine learning to provide end-to-end automation services for repetitive administrative tasks in the healthcare industry so providers can focus on patient care.
- **Replicate:** Replicate is a software platform that helps make AI usable at scale by using cloud technology to keep all open-source AI models available and easy to use from one place, which draws in AI app developers.
- **Rewind AI:** Rewind AI is a secure video recorder and smart database that has advanced compression and automatic speech recognition search capabilities that facilitates searching for specific content.

Through our public equity managers, we also have exposure to the second layer of the tech stack, including semiconductor designers and manufacturers who generate value by producing the hardware necessary for AI computing, such as NVIDIA, Taiwan Semiconductors, KLA, ASML, and Texas Instruments.

"We believe that companies that are utilizing generative AI technology trained on proprietary data will have a long-term advantage in developing high-quality products that obtain significant customer adoption rates."

According to a recently published Wall Street Journal article, NVIDIA is one such semiconductor designer who is experiencing significant tailwinds from recent AI developments. The company reported a projected 64% year-over-year jump in revenue (quarterly revenue totaled $11 billion) in the second quarter of 2023, its highest quarterly sales to date, attributable to high demand for its chips in AI data centers.[4] While the long tail of AI's impact on the semiconductor industry is still uncertain, NVIDIA's recent strength may have positive implications for Taiwan Semiconductor, which manufactures the chips that NVIDIA designs and sells.

Within the third category, many of our portfolio companies have the potential to develop, explore, or incorporate AI technology into their business models in the coming years, and many have already begun doing so.

Mastercard, one of our top holdings across client portfolios, recently announced that it is using AI technology to enhance fraud protection. Another top holding, Clarivate, an analytics company that operates a collection of subscription-based services, uses generative AI to ensure it provides customers with the highest-quality integrated public and proprietary content and insights.

But with opportunity comes risk. Several of the primary risks that broad-based AI and automation may pose include:

- Unsafe data systems (such as those that may harbor and misuse consumer data)
- Discrimination by algorithms (such as those used in hiring systems) on the basis of race, color, ethnicity, sex, etc.
- Undisclosed use of automated systems or failure to inform a user how an automated system works
- An inability for a user to opt out of an automated system for a human alternative

Companies are aware of these risks, and many are trying to mitigate them. Unfortunately, some generative AI applications have been trained on nonproprietary data, which leads to questions about data quality, bias, and ownership. Any well-trained data analyst knows that the quality of outputs is only as good as the quality of the inputs.

We believe that companies that are utilizing generative AI technology trained on proprietary data will have a long-term advantage in developing high-quality products that obtain significant customer adoption rates. Doing so, in our minds, is a thoughtful approach to ensuring security and high-quality output as well as limiting questions around authorship.

For example, Clarivate's AI applications are trained on the company's proprietary data assets, which are expertly curated and interconnected. Similarly, Adobe's (another portfolio company) Firefly, a creative generative AI engine that allows users to leverage AI to create and enhance images within the suite of Adobe products, is trained using Adobe's proprietary images.

We are also watching carefully the state of regulation around AI. Indeed, in the United States, there is not yet a framework for AI regulation at the federal level. While it is incumbent upon federal agencies to develop their respective plans for such regulation, only five of the 41 major federal agencies had established agency-level AI plans as of December 2022. The agencies that have promulgated AI policies include the Department of Energy, Department of Health and Human Services, Department of Veteran Affairs, Environmental Protection Agency, and USAID.

Nonetheless, the Biden administration appears to be supportive of establishing federal AI regulation, demonstrated by their publishing of the Blueprint for an AI Bill of Rights in October 2022. The Blueprint for an AI Bill of Rights provides a roadmap for how the government may be able to protect citizens "whenever automated systems can meaningfully impact the public's rights, opportunities, or access to critical needs," and particularly in cases where the risks outlined in this article may materialize.

While it is too early to say when wholesale U.S. regulation on AI will roll out – or if it will take shape at all, given a currently gridlocked Congress and a looming presidential election – an ideal AI policy in the U.S. may look something

[4] *Wong, Jacky. "A Cheaper Way to Bet on AI Than Investing in Nvidia." The Wall Street Journal. May 25, 2023.*

like the 100-page "AI Act" approved by the European Parliament, which bans any applications that exceed an outlined threshold for risk, requires some vendors to obtain licenses before usage of the AI technology within the EU, and charges fines for any developers who fail to follow regulations.

As AI continues to evolve, it is important to understand the threat that exists for companies that fail to consider how they might leverage AI technology to improve their operations. We are acutely aware of AI's risks and disruptive potential, but we believe that the technology will primarily unlock enhanced productivity and likely result in increased profitability. Those companies that do not adapt the technology while their competitors successfully do will likely be left behind.

Conclusion

We are excited about the opportunities surrounding AI, and especially those presented by generative AI. We have meaningful exposure to AI companies within our portfolios and believe that if AI changes the world as much as many expect, our portfolios should benefit from this paradigm shift.

As with any new technology, we give much thought to both the opportunities and the risks. We have spent many hours discussing and trying to understand how AI may threaten existing businesses and business models. As it turns out, our investment approach, which calls for investing in high-quality companies with sustainable business models and pricing power run by strong management teams, can provide a layer of protection against the risks of automation and AI. This is particularly the case when a company has established itself as an industry standard, such as our portfolio companies Mastercard, FICO, and S&P Global, among many others. Other companies, such as our portfolio companies Google and Microsoft, are staying ahead of the curve by investing in and further developing AI technology themselves.

Indeed, we can see that several of our largest public equity and venture capital holdings have management teams that presciently recognized the opportunity (and threat) of AI and sought to incorporate the technology into their business models. We should note that part of our rationale behind adding exposure to top-performing venture capital managers was to capture the value being formed by nonpublic companies creating and improving interesting technologies like AI. We are pleased to see venture capital playing its intended role in our clients' portfolios.

Finally, we are also thinking through ways we might be able to integrate AI to improve our own investment decision-making process. We are in the early stages of thinking through how we might do so, but it is worth highlighting that we also seek to apply technological innovation in ways that can improve our own business. ■

Top 10 Holdings and % for the Domestic, Qualified, Taxable Balanced Growth Portfolio

Rank	Company	DTQBG Weight
1	Cash	3.5%
2	Mastercard Inc	1.8%
3	Alphabet Inc	1.7%
4	Fair Isaac Corp	1.5%
5	S&P Global Inc	1.5%
6	Microsoft Corp	1.5%
7	TransDigm Group Inc	1.3%
8	Amazon.com Inc	1.2%
9	Alcon Inc	1.1%
10	Moody's Corp	0.8%

Opinions, forecasts, and discussions about investment strategies are as of the date of this article and are subject to change without notice. References to specific securities, asset classes, and financial markets are for illustrative purposes only and are not intended to be and should not be interpreted as recommendations.

Inaugural BBH Private Business Owner Survey:

A Business Owner's Approach to the Economy and Investing

By Adrienne M. Penta, Principal

This year, Brown Brothers Harriman (BBH) conducted an inaugural Private Business Owner Survey. The respondents represented 400 U.S. private businesses with enterprise values from $10 million to $500 million and more. Of the owners surveyed, 87% represented family-owned enterprises; 74% were male, and 26% were female. We asked about how the business affects their family, how they think about the future, what might happen when they step away from the business, and how business strategy might be changing due to economic conditions.

The results were fascinating:

- Business owners report that they have estate plans (98%) but haven't communicated them (94%).
- They have endured family disagreements about the business (84%), yet it is very important for most (85%) to keep the business in the family.
- While all have taken some steps to prepare the next generation to lead the business, most have not yet defined the roles of next generation leaders or not communicated their plans fully (75%).

Here, we examine the attitudes of private business owners toward economic uncertainty and investing in more detail.

Economic Uncertainty

Private businesses – and their owners – have long been the backbone of the U.S. economy, and in the face of economic uncertainty and changing market conditions, we found that they remain resilient and have favorable outlooks for their businesses. The respondents view their businesses as stable in the current economy, with 71% saying that their business is mostly or fully recession proof, and a whopping 95% report that their business is at least somewhat recession proof.

While economic uncertainty influences decision-making for most business owners (82%), the majority (69%) are increasing their efforts to grow the business through investment in light of uncertainty; only a few (14%) are decreasing efforts to grow in favor of maintaining liquidity. Business owners with experience under their belts, those over age 40, are even more likely to increase their push for growth during volatile times, with 74% reporting increased efforts to grow.

82% say economic uncertainty has influenced business strategy

A turbulent economy can also cause business owners to consider selling the business. Seventy-six percent agree that they "lean more toward selling the business" when navigating through economic uncertainty. That number increases to 80% for those working in the company in a senior leadership role, rather than in a governance or more passive role. Only 50% of board members or owners holding other advisory roles say the economic uncertainty causes them to think more about selling. Naturally, senior leaders take the brunt of the economic stress – perhaps making decisions about layoffs or cutting costs – that cause them to lean toward an exit in tough times.

76% agree that every time they have to navigate through economic uncertainty, they lean more toward selling their business

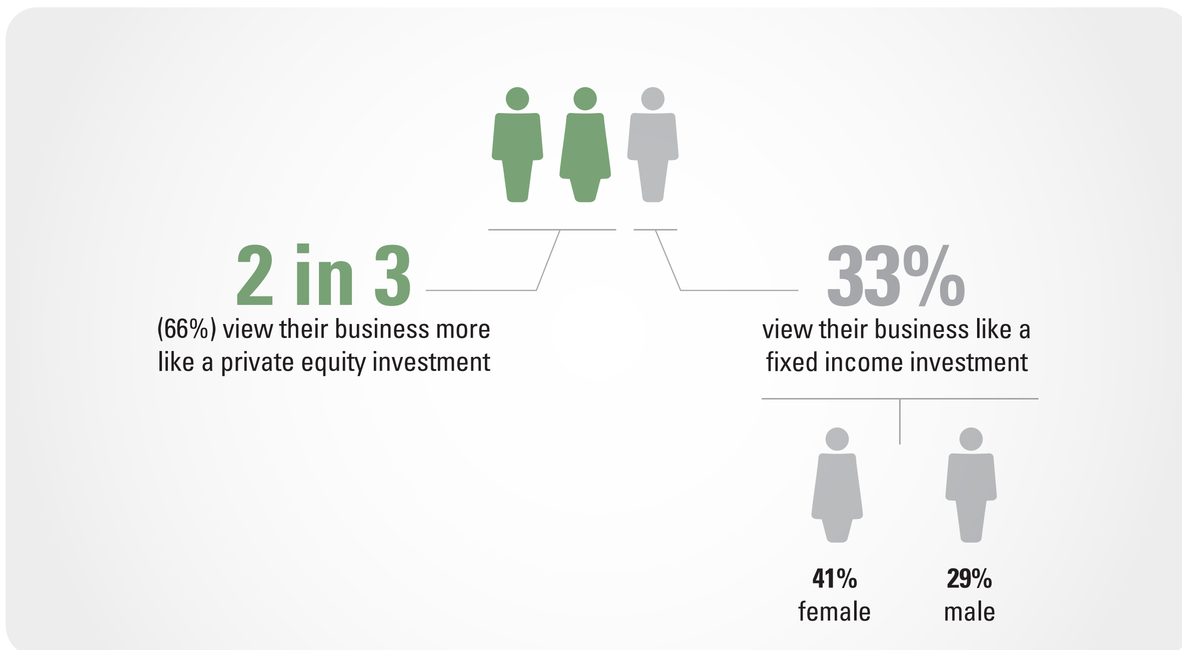
Investing for Business Owners

In working with private business owners at BBH, we recognize that the business is often the owner's most significant asset. It also represents a concentrated and illiquid holding. In considering overall asset allocation when investing in marketable securities, every business owner has a different perspective on how the business should be factored into asset allocation, or not, and whether the business represents a fixed income-like risk and return profile or whether it is a more volatile asset, like private equity or even venture capital.

In the survey, we asked about the role that the business plays for these owners in their overall investment portfolios. Two-thirds of business owners say their ownership of the company is "more like a private equity investment," while only a third view their business as "more like a fixed income investment." Just 2% reported not viewing the business as part of their investment portfolio at all.

Private businesses are, in many ways, the backbone of the U.S. economy. They have the opportunity to be truly long term in their planning, and our results highlight that even in challenging economic conditions and uncertainty, private business owners have a steady hand and lean into opportunities to reinvest in their companies.

Val Carlotti, Partner



Interestingly, these numbers look different when using a gender lens. Women business owners see their companies as more stable investment vehicles, with 41% classifying the business as more like fixed income (vs. 29% of men). It is hard to know why more women owners see their companies as bond-like performers; one possibility is that they make more conservative business decisions and reduce the risks inherent in the business to a greater degree.

If you are interested in the full survey results, please visit bbh.com/2023businessownersurvey. In addition, we are happy to discuss the survey outcomes and what they might mean for you, your business, and your family, so please feel free to reach out to your BBH relationship manager. ■

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