Private markets asset allocation guide

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May 2023

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Section 1

What are private markets?

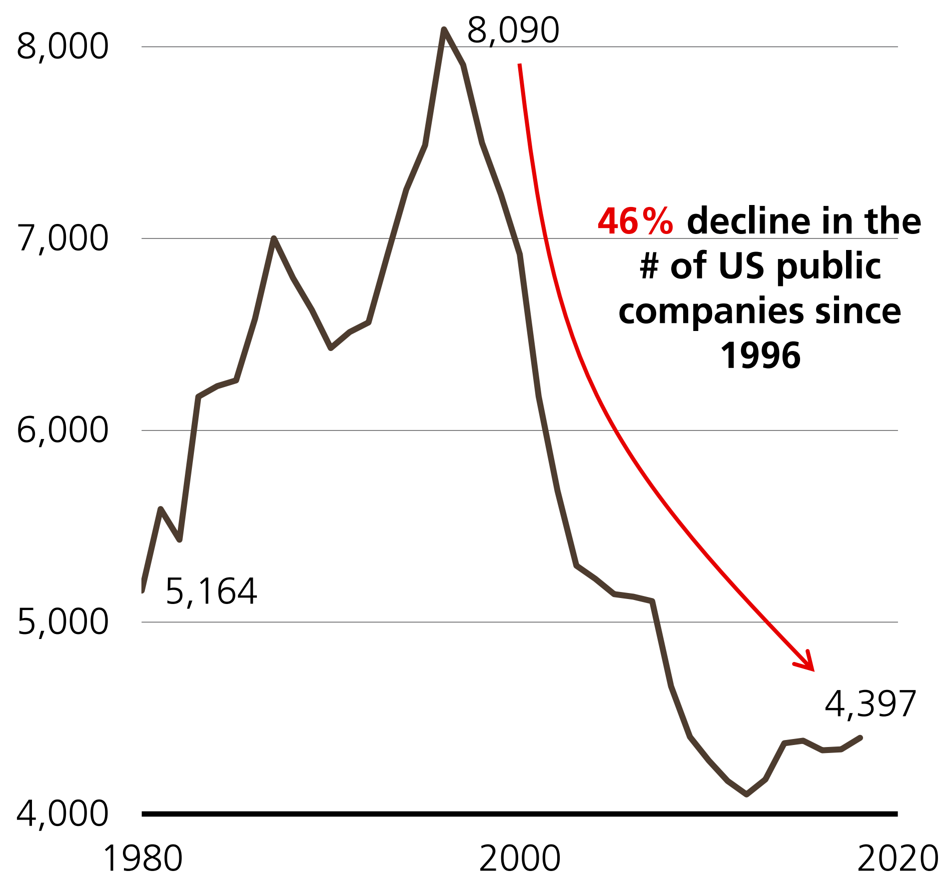
What are private markets?

Private markets are strategies that allow investors to access investments that aren't traded on public exchanges.

There are three main private market asset classes:

1. **Private debt** includes strategies like direct lending, which originates loans to middle market companies.
2. **Private real estate** strategies invest in debt or equity tied to commercial and residential real estate. Unlike real estate investment trusts (REITs), private real estate ownership is not traded on a public exchange.
3. **Private equity** invests in companies that aren't listed on a public exchange. The number of public companies has declined drastically due to acquisitions, lower IPO activity, and greater access to private capital. With many companies delivering substantial growth prior to going public, we are seeing a larger opportunity set for venture capital, growth equity, and buyout funds to invest in private companies at each stage of development.

Number of US publicly traded companies



Source: UBS, World Bank.

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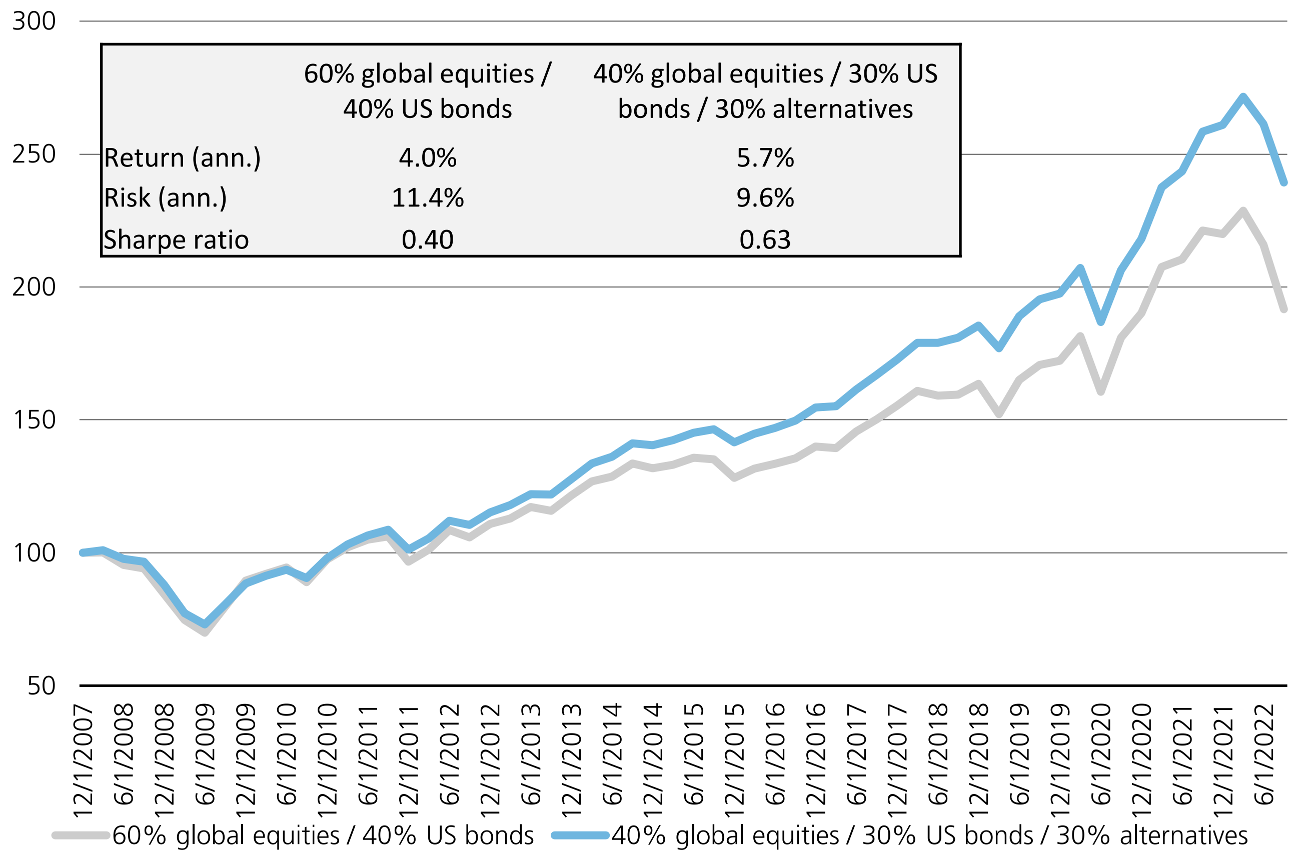
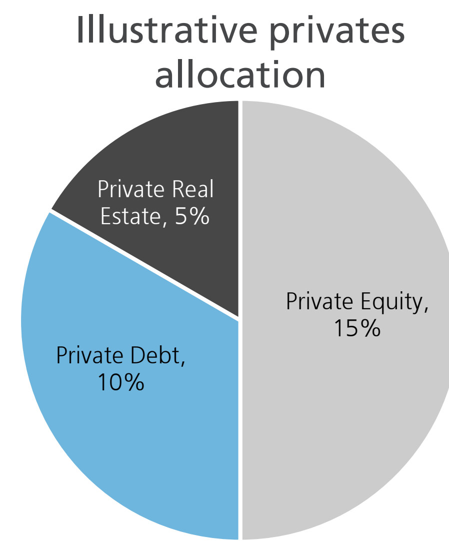
Adding private investments can enhance growth potential…

A 15-year lookback, adding a 30% allocation to private assets in a 60/40 portfolio



	60% global equities / 40% US bonds	40% global equities / 30% US bonds / 30% alternatives
Return (ann.)	4.0%	5.7%
Risk (ann.)	11.4%	9.6%
Sharpe ratio	0.40	0.63

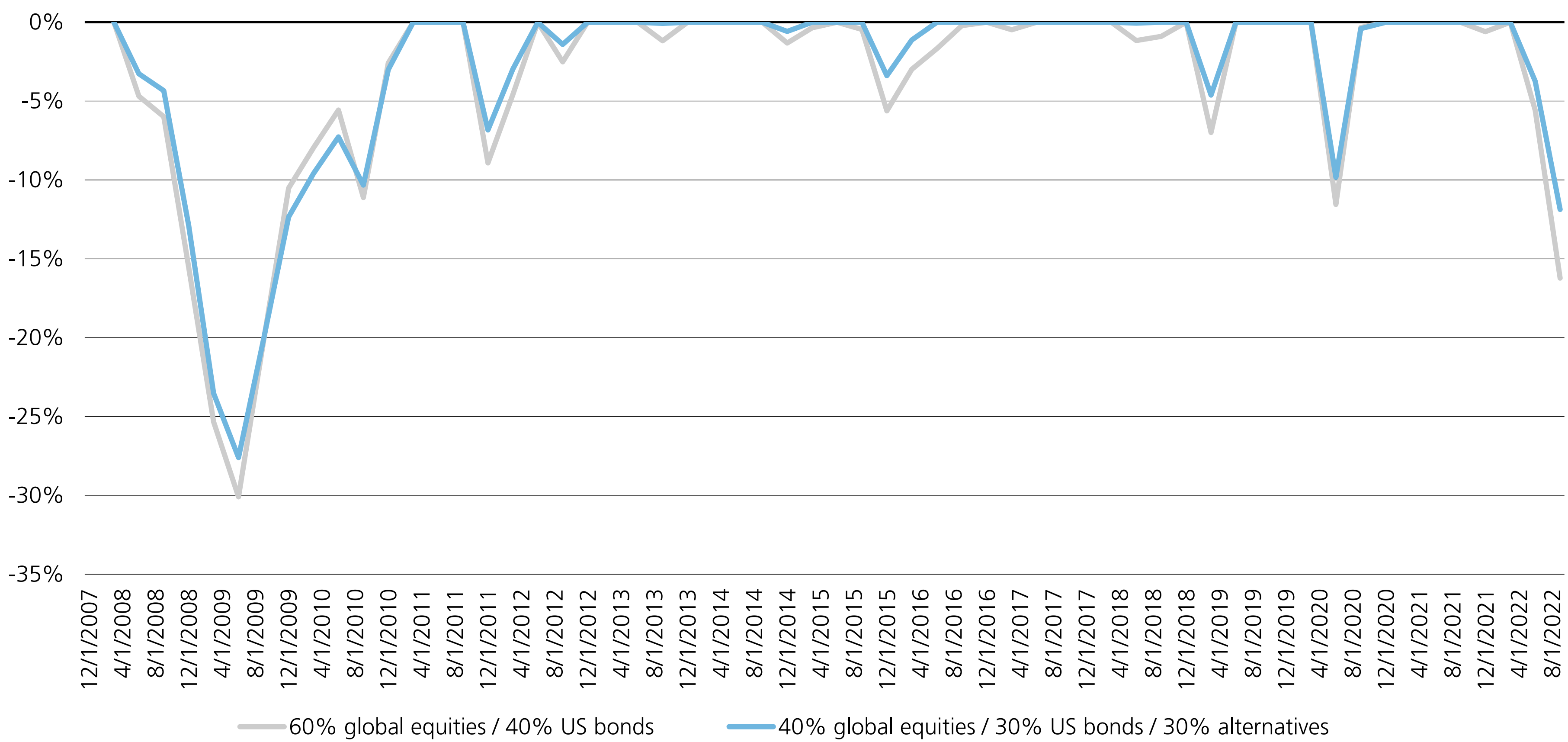


Source: Refinitiv, Cambridge Associates, Morningstar, UBS, as of 30 Sept 2022. Global equities (MSCI ACWI), US bonds (Bloomberg US Agg), private equity (Cambridge Global Private Equity), private debt (Cliffwater Direct Lending Index), private real estate (Cambridge Private Real Estate). For illustrative purposes only. **Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.**

Please always read in conjunction with the glossary and the risk information at the end of the document.

…and private investments can cushion capital drawdowns

Including private investments to a 60/40 portfolio would have reduced drawdown severity historically



Source: Refinitiv, Cambridge Associates, Morningstar, UBS, as of 30 Sept 2022. Global equities (MSCI ACWI), US bonds (Bloomberg US Agg), private equity (Cambridge Global Private Equity), private debt (Cliffwater Direct Lending Index), private real estate (Cambridge Private Real Estate). For illustrative purposes only. **Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.**

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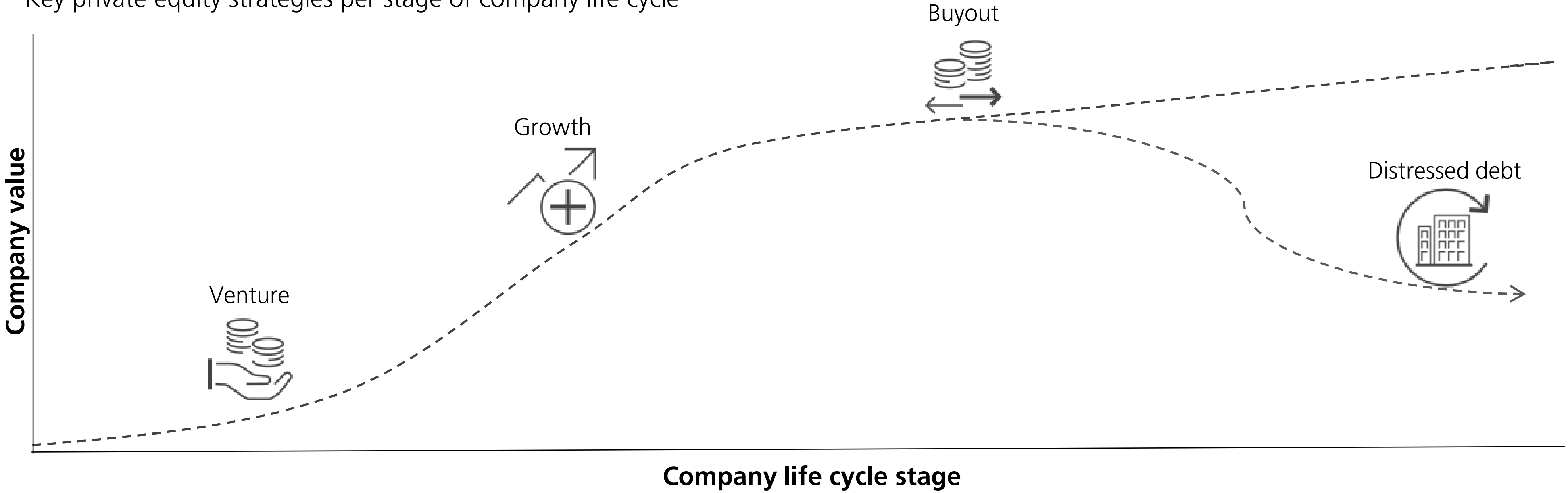
Private equity and private debt investment strategies

A variety of strategies to invest – not easily accessible to investors investing only in traditional assets

Key private equity strategies per stage of company life cycle



Venture Capital

- Focus on "building businesses"
- Invest in companies
  - in conceptual/ development stage
  - with revenues or profits several years away
- Rarely use leverage

Growth Capital

- Focus on companies that are already producing revenues or profits
- Invest in companies
  - ready for scale
  - in need of capital to finance growth
- Rarely use leverage

Buyout

- Focus on mature businesses with stable cash flows
- Invest in companies
  - that may require cost optimization
  - that can benefit from new strategic direction
- Use of debt component to maximize equity returns

Distressed debt

- Distressed debt

Private debt (not categorized in above chart)

- Direct lending
- Mezzanine / subordinated debt
- Special situations
- Specialty finance

Private equity

Private equity funds are pools of actively managed capital that invest in public and private companies, and encompass a variety of strategies

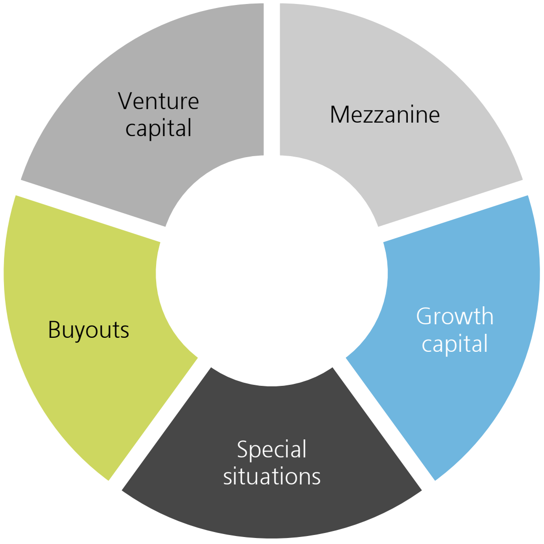
What are key characteristics of private equity?

- Whether they specialize in young or mature companies, private equity managers generally take an active role in the management of the portfolio companies they invest in
- Private equity managers are focused on sourcing investment opportunities, enhancing the value after an investment is made, and being able to exit for a strong profit

- **Source**
  - Identify target company
  - Conduct due diligence
  - Explore ways to add value
  - Create appropriate investment structure
- **Enhance value**
  - Structure financing
  - Partner with company management
  - Advise on strategic, operational and financial issues
  - Provide access to industry contacts
  - Cut costs and enhance bottom line profits
- **Exit**
  - Sell to strategic or financial buyers
  - Initial public offering
  - Recapitalization
  - Sell securities in the private market
  - Exercise provisions of structured investments

Private equity strategy examples

- **Venture:** focused on starting or building businesses by investing in newly developed or underdeveloped companies, usually at an early stage in a company's life cycle
- **Growth equity:** provide equity or debt financing to a company for an anticipated period of significant growth or expansion
- **Mezzanine:** typically a hybrid of debt and equity financing that gives the PE manager the rights to convert to equity interests
- **Special situations:** investments that capitalize on a range of opportunities such as changing government regulations or industry trends
- **Buyouts:** majority or significant control of mature, well-established companies



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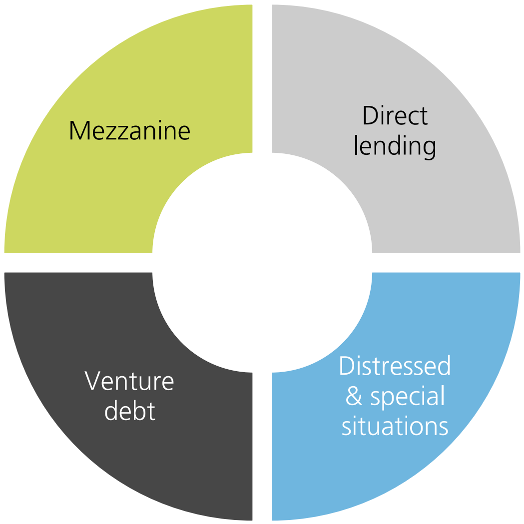
Private credit

Private credit is an investment in debt that is not liquid and readily tradable on a public exchange. The underlying investments, structures and strategies are more expansive than liquid credit market investment options

Understanding private credit strategies

- Unlike public credit strategies (ex: high yield, investment grade debt or Treasuries), private credit investments are offered through a private placement, where investors are locked up for a period of time and unable to sell out of their investment
- Private credit strategies are illiquid investments due to the underlying type of credit within the fund, which is not heavily traded
- Some strategies focus on generating high yields compared to what is available in the public credit markets. Other strategies focus on capital appreciation of the underlying asset that the credit is backed by
- Private credit strategies are dynamic and can provide investors a range of risks and returns broader than public credit offerings



Private credit examples

- **Direct lending:** The practice of non-bank lenders extending loans to small and medium-sized businesses in return for debt securities rather than equity.
- **Distressed & special situations:** Debt of companies that have filed for bankruptcy or have a significant chance of filing for bankruptcy in the near future
- **Venture debt:** Debt to venture capital-backed companies by a specialized financier to fund-working capital or capital expenses. Venture debt providers combine their loans with warrants or rights to purchase equity, to compensate for the higher risk of lending
- **Mezzanine:** Investments in debt subordinate to the primary debt issuance and senior to equity positions

Within these categories, the private credit investments can be further differentiated and specialized. For example, within structured credit, managers can invest in CLOs, CRE, RMBS, or consumer ABS among many other structured credit sub-categories. Even further, a manager can be more specialized and invest in only equity CLOs or only debt CLOs

Private real estate

Real estate funds are pools of actively managed capital that invest in a range of properties, which may also offer a hedge against inflation or deliver a strong income yield to the investor

What are key characteristics of private real estate?

- **Enhanced returns:** opportunity for returns from a combination of income and price appreciation
- **Potential inflation hedge:** rental income often increases as the economy strengthens and inflation rises; real estate is thus a potential hedge against inflation
- **Property types:** Include office, retail, industrial, multi-family residential and specialty (such as hotels, medical facilities, self-storage, farmland)

Private real estate examples

- Commercial real estate investments can be divided into four main strategies described further in the chart below
  - Core
  - Core plus
  - Value-added
  - Opportunistic

Real estate strategies	Core	Core plus	Value-added	Opportunistic
Leverage	None or low	Moderate	Moderate	High
Cycle	7 - 10 years	4 - 7 years	5 - 8 years	2 - 4 years
Occupancy at time of investment	Near or fully ooccupied long-term leases	Near or fully occupied; long-term leases with gradual expirations	Occupied mid-term leases with balanced expirations	Occupancy may be low; leases of large tenant(s) may be expiring soon
Income at time of investment	Current income	Current income; moderate capital appreciation	Income upon stabilization; strong capital appreciation potential	Little income; investment is made for capital appreciation potential

Section 2

Why invest in private markets?

Why invest in private markets?

A differentiated investment universe with the potential for higher risk-adjusted returns through active management

Expands the investment universe

Not investing in private markets means **missing out opportunities**: 95% of all US companies are privately held.[1] Private markets give access to **a broader investment universe**: access to early stage and middle market companies, new technologies, opportunistic and niche credit strategies unavailable through traditional asset classes, to name a few.

Illiquidity premium

Private markets have generated **stronger risk-adjusted returns** than global equities, global bonds and other asset classes.[2] Better access to information, active management, inefficient markets, value creation initiatives for portfolio companies, and leverage can enhance returns over public markets

Prevents panic selling and focus on the long term

The illiquid, long-term nature of private markets prevents panic selling during distressed markets, when it is often the best time to increase rather than reduce market exposure. It can also **protect investors from trying to time the market**. **In times of uncertainty and market dislocation**, private markets have performed exceptionally well.

Performance figures refer to the past and past performance is not a reliable indicator of future performance/results and prior investment with a manager does not guarantee future investments. Please always read in conjunction with the glossary and the risk information at the end of the document.

Private equity opportunities are expanding

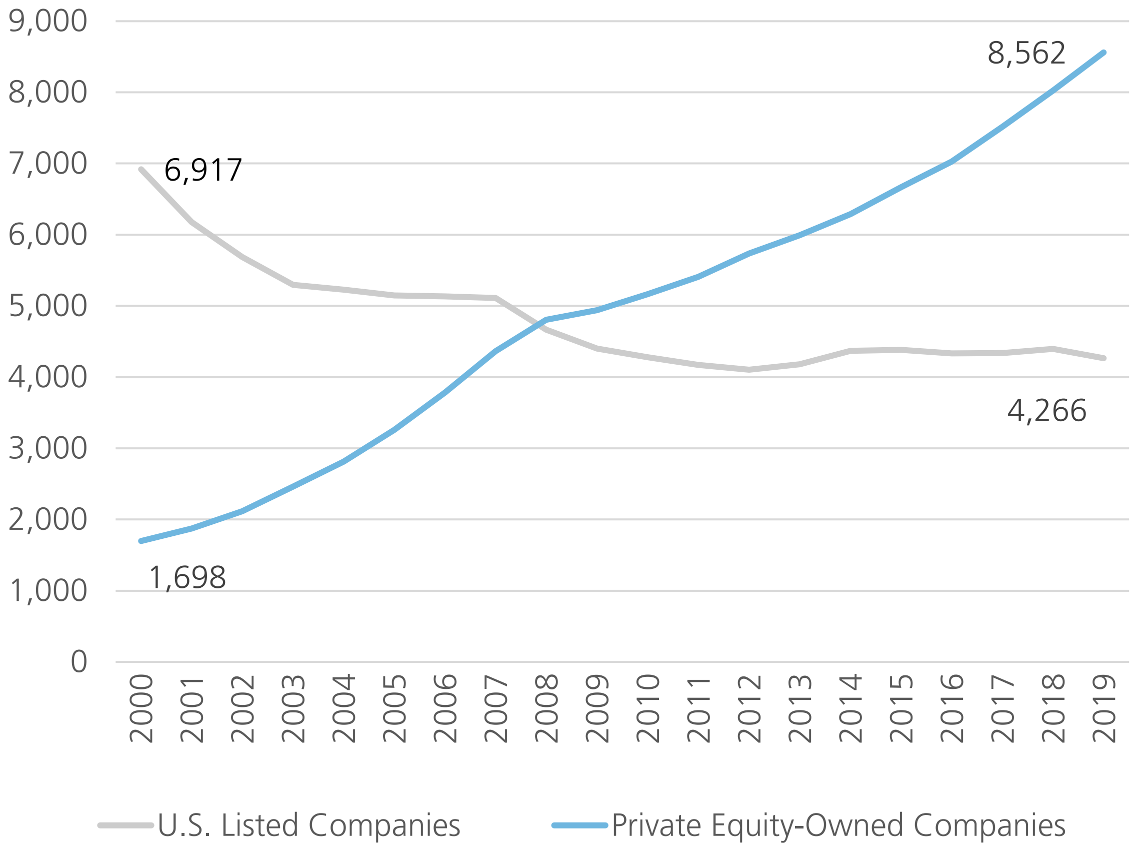
Public opportunities are shrinking, while private opportunities are expanding

Investors, who only focus on public markets, are missing an increasingly large opportunity set.

> **Companies are choosing to stay private due to less regulation, disclosure, and short-term investor pressure.**

> A growing pool of privately owned companies should support absorption of outstanding dry powder longer term.

Number of public vs. private equity-owned companies



Source: World Bank, World Federation of Exchanges, PitchBook, UBS. Data as of December 31, 2021

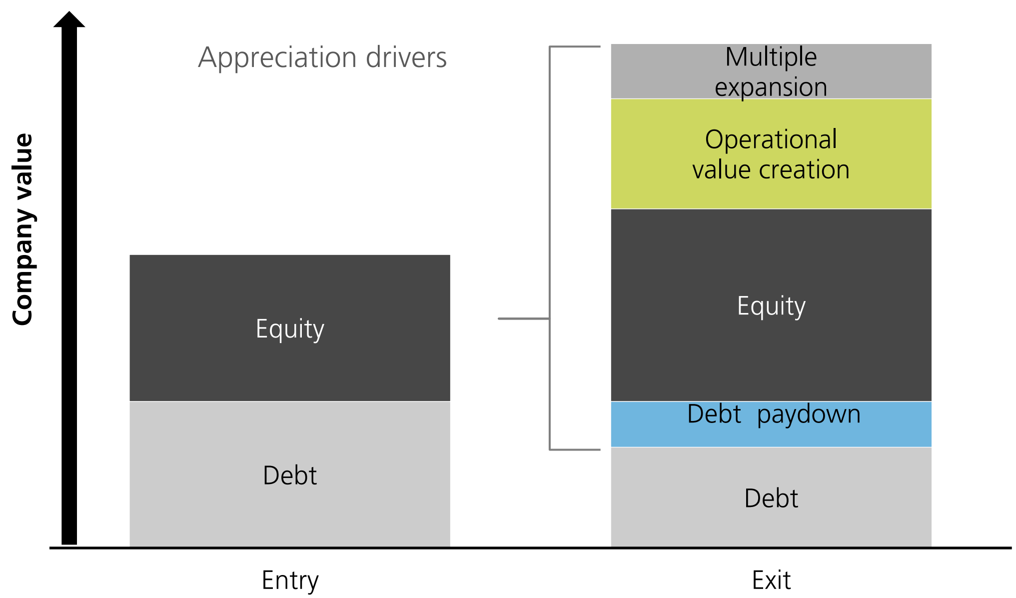
Source: UBS. For illustrative purposes only.
Please always read in conjunction with the glossary and the risk information at the end of the document.

Private markets managers create value

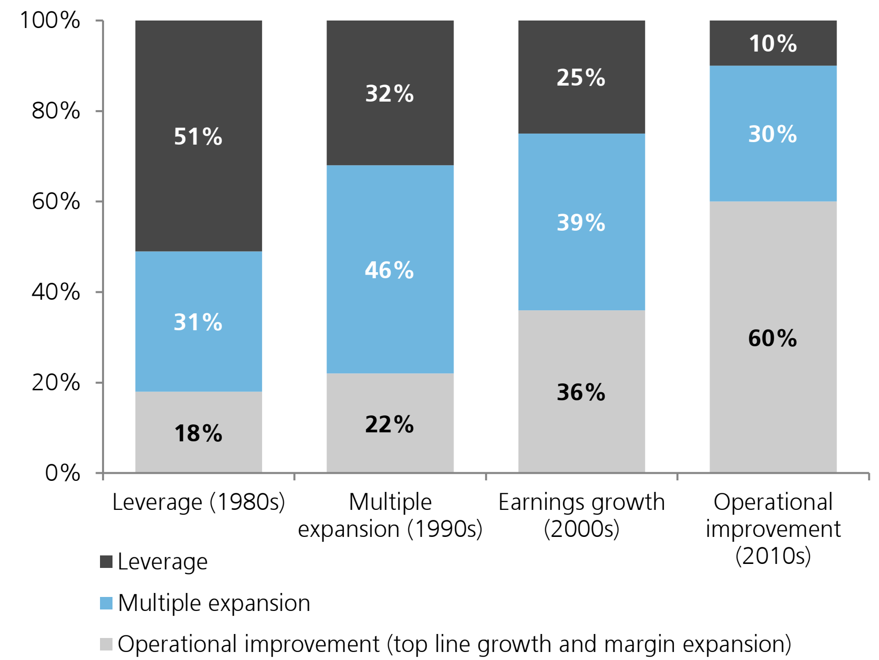
Private equity has continued to grow its focus on operational improvements

- Buyout strategies seek to earn returns through **debt pay down, multiple expansion, and operational value creation**
- Cost reductions, organic growth initiatives, and sale of non-core assets can drive **macro-resilient value creation**
- **With value creation largely driven by manager skill, funds with proven results across multiple cycles are attractive in a mid-to-late cycle environment**

Operational value creation



Source of private equity returns through the decades



Source: EY, "Creating value throughout the private equity investment life cycle in the digital era", 2019

Source: UBS. For illustrative purposes only.
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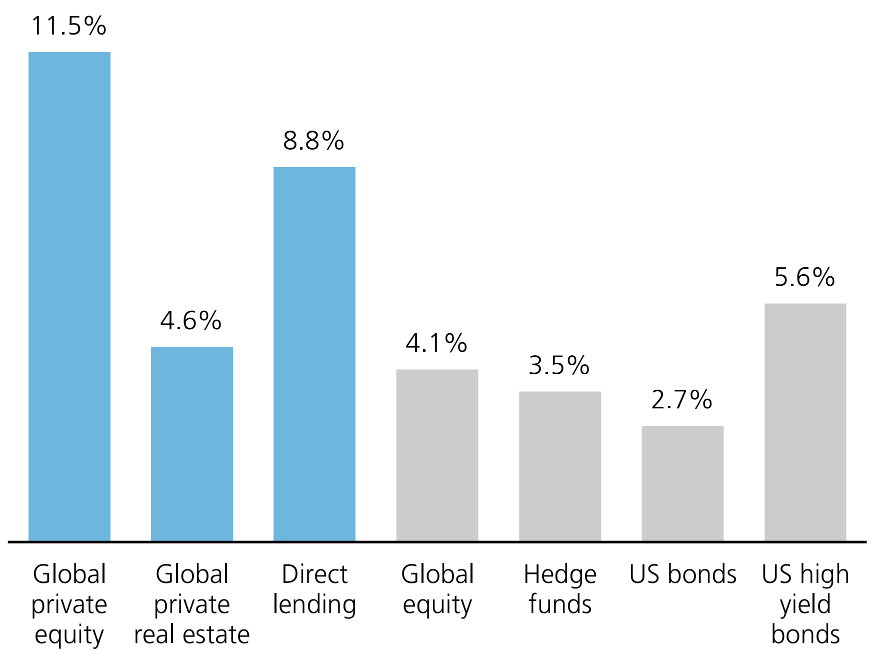
Attractive risk / return characteristics

Private markets have provided better risk-adjusted returns over the long-term than other major asset classes

Compound annual total return by asset class

USD, 18 years ending 30 Sept 2022.

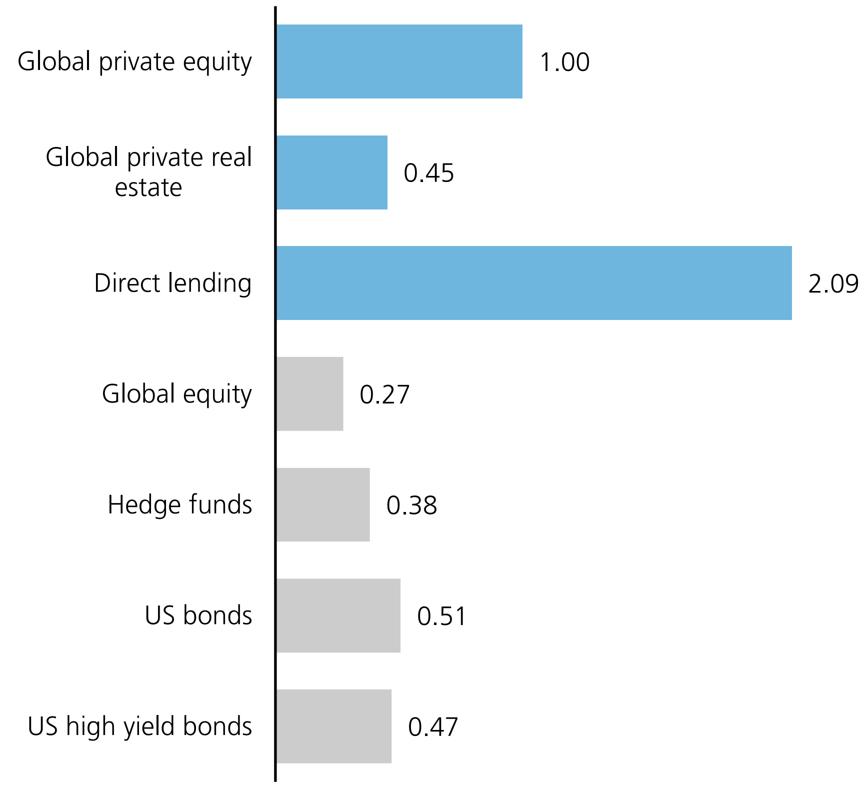


Average risk p.a. (standard deviation of total return)

11.1%	9.7%	3.8%	18.7%	8.4%	4.3%	11.8%

Excess return per unit of risk (Sharpe ratio) by asset class

USD, 18 years ending 30 Sept 2022.



Source: Refinitiv, Cambridge Associates, Morningstar, UBS. Data as of 30 Sept 2022. For illustrative purposes only.
Global private equity (Cambridge Private Equity), global private real estate (Cambridge Real Estate), direct lending (Cliffwater Direct Lending Index), global equities (MSCI ACWI), hedge funds (HFRI Fund Weighted Composite), US bonds (Bloomberg US Agg), US high yield bonds (ICE BoA High Yield Constrained), Morningstar, FactSet.
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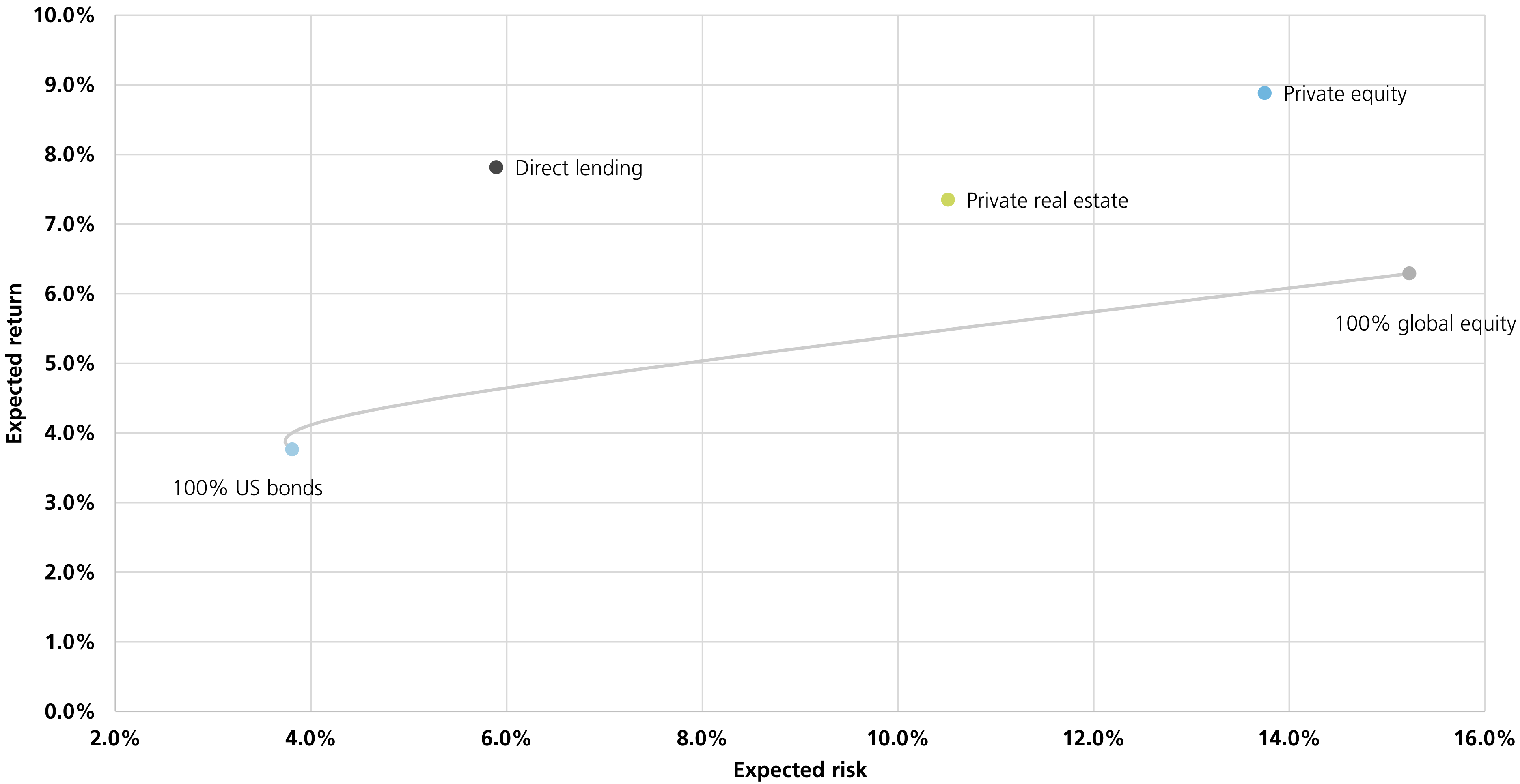
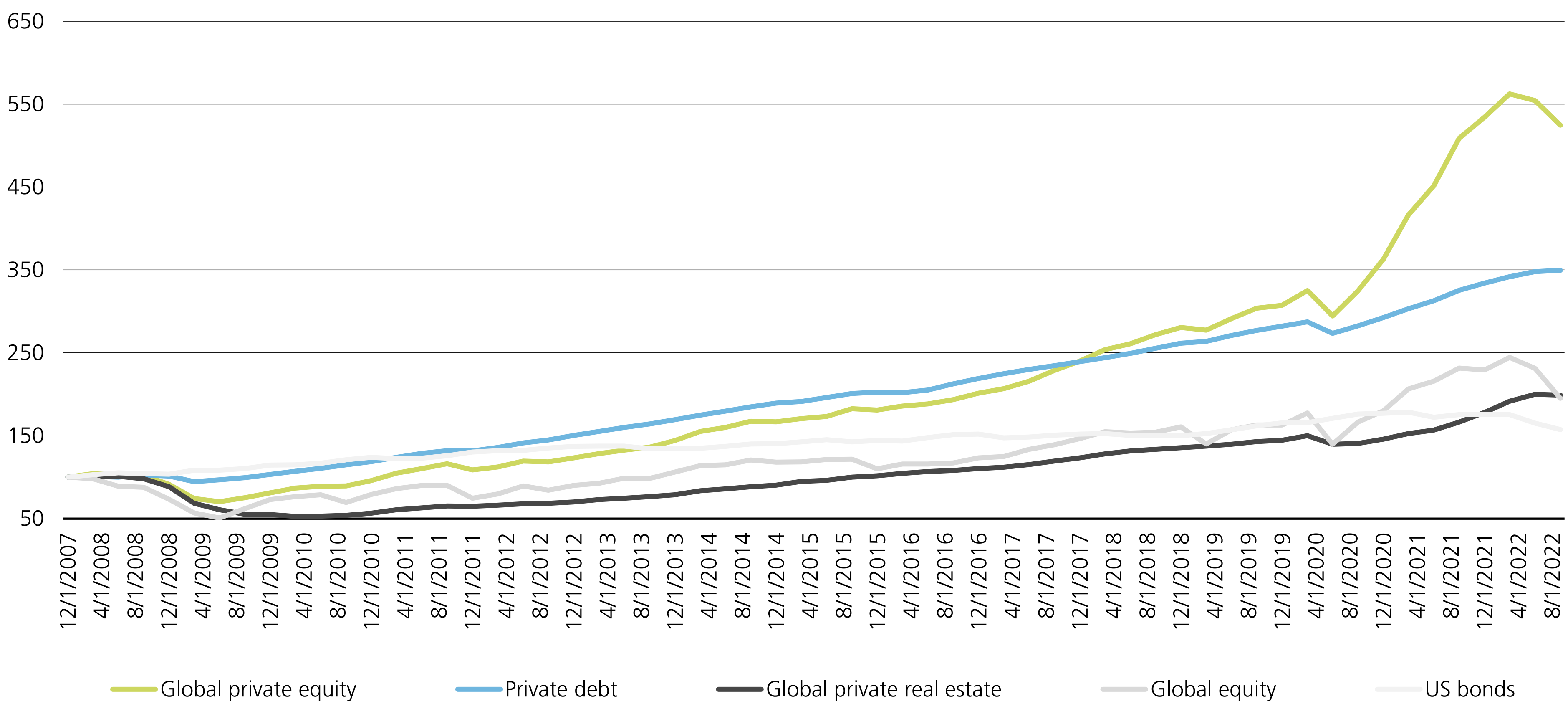
Privates investments are expected enhance portfolio characteristics



Source: UBS Wealth Management USA Asset Allocation Committee, as of 13 Feb 2023. SAA models are UHNW (including alternative investments) & taxable, no alternatives (excluding alternative investments). Asset allocation does not assure profits or prevent against losses from an investment portfolio or accounts in a declining market. See Important Information section, Wealth Management USA Asset Allocation Committee and the UBS Capital Market Assumptions and Strategic Asset Allocation Models, for more information.

Cumulative growth of private asset classes

Private equity & private debt historically outperformed public equity & public debt

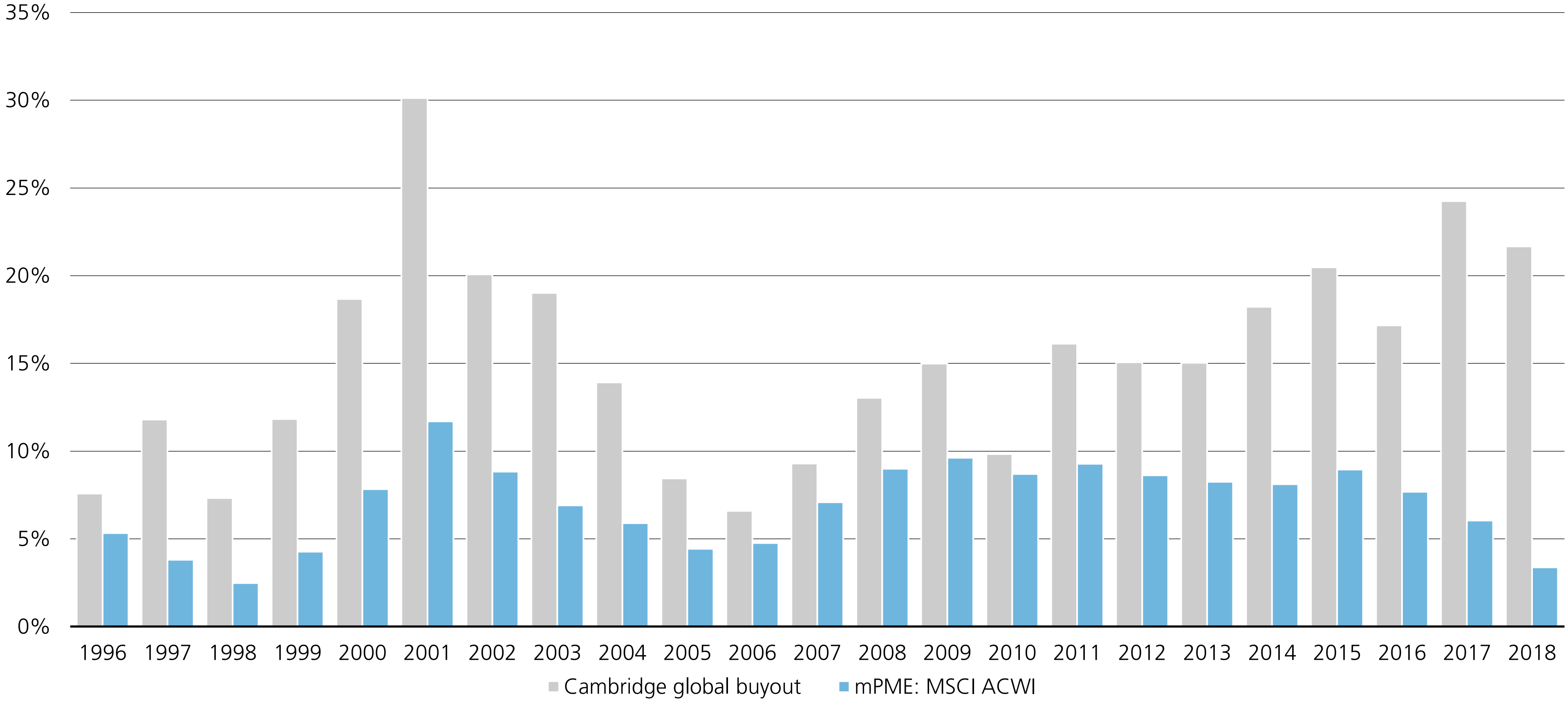


UBS Source: Refinitiv, Cambridge Associates, Morningstar, UBS, as of 30 Sept 2022. Global private equity (Cambridge Private Equity), global private real estate (Cambridge Real Estate), direct lending (Cliffwater Direct Lending Index), global equities (MSCI ACWI), hedge funds (HFRI Fund Weighted Composite), US bonds (Bloomberg US Agg), US high yield bonds (ICE BoA High Yield Constrained). For illustrative purposes only. **Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.** Please always read in conjunction with the glossary and the risk information at the end of the document.

Private equity has delivered consistent outperformance

Global private equity has outperformed public equity market equivalents across multiple cycles

Vintage year IRR comparison between global PE and mPME: public equities



Source: Refinitiv, Cambridge Associates, UBS, as of 30 Sept 2022. For illustrative purposes only.
Note: Given most funds take a few years for performance to settle, performance of recent vintage years may be less meaningful. mPME is a virtual replication of private investment cash flows invested under public market conditions. Private investment contributions are invested "on paper" in a chosen public market index and distributions are taken out in the same proportion as in the private investment. https://www.cambridgeassociates.com/wp-content/uploads/2014/02/CA-PE-and-VC-Benchmarks-Overview-Definitions-and-FAQs.pdf **Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.** Please always read in conjunction with the glossary and the risk information at the end of the document.

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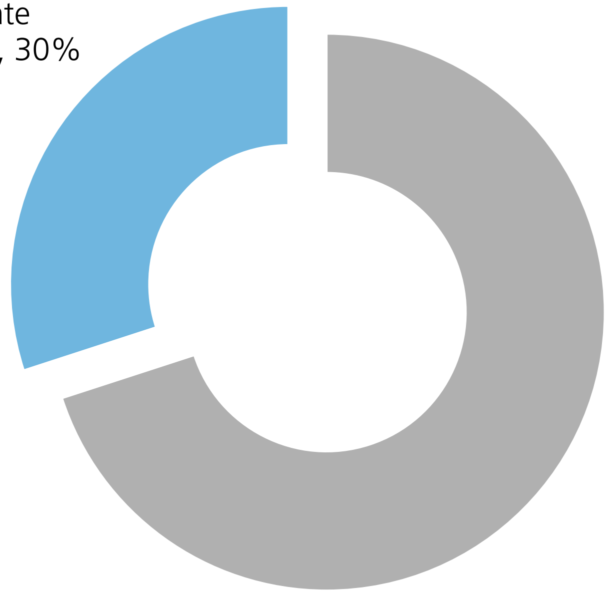
Institutions commonly use privates in their allocations

US endowment asset allocation

On average, endowments allocate over 30% of assets into private markets



Source: NACUBO based on fiscal year 2022 allocations.

Section 3

Constructing a private markets portfolio allocation

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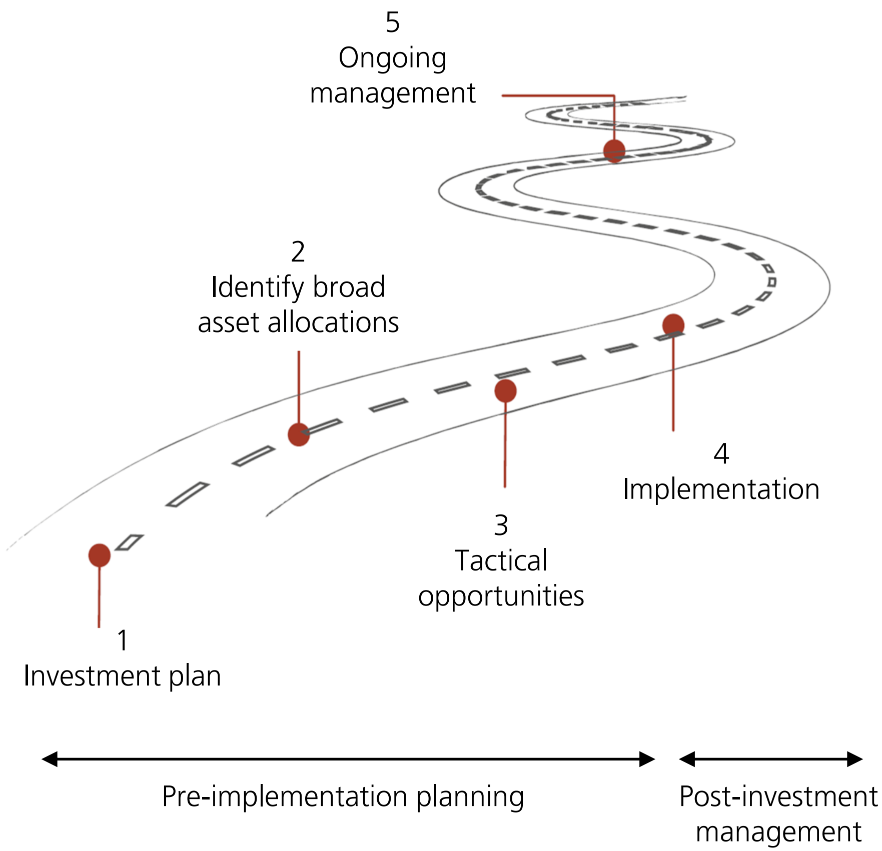
Private markets portfolio construction roadmap

Building and maintaining a well-diversified private markets portfolio is a dynamic, complex process. The below roadmap highlights the key steps in constructing, implementing and maintaining a private markets portfolio



Construct an investment plan	• Identify general investment goals and objectives and types of strategies that align with these goals • Considerations may include cash flow needs, illiquidity comfort, income needs, tax impact, risk tolerance, constraints or restrictions
Identify broad allocations	• Ascertain broad allocation target for private strategies within overall portfolio relative to illiquidity risks and objectives • Review existing commitments to private markets to understand current exposures and unfunded commitment amounts
Tactical opportunities	• Identify market dislocations and lean into opportunities based on market conditions and fundamental valuations, within a diversified allocation
How to implement	• Due diligence and choose a diversified set of funds across various sponsors which align to the portfolio's asset class and sector exposures • Diversify across private asset classes, sectors, stages and geographies • Commit across multiple years to achieve vintage year diversification and mitigate entry point risks • Evaluate expected capital calls and distributions to achieve long-term asset allocation targets
Ongoing maintenance and monitoring	• Manage liquidity needs for capital calls relative to distributions • Evaluate additional commitments needed to build/maintain privates relative to allocation targets • Monitoring of GP performance is also critical to assess the attractiveness of investing in a follow-on fund

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The role of alternatives in a portfolio

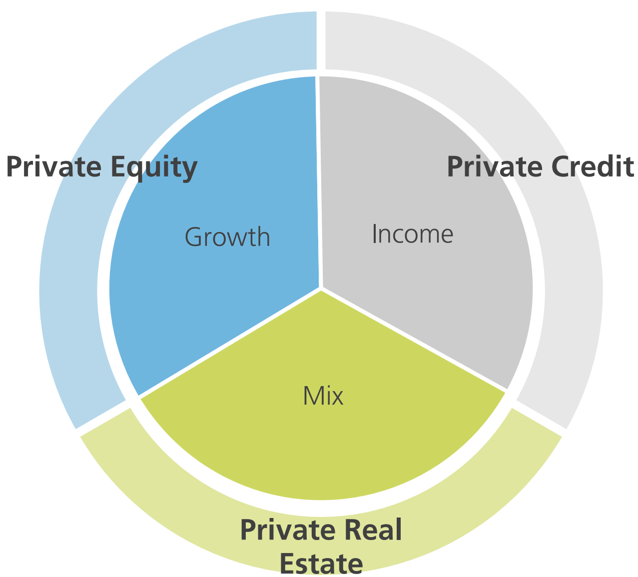
Private Equity

Benefits

- Growth / capital appreciation with a potential premium above public market equities
- Active role that managers can have in the companies that they invest in to produce additional value

Risks

- Leverage – While prudent leverage can enhance returns, it can also magnify risks in times of adverse market or company performance
- Private companies can have less access to capital and increased growth and execution risks which can result in a total loss of capital



Private Credit

Benefits

- Income – Can offer higher income and return potential with lower correlation to traditional fixed income markets
- Direct lending strategies can benefit in a rising rate environment given their floating rate nature and short duration; interest rate floors may be used to protect investors in a declining rate environment
- Distressed debt strategies perform best in times of market dislocation. Managers can take advantage of mispriced positions in sound companies

Risks

- Defaults – Continued higher hikes in interest rates will add pressure to companies' ability to service their borrowing costs. Investors should also understand where the private debt sits in a capital structure in case of bankruptcy

Private Real Estate

Benefits:

- Income and capital appreciation – Real estate offers investors the opportunity to have an ongoing stream of income, depending on the property type. In addition to potentially earning a stream of income from real estate, investors can generate returns through property appreciation and selling for a premium to the purchase price.
- Inflation protection – Real estate commonly increases in value as the cost of goods rises over time. Real estate lease contracts commonly include Consumer Price Index or similar upward moving escalators, which protects investments from rising inflation if structured as such.

Risks

- Macro factors / occupancy – Factors such as remote working could impact lease revenues, occupancy, lease renewal rates, and market rents which could adversely affect returns in office sectors while macro factors and rising interest rates could lead to cap rate expansion in residential

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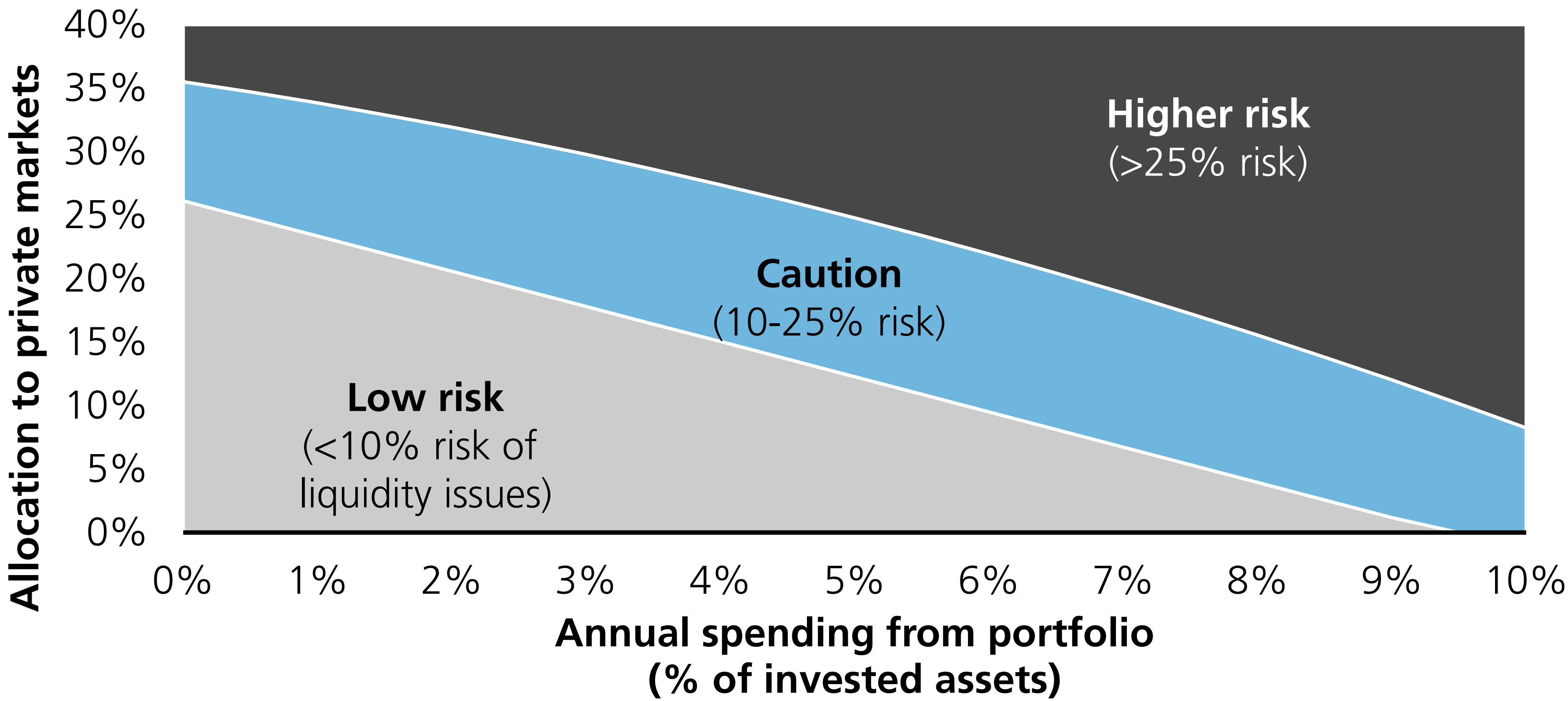
Source: UBS.

How much should I allocate to private markets?

Probability that liquid assets fall below three years' worth of cash flow needs, based on spending and illiquid %

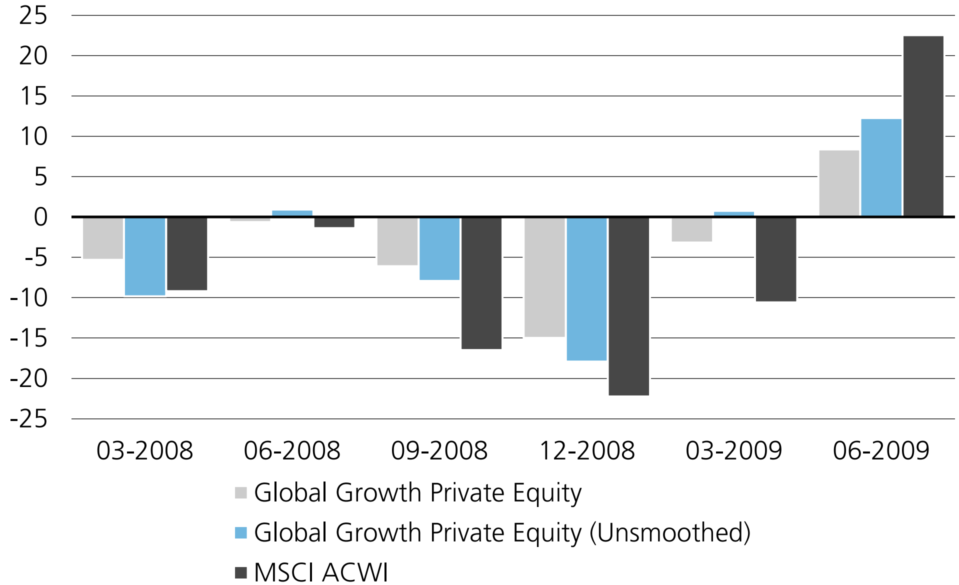


Source: UBS. Investing in private markets with the UBS Wealth Way. Note: The liquid portfolio assumes a broad range of weights between global equity (MSCI ACWI) and global fixed income (Bloomberg Barclays Global Aggregate). The PE portfolio is considered mature with yearly contributions depending on the PE target. Monte Carlo simulations of the liquid portfolio values reflect severe bear market performance lasting three years. All cash flow needs are taken on an annual basis. We assume no slowdown in capital calls and assume no distributions.

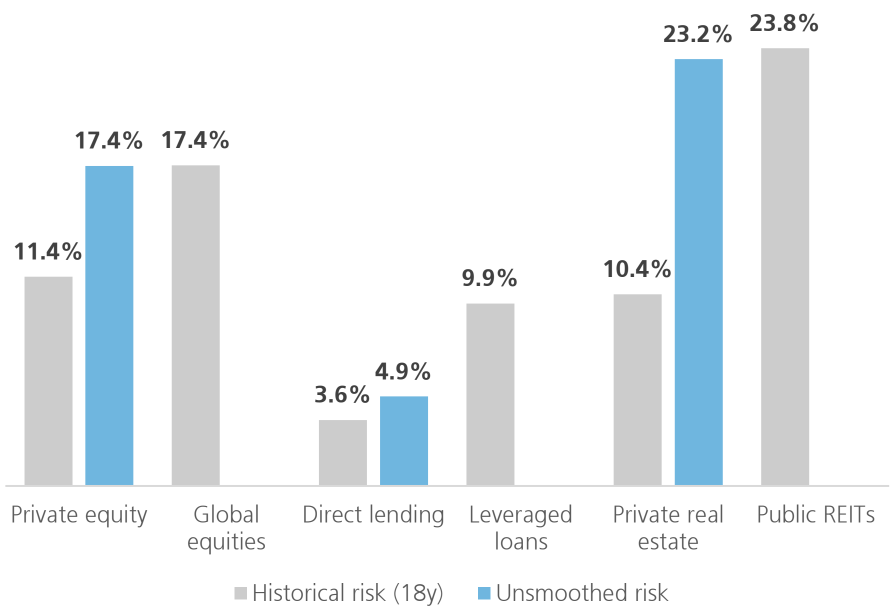
Appraisal based pricing can understate risk

Illiquidity of private markets masks the true volatility of strategies

Global Financial Crisis: Statement Median IRR (%) and Unsmoothed IRR



Applying unsmoothing methodology to historical risk



- Return streams for illiquid assets tend to come with "sticky" prices which mask volatility
  - General Partners use Financial Account Standards Board techniques in appraisal based valuation models, like public market comparable, private transaction comparable & discounted cash flow models to estimate Net Asset Values to account for the lack of mark-to-mark price discovery that exists in publicly traded securities
  - Valuation techniques build on previous valuations and changes to fundamentals which can cause persistence in valuations that "smooth" the estimated return experience over time
- To combat hidden risks from illiquidity we analyze and "unsmooth" returns using the Fisher-Geltner-Webb (1994) methodology to gain a more accurate gage on the underlying volatility.

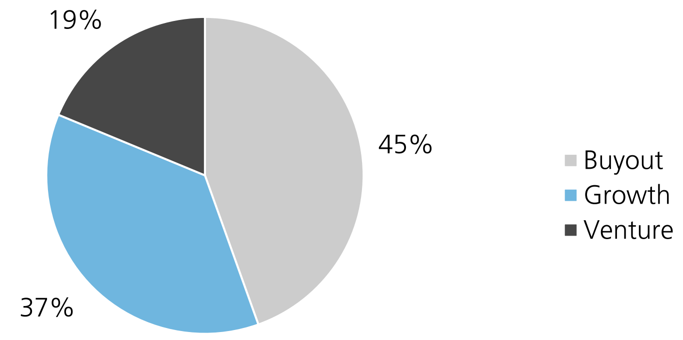
Source: Cambridge Associates, UBS. Fisher, J., D. Geltner, and B. Webb. "Value indices of commercial real estate: A comparison of index construction methods,"The Journal of Real Estate Finance and Economics 9.2" (1994)

Sizing private equity

Adapting Fortune’s Formula: Kelly Capital Growth

	Vintage year 1994 - 2021					
	US Venture Capital	mPME: Russell 2000	Global Growth	mPME: MSCI World	Global Buyout	mPME: MSCI World
Average pooled IRR (%)	23.1%	5.8%	14.1%	4.5%	15.1%	4.8%
Std Deviation IRR (%)	24.3%	7.3%	7.0%	6.6%	6.1%	6.5%
Upper Quartile IRR (%)	25.7%		19.5%		21.7%	
Lower Quartile IRR (%)	4.0%		3.0%		6.7%	
Average Pooled TVPI	2.36x	1.49x	1.83x	1.31x	1.75x	1.27x
Std Deviation TVPI	1.14x	0.33x	0.37x	0.24x	0.29x	0.19x
Unsmoothed Std Deviation IRR (%)	38.6%		24.2%		16.1%	
Unsmoothed Std Deviation TVPI	1.99x		0.59x		0.44x	

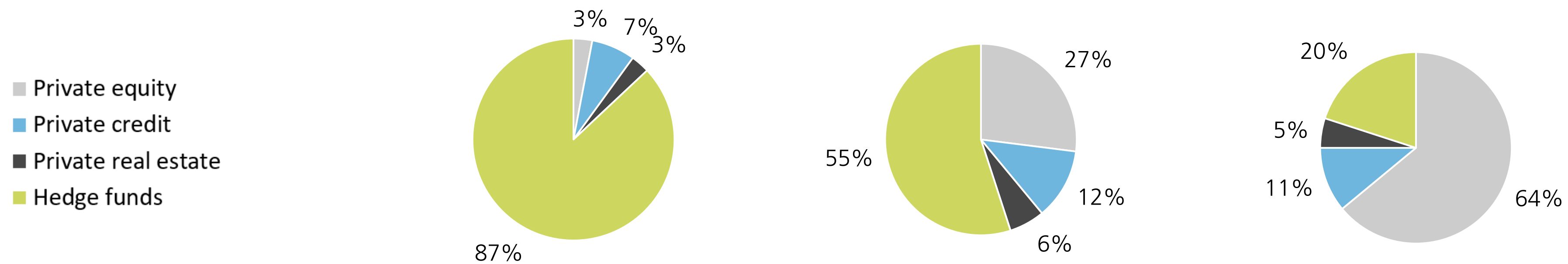
Recommended private equity sizing by stage to maximize capital growth



- Investing in private markets comes with higher potential gains but also higher potential for total loss of capital.
  - Risk of capital loss tends to increase for earlier stage companies over later stage companies with positive cash flow
  - Unlike public market investing, private market investing entails sequencing of deals. If an investments is oversized and experiences a large loss, it limits the capital growth potential of all subsequent investments and increases the odds of capital destruction
  - On the other hand, a good deal which is undersized, leaves wealth generation potential on the table
  - Investing in privates requires a balance to capture “edge” in outperforming, with the chances of “ruin” when deals don’t materialize
- We utilize lessons around optimal betting strategies from John Kelly at Bell Labs to “maximize capital over the long-term” by mitigating destructive effects of potential for “ruin in the short-term”.
- The unsmoothed standard deviation provides one measure of odds of “ruin”, which is coupled with the “edge” we believe a strategy poses, to sizing private equity stages.

UBS Source: Cambridge Associates, UBS. Fisher, J., D. Geltner, and B. Webb. “Value indices of commercial real estate: A comparison of index construction methods,”The Journal of Real Estate Finance and Economics 9.2” (1994)

Alternatives allocations across risk profiles



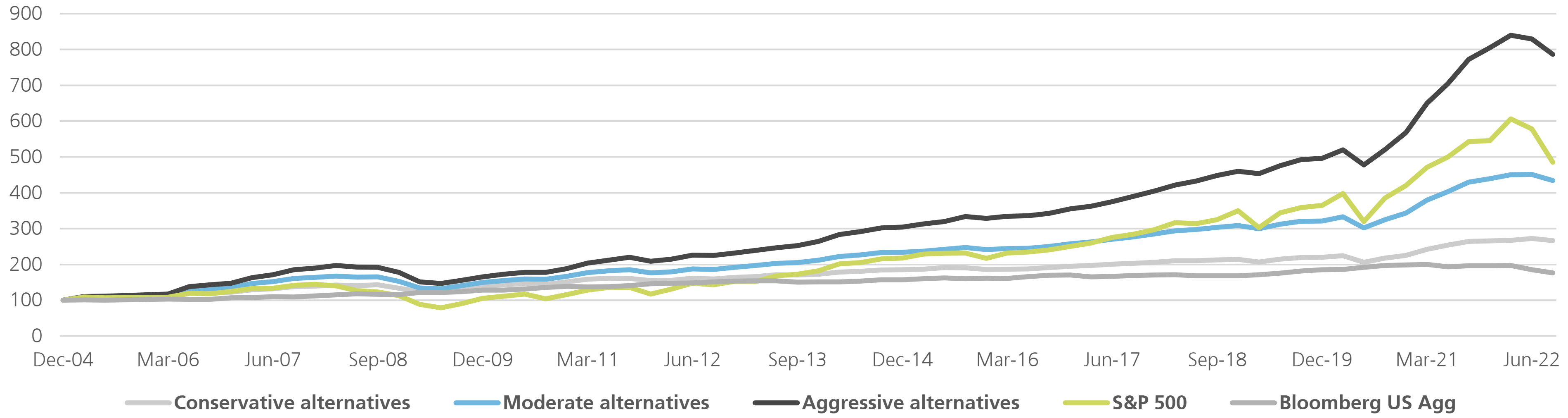
	Conservative	Moderate	Aggressive
Privates	**13.0%**	**45.0%**	**80.0%**
Private Equity	**3.0%**	**27.0%**	**64.0%**
Buyout	3.0%	16.0%	27.0%
Growth equity	0.0%	5.0%	22.0%
Venture capital	0.0%	3.0%	12.0%
Secondaries	0.0%	3.0%	3.0%
Private Credit	**7.0%**	**12.0%**	**11.0%**
Direct lending	7.0%	9.0%	8.0%
Distressed credit	0.0%	3.0%	3.0%
Private Real Estate	**3.0%**	**6.0%**	**5.0%**
Core / core +	3.0%	6.0%	3.0%
Opportunistic	0.0%	0.0%	2.0%
Hedge Funds	**87.0%**	**55.0%**	**20.0%**
Multi-strategy	13.0%	4.0%	1.0%
Global macro	30.0%	11.0%	2.0%
Event driven	9.0%	11.0%	5.0%
Relative value	26.0%	14.0%	4.0%
Equity hedge	9.0%	15.0%	8.0%
Total	**100.0%**	**100.0%**	**100.0%**
Expected compound strategic return	5.8%	7.3%	8.9%
Expected risk	5.2%	7.6%	10.9%
Expected risk (unsmoothed)	5.7%	10.3%	17.3%
Expected Sharpe ratio	1.11	0.96	0.81
Expected Sharpe ratio (unsmoothed)	1.02	0.70	0.51
Objective	Diversification & income	Balancing growth & income	Growth / capital appreciation

UBS

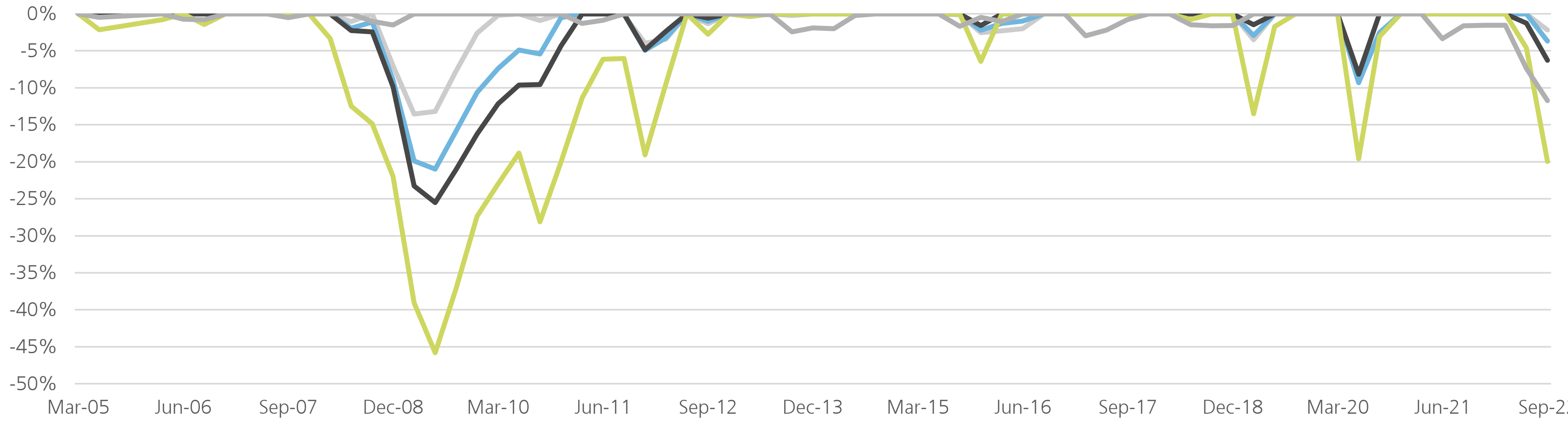
Source: UBS Wealth Management USA Asset Allocation Committee, as of 13 Feb 2023. Refinitiv, Cambridge Associates, Morningstar, UBS, as of 30 Sept 2022. Expected risk for each allocation aligns with risk bands when accounting for illiquidity risk, illustrated by unsmoothed return + risk. For illustrative purposes only. . Asset allocation does not assure profits or prevent against losses from an investment portfolio or accounts in a declining market. See Important Information section, Wealth Management USA Asset Allocation Committee and the UBS Capital Market Assumptions and Strategic Asset Allocation Models, for more information.

Historical return analysis

Simulated historical growth of $100



Simulated historical drawdowns



UBS

Source: Refinitiv, Cambridge Associates, Morningstar, UBS, as of 30 Sept 2022. For illustrative purposes only.
Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.
Please always read in conjunction with the glossary and the risk information at the end of the document.

UBS UHNW strategic asset allocations

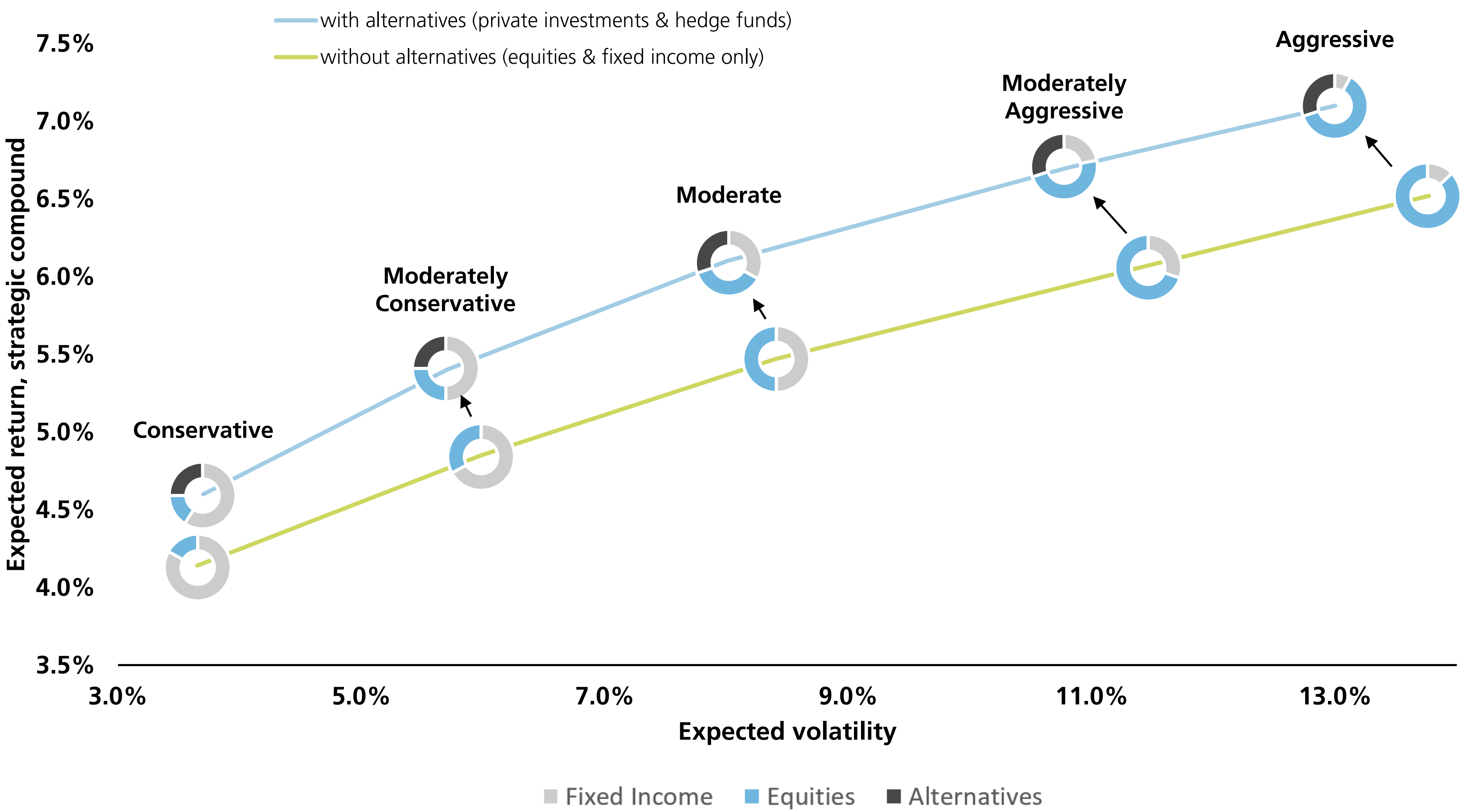
Asset Class	Conservative	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Cash	**2.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**
Cash	2.0%	2.0%	2.0%	2.0%	2.0%
Fixed Income	**63.0%**	**50.0%**	**35.0%**	**19.0%**	**6.0%**
US Fixed Income	**63.0%**	**48.0%**	**33.0%**	**17.0%**	**6.0%**
U.S. Government Securities (Intermediate)	9.5%	1.5%	1.0%	2.0%	0.0%
U.S. Government Securities (Long)	5.5%	0.0%	0.0%	0.0%	2.5%
Investment Grade Munis	45.0%	44.0%	30.0%	14.0%	3.5%
Investment Grade Corporates	3.0%	1.5%	0.0%	0.0%	0.0%
High Yield Corporates	0.0%	1.0%	2.0%	1.0%	0.0%
Non-U.S. Fixed Income	**0.0%**	**2.0%**	**2.0%**	**2.0%**	**0.0%**
Emerging Market Fixed Income (hard currency)	0.0%	1.0%	1.0%	1.0%	0.0%
Emerging Market Fixed Income (local currency)	0.0%	1.0%	1.0%	1.0%	0.0%
Equity	**10.0%**	**23.0%**	**33.0%**	**49.0%**	**62.0%**
U.S. Equity	**7.0%**	**14.0%**	**18.5%**	**28.0%**	**34.5%**
Large-Cap Growth	2.5%	5.0%	6.5%	10.0%	12.5%
Large-Cap Value	2.5%	5.0%	6.5%	10.0%	12.5%
Mid-Cap Core	1.0%	3.0%	3.5%	5.0%	6.0%
Small-Cap Core	1.0%	1.0%	2.0%	3.0%	3.5%
Non-U.S. Equity	**3.0%**	**9.0%**	**14.5%**	**21.0%**	**27.5%**
Developed Equity	3.0%	7.0%	10.5%	15.0%	20.0%
Emerging Equity	0.0%	2.0%	4.0%	6.0%	7.5%
Alternatives	**25.0%**	**25.0%**	**30.0%**	**30.0%**	**30.0%**
Private Equity	**2.0%**	**5.0%**	**12.0%**	**17.0%**	**21.0%**
Buyout	2.0%	3.0%	6.5%	9.0%	8.5%
Growth equity	0.0%	0.0%	2.5%	5.0%	7.5%
Venture capital	0.0%	0.0%	1.0%	2.0%	4.0%
Secondaries	0.0%	2.0%	2.0%	1.0%	1.0%
Private Credit	**7.0%**	**6.0%**	**5.0%**	**5.0%**	**3.0%**
Direct lending	7.0%	6.0%	4.0%	3.5%	2.0%
Distressed credit	0.0%	0.0%	1.0%	1.5%	1.0%
Private Real Estate	**2.0%**	**4.0%**	**2.0%**	**2.0%**	**2.0%**
Core /core +	2.0%	4.0%	2.0%	2.0%	1.0%
Opportunistic	0.0%	0.0%	0.0%	0.0%	1.0%
Hedge Funds	**14.0%**	**10.0%**	**11.0%**	**6.0%**	**4.0%**
Multi-strategy	2.5%	1.0%	1.0%	0.0%	0.0%
Global macro	4.5%	3.0%	2.0%	1.0%	0.0%
Event driven	1.5%	1.5%	2.0%	1.5%	1.5%
Relative value	4.0%	3.0%	3.0%	1.5%	1.0%
Equity hedge	1.5%	1.5%	3.0%	2.0%	1.5%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Expected strategic compound return:	4.6%	5.4%	6.1%	6.7%	7.1%
Expected equilibrium compound return:	4.6%	5.4%	6.2%	7.1%	7.7%
Expected risk:	3.7%	5.7%	8.0%	10.8%	13.0%
Expected risk (unsmoothed):	4.0%	6.5%	9.2%	12.3%	15.0%

UBS

Source: UBS Wealth Management USA Asset Allocation Committee, as of 04 May 2023. Asset allocation does not assure profits or prevent against losses from an investment portfolio or accounts in a declining market. See Important Information section, Wealth Management USA Asset Allocation Committee and the UBS Capital Market Assumptions and Strategic Asset Allocation Models, for more information.

Adding alternatives can improve a portfolio's risk / return profile

Expected risk and return for various risk profiles, Strategic Asset Allocations (SAAs) for taxable investors with and without alternatives



Source: UBS Wealth Management USA Asset Allocation Committee, as of 13 Feb 2023. SAA models are UHNW (including alternative investments) & taxable, no alternatives (excluding alternative investments). Asset allocation does not assure profits or prevent against losses from an investment portfolio or accounts in a declining market. See Important Information section, Wealth Management USA Asset Allocation Committee and the UBS Capital Market Assumptions and Strategic Asset Allocation Models, for more information.

UBS Institutional strategic asset allocations

Asset Class	Conservative	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Cash	**2.0%**	**2.0%**	**2.0%**	**2.0%**	**2.0%**
Cash	2.0%	2.0%	2.0%	2.0%	2.0%
Fixed Income	**58.0%**	**41.0%**	**30.0%**	**15.0%**	**6.0%**
US Fixed Income	**53.0%**	**37.0%**	**26.0%**	**13.0%**	**6.0%**
U.S. Government Securities (Short)	16.0%	7.5%	3.0%	0.0%	0.0%
U.S. Government Securities (Intermediate)	11.0%	7.5%	6.5%	2.0%	0.0%
U.S. Government Securities (Long)	0.0%	3.0%	2.5%	2.0%	3.5%
Investment Grade Corporates	21.0%	15.0%	10.0%	6.5%	2.5%
High Yield Corporates	5.0%	4.0%	4.0%	2.5%	0.0%
Non-U.S. Fixed Income	**5.0%**	**4.0%**	**4.0%**	**2.0%**	**0.0%**
Emerging Market Fixed Income (hard currency)	2.5%	2.0%	2.0%	1.0%	0.0%
Emerging Market Fixed Income (local currency)	2.5%	2.0%	2.0%	1.0%	0.0%
Equity	**10.0%**	**22.0%**	**33.0%**	**48.0%**	**52.0%**
U.S. Equity	**7.0%**	**13.5%**	**18.5%**	**27.0%**	**29.0%**
Large-Cap Growth	2.5%	4.5%	6.5%	9.5%	10.5%
Large-Cap Value	2.5%	4.5%	6.5%	9.5%	10.5%
Mid-Cap Core	2.0%	3.0%	3.5%	5.0%	5.0%
Small-Cap Core	0.0%	1.5%	2.0%	3.0%	3.0%
Non-U.S. Equity	**3.0%**	**8.5%**	**14.5%**	**21.0%**	**23.0%**
Developed Equity	3.0%	6.5%	10.5%	15.5%	16.5%
Emerging Equity	0.0%	2.0%	4.0%	5.5%	6.5%
Alternatives	**30.0%**	**35.0%**	**35.0%**	**35.0%**	**40.0%**
Private Equity	**4.0%**	**6.5%**	**14.5%**	**19.0%**	**29.0%**
Buyout	2.5%	5.0%	8.5%	10.0%	13.0%
Growth equity	0.0%	0.0%	3.0%	6.0%	10.0%
Venture capital	0.0%	0.0%	1.5%	2.0%	5.0%
Secondaries	1.5%	1.5%	1.5%	1.0%	1.0%
Private Credit	**7.0%**	**9.5%**	**6.0%**	**5.0%**	**5.0%**
Direct lending	7.0%	9.5%	4.5%	4.0%	3.5%
Distressed credit	0.0%	0.0%	1.5%	1.0%	1.5%
Private Real Estate	**3.0%**	**6.0%**	**3.5%**	**3.0%**	**2.0%**
Core /core +	3.0%	6.0%	3.5%	2.0%	1.0%
Opportunistic	0.0%	0.0%	0.0%	1.0%	1.0%
Hedge Funds	**16.0%**	**13.0%**	**11.0%**	**8.0%**	**4.0%**
Multi-strategy	2.5%	1.5%	1.0%	0.0%	0.0%
Global macro	5.5%	3.5%	2.0%	1.0%	0.0%
Event driven	1.5%	2.0%	2.0%	2.0%	1.5%
Relative value	5.0%	3.5%	3.0%	2.0%	1.0%
Equity hedge	1.5%	2.5%	3.0%	3.0%	1.5%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Expected strategic compound return:	5.1%	5.9%	6.4%	6.9%	7.3%
Expected equilibrium compound return:	5.4%	6.3%	6.9%	7.5%	8.0%
Expected risk:	4.8%	6.6%	8.8%	11.2%	12.6%
Expected risk (unsmoothed):	5.3%	7.7%	10.3%	13.0%	15.3%

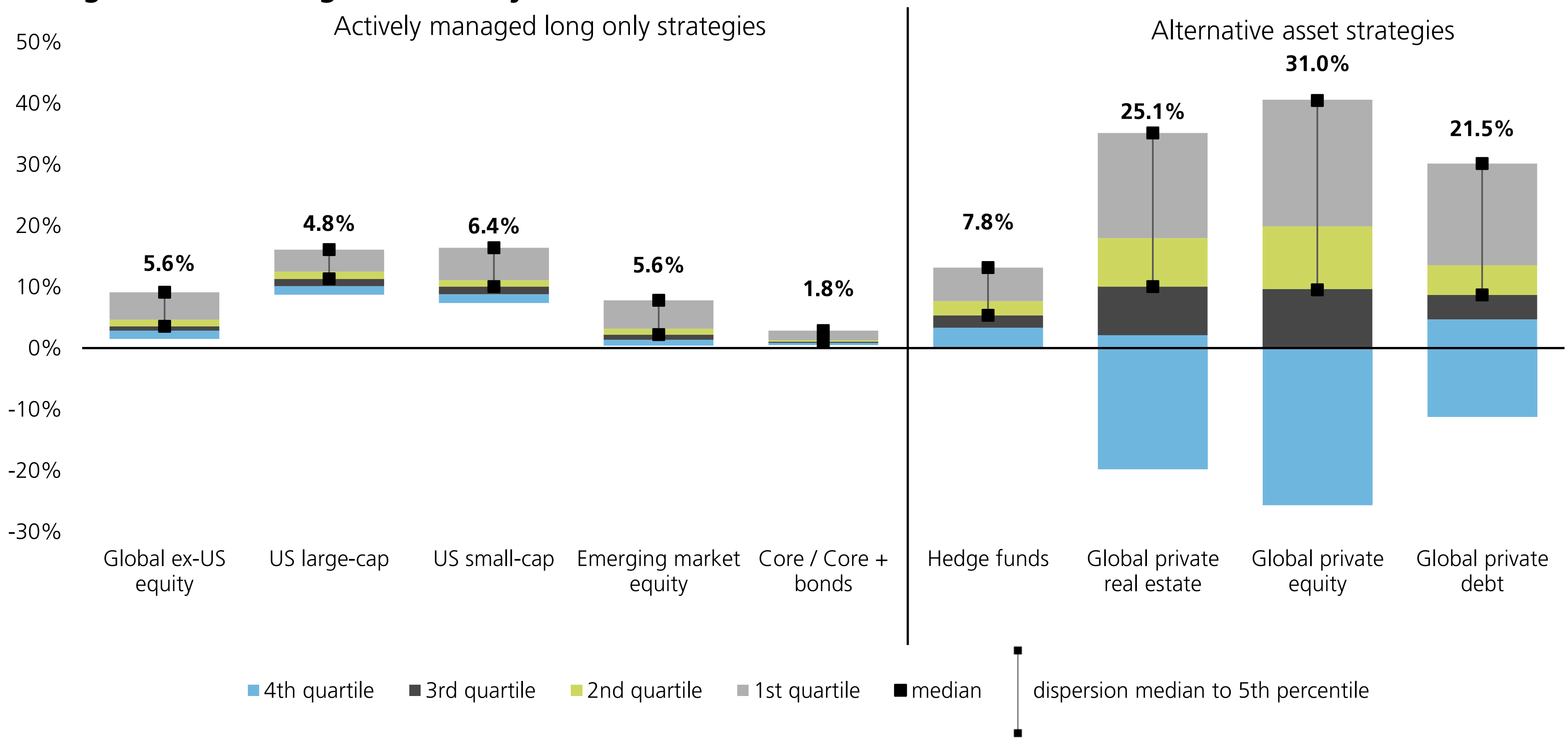
UBS

Source: UBS Wealth Management USA Asset Allocation Committee, as of 04 May 2023. Asset allocation does not assure profits or prevent against losses from an investment portfolio or accounts in a declining market. See Important Information section, Wealth Management USA Asset Allocation Committee and the UBS Capital Market Assumptions and Strategic Asset Allocation Models, for more information.

Manager selection is key

Private markets exhibit high dispersion of returns compared to traditional markets

Average annual manager returns by asset class



For illustrative purposes only

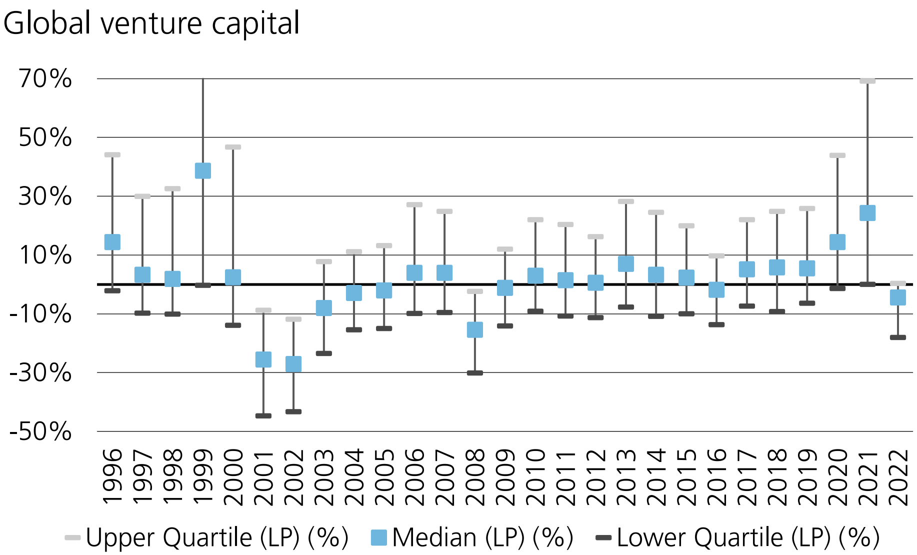
Source: Cambridge Associates, Morningstar Direct, UBS. Data covers period from 1 Jul 2008 through 30 Sept 2022.

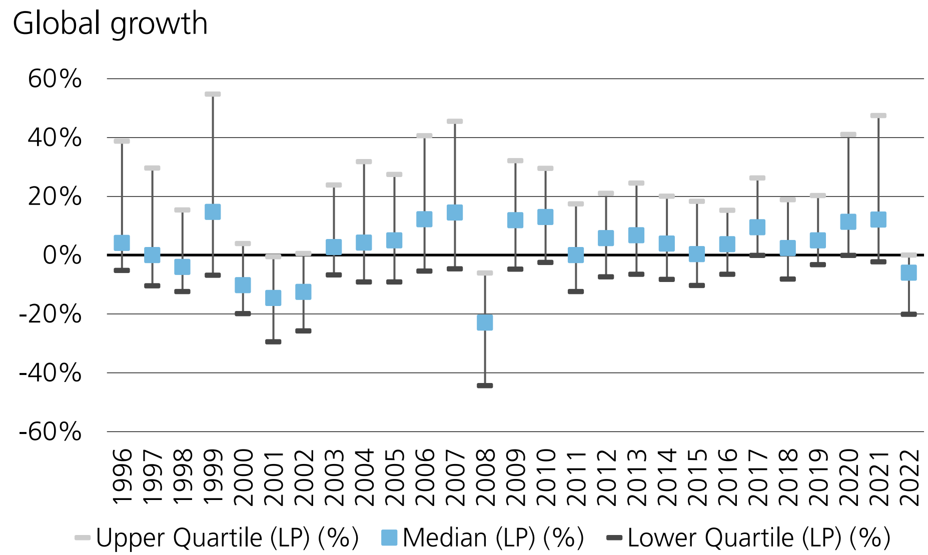
Performance figures refer to the past and past performance is not a reliable indicator of future performance/results.

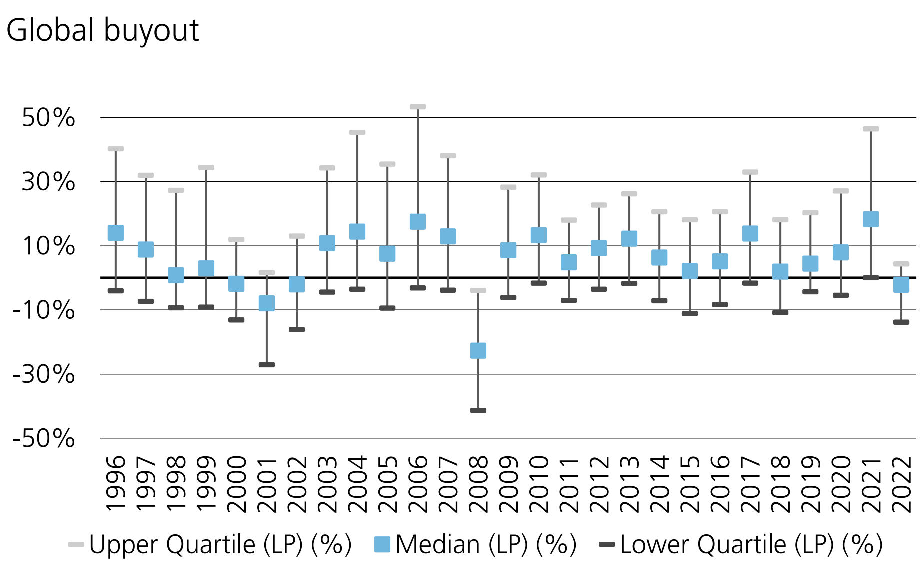
Please always read in conjunction with the glossary and the risk information at the end of the document.

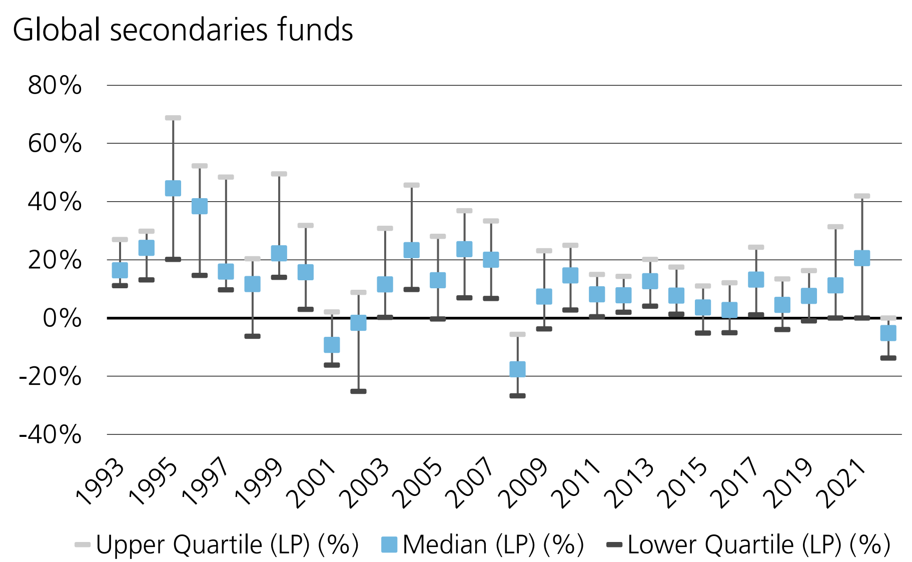
Committing across vintage years mitigates entry point risks

Internal Rate of Returns (IRR) by vintage year





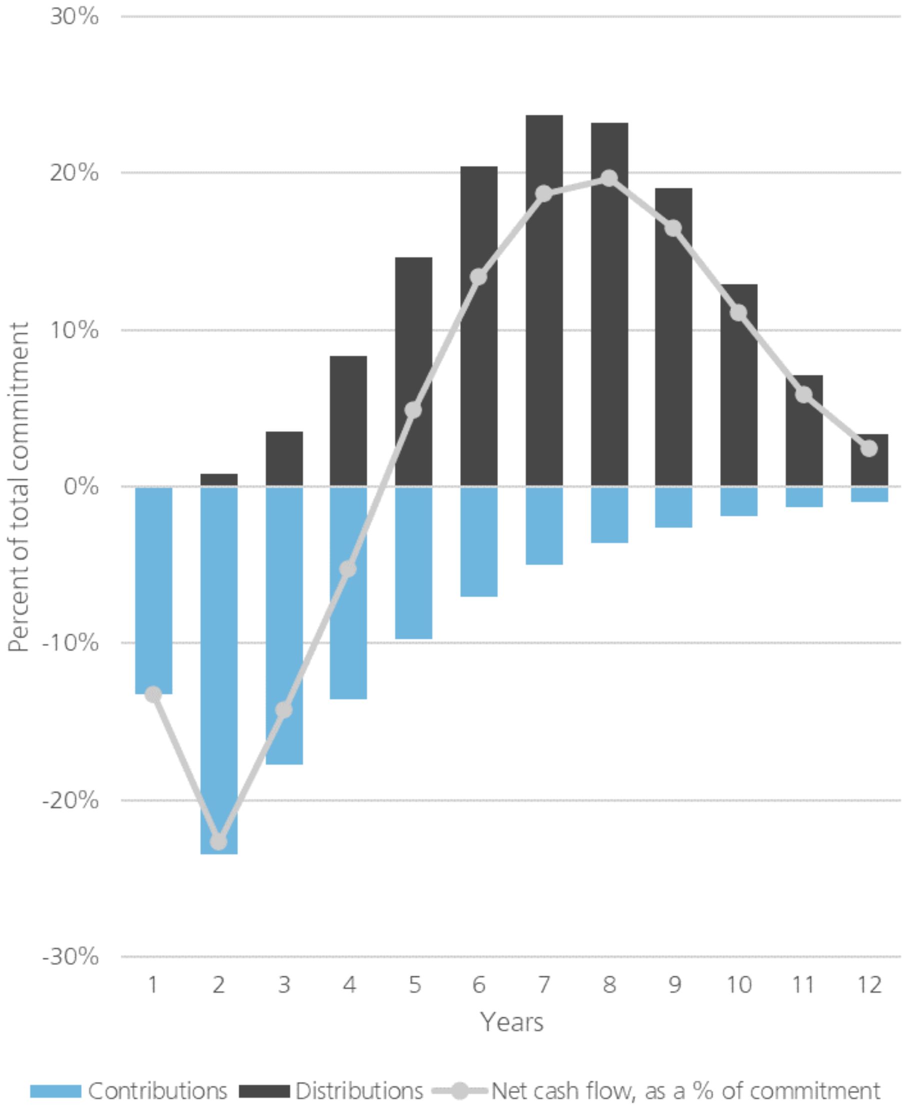




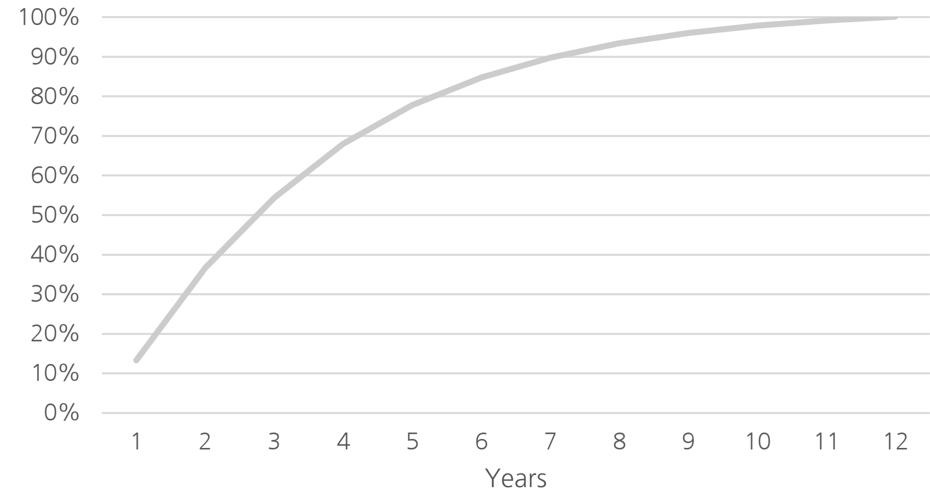
Source: Refinitiv, Cambridge Associates, UBS, as of 30 Sept 2022. For illustrative purposes only.
Note: Given most funds take a few years for performance to settle, performance of recent vintage years may be less meaningful.
Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.
Please always read in conjunction with the glossary and the risk information at the end of the document.

J-Curve Effect: Capital Calls early in fund life, followed by distributions near the end

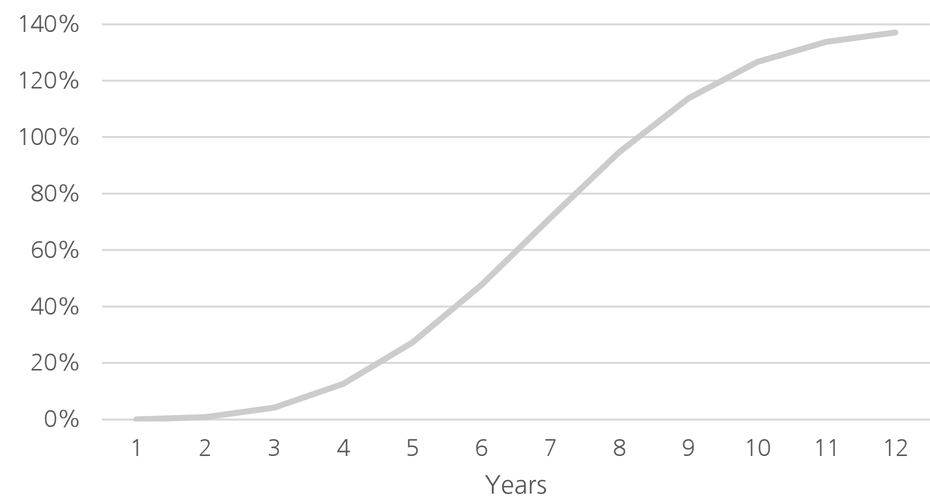
Expected Private Equity Capital Calls and Distributions



Capital called as a percentage of total commitment



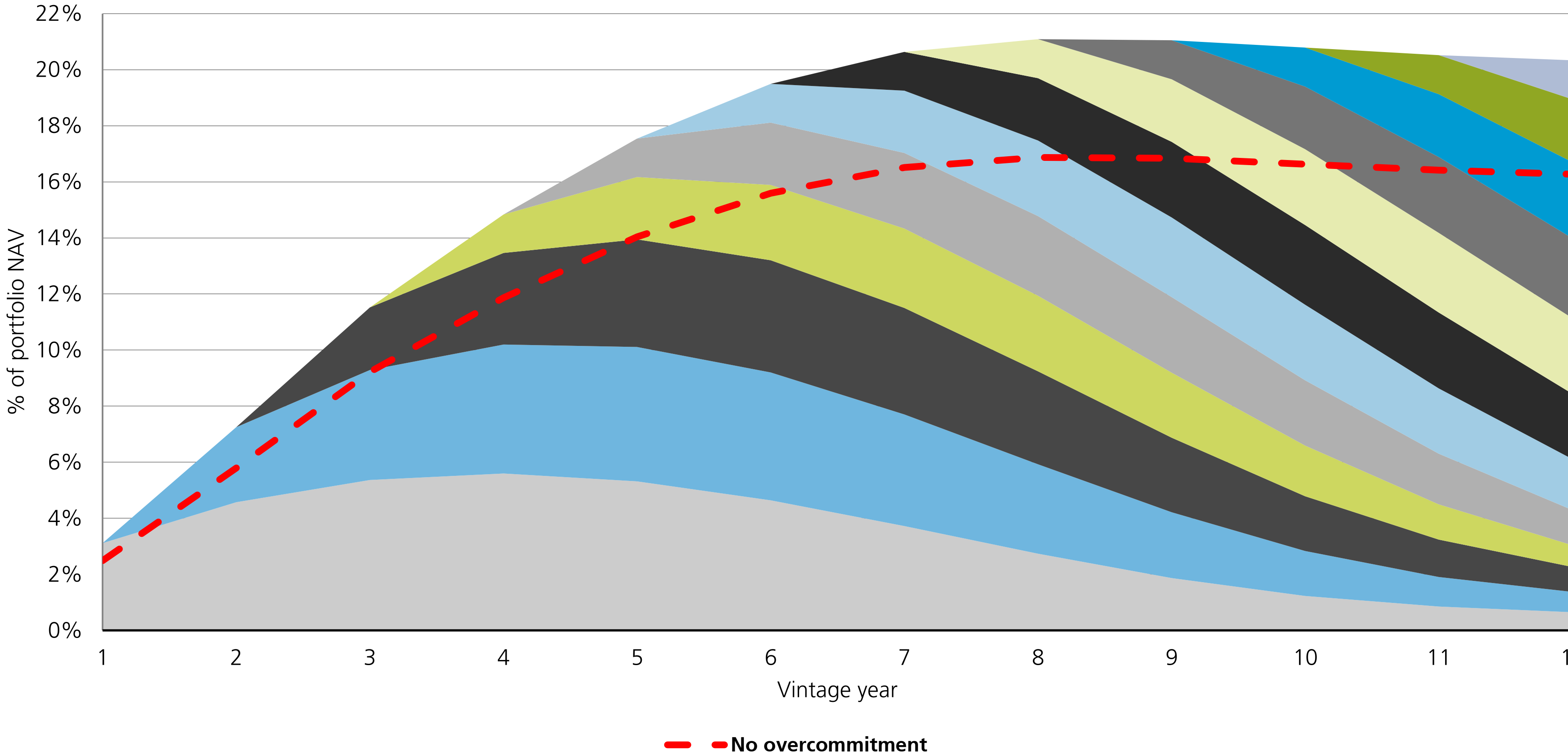
Capital Distributions as a percentage of total commitment



UBS Source: Burgiss, UBS. Estimates based on the Takahashi Alexander cash flow model. Illustration based on aggressive UHNW alternatives allocation. Assumes an over-commitment strategy of 25% and a target of 25% to private investments.

Achieving target allocation through multi-year commitments

A continuous over-commitment strategy of ~25% of the target allocation can help achieve long-term targets

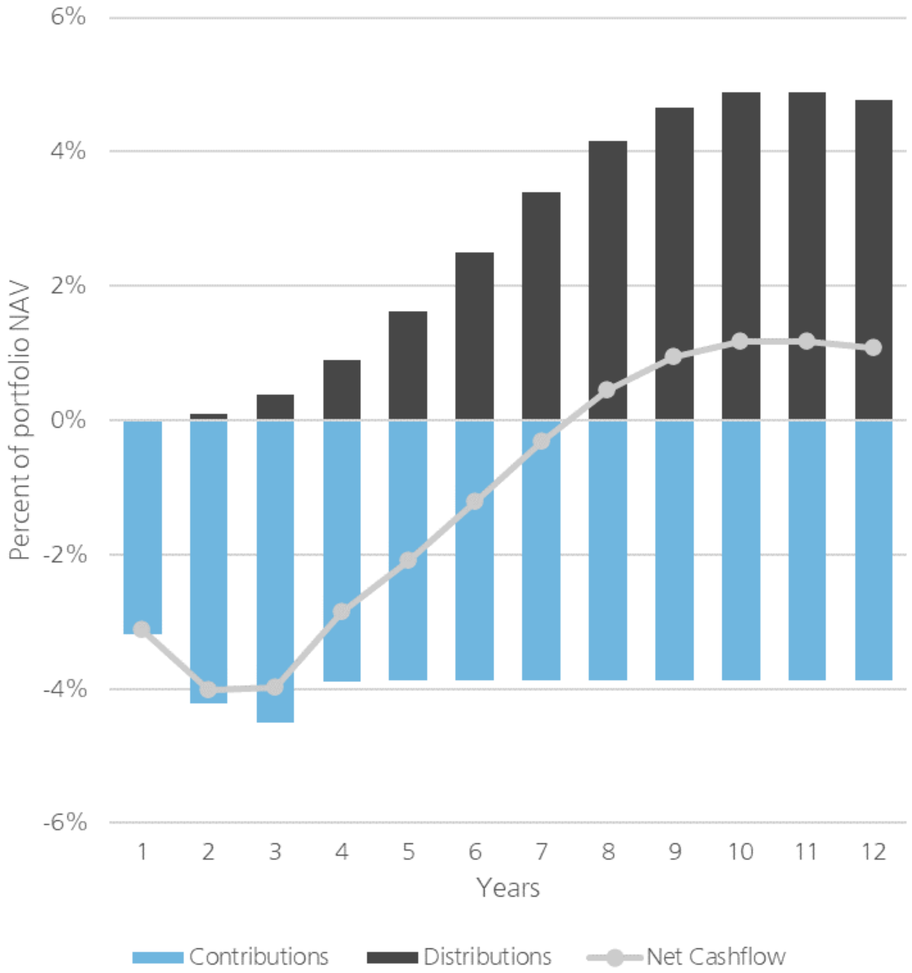


Source: Data as of 30 Sept 2022. Source: Burgiss, UBS. Estimates based on the Takahashi Alexander cash flow model. Illustration based on aggressive UHNW alternatives allocation.

Managing liquidity and maintenance

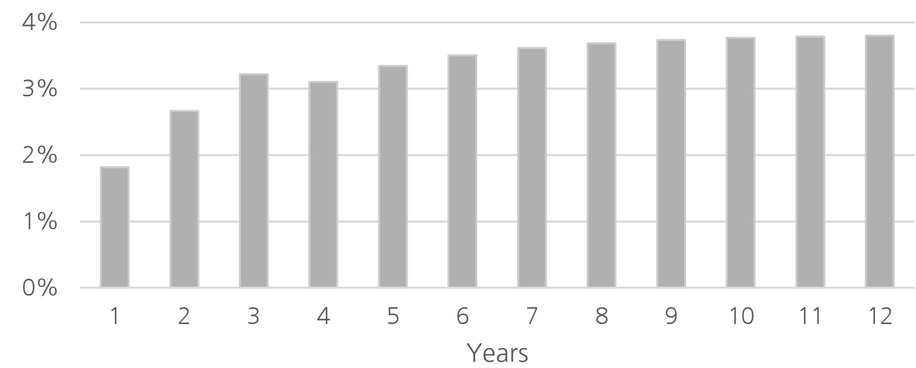
UHNW Aggressive allocation: 21% allocation target to privates with a continuous over-commitment strategy of ~25%

Expected cash flow pattern of private investments

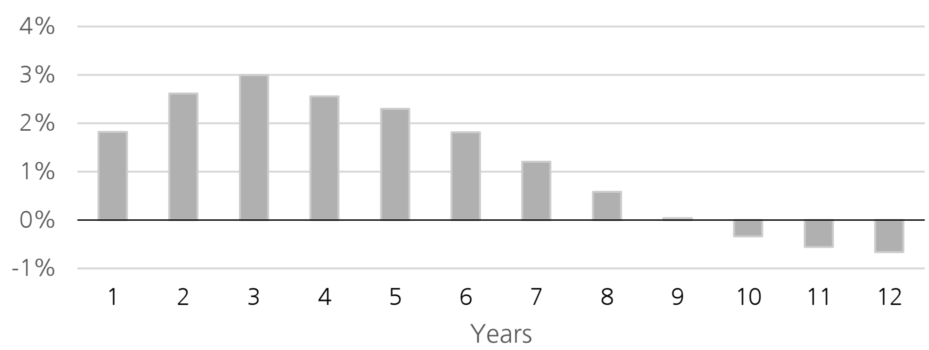


Capital calls are relatively small compared to the portfolio

Capital calls as a percentage of total portfolio assets



Net outflows as a percentage of total portfolio assets



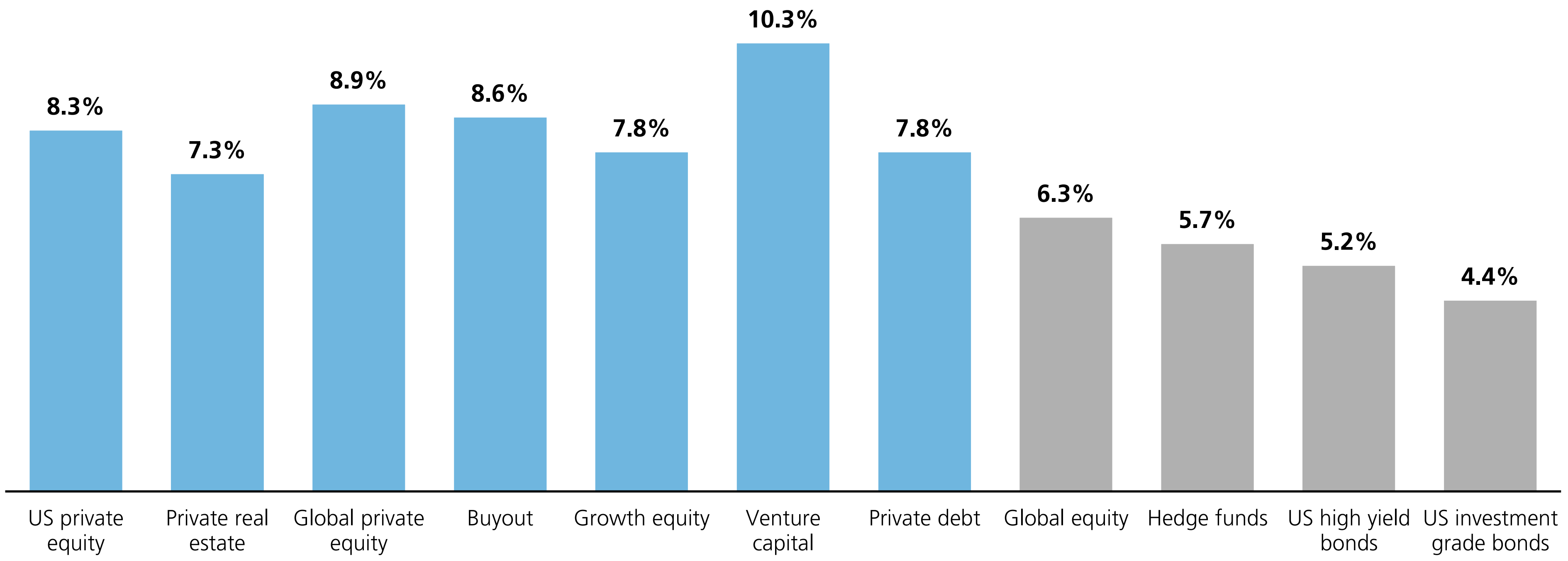
UBS Source: Burgiss, UBS. Estimates based on the Takahashi Alexander cash flow model. Illustration based on aggressive UHNW alternatives allocation. Assumes an over-commitment strategy of 25% and a target of 25% to private investments.

Section 4

Appendix

Private markets are expected to provide a higher return than public markets

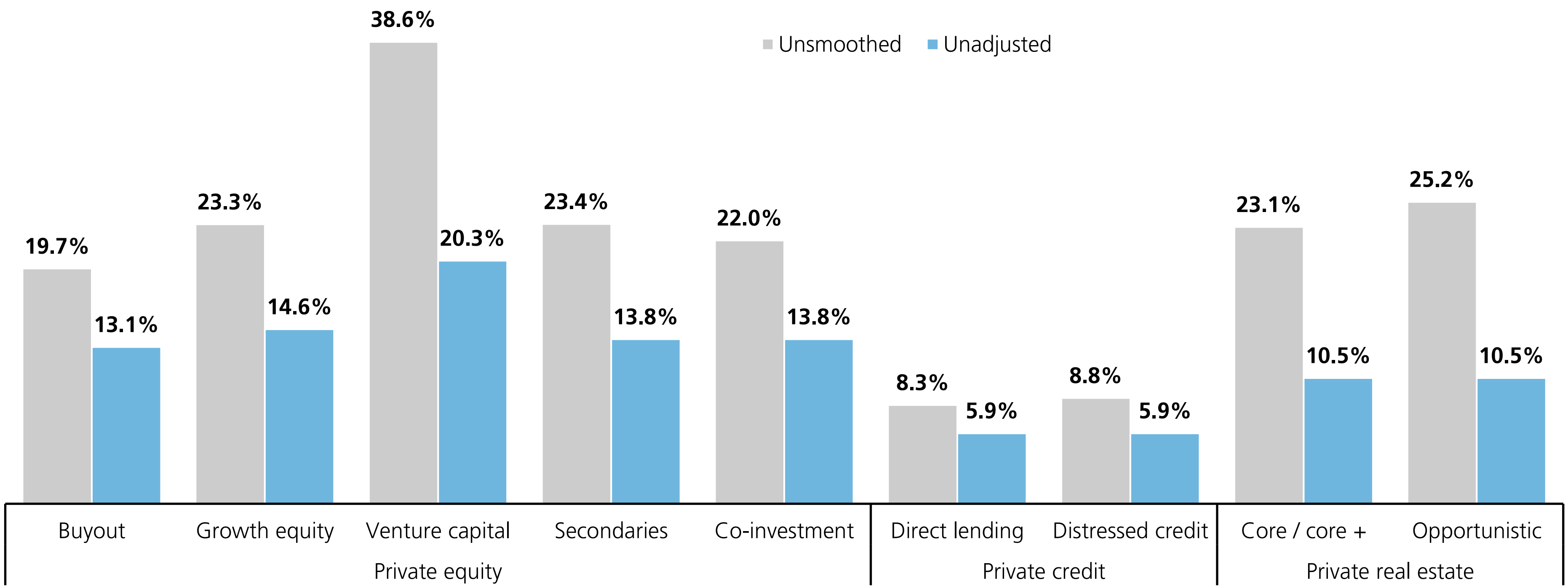
Strategic compound return expectations by asset class, UBS Capital Market Assumptions



UBS Source: UBS WM USA Asset Allocation Committee, as of 13 Feb 2023. Strategic compound return Capital Market Assumptions (CMAs).

Reported returns for private markets tend to exhibit smoothing

Comparing UBS CMA for reported return volatility & applying an unsmoothing multiplier



Source: UBS WM USA Asset Allocation Committee, as of 13 Feb 2023. Strategic compound return Capital Market Assumptions (CMAs). Secondaries and co-investment CMA mapped to US Private Equity. Distressed credit CMA mapped to direct lending. Core / core + and opportunistic CMA mapped to private real estate. Multipliers are based on return data from Cambridge Associates and Cliffwater Direct Lending Index.

Historical correlations

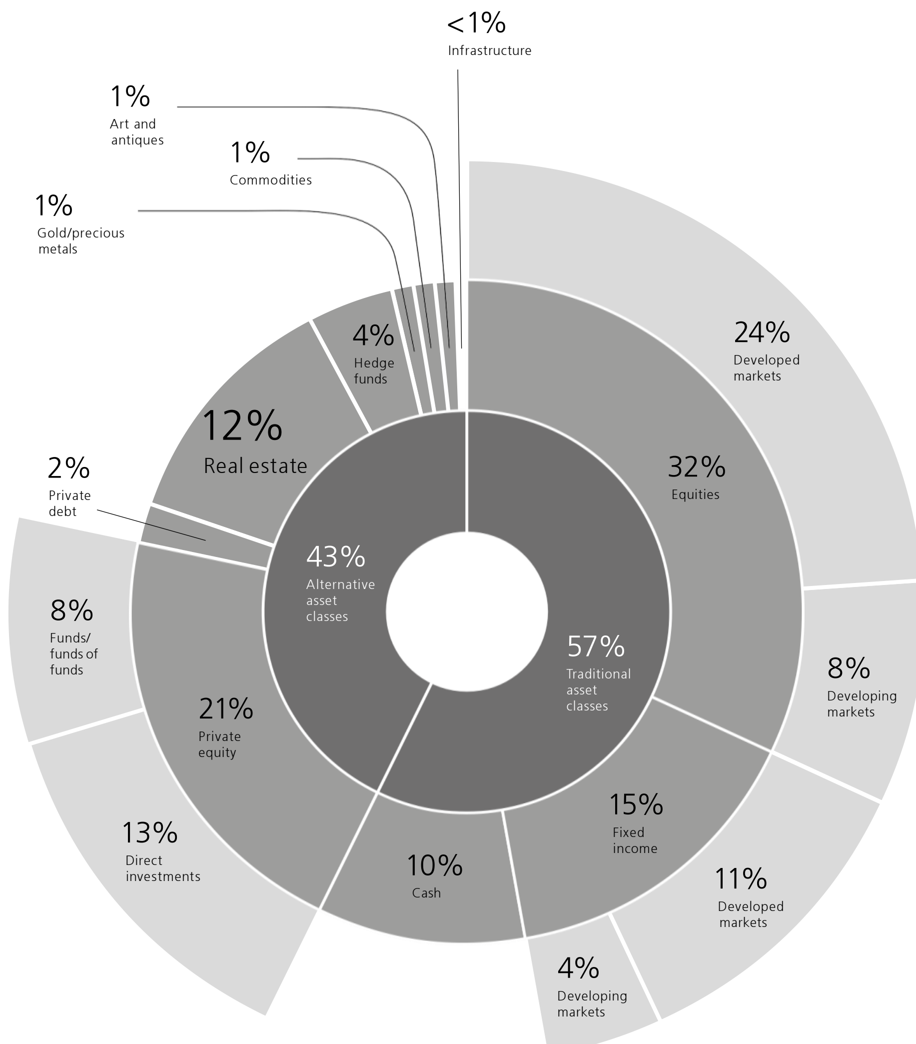
		1	2	3	4	5	6	7
1	Global private equity	1.00						
2	Global private real estate	0.65	1.00					
3	Private debt	0.75	0.62	1.00				
4	US equities	0.82	0.53	0.67	1.00			
5	Hedge funds	0.88	0.49	0.79	0.89	1.00		
6	US fixed income	0.19	-0.07	-0.06	0.24	0.09	1.00	
7	US high yield fixed income	0.78	0.42	0.80	0.85	0.87	0.35	1.00

Source: Refinitiv, Cambridge Associates, Morningstar, UBS. Data as of 30 Sept 2022. For illustrative purposes only.
Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.
Please always read in conjunction with the glossary and the risk information at the end of the document.

Private markets are gaining importance for UHNW and family office investors

Private equity is a cornerstone allocation for UHNW and family office portfolios. Interest from less sophisticated investor is growing.

Strategic asset allocation of family offices 2022



For illustrative purposes only.
Source: UBS Evidence Lab, GFO report 2022.
Performance figures refer to the past and past performance is not a reliable indicator of future performance / results.
Please always read in conjunction with the glossary and the risk information at the end of the document.

Private equity & other private market strategies

Private equity is a heterogeneous asset class with many sub-sectors

Strategies	
Leveraged buyouts	• Specialize in helping to finance the purchase of established companies • Provides a management team with enough equity to make a small down-payment on the purchase of a business, and then to pay the rest of the purchase price with borrowed money
Venture capital	• Often specialized by investing in a single field or by stage of investing
Mezzanine debt	• Provides a middle level of financing in leveraged buyouts below the senior debt layer and above the equity layer • Typically used to help fund the purchase and recapitalization of private, middle-market companies
Distressed investing	• Approaches include private equity-type control structures, restructuring strategies as well as hedge fund trading • Increasingly popular with investors undertaking distressed M&A
Special situations investing	• Compelling investment opportunities due to the special market or security circumstances or company-specific situation, rather than the underlying fundamentals • Encompasses equity-linked debt, project finance, distressed debt plays, one-time opportunities resulting from changing industry or government regulations
Growth capital	• Funding that allows firms to undertake expansion activities • Nature varies, as it exists both as term debt or equity-type investments

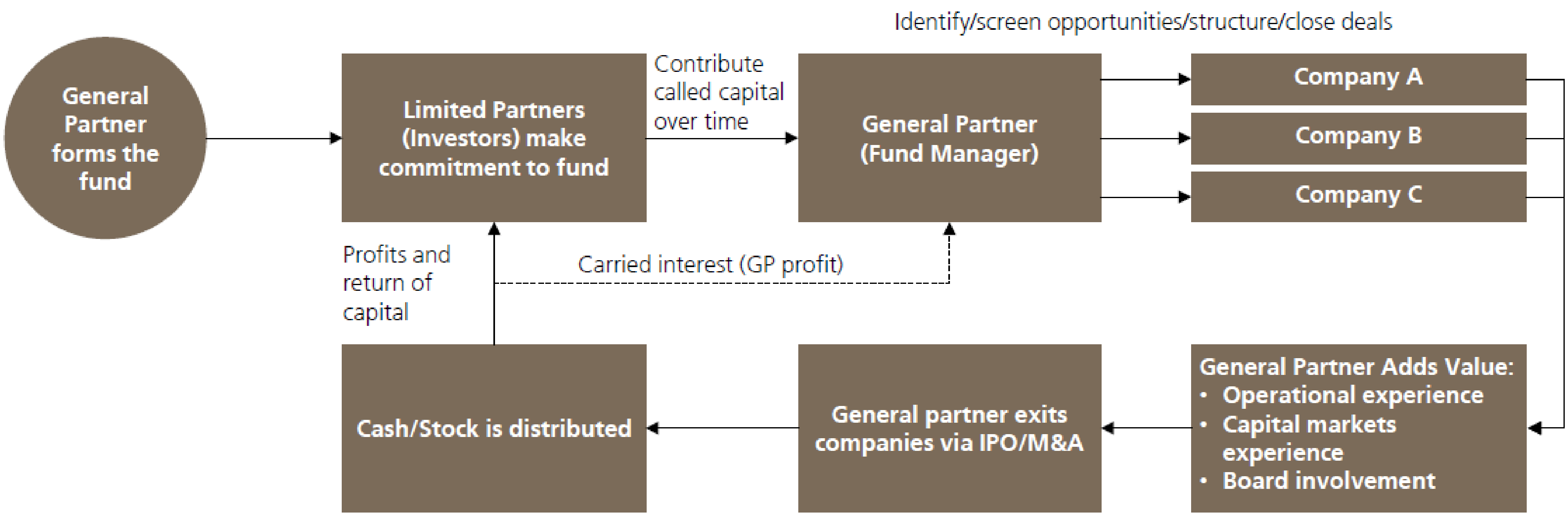
Structure of private equity funds

Private equity funds typically are structured as private Limited Partnerships

The individual manager(s) of a fund is referred to as the General Partner… Limited Partners are the investors in the fund.

Structure

General Partner ("GP")	• Day-to-day management of the partnership's investment • Limited liability corporation; generally liable for any lawsuits that may be brought against the fund • General Partners commit personal capital to the fund
Limited Partner ("LP")	• Principal investor in the fund; main capital provider



For illustrative purposes only.

UBS

Source: UBS. For illustrative purposes only.
Please always read in conjunction with the glossary and the risk information at the end of the document.

Non-traditional assets

Non-traditional asset classes are alternative investments that include hedge funds, private equity, real estate, and managed futures (collectively, alternative investments). Interests of alternative investment funds are sold only to qualified investors, and only by means of offering documents that include information about the risks, performance and expenses of alternative investment funds, and which clients are urged to read carefully before subscribing and retain. An investment in an alternative investment fund is speculative and involves significant risks. Specifically, these investments

1. are not mutual funds and are not subject to the same regulatory requirements as mutual funds;
2. may have performance that is volatile, and investors may lose all or a substantial amount of their investment;
3. may engage in leverage and other speculative investment practices that may increase the risk of investment loss;
4. are long-term, illiquid investments, there is generally no secondary market for the interests of a fund, and none is expected to develop;
5. interests of alternative investment funds typically will be illiquid and subject to restrictions on transfer;
6. may not be required to provide periodic pricing or valuation information to investors;
7. generally involve complex tax strategies and there may be delays in distributing tax information to investors;
8. are subject to high fees, including management fees and other fees and expenses, all of which will reduce profits.

Interests in alternative investment funds are not deposits or obligations of, or guaranteed or endorsed by, any bank or other insured depository institution, and are not federally insured by the Federal Deposit Insurance Corporation, the Federal Reserve Board, or any other governmental agency. Prospective investors should understand these risks and have the financial ability and willingness to accept them for an extended period of time before making an investment in an alternative investment fund and should consider an alternative investment fund as a supplement to an overall investment program. In addition to the risks that apply to alternative investments generally, the following are additional risks related to an investment in these strategies:

• Hedge Fund Risk: There are risks specifically associated with investing in hedge funds, which may include risks associated with investing in short sales, options, small-cap stocks, "junk bonds," derivatives, distressed securities, non-U.S. securities and illiquid investments.

• Managed Futures: There are risks specifically associated with investing in managed futures programs. For example, not all managers focus on all strategies at all times, and managed futures strategies may have material directional elements.

• Real Estate: There are risks specifically associated with investing in real estate products and real estate investment trusts. They involve risks associated with debt, adverse changes in general economic or local market conditions, changes in governmental, tax, real estate and zoning laws or regulations, risks associated with capital calls and, for some real estate products, the risks associated with the ability to qualify for favorable treatment under the federal tax laws.

• Private Equity: There are risks specifically associated with investing in private equity. Capital calls can be made on short no-tice, and the failure to meet capital calls can result in significant adverse consequences including, but not limited to, a total loss of investment.

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