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DiMeo SCHNEIDER
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Alternative Investment Performance and Related Valuation Considerations

Presenters:

Brian Zygmunt, Partner
Crowe Horwath LLP

Anthony Novara, Research Director
Global Hedge Fund Strategies and Capital Markets, DiMeo Schneider

Louis Kleist, Research Director
Global Private Markets, DiMeo Schneider

Matthew Babiash, Research Analyst
Operational Risk, DiMeo Schneider

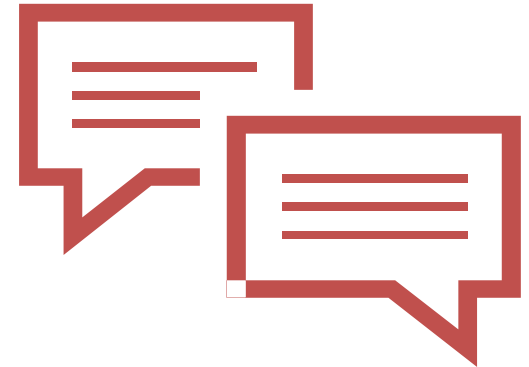
April 5, 2018

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Presenters:

Brian Zygmunt, Partner

Audit Partner

Brian is partner with Crowe Horwath LLP in their Not-for-Profit and Higher Education Practice in Chicago. He has dedicated the majority of his 19 year career with Crowe serving a variety of different nonprofit organizations including colleges and universities, private foundations, and membership organizations. Brian is a member of the AICPA Not-for-Profit Expert Panel and has participated in the writing of the AICPA's annual Not-for-Profit Risk Alert and review the AICPA NFP Audit and Accounting Guide. He frequently speaks at conferences on financial reporting compliance and other topics impacting nonprofit organizations.

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Anthony Novara

Anthony joined DiMeo Schneider & Associates, L.L.C. in 2011. Anthony directs the firm's Hedge Fund research effort and chairs the firm's Capital Markets committee. He is a member of the firm's Investment Committee, Discretionary Committee and all Research Teams. Prior to joining the firm, Anthony held various roles at National City, Conversus Asset Management and William Blair & Company. Anthony received a BA in Finance from the Eli Broad College of Business at Michigan State University and a MBA from the University of Chicago Booth School of Business with concentrations in Analytic Finance, Economics & Entrepreneurship. He is a CFA® charterholder and member of the CFA Society Chicago and CFA Institute. Anthony is actively involved with YearUp, a nonprofit providing urban young adults with the skills, experience and support to pursue professional careers and higher education. He is also on the Advisory Board for the Michigan State University Financial Markets Institute. In his free time, Anthony enjoys playing guitar, golf, running after his two young sons and all things Michigan State Spartans.

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Presenters:

Louis Kleist

Louis leads many of the firm's private markets investment research and due diligence initiatives. He is a member of the firm's Private Markets Team, which includes private equity, private debt and private real asset strategies. Prior to joining the firm in 2016, Louis was a Senior Research Analyst in Private Equity and Private Credit at Verus, a Director of Product Development at UBS Alternative Investments and an analyst at UBS. Louis obtained his BS from Gonzaga University and his MBA from the New York University Stern School of Business. Louis is a citizen of both the United States and Italy.

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Matthew Babiash

Matt is responsible for performing operational due diligence on alternative investment managers. Prior to joining the firm in 2017, Matt worked at RSM US LLP as an Assurance Senior Associate. He received a BS in Quantitative Structural Physics from the University of Wisconsin – Green Bay and a Master of Science in Accounting from DePaul University's Kellstadt Graduate School of Business. Matt also served as a Captain in the United States Army where he was deployed to Afghanistan. In his free time, Matt enjoys reading and traveling with his wife. He also is a member of the Historical European Martial Arts club and has completed an Ironman Triathlon®.

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HEDGE FUNDS

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Polling Question #1

How many different alternative investment funds does your organization currently hold?

- a. 0-10
- b. 11-30
- c. 31-50
- d. 51-100
- e. 100+

STATE OF THE HEDGE FUND INDUSTRY

- In 2017, the Hedge Fund industry bounced back after a difficult 2016 and industry AUM grew by \$44.4 billion after declining by \$110 billion in 2016.
 - Annual contributions were 10% of industry assets which at the end of 2017 amounted to approximately \$3.6 trillion dollars.

<i>*In USD Billions</i>	AUM	4Q'17	3Q'17	2017	2016
All Hedge Funds	\$3,577	\$0.5	\$19.2	\$44.4	(\$109.8)
Macro / CTAs	\$1,345	\$25.6	(\$12.5)	\$44.2	\$19.6
Multi-Strategy	\$481	\$0.6	\$13.3	\$18.6	(\$22.5)
Event Driven	\$204	(\$1.6)	\$2.7	\$10.3	(\$2.9)
Niche	\$25	(\$2.6)	\$2.6	\$3.8	(\$0.8)
Relative Value	\$353	(\$9.8)	(\$2.1)	(\$4.1)	(\$24.7)
Credit	\$250	(\$9.1)	\$13.9	(\$4.7)	(\$28.2)
Equity	\$919	(\$2.7)	\$1.3	(\$23.8)	(\$50.3)

*Prequin – “4Q 2017 Hedge Fund Asset Flows”

HEDGE FUND STRATEGIES PERFORMANCE: YEAR OVER YEAR AND ANNUALIZED

	2018 YTD*	2017	2016	2015	2014	2013	3 Year*	5 Year*	10 Year*
HFRI Fund Weighted	0.6%	8.6%	5.4%	-1.1%	3.0%	9.1%	3.8%	4.5%	3.4%
HFRI Fund of Funds	1.1%	7.8%	0.5%	-0.3%	3.4%	9.0%	2.4%	3.7%	1.4%
HFRI Hedged Equity	1.1%	13.3%	5.5%	-1.0%	1.8%	14.3%	5.6%	6.1%	3.6%
HFRI Event Driven	0.7%	7.6%	10.6%	-3.6%	1.1%	12.5%	4.4%	5.1%	4.4%
HFRI Macro	-1.1%	2.2%	1.0%	-1.3%	5.6%	-0.4%	-0.6%	1.0%	1.3%
HFRI Relative Value	1.0%	5.2%	7.7%	-0.3%	4.0%	7.1%	4.0%	4.4%	5.1%
HFRI ED: Distressed	0.4%	6.2%	15.1%	-8.1%	-1.4%	14.0%	4.0%	4.3%	4.3%

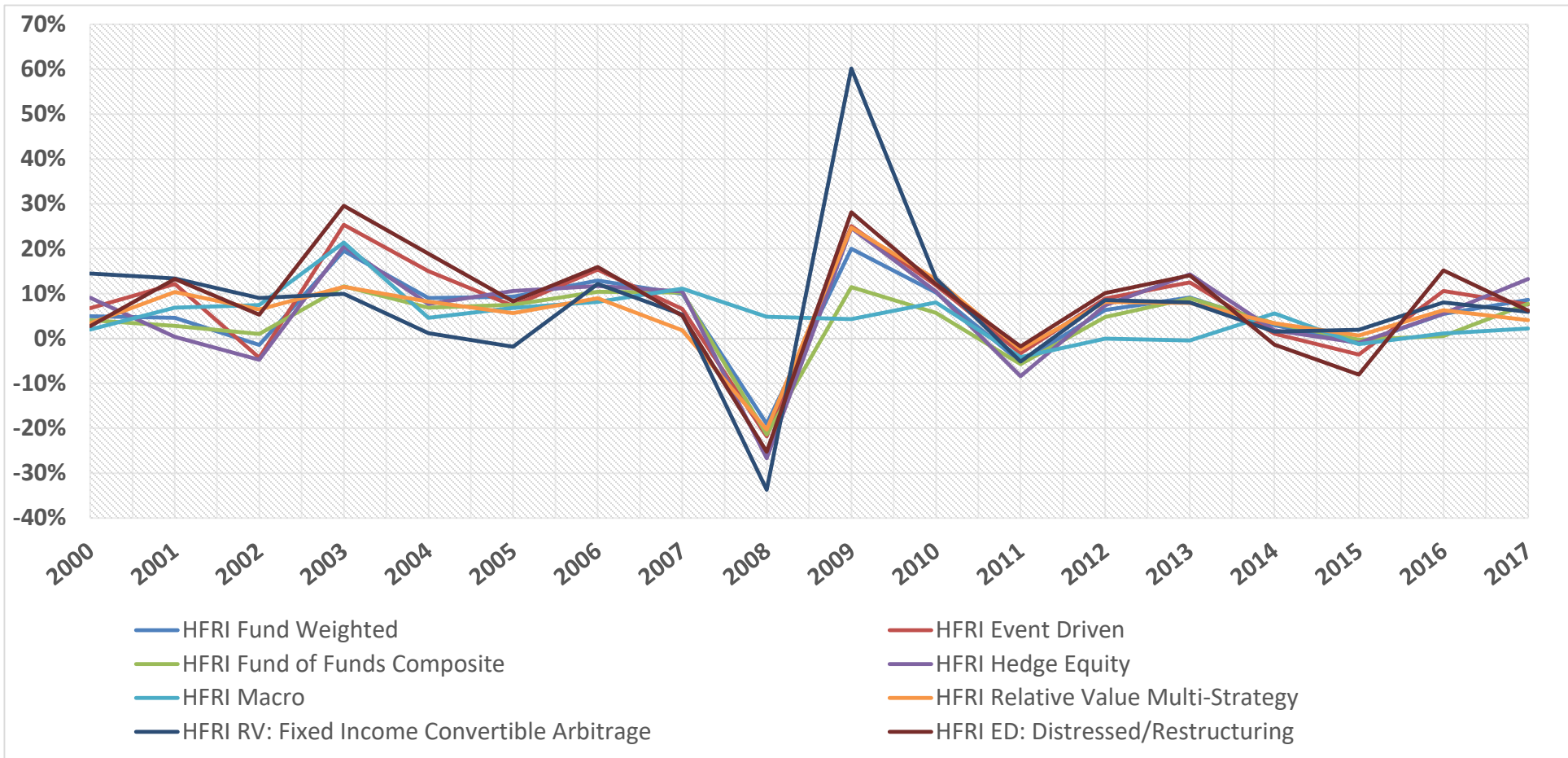
*Trailing periods through 2/28/18; periods greater than one year are annualized

Source: Hedge Fund Research

DISPERSION OF RETURNS BY HEDGE FUND STRATEGY



Annual Performance Dispersion by Underlying Strategy Type



Source: HFRI Database Returns

Polling Question #2



How familiar are you with the different type of hedge fund strategies?

- a. I'm an Expert
- b. Very Familiar
- c. Somewhat Familiar
- d. There are Different Strategies?



HEDGED EQUITY

- **Managers invest both long and short in equities and equity derivatives**
- **Managers may choose to trade strategies that focus by:**
 - **Different net exposures**
 - **Geographies**
 - **Sectors**
 - **Holding period durations**
 - **Market capitalizations**
- **Research and portfolio creation may either be fundamental or quantitative**
- **Trade examples**
 - **Long – Amazon (AMZN)**
 - **Short – brick and mortar retailers**



HEDGED EQUITY – 2017 Performance Drivers

- **Strong absolute returns in 2017 as owning equity beta paid off:**
 - **Global equities had a strong year, especially Emerging Markets and Non-U.S. Developed equities**
 - **Despite international outperformance, the S&P 500 posted a strong 22% gain for the year**
 - **Tech euphoria reigned supreme**
- **Much like 2016, 2017 was a challenging environment for market neutral managers or those managers with large short books.**
- **Longer-biased managers, especially those that invest primarily in technology, healthcare, and/or emerging markets, typically had strong absolute and relative returns.**



EVENT DRIVEN

- **Managers invest in companies undergoing transactions to their capital structure.**
- **Corporate transactions include:**
 - **Mergers**
 - **Restructurings**
 - **Bankruptcy**
 - **Shareholder buybacks**
- **Investments may be made in the equity, credit, or derivatives of companies**
- **Trade examples**
 - **Long - AT&T Time Warner merger**
 - **Long - distressed E&P debt**



EVENT DRIVEN – 2017 Performance Drivers

- **M&A volumes remained strong, especially in healthcare, which is often supportive of event driven strategies.**
- **Sub-strategies of Event Driven each posted mid single digit absolute returns, including activist, credit arbitrage, distressed credit, and merger arbitrage.**
- **Special Situations had an 11.7% annual return based on a strong M&A environment and plenty of corporate actions looking to unlock value.**



RELATIVE VALUE

- **Managers search for valuation discrepancies in the relationship between two or more securities. Manager will profit when that valuation discrepancy clears-up.**
- **Securities invested in may be in the same or different companies.**
- **Strategy will tend to have the highest leverage but also the greatest use of hedging among all hedge fund strategies.**
- **Investments range broadly between liquid and illiquid equities, bonds, and derivatives.**
- **Trade examples**
 - **Long – senior secured debt/short unsecured debt**
 - **Yield curve steepener or flattener**



RELATIVE VALUE – 2017 Performance Drivers

- **Most of the Relative Value sub-strategies returned mid to high single digit absolute returns for the year, including convertible arbitrage, asset-backed, corporate credit, and sovereign based strategies.**
- **Structured credit returned 7.7% and led the group as investors became less constructive on credit exposure at historically low credit spreads.**
- **Volatility based strategies returned 5.1% for the year as persistently low volatility limited the attractiveness of option-based strategies.**



MACRO

- **Managers trade a range of strategies to profit from their views on a variety of broader economic variables. Macro strategies will tend to have the least correlation to long-only indices.**
- **Investments will be made in interest rates, currencies, credit, metals, energy, and agricultural commodities.**
- **Investment views will be made on the outlook of broader macro economic factors.**
- **Strategies may be fundamentally or quantitatively based.**
- **Trend-following strategies are the most common quantitative strategy.**
- **Instruments used to enact investment views will usually be highly liquid derivatives such as futures and options.**
- **Trade examples**
 - **Long U.S. dollar and short the Euro**
 - **Long coffee**



MACRO – 2017 Performance Drivers

- **Macro strategies returned a disappointing 2.2% for the year as trend following and a lack of dispersion made generating sufficient absolute returns more difficult.**
- **Commodity-based and discretionary portfolios lagged at 0.4% and 0.3% returns, respectively.**
- **Currency based strategies outperformed the rest of macro with meager 4.7% returns on average.**
- **Systematic strategies were also little changed, up 2.1% for the year.**



MULTI-STRATEGY

- **Managers' teams trade a variety of strategies within one fund structure including hedged equity, event driven, and relative value strategies.**
- **Managers incubate or acquire what they believe is the best investment team to trade underlying strategies.**
- **The tactical and strategic allocation of exposures to managers with the best current opportunity set is a key alpha driver for multi-strategy managers.**
- **Portfolios will be highly diversified and will hold the largest number of positions among hedge funds managers.**
- **The oversight of many moving pieces through well controlled risk management is vital to success of these managers.**

MULTI-STRATEGY – 2017 Performance Drivers

- **Much like the broader hedge fund industry, multi-strategy managers that were more exposed to global equities typically performed well. More relative value heavy multi-strategies often posted mid to high single digit returns, which were in line with our expectations, but lagged equity-heavy peers.**
- **More growth-oriented strategies such as those with technology, healthcare, and emerging markets exposure generally performed better than peers.**
- **Event-Driven strategies typically contributed to absolute returns on the heels of strong M&A.**

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PRIVATE EQUITY

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Polling Question #3

What is your organization's percentage allocation to private equity investments within the overall investment portfolio

- a. 0-10%
- b. 11-20%
- c. 21-30%
- d. 31-40%
- e. Over 40%



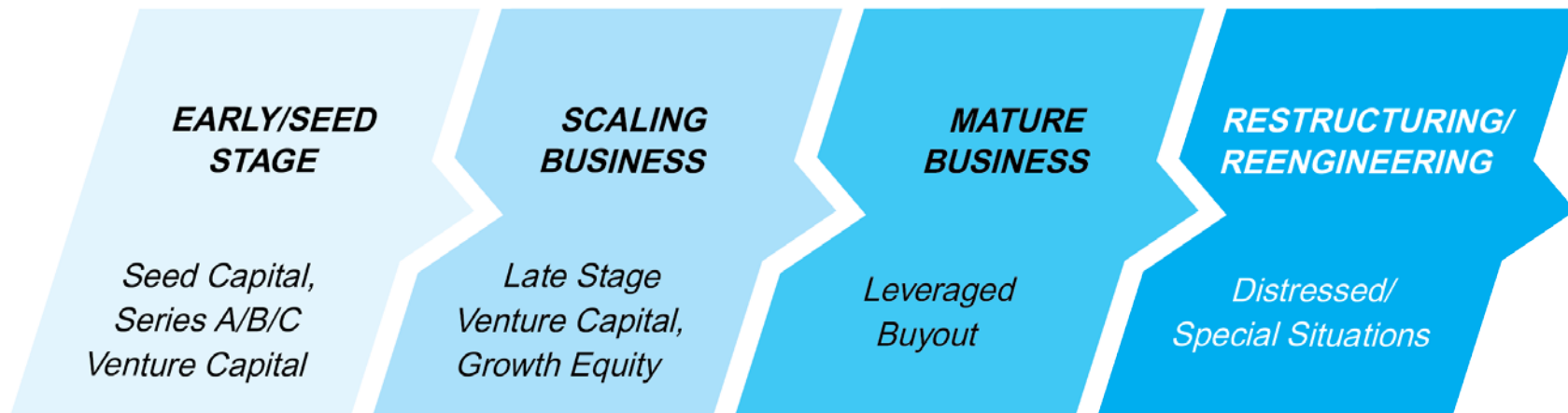
PRIVATE EQUITY FUNDS TARGET NICHE OPPORTUNITIES

What are private equity funds?	Private equity fund sub-asset classes
Illiquid investment vehicles	Leveraged Buyout (“LBO”)
Contain privately held companies	Growth Equity (“GE”)
Long capital lock-ups	Venture Capital (“VC”)
Not marked to market daily	Distressed/Special Situations

Private equity fund structure	Key private equity terms	
<ul style="list-style-type: none"> The fund management company is considered the General Partner (“GP”). GP creates an investment vehicle that is a limited partnership Investors are considered Limited Partners (“LP”) LPs provide capital to the GPs who, in turn, invest on behalf of the fund LPs pay fees to the GP for fund management and investment performance The early impact of fees before investments mature, produce early negative returns, also known as the J-Curve 	Capital Calls	LPs commit capital to a fund, but do not supply capital until investments are made. Notice given to investors to contribute capital on a specified date.
	Capital Distributions	Capital is returned to investors when sales of underlying portfolio companies occur.
	Carried Interest (“Carry”)	The GP charges performance-based fees on investment gains



PRIVATE EQUITY STRATEGIES FOR DIFFERENT POINTS IN THE INVESTMENT CYCLE

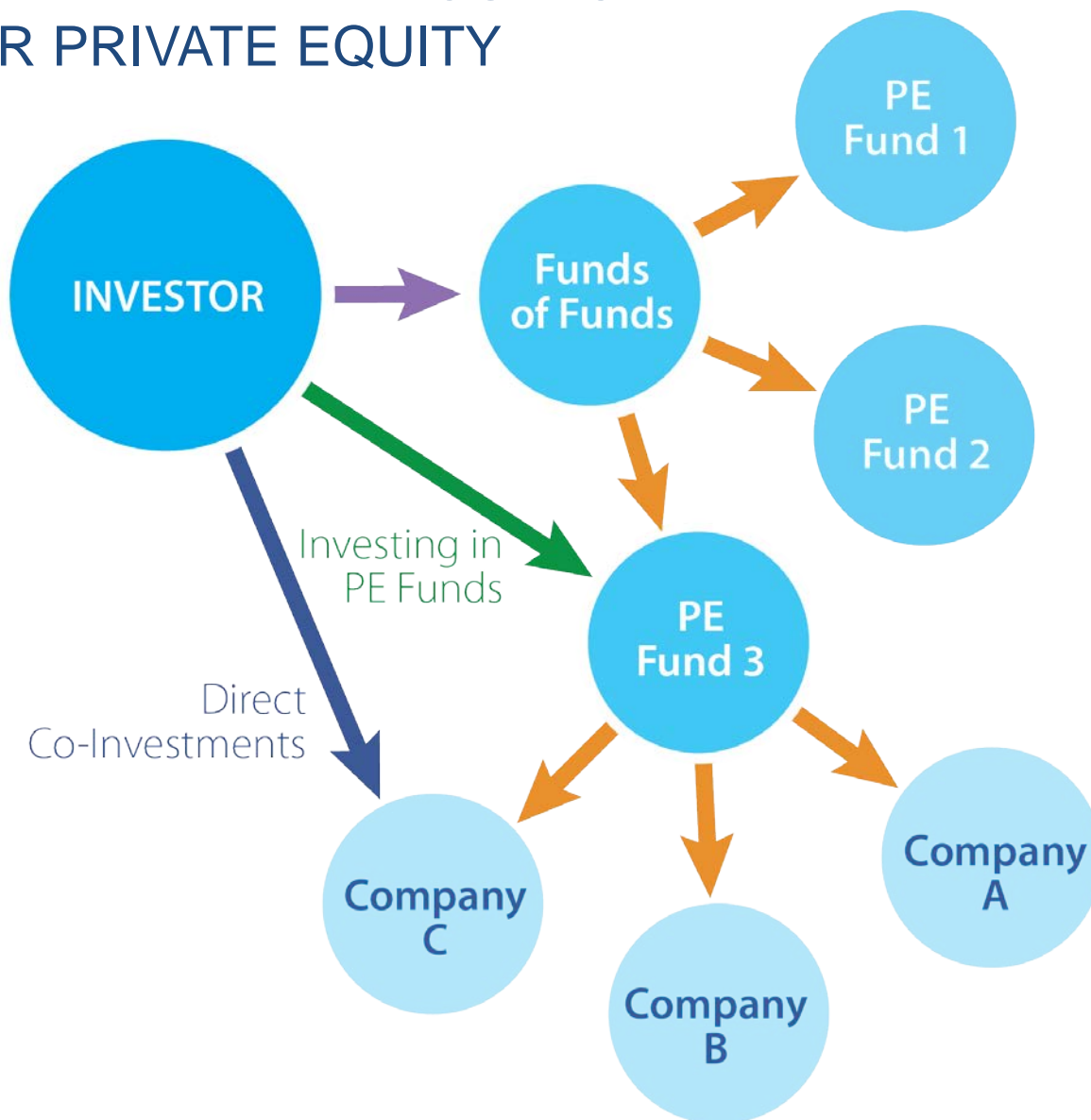




VARYING RISK PROFILES, GROWTH PROFILES AND STAGES OF INVESTMENT CYCLE

Asset Class	Seed & Early Stage Venture Capital	Late Stage Venture Capital	Growth Equity	Buyout	Distressed/ Special Situations
Risk Type	Development and Market Risk		Execution Risk		Execution and Market Risk
Description	Concept Stage	Unproven Business Models	Established Companies with Proven Business Models	Mature Companies with Proven Business Models	Mature Companies with Finite or Ongoing Business Concerns
Revenues	Pre-Revenue	>50% Revenue Growth	>20% Annual Revenue Growth	<15% Annual Revenue Growth	Slow Growth or Declining Revenues
EBITDA	Cash Burn to Fund Rapid Growth		Breakeven / Cash Flow Positive	Cash Flow Positive	Various
Leverage	None		Modest or No Use of Leverage	Yes	Varies
Control	Minority			Majority	Varies
Structure	Preferred Equity; Multiple Funding Rounds; Limited Structuring Ability		Preferred Equity; Typically One Funding; Often Highly Structured	Preferred or Common Equity; Single Control Transactions; Some Structure	Minority or Majority Debt; Preferred or Common Equity; Often Structured
Strategy	Large Portfolio; Target Emerging Market Leader		Concentrated Portfolio; Target Clear Market Leader		Concentrated Portfolio
Thesis	Aggressive Revenue Growth; Valued on Revenue Multiple		Profitable Revenue Growth; Valued on EBITDA or Revenue Multiple	Growth, Cost Synergies or M&A; Valued on EBITDA Multiple	Businesses Could Be Recapitalized or Fixed Through Major Strategic Overhauls

THREE PRIMARY ROUTES FOR PRIVATE EQUITY



1. Primary Fund Investments: **green arrow**
2. Fund of Fund Investments: **purple arrow**
3. Co-Investments: **blue arrow**
4. Underlying Investments: **orange arrows**

ACCESS TO A BROADER INVESTIBLE UNIVERSE



Diversification and Access

Private equity provides diversification across vintage years, sectors and geographies in a market that encompasses a larger population of potential investments as compared to their public peers.

- Over 11,000 private U.S. companies with annual revenues over \$100 million vs. approximately 2,700 public U.S. companies with the same annual revenues*
- Exposure to efficiently structured companies with strong corporate governance and growth potential
- Proprietary deal flow such as early stage/innovative technologies and companies, corporate spin-offs, carve-outs, turnaround situations, and distressed debt

Control and Value-add

The potential to control a business and drive strategic changes allows private equity managers to drive returns in ways that are uncommon within publicly traded companies.

- Access to proprietary information/company management during the due diligence phase and ownership
- Ability to execute significant influence; hands-on, activist investing, heavy board involvement
- Access to resources such as capital markets expertise, industry contacts, senior management recruiting and growth capital
- Commitment to long-term value creation with no public market pressure
- Various exit opportunities - IPO, M&A, dividend recapitalization, secondary (fund-to-fund) transactions

*Capital IQ as of 9/2016

OPPORTUNITIES TO GENERATE EXCESS RETURNS BY: TARGETED EXPERTISE, MARKET INEFFICIENCIES AND INFORMATION ASYMMETRY

Historical Returns and Illiquidity Premium

- Asymmetric information allows private market investors to achieve returns that may differ substantially from public markets
- Over the last 40 years, illiquid investments have enabled a median return premium (relative to their equivalent liquid asset benchmarks) of more than 3% annually*
- Private equity displays imperfect correlation with other asset classes

Global Buyout & Growth Equity and US Venture Capital Index Annualized Total Returns (in %) – as of 6/30/2017**

	1 Year	3 Year	5 Year	10 Year	15 Year	20 Year	25 Year
Cambridge Associates Buyout & Growth Equity Index	17.77	10.25	14.07	8.89	13.54	12.63	13.54
Cambridge Associates MSCI ACWI mPME	19.40	4.92	11.68	5.29	7.55	6.36	6.74
Cambridge Associates Russell 2000® mPME	24.93	6.79	14.61	8.26	9.76	8.88	9.35
Cambridge Associates S&P 500 mPME	17.90	9.28	15.28	8.43	9.09	7.95	8.59
Cambridge Associates US Venture Capital Index	8.10	10.58	14.08	9.05	8.05	25.38	27.34
Cambridge Associates Nasdaq Constructed mPME	28.35	12.87	17.78	10.71	11.44	9.53	11.27
Cambridge Associates Russell 2000® mPME	24.73	7.11	14.39	7.48	9.73	8.73	9.97
Cambridge Associates S&P 500 mPME	17.89	9.49	15.09	7.87	8.90	7.66	9.25

**Private Equity Performance: What Do We Know?" Robert S. Harris, Tim Jenkinson and Steven N. Kaplan, SSRN, April 2013

**Source: Cambridge Associates 6/30/17



KEY RISK CONSIDERATIONS

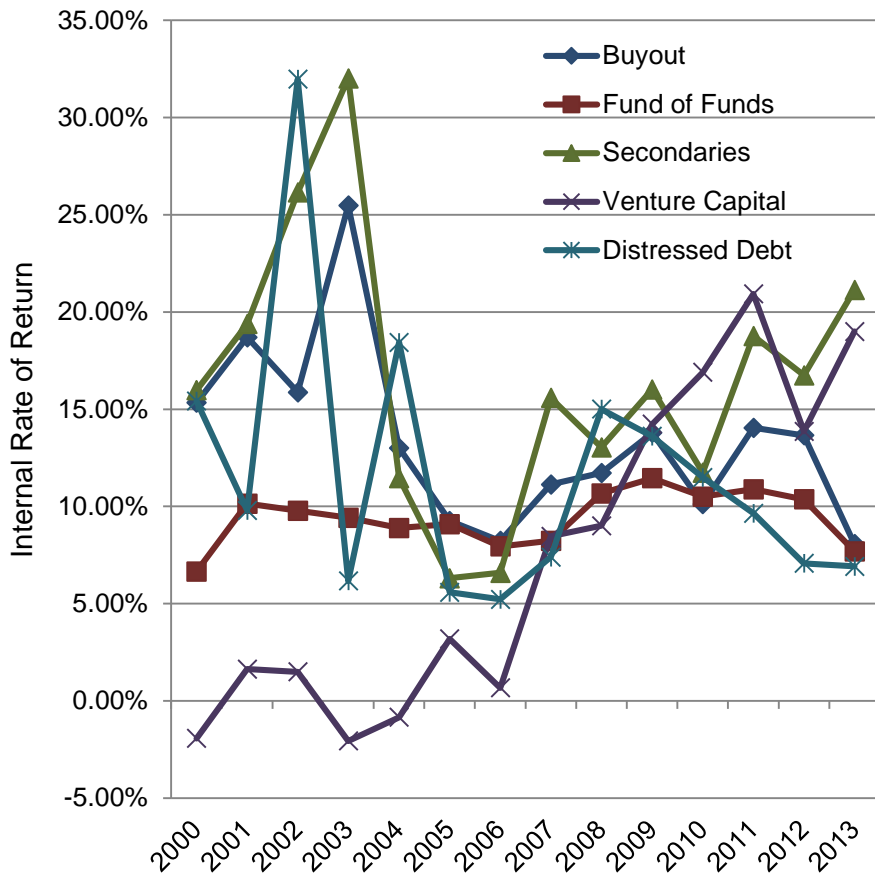
The nature of private transactions and private equity funds comes with unique risks.

- Illiquid assets, with long-duration holds and investment time horizons
 - LP interests are not redeemable and cannot easily be sold to an outside LP
- Valuations
 - Valuation typically reported on a quarterly delay
 - Subjective valuations until a realization
- Speculative Investment
 - Portfolio may be highly concentrated into a few investments
 - May include control and non-control positions
 - Investment strategies rely on fund manager assumptions when underwriting investments
- Manager Selection
 - Performance dispersions among managers are much wider than in public markets
 - Cannot replace/fire managers during fund life or control liquidation timing of unrealized assets
- “Blind Pool” Investing
 - Investments are generally not known at time of commitment
- Leverage
 - While the appropriate use of leverage can benefit both fund managers and portfolio companies by creating optimal capital structures, it can be detrimental in times of stress



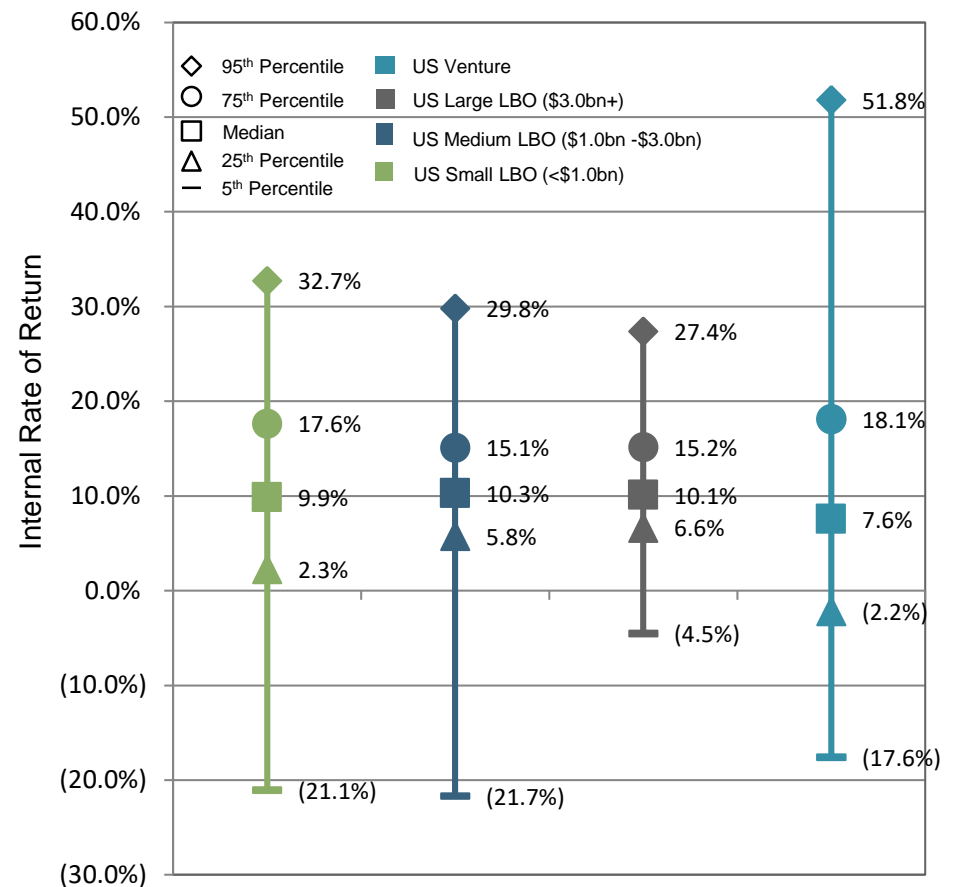
WIDE DISPERSION OF RETURNS BY: VINTAGE YEAR, FUND SIZE AND TOP VS. BOTTOM QUANTILES

Vintage Year Dispersion by Asset Class



Source: Pitchbook. As of 10/27/16.

Manager Dispersion by Asset Class



Source: Burgiss data sourced on January 21, 2016. Dataset includes vintage year funds 2002-Present, and Asia, Europe, and US Geographies. All performance as of September 30, 2015. Global venture capital and LBO partnerships, excludes secondary investments.

Why Monitor?

- Provides ongoing, active diligence of manager and measurement against original strategy, execution and return projections
 - Adherence to key parameters explored during diligence
 - Compliance to original agreement
- Enables more informed judgment to address critical issues and gray areas
 - Changes throughout the fund's life (investment period to realization)
 - Changes to the team, organization, capabilities, platform
 - Changes to performance (claw back risk, portfolio companies, reserve requirements, recycling)
 - GP/LP alignment (management fees, performance incentives)

Fund Deliverables

- A private equity investor can expect regular communication from the fund General Partner, including:
 - Annual Financial Statements
 - Annual Meeting
 - Capital call and distribution notices
 - Quarterly capital statements
 - Quarterly investor reporting and market commentary



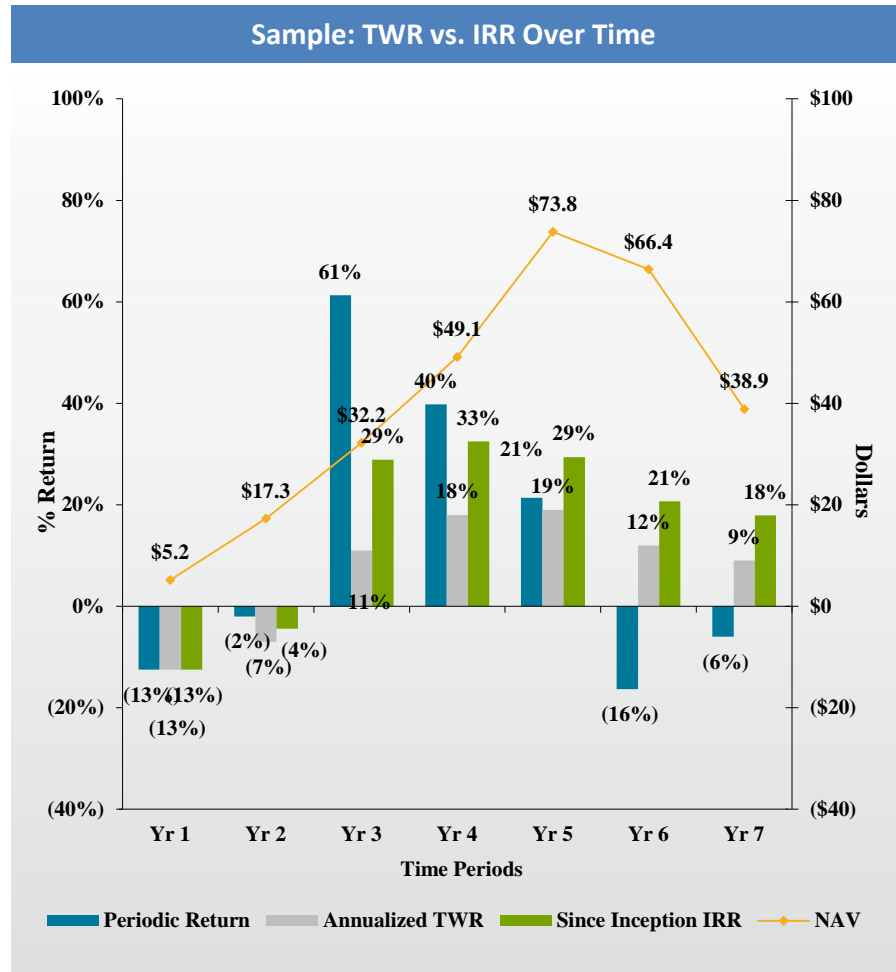
PERFORMANCE CONSIDERATIONS

Comparison: Time Weight Return (TWR) vs. Internal Rate of Return (IRR)

- Time weighted returns are incongruous with dollar-weighted return methodology
- Due to weighting, TWR will never “catch up” to an IRR

Notes:

- TWR is not an accurate measure of single manager performance
- IRRs act more as a prediction of overall return of an irregular cash flow investment
- IRR: Fixed beginning point, variable endpoint
- TWR: Variable beginning point and endpoint
- TWR heavily dependent on valuations





PERFORMANCE CONSIDERATIONS

- Private equity returns tend to be presented as IRRs; these are estimates based on interim valuations until the investments are realized
- Private equity returns are not truly meaningful until the investment period has closed and realization period begins
- IRRs are absolute (not relative) - do not control for the market
- IRRs are sensitive to sequencing of investments and the use of a capital call facility
- Investment horizon returns are used as a means to gauge performance over various time periods
 - Usually include 1 year, 3 year, 5 year, 10 year and since inception returns
 - Best gauge of performance when there are sufficient data points within a mature portfolio
 - Allows for smoothing out of short-term anomalies in performance
 - Allows for “what have you done for me lately” check
 - Used primarily for temporal (timing) decisions

Common Performance Metrics		
DPI	RVPI	TVPI (MOIC)
<ul style="list-style-type: none"> • Realized investment multiple or distribution to paid-in • Total distributions/Total paid-in since inception • Cash on cash multiple used as a measure of realized return (ignores NAV) 	<ul style="list-style-type: none"> • Unrealized investment multiple or residual value to paid-in • Current NAV/Total paid-in since inception • Measure of value “locked up” in portfolio 	<ul style="list-style-type: none"> • Total investment paid-in or multiple of invested capital • Total distributions + current NAV to total paid-in since inception • Measure of total return regardless of time period

Polling Question #4

How do you typically benchmark your private equity investments?

- a. Broadly published benchmarks
- b. Customized set of comparable funds/peers
- c. Public market equivalents
- d. All of the above
- e. I do not benchmark my private equity portfolio



FUND BENCHMARKING

Investors should benchmark their private equity investments to those with similar characteristics, including fund type (buyout, growth equity, etc.), size, vintage year, sector specialty, and geography

Components of a “good” private equity benchmark would include:

- **Investable:** The major commercial private equity benchmark providers have successfully chased coverage; as a result, the sample is large enough to create relevant subsets (akin to the S&P 500, Russell, etc.)
- **Known Constituency:** The participating funds have been vetted and reviewed by a valid third party (if not publicly disclosed); additionally, the preferred data source is financial statements from general partners, the most accurate source of data for benchmarking
- **Appropriate:** The sample should be skewed to institutional investors, mitigating biases any incomplete universe might have
- **Customizable:** The ability to customize data output and online access provides dynamic ability to aggregate information by vintage year, sector, and geography
- **Focus:** When private equity investors are selecting a benchmark, they should pay close attention to:
 - Scope/coverage of the data
 - Source of the data
 - Construction of the benchmark: definitions / components
 - Handling of non-reporting funds



FUND BENCHMARKING

As there is no true market for private equity, benchmark comparisons are made both in the short term and for long range planning

Short Term (<5 years)

- Individual fund returns under 2 years generally are not material
- Portfolio manager review mainly qualitative
- Periodic review of policy execution: investment pace, diversification
- Maintain open communication with other LPs

Longer Term (5-12 years)

Portfolio level:

- Absolute return target: if applicable to the entire plan (e.g. 13%)
- Relative return target: (e.g. listed index +300 basis points)
- Opportunity cost benchmark: usually public market modeled cash flows

Within the portfolio:

- Numerous slicing of plan performance: by vintage year, focus, geography, etc.

FUND BENCHMARKING



Five commercial databases:

Benchmark	Description	Inception	Funds Tracked	Information Source
Burgiss	Privately owned firm that provides software applications for monitoring, reporting, measuring performance, and benchmarking investments in alternative assets. Private iQ is the company's software platform, which includes the tools used for benchmarking within the global private equity asset class.	1979	4,000	Limited partner cash flows and valuation data from Burgiss's client base. Data is contributed from a variety of institutional investors, including public pension funds and corporate pension funds, endowments, foundations, and advisers. Burgiss believes the PE funds in the sample represent >70% of funds ever raised.
Cambridge	A privately owned firm that provides investment advice and research to institutional investors and private clients, including private equity consulting services. Cambridge publishes performance indices and statistics covering the global private equity markets.	1981	4,100	Consulting relationships and from self-reporting private equity managers. Consulting client base includes endowments, foundations, public and private pension funds, family offices, and other small institutions. Receive roughly 2/3 of fund level data directly from GPs.
State Street Global Services	The investment-servicing division of State Street Corporation that provides financial services to institutional investors, including custody services, investment management, and investment research and trading. One of its products is the GX Private Equity Index, a source of comparative global private equity performance data.	1980	2,300	Clients through the firm's role as custodian for large institutional investors, such as public and private pension funds, endowments, and foundations. Data is based on limited partner cash flows of State Street clients and does not rely on voluntary reporting by private
Pitchbook and Preqin	Providers of information and intelligence for the alternative assets industry to fee paying customers. Both provide a wide variety of data, including private equity benchmarks, through their online platform and publications.	N/A	4,600+	Public institutions via Freedom of Information (FOIA) requests, as well as from self-reporting private equity managers. Receives cash flow data for approximately one-third of the funds in its quartile benchmarks, which results in a different and much smaller universe for its pooled benchmarks



FUND BENCHMARKING

How does private equity perform relative to (or as an alternative to) public equity?

- To address the relative performance of public indices, the first Public Market Equivalent (PME) was developed in 1996, leading to the creation of six methods of measurement.
- The purpose of public-market equivalent benchmarks (PMEs) is to make fund performance directly comparable to the performance of indexed asset classes.
- PME compares the performance of funds with an entirely separate class of assets, rather than directly with a group of peer funds.
- PME benchmarks may be useful in comparing a private equity fund's performance to similar publicly-traded equities (i.e. similar industries).
- Unlike IRRs, PME's do control for the market and are not sensitive to investment sequence.

Polling Question #5

Have you ever been in a situation with an alternative investment where you needed to adjust your valuation for financial reporting purposes to an amount that differed from the valuation provided by the manager?

- a. Yes
- b. No

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Operational Due Diligence

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HEDGE FUND VALUATION PROCESS COMPONENTS



INTERNAL

- Fund Valuation Committee
 - Group of key fund personnel designated to opine on the monthly marks of the portfolio
 - Best practices would dictate the committee is made-up entirely or majority of non-investment personnel.
- Key Personnel
 - Chief Operating Officer
 - Chief Financial Office
 - Director of Operations
 - Operations and Accounting Team

EXTERNAL

- External groups that play a key role in the valuation of hedge funds:
 - Prime Broker
 - Administrator
 - Third party valuation consultant
 - Audit firm

HEDGE FUND EXTERNAL PARTIES IN THE VALUATION



WHAT DO THEY DO?

- Prime Broker may provide a number of services to a hedge fund:
 - Custody of assets
 - Loan of securities for short sales
 - Portfolio financing
 - Portfolio reporting
- Administrator may provide a number of service to a hedge fund:
 - Trade reconciliations
 - Portfolio accounting and NAV calculation
 - Cash management
 - Transfer agent services
- Third party valuation consultant will provide calculated market valuations for illiquid investments that are not traded on exchanges.
- Audit firm will audit and sign the annual financial statements of the hedge fund.

HEDGE FUND EXTERNAL PARTIES IN THE VALUATION



WHAT YOU NEED TO UNDERSTAND

- Prime Broker
 - Do they provide any pricing services to the Fund?
- Administrator
 - Are they official books and records?
 - What is their portfolio valuation process?
 - What level of independence do they have in valuation? Can the manager overwrite their prices?
- Third party valuation consultant
 - What percent of the portfolio do they value?
 - Do they provide a range of values or a single valuation?
- Auditor
 - Have all audits received a clean opinion?
 - Do they produce an interim valuation?
 - Do they review the Fund's valuation policy?
 - What valuation disclosures are in the financial statements?



PRIVATE EQUITY VALUATION CONSIDERATIONS

- Institutional private equity firms most often maintain a valuation committee that typically involves both members of the investment and operations teams.
- Common methods of valuation include discounted cash flow models, market multiples applied to EBITDA or revenue, or other indicative market transactions.
- Industry practice is to hold new investments at cost for at least the first year of holding, unless a material event occurs
- Often private equity firms will utilize external valuation experts to provide either a range of values or point valuation. Examples of which include Houlihan Lokey, Duff & Phelps, Deloitte, amongst many others.

Polling Question #6

On average, how much time does your organization spend as a whole with compliance activities related to alternative investments (financial reporting, audit, tax and other related activities)?

- a. 0-100 hours
- b. 101-250 hours
- c. 251-500 hours
- d. 501-1000 hours
- e. 1001-2000 hours
- f. 2001 + hours



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