LM01 Private Investments and Structures

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1. Introduction

Over the past few decades, institutional investors have significantly increased their private market asset allocations to diversify their portfolios and complement their traditional public market investments.

According to Preqin, an alternative data provider, the private market assets under management (AUM) rose from under $1 trillion in 2000 to nearly $12 trillion in 2022.

Originally dominated by major players such as sovereign wealth funds and endowments, private market investments now extend to smaller institutional investors and high-net-worth individuals.

Therefore, given the increased interest in private markets, CFA Institute has introduced the Level III Private Markets Pathway to equip finance professionals with the necessary skills to identify, target, evaluate, and manage these investments.

While public markets often feature more standardized, liquid securities of mature issuers with price transparency, private investments are characterized by unique, illiquid investments across a broader range of company life cycle stages or project development phases and are typically held for longer periods.

This unique nature, coupled with different investment methods and structures, positions private market investments as complementary to traditional public equity and fixed-income securities in strategic asset allocation strategies.

2. Features of Private and Public Investments and Markets

Public investments involve securities like debt or equity that are traded on exchanges or over-the-counter markets. Public fund managers invest in established issuers, typically with stable cash flows. These investments offer liquidity and readily observable prices.

Private investments are unlisted assets and involve companies that choose not to or cannot access public markets due to their size, stage of development, or limited financial disclosure. Private debt and equity contracts are negotiated rather than exchanged on a regular basis.

It is also important to distinguish between alternative investments and private investments, terms that are often used interchangeably. Traditional investments refer to long-only positions in stocks, bonds, and cash. All other investments are classified as alternative investments. While alternatives include most private markets, some alternative investments, such as exchange-traded commodities and hedge funds, use strategies involving public securities. Some alternatives, such as REITs, can be held publicly, while others, like private real estate, are not listed.

The Private Markets Pathway covers investments in:

- Private equity
- Private debt

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- Private special situations
- Private real estate
- Private infrastructure

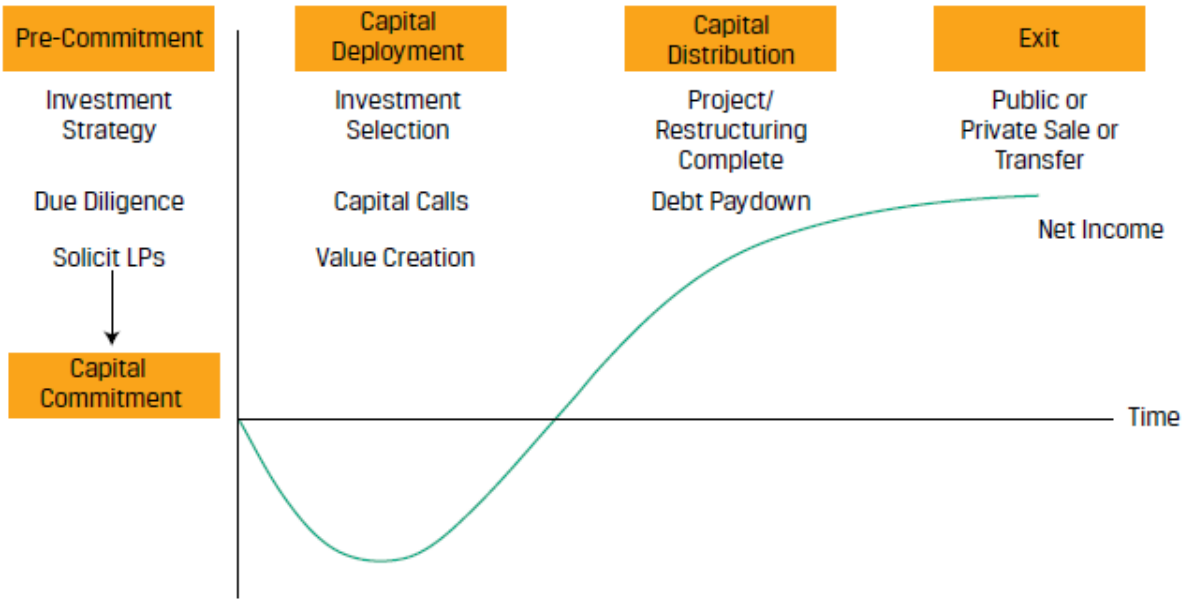
Asset Prices and Performance Measurement

Immediate access to current and historical price data is crucial for public market investment strategies, enabling investors to construct portfolios with efficient risk-return tradeoffs. In contrast, private market investors face limited price transparency. They rely on relative valuation techniques, discounted cash flow methods, and recent transactions, among other approaches, to estimate prices. Fund managers provide valuation estimates to investors with delays at less frequent (usually quarterly) time intervals, which limits the usefulness of such data for asset allocation purposes.

Public market performance metrics assume predictable cash flows, while private market investments involve far less predictable cash flows with uncertain timings. The performance metrics for private investments are discussed further in this reading.

Liquidity and Investment Process

Private assets are inherently illiquid. Fund managers usually seek a larger commitment from investors and require a far longer investment time horizon than for public funds, sometimes up to 10 years or more. The development or transformation of private assets over this longer investment holding period is referred to as the private asset investment life cycle, whose distinct phases are shown in the below Exhibit from the curriculum:



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The private asset investment life cycle consists of capital commitment, deployment, distribution, and exit phases. These phases are addressed in detail in later learning modules. An important point to note is that the cycle is characterized by initial negative returns followed by cash flow and income growth, known as the J-curve effect.

Public market investors with non-controlling stakes have limited influence over issuers beyond the exercise of voting rights. In contrast, private investment managers are actively engaged throughout the investment life cycle, from target identification to managing value creation until exit.

Manager Skills

Distinct investment processes, as well as roles and responsibilities among public and private fund managers, require different skill sets for success.

Public managers focus on company research and rely on publicly available financial data for analysis. In contrast, private investments lack market price transparency and include investment opportunities ranging from real estate to startups, necessitating skills beyond security analysis. For example, real estate investments require local market knowledge, while private equity investments require operational and industry expertise.

Due to the use of less standardized contracts in private markets, both investors and fund managers must be ready to conduct additional legal analysis when considering such investments.

Venture capital investments in early stage companies with little or no revenue involve both high risk and high rate of failure. The company's initial success is often measured by non-financial milestones, such as establishing a product and go-to-market strategy. In addition to capital, startup investors typically also provide relevant experience, contacts, and partnerships to help these startups succeed.

Portfolio Diversification Potential

Private markets and investments offer diversification potential due to their unique features, which result in low correlations with public market securities. However, unlike public markets, private markets lack observed market prices and involve longer investment periods, making it difficult to estimate correlations.

The diversification potential of private markets is evaluated differently through the following factors:

- Private company debt and equity exposures across different life cycle phases, such as rapid growth or restructuring opportunities, which are not accessible to public markets.
- The return dynamics of private company debt and equity over the investment life cycle which differ from those of mature public companies.

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- Exposure to assets besides private company debt or equity that exhibit return dynamics distinct from public securities.

Exhibit 3 from the curriculum depicts the life cycle stages of companies. Firms start small, grow quickly, stabilize, and then decline.

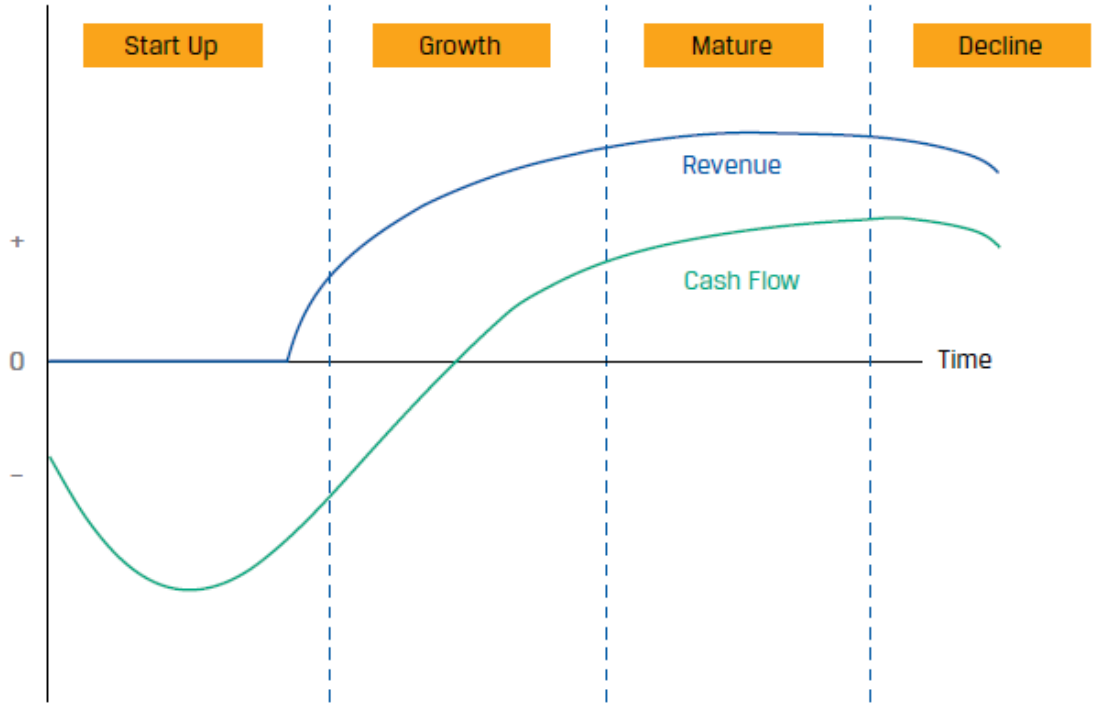

Exhibit 1 from the curriculum summarizes the features of public vs private investments.

Feature	Public	Private
Asset prices	Traded, observable	Negotiated, estimated
Performance measurement	Periodic	Compounded over holding period
Liquidity	Mostly liquid, with few trading restrictions	Illiquid, with sale prohibited or restricted
Investment process	Open-end, security selection	Closed-end, with due diligence, value creation, and exit
Investment manager skills	Industry, company, and financial analysis	Industry, management, and technical experience and expertise, legal and financial analysis
Portfolio diversification potential	Based on correlations of observed periodic returns	Based on different company and investment life cycle phases, as well as unique asset types

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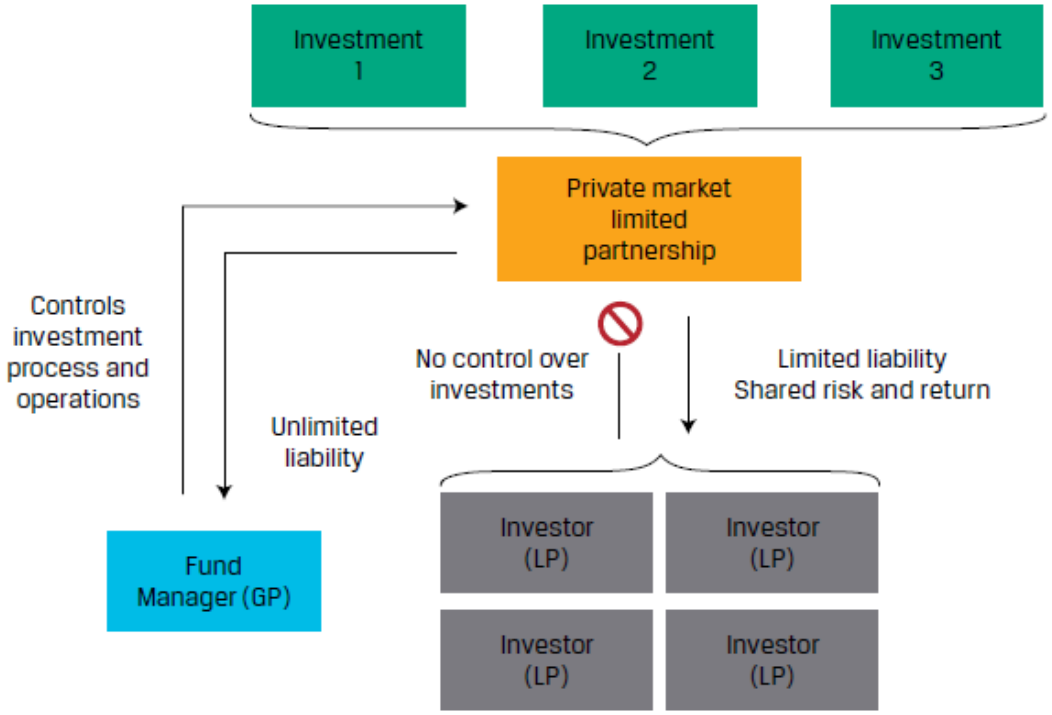
3. Private vs. Public Investment Structures

The investment options in public markets are straightforward, involving either direct security selection or employing a fund manager. In contrast, private market investments are more complex.

Private market investments often involve longer holding periods and active management, leading to structures like closed-end funds based on limited partnerships. This structure is illustrated in Exhibit 4 of the curriculum.



The fund manager assumes the role of a general partner (GP). He has control over the investment process and operations and has unlimited liability. The investors assume the role of limited partners (LPs). They have limited liability (they are liable only to the extent of the amount invested), but for this limited liability, they have to give up control over investments.

Private Investment Methods

In private markets, investors choose between Direct Investment, Co-Investment, and Fund Investment alternatives based on their resources and willingness to manage the investment. These three methods are illustrated in Exhibit 5 of the curriculum.

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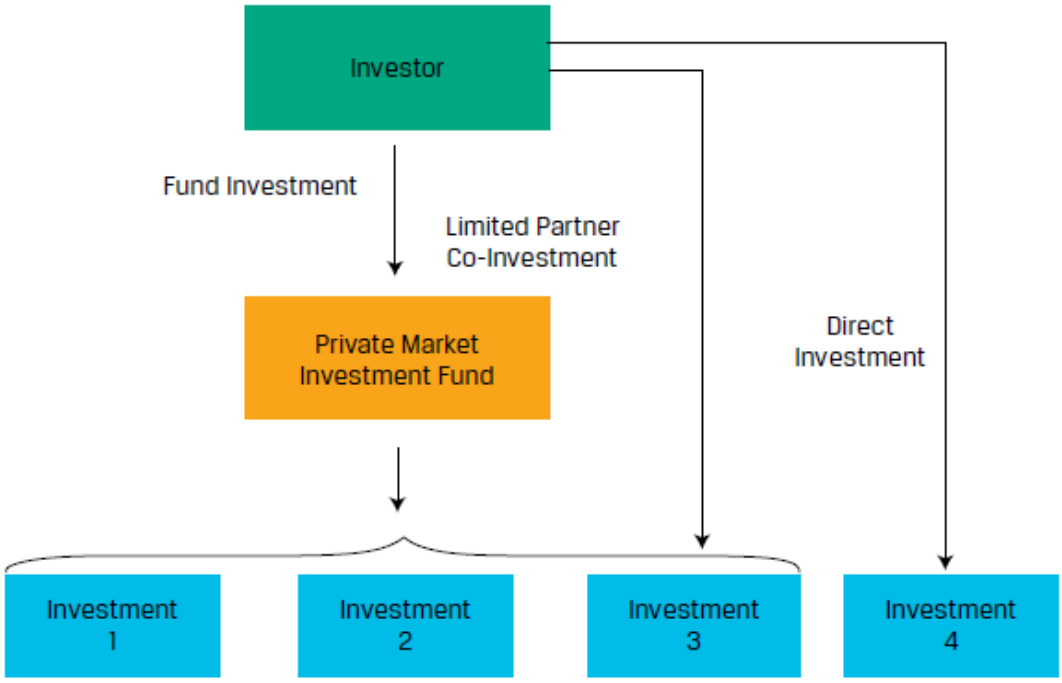

Direct Investment

Direct investment involves the purchase of an equity ownership stake or private debt investment without the use of a partner or an investment intermediary. This method is typically used by large asset owners directly purchasing significant stakes in companies or debt, and it requires substantial resources and active management.

Smaller investors (high net-worth individuals or angel investors) usually go for direct investments in startups. The relatively high failure rate of startups requires industry knowledge and experience when evaluating potential investments.

Fund Investment

Indirect investments in private market funds are often organized as limited partnerships. LPs in private market funds face long and illiquid holding periods. They are also required to commit capital in advance of investment selection and face uncertain timing of both capital calls and the distribution of returns over time. Limited partnerships often involve performance-based incentives to align manager and investor interests.

Co-investment

Co-investment allows investors to partner with others, including fund managers, to share expertise and reduce investment size. Co-investment can be done in two ways:

- Direct co-investment involves the direct purchase of an ownership stake with the use of one or more partners, one of whom may be a private fund manager.

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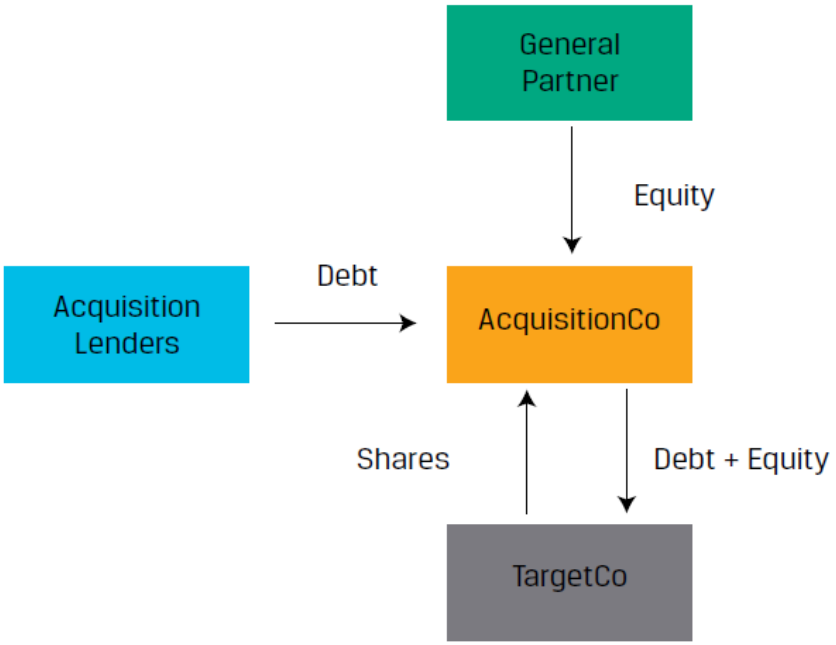
- A limited partner co-investment involves the purchase of an ownership stake in a single investment that is managed by a private fund manager. This co-investment option allows LPs to take a larger stake in specific assets of interest in a portfolio under the direction of a more experienced private fund manager.

Private Investment Structures

In private markets, investment structures and governance are flexible, allowing for negotiated terms like board seats for minority investors and the creation of entities for specific deals, such as take-private transactions.

Take-private transactions, as well as other mergers and acquisitions, typically trigger the refinancing of a target company's existing debt. This situation occurs because existing lenders and bondholders are commonly protected by a change of control clause, a provision requiring the issuer to offer to repurchase outstanding debt if certain changes occur in a company's ownership or management. To acquire a company, an acquiror has to buy out not only the entire equity but also the entire debt of the company.

In a leveraged buyout (LBO), a new entity, Acquisition Co, is created to facilitate the acquisition of TargetCo, using a high level of debt financing alongside equity from the buyout firm. This is illustrated in Exhibit 6 below:



In the second stage of the buyout, long-term financing is negotiated after the deal is closed. In some cases, an acquiror may have arranged to simultaneously sell certain divisions of TargetCo or combine the target with another company it already owns. In other cases, such actions may take place in a later restructuring phase.

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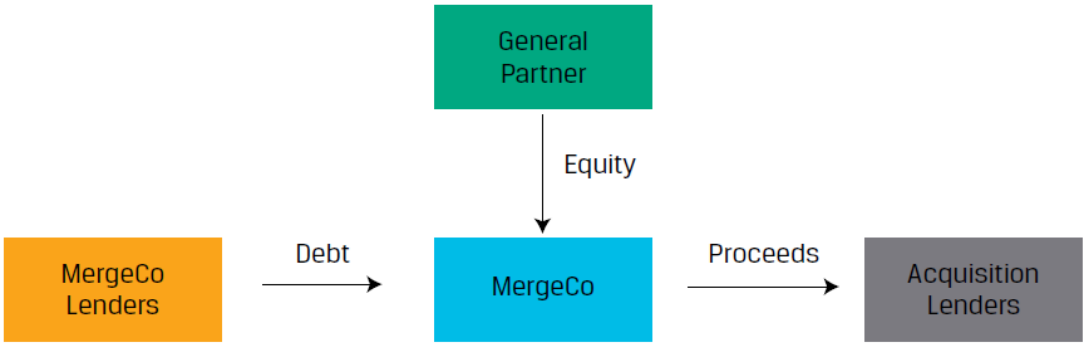
At this time, AcquisitionCo and TargetCo are combined in a merger (MergeCo), and the acquisition financing is replaced with medium- and long-term debt issued by the new legal entity, as shown in the following Exhibit from the curriculum:



Private market debt strategies, such as those in leveraged buyouts, feature flexible structures to accommodate issuer and lender needs, unlike the fixed-coupon bonds in public markets. This is demonstrated in the Straploc case study from the curriculum.

Case Study

Straploc Industries Acquisition

Glidestone Capital Partners, a private equity buyout firm general partner, has targeted Straploc Industries for a take-private transaction because of its recent underperformance versus industry peers. Straploc is a manufacturer and distributor of specialty fasteners, adhesives, and seals used in numerous industrial applications that is publicly traded on the Toronto Stock Exchange. Glidestone intends to restructure Straploc's operations and sell the company in several years.

Since Glidestone plans to fund 70% of the expected CAD1.25 billion purchase price with debt and the remainder with committed equity capital, it has asked a group of banks also serving in an advisory role on the acquisition to arrange a temporary acquisition financing of CAD875 million to support its bid, pledging the Straploc shares it will acquire as loan collateral to the lenders.

Straploc Industries' New Debt Profile

Straploc Industries' management would like the ability to repay debt early as it restructures, balance both fixed and floating interest rate exposure, stagger debt maturities, and use its fixed assets as security to reduce borrowing costs.

The underwriting banks for Glidestone's acquisition loan have offered to arrange a leveraged loan for Straploc. This type of senior secured loan has a floating-rate coupon based on market reference rates, includes several restrictive debt covenants, and is prepayable.

As the buyout equity financial sponsor, Glidestone has directly solicited private investors to purchase Straploc debt and found the greatest investor interest in a mezzanine loan, or a

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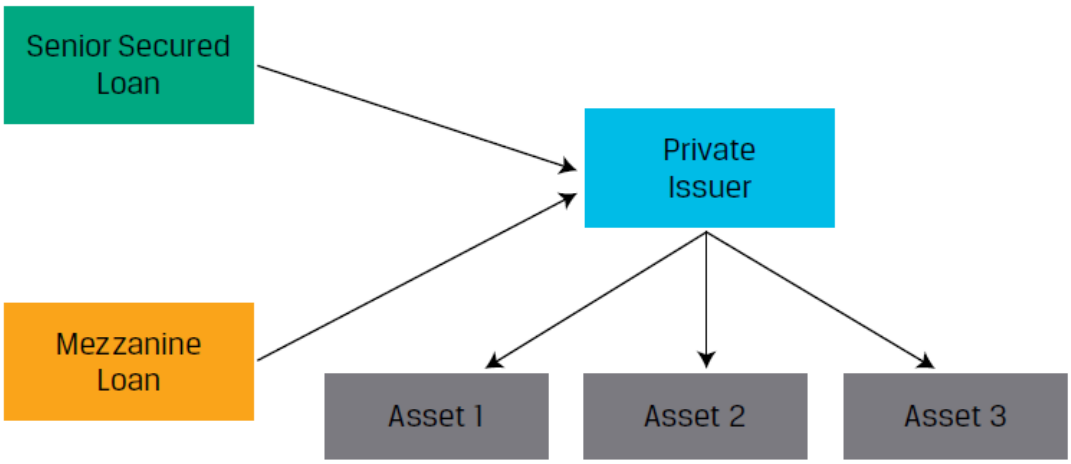
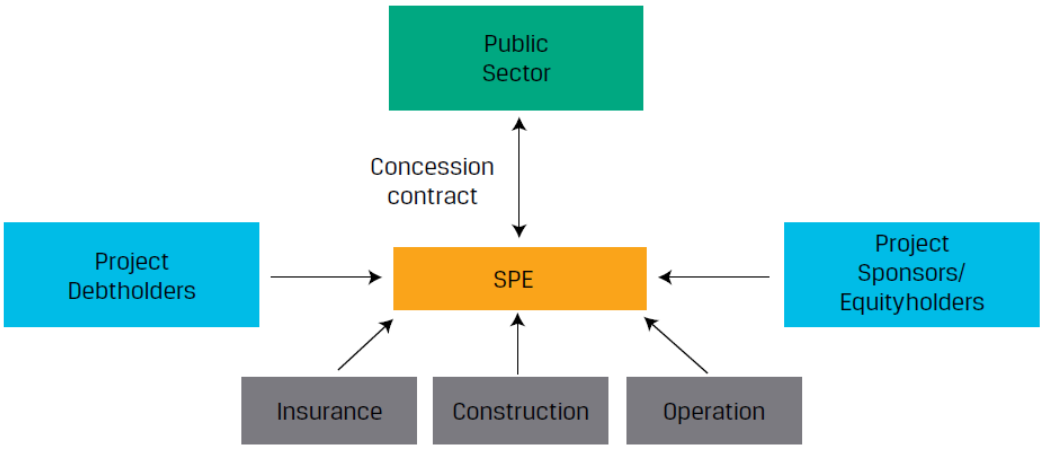
debt claim serviced after senior debt claims but before common shares. This subordinated debt has a longer tenor and a higher fixed coupon than the floating coupon on a leveraged loan, is not prepayable, and has fewer restrictive covenants.

After considering both its goals and the associated tradeoffs of different debt structures, Straploc management chooses to borrow using a larger (CAD600 million) leveraged loan tranche and a smaller (CAD275 million) mezzanine facility.

Like equity, private debt investors can directly contract with a borrower or invest indirectly as a limited partner in a private credit fund to gain exposure to the senior secured debt or mezzanine loans created in this transaction. Exhibit 8 of the curriculum shows the post-acquisition structure from the previous case study.



Project based private investments in the areas of real estate or infrastructure also often involve the establishment of a special purpose entity (SPE). The entity's sole purpose is to facilitate the construction, operation, and financing of a real estate or infrastructure asset. This is illustrated in Exhibit 9 of the curriculum.



As shown here, the SPE acts as the key entity for dealings with stakeholders like regulators and investors.

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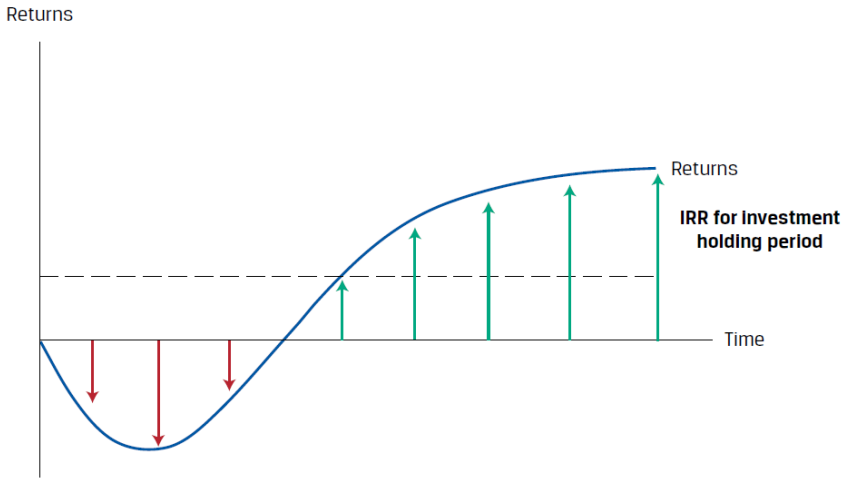
4. Private vs. Public Investments and Return Metrics

Public and private markets differ in terms of liquidity and price transparency, which leads to different performance dynamics and approaches to performance measurement.

Public vs. Private Market Performance

Public security analysts typically use measures of income and asset appreciation calculated on a consistent periodic basis to compare returns and performance. Private market investments face valuation challenges that complicate performance measurement. Due to their illiquidity and lack of price transparency, the measures used for public markets cannot be applied to private markets.

Performance in private markets involving varied investments is best evaluated over longer terms using the internal rate of return (IRR) to account for their cash flow variability. This is illustrated in Exhibit 11 of the curriculum.



An important consideration while using IRR is that it assumes cash flows are reinvested at the same rate, which may not apply in less liquid private markets, potentially affecting returns.

Another cash flow-based performance measure commonly used in private markets is the return on investment (ROI). It is a simple metric comparing cash received to cash invested.

$$\text{ROI} = \frac{\sum(\text{Cash flows received})}{\sum(\text{Cash flows invested})}.$$

A point to note is that the ROI measure does not account for the time value of money. For single-outlay investments, ROI can be converted to an equivalent IRR over the holding period, as follows:

$\text{ROI} = (1 + \text{IRR})^n$

The curriculum calculates these measures for the previous case Straploc Industries study.

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CASE STUDY

Straploc Industries' ROI and IRR

After a five-year restructuring period, assume that Glidestone Partners can sell its initial CAD375 million (equal to 30% of the original CAD1.25 billion purchase price) equity stake in Straploc Industries for CAD1.45 billion.

1. If we assume that Glidestone makes a single initial investment and received no dividends or distributions over the five years prior to sale, calculate the ROI on the Straploc equity position.

Solution

Using Equation 2, we can solve for ROI using the initial purchase price in the denominator and the sales price in the numerator:

$$\text{ROI} = 3.867\times = \frac{\text{CAD1.45 billion}}{\text{CAD375 million}}$$

2. Glidestone Partners has a target return of 30% over a five-year holding horizon on its buyout equity portfolio. Discuss whether the Straploc take-private transaction meets Glidestone's target and how the investment return would be affected if the investment were realized for the same amount and proceeds distributed earlier.

Solution

Because a single cash outflow occurs upon purchase and a single cash inflow occurs at the end, we can use Equation 3 to convert the ROI from Question 1 to an equivalent IRR over five years:

$3.867\times = (1 + \text{IRR})^5$.

IRR = 31.06%.

The IRR of 31.06% exceeds Glidestone's return target of 30%. An earlier distribution of proceeds is a benefit to Glidestone's return. For example, a sale of Straploc at the end of four years results in an IRR of 40.23%. However, it is worth noting that this higher IRR assumes that the sale proceeds can be reinvested at 40.23% for an additional year. The earlier receipt results in the same five-year return of 31.06% only if these cash flows are not reinvested at all.

Private investments involve the added complexity of upfront capital commitments that do not exist in public markets. Investors typically commit funds months or years in advance of capital deployment. They must often hold these commitments in liquid public investments with lower expected returns.

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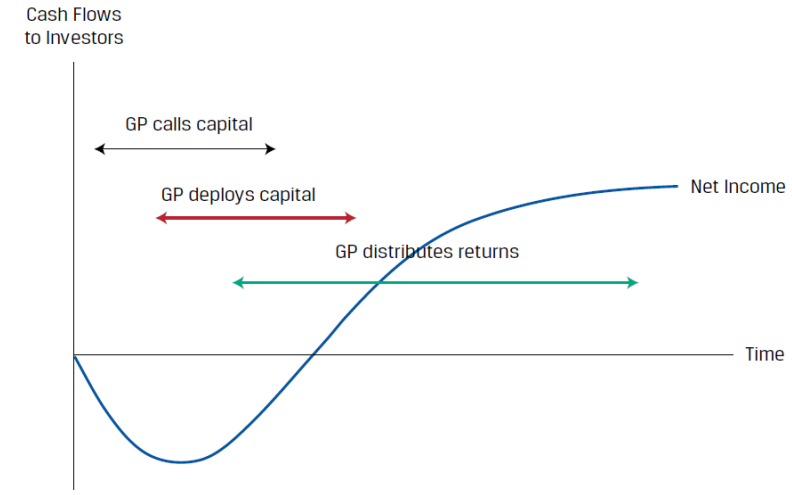

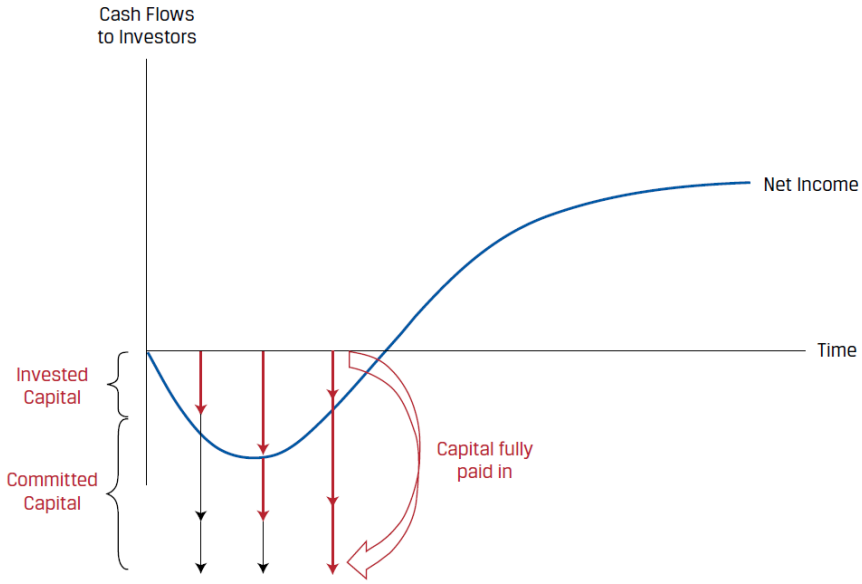

This feature complicates comparisons with public markets. The following example from the curriculum illustrates this concept.

CASE STUDY

Public vs. Private Market Return over an Investment Holding Period

Claire Thompson is an investment management consultant leading a conference workshop for public pension fund investment managers on comparing public and private market performance. She introduces a purely hypothetical example of a public pension manager with the following investment opportunities:

- Purchase shares in a public company for USD500,000 today, or
- Commit USD500,000 to a private equity fund today to be invested in a similar company in two years.

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The manager expects public and private equity investment values to generate ROI of 2× over seven years, with the private company taken public at that time. Neither equity investment is expected to make interim distributions, and all calculations ignore investment fees and any other costs.

1. Calculate the IRR of the public investment opportunity over the seven-year holding period.

Solution

Given the doubling of investment value (ROI = 2×) with no interim cash flows, use Equation 3 to calculate the IRR:

$2\times = (1 + \text{IRR})^7$; IRR = 10.41% [= $2^{(1/7)} - 1$].

2. Assume the private equity fund makes a single capital call in two years—that is, the USD500,000 will be deployed in the second year. Discuss why an investor cannot simply solve for expected private investment return using a five-year time horizon, an initial cash outflow of USD500,000, and a future inflow of USD1,000,000.

Solution

The assumption that the private market company will double in value over seven years might mistakenly lead a manager to believe that she will pay USD500,000 in two years and receive USD1,000,000 in seven years, resulting in an IRR of 14.87% [= $2^{(1/5)} - 1$]. However, this approach ignores the opportunity cost of committed capital, which is not invested for the first two years. If we instead assume the private investment generates the same 10.41% IRR as the public investment with no return on committed capital for the first two years, then USD500,000 in capital committed today and deployed in two years will return just USD820,374 [= USD500,000 × $(1 + 0.1041)^5$] at the end of seven years, or an ROI of 1.641× (= USD820,374/USD500,000). We may substitute this ROI into Equation 3 for seven years to solve for private equity IRR of 7.33%:

$1.641\times = (1 + \text{IRR})^7$; IRR = 7.33% [= $1.641^{(1/7)} - 1$]

3. Given the uncertainty surrounding the timing and magnitude of capital calls for the private equity fund, the manager decides to invest committed capital in a liquid short-term fixed-income fund that returns 3.00% per annum. Discuss the effect of this decision on the IRR of the private equity fund allocation over the seven-year time horizon.

Solution

The manager's decision to invest committed capital in a short-term fixed-income fund will reduce but not fully offset the opportunity cost of committed capital that is eventually invested in private equity in two years. We would therefore expect the IRR of this allocation to be above the 7.33% in Question 2 given the assumption of zero return on committed capital but below the 10.41% IRR of the public investment that is fully deployed in shares for seven years.

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We may demonstrate this outcome by calculating the revised IRR of the private equity fund under this assumption based on the following three steps:

Step 1 Solve for the future value of today's USD500,000 commitment. The future value of USD500,000 at a 3% rate of return in two years can be determined using a simple time-value-of-money calculation:

$USD530,450 = USD500,000 \times (1 + 0.03)^2$

Step 2 Use the result to solve for investment value in seven years. The same approach applies for the future value of USD530,450 at a 10.41% rate of return for five years:

$USD870,355 = USD530,450 \times (1 + 0.1041)^5$.

Step 3 Calculate ROI over the full seven years, and solve for IRR. ROI is simply the ratio of the USD870,355 future value and the USD500,000 original value, or 1.741×. Solve for IRR using Equation 3:

$1.741\times = (1 + IRR)^7$ IRR = 8.24% [$= 1.741^{(1/7)} - 1$].

The prior example highlights the fact that delayed deployment in private markets lowers IRR due to funds being kept in low-yield investments. This makes return comparisons with public markets difficult.

Key factors that affect the timing of capital calls include the economic outlook and public market conditions. During favorable conditions, capital is deployed faster, while adverse conditions slow deployment. For this reason, the 'vintage year' indicating when the capital is first used is key for comparing investments within private markets. It is also used for diversification over time across investment cycles.

Cash Flow and J-Curve Effects in Private Market Portfolios

Private market funds experience the J-curve effect, where initial cash outlays lead to negative cash flows; the cash flows turn positive later as the investments mature. This pattern follows from early capital commitments to full investment deployment, with performance improving as investments yield returns and exits generate cash inflows. The following case study from the curriculum illustrates this process and its effect on a fund's performance.

CASE STUDY

Tenderledge Investment Fund VIII Performance

Tenderledge Partners, a private equity firm, has successfully generated capital commitments of USD100 million for its new private market investment fund. The fund's GP plans to deploy capital among four assets in three years, with an immediate USD20 million invested, followed by investments of USD40 million, USD30 million, and USD10 million at the end of each of the next three years. Each investment produces three years of uniform cash inflows in the years following investment with a sale four years after initial investment. The

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following table shows the expected cash flows (in millions of US dollars) and IRRs for each investment asset over their respective four-year time frames.

Cash flows by asset	Initial investment	First cash inflow	Second cash inflow	Third cash inflow	Final cash inflow	Asset IRR
Asset 1	–20	5	5	5	30	29.1%
Asset 2	–40	8	8	8	45	18.6%
Asset 3	–30	3	3	3	42	15.9%
Asset 4	–10	2	2	2	20	32.5%

Tenderledge is screening candidates for an analyst position and shows the previous table along with the previous description of the fund as part of its process for eliminating applicants. In addition to the information about the asset cash flows and IRRs, the following statements are shown:

Statement 1 The arithmetic average of the project IRRs is 24.0%.

Statement 2 The weighted average of the project IRRs is 21.3%.

Statement 3 The sum of the four project cash flows produces an IRR of 21.5%.

1. Discuss one reason why each statement is incorrect regarding the Tenderledge fund IRR.

Solution

Arithmetically averaging across project IRRs shown or simply adding the project cash flows by the year following investment is not a correct methodology. The cash flows of the four projects do not occur within the same time horizons. Thus, neither individual project IRRs nor project cash flows should be aggregated, because doing so ignores the time value of money. Instead, each year's cash flow must be calculated from the individual projects. For example, in Year 3, the sum of the cash flows is USD6 million, consisting of the asset's initial USD10 million cash outflow and cash inflows from the first three assets of USD5 million, USD8 million, and USD3 million, respectively.

The following shows the expected net cash flows for the Tenderledge fund.

USD millions	CF_0	CF_1	CF_2	CF_3	CF_4	CF_5	CF_6	CF_7	Asset IRR
Asset 1	–20	5	5	5	30				29.1%
Asset 2		–40	8	8	8	45			18.6%
Asset 3			–30	3	3	3	42		15.9%
Asset 4				–10	2	2	2	20	32.5%
Net cash flow	**–20**	**–35**	**–17**	**6**	**43**	**50**	**44**	**20**	**21.7%**

Negative net cash flows associated with initial investments dominate through the second year, while cash inflows from exiting investments and asset sale proceeds dominate in Years 4–6. The resulting IRR may be calculated using the IRR spreadsheet function, IRR({values}, guess), as 21.7% [= IRR({–20,–35,–17,6,43,50,44,20},0)].

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Public market equivalent (PME) methodologies compare private market fund returns with public markets by simulating private cash flows in a public index, adjusting for timing discrepancies. The PME IRR is calculated based on the private fund's cash flows, with the PME terminal value replacing the fund's exit value. The PME approach is illustrated in the following case study:

CASE STUDY

Glidestone Partners Public Market Equivalent

Glidestone Partners recently closed a CAD70 million private equity fund with a four-year life. The fund's year-end cash flows, a comparable public market index, and its annual returns are shown in the following table.

Year	Glidestone Fund Cash Flow (CAD millions)	Public Market Index	Public Market Return
0	–40	100	NA
1	–30	120	20.00%
2	0	105	–12.50%
3	20	140	33.33%
4	78	150	7.14%

The fund's IRR is 10.50%, and the public market index compound annual return is 10.67%.

1. Discuss why Glidestone should not benchmark its fund's IRR against the public market index compound annual return of 10.67% to assess fund performance.

Solution

The public market return is computed as an annual return that ignores the uneven cash flow timing of Glidestone's fund. As a result, Glidestone cannot make a proper comparison to a public benchmark by simply using compound annual return.

2. The following table shows the year-end asset values of a PME for Glidestone's fund. Demonstrate how these amounts are derived using fund cash flows and the annual public market index returns. (Consider any beginning-of-year flows to be received at the end of the previous year.)

Year	Glidestone Fund PME Asset Values (CAD millions)
0	40
1	78
2	68.25
3	71
4	76.07

Solution

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In Year 0, Glidestone invests CAD40 million in the public market index. During Year 1, Glidestone earns 20% on its CAD40 million initial investment for a return of CAD8 million (8 = 0.2 × 40)

At the beginning of Year 2, Glidestone invests CAD30 million, bringing total portfolio value to CAD78 million (78 = 48 + 30). In Year 2, public market return of –12.5% causes Glidestone's portfolio value to fall to CAD68.25 million [68.25 = 78 × (1 – 0.125)].

In Year 3, Glidestone has no cash inflow, with a 33.33% public market return and a CAD20 million cash outflow to investors at year-end. Thus, its asset value at the end of Year 3 is CAD71 million (= 68.25 × 1.33 – 20).

In Year 4, Glidestone has no cash inflow, and its asset value is assumed to earn the public market return of 7.14%, leading to a PME terminal value of CAD76.07 million (76.07 = 71 × 1.0714)

3. Evaluate whether Glidestone's fund exceeds its benchmark.

Solution

The IRR of the PME based on Glidestone's fund cash flows in Years 0–3 and the PME Year 4 asset value is 9.86% [= IRR({–40,–30,0,20,76.07},0)]. Thus, Glidestone's fund IRR of 10.50% exceeds the PME IRR of 9.86%. By accounting for the timing of Glidestone's cash flows in the context of public market returns, we find the opposite result of the earlier comparison against the public market's compound annual return.

The PME methodology provides a theoretically correct mechanism to account for the timing differences when comparing private and public market returns. The choice of an appropriate public market index is an important factor to consider when applying the PME method. For example, the best comparable public market index for a buyout equity fund may be a mid-cap or small-cap index rather than a large-cap index if the fund targets portfolio companies of smaller size.

Fund performance is evaluated using net cash flows, with return calculation varying by investment type and strategy.

Private Market Fund Multiples

In addition to IRRs, GPs use return multiples to convey investment performance to LPs, offering insights into realized vs. unrealized returns. Although these multiples ignore the time value of money and the investment holding period, their ease of calculation and ability to differentiate between realized and unrealized returns make these multiples popular among limited partners.

The first multiple, paid-in capital (PIC), indicates the total committed capital that has been deployed to date. This is illustrated in Exhibit 12.

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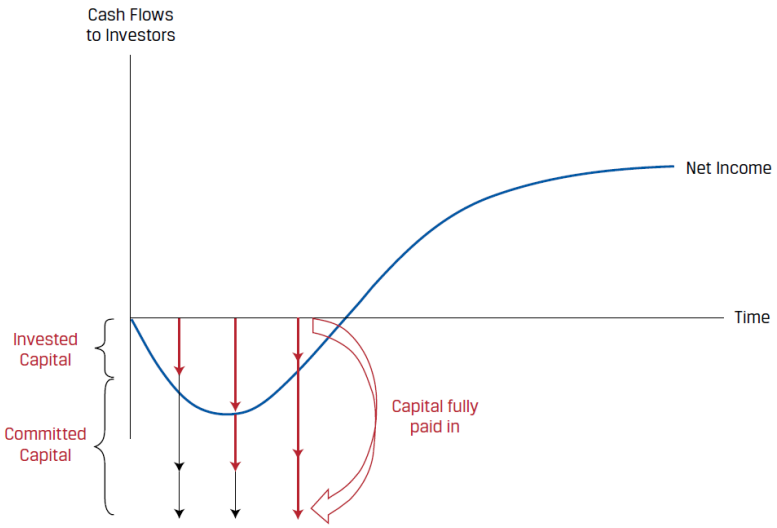
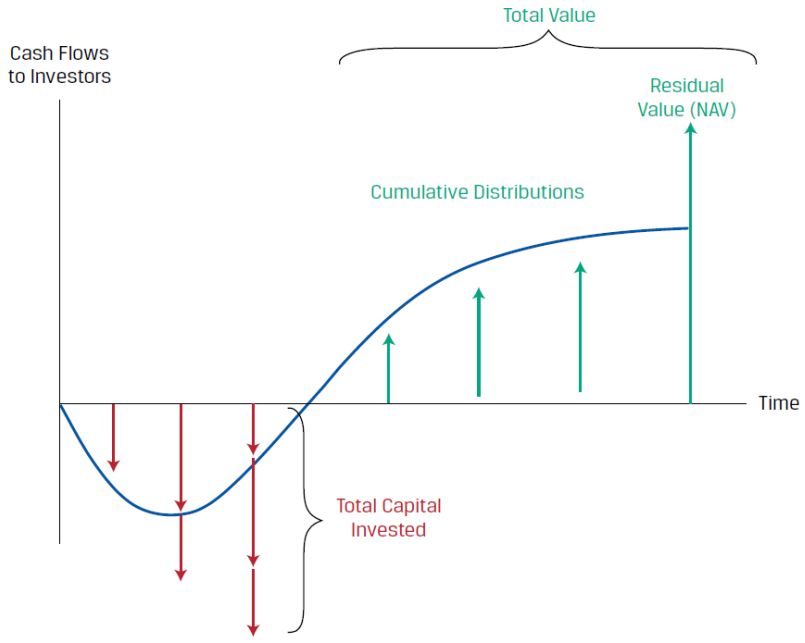


$$\text{PIC} = \frac{\text{Capital invested}}{\text{Total capital committed}}$$

PIC measures the degree to which the drawdown phase of the investment life cycle is complete, allowing LPs to compare similar investments across both GPs and vintage years, as well as across private asset classes.

PIC can also be used as an indicator of when the GP may launch a new fund. For example, GPs may launch a new fund when the PIC reaches 75%.

Other multiples evaluate investor returns in the form of realized distributions and unrealized value of investment, as compared to the capital invested. This is illustrated in Exhibit 13.



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The first return measure is distributed to paid-in (DPI). It is the ratio of cumulative distributions to LPs to the capital invested. This measure indicated an investor's realized return on investment, often called the cash-on-cash return:

$$\text{DPI} = \frac{\text{Cumulative distributions}}{\text{Total capital invested}}$$

Residual value to paid-in (RVPI) is the fund's net asset value (NAV) as a proportion of the total invested capital. Because the NAV reflects the value of the fund's remaining portfolio, this ratio is a measure of the investor's unrealized return on investment.

$$\text{RVPI} = \frac{\text{Net asset value}}{\text{Total capital invested}}$$

Total value to paid-in (TVPI) incorporates both cumulative distributions received and the NAV as a proportion of invested capital. TVPI is the sum of DPI and RVPI.

TVPI = DPI + RVPI

Average TVPIs of close to 3× are common in emerging, high-growth industries, such as information technology, and TVPIs near 2× are common in more mature industries, such as consumer goods. When considered gross of fees, which are addressed later, the TVPI is sometimes referred to as the multiple of invested capital (MOIC) or multiple of money (MOM).

The following case study from the curriculum illustrates these concepts.

CASE STUDY

Tenderledge Investment Return Multiples

Tenderledge Investment Fund VIII has successfully generated capital commitments of USD100 million. The fund's GP plans to deploy capital in four stages during the next three years, with an initial USD20 million investment followed by subsequent annual investments of USD40 million, USD30 million, and USD10 million, respectively. Based on the expected cash inflows from the four capital deployments, Tenderledge has created the following table showing fund NAV, capital called, and distributions to LPs over the next seven years.

Years	0	1	2	3	4	5	6	7
Net asset value		65	108	134	147	132	106	56
Capital called	−20	−40	−30	−10				
Distributed capital		0	0	0	10	25	40	60

1. Calculate the fund's PIC as of the end of Year 2.

Solution

Using Equation 4, we can show the fund's paid-in capital to be 90% at the end of Year 2:

PIC = 0.9 = (20,000,000 + 30,000,000 + 40,000,000)/100,000,000.

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By the end of Year 2, Tenderledge called USD90 million of capital in three stages. This amount represents 90% of the USD100 million of capital committed, an indication that it is near the end of the drawdown phase.

2. Calculate and interpret the fund's DPI as of the end of Year 7.

Solution

Using Equation 5, we can show distributed to paid-in as follows:

DPI = 1.35

= (10,000,000 + 25,000,000 + 40,000,000 + 60,000,000)/100,000,000.

The fund's DPI is 135% at the end of Year 7. This result implies that LPs have realized cash distributions 35% greater than the cash invested in the fund.

3. Calculate and interpret the fund's TVPI as of the end of Year 4.

Solution

Use Equation 7 to solve for fund TVPI at the end of Year 4 with USD10 million in cumulative distributions and a year-end fund NAV of USD147 million:

TVPI = (10,000,000 + 147, 000, 000)/ 100,000,000

This result implies that the sum of the realized and unrealized returns to LPs is 57% above the initial amount invested into the fund. Note that this implies a DPI of 10% (= USD10 million/USD100 million) and an RVPI of 147% (= USD147 million/USD100 million), indicating that most of the fund's value is unrealized.

5. Private vs. Public Risk and Return

Post the 2008-2009 global financial crisis (GFC), private markets outperformed public ones, with private equity funds averaging a 20.1% IRR (for 2009 – 2019 period) versus the S&P 500's 11.8%.

Private market fundraising also hit a high of $1.35 trillion in 2021, double the amount raised in 2007, the year prior to the GFC.

Increased allocations to private assets and policy changes have broadened investor access.

Private equity displays significant return variability, emphasizing the importance of manager skills. For example, for the period 2009 to 2019, the manager performance differential between the top (29.8%) and bottom (11.4%) quartiles was 18.4%. However, other private assets show less variability among managers.

Effects of Private Market Features on Risk and Return

Investors looking into private markets must account for longer holding periods and the J-curve effect, which distinguish them from public markets and affect risk and returns.

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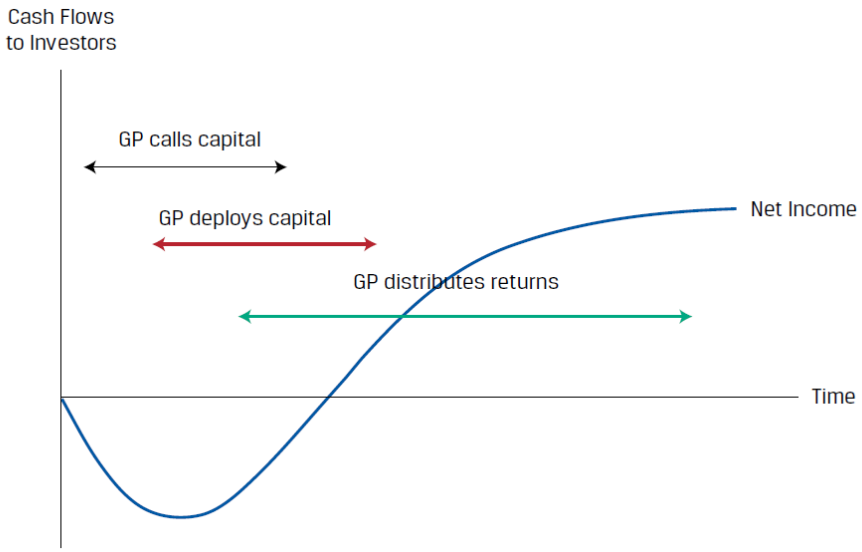
Exhibit 14 from the curriculum identifies key factors driving returns during the investment lifecycle.



- Commitment: Funds pledged but not used are kept in lower-return public assets.
- Deployment: Early investment incurs fees and shows negative returns; valuations may include unrealized gains.
- Return Distribution: Once returns reach the amount of capital contributed, the fund reaches an IRR of zero. Over time, the IRR converges to the true compounded return at the end of its life.

Private market investments focus on price appreciation due to their longer durations and initial negative returns (J-curve effect), requiring higher returns for their higher risk and illiquidity. They provide access to a wider range of high-risk, high-reward opportunities, like venture capital in emerging sectors.

Risk and Return across Asset Classes

Investors should assess the risk and return differences between private and public market assets. Exhibit 15 from the curriculum shows this comparison, which will be covered in detail in later learning modules.

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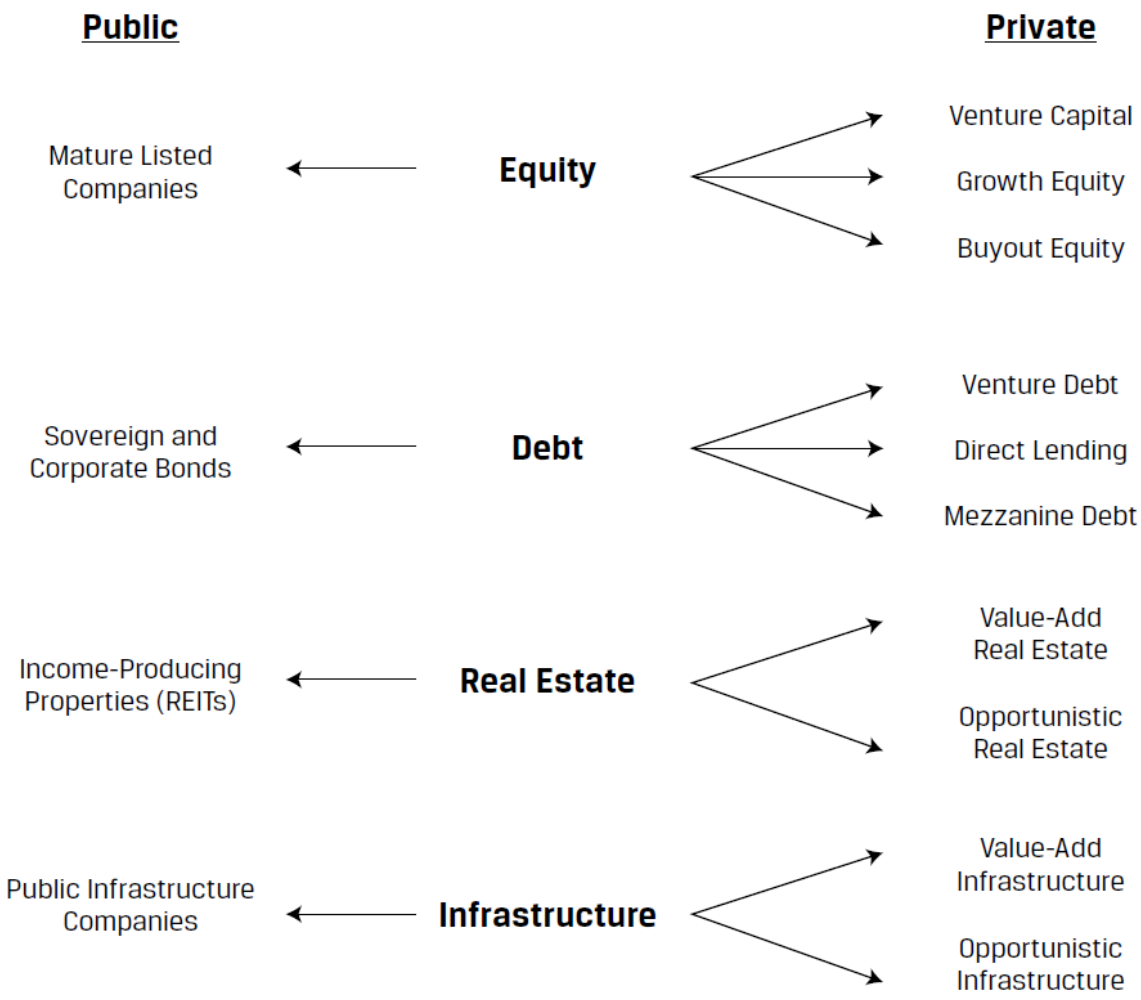

Equity

Private equity targets companies at various growth stages for higher returns, focusing on innovation and leveraging buyouts.

While offering diversification and potential outperformance, these investments are tied to public market dynamics through valuation and pricing.

Debt

Public fixed-income involves low-risk, stable bonds, while private debt covers riskier options like venture debt and mezzanine debt, offering varied risk-return profiles due to higher default risks and illiquidity.

Real Estate

Public real estate investments like REITs offer stable cash flows from direct property ownership. In contrast, private real estate focuses on higher-risk development projects expecting greater returns for their longer duration, market risks, and illiquidity, compared to more diversified public REITs.

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Infrastructure

Public infrastructure involves mature companies with consistent cash flows, while private infrastructure focuses on riskier new projects expecting higher returns and diversification.

Special situations investments in private markets aim for high returns from distressed or event-driven opportunities, thriving during economic downturns.

Asset Allocation with Private Markets

LPs in private markets need to plan for liquidity carefully, adopt a consistent investment pacing strategy, and maintain strong GP relationships to optimize returns, considering the complexities and illiquidities of these investments.

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Summary

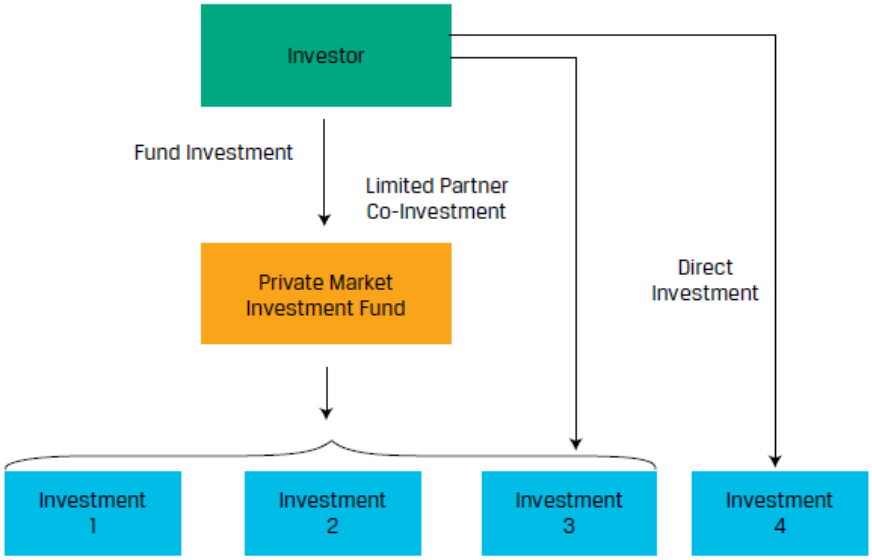
LO: Contrast the features of private and public investments, and discuss characteristics of private and public markets.

The following Exhibit from the curriculum compares the features of public vs private investments.

Feature	Public	Private
Asset prices	Traded, observable	Negotiated, estimated
Performance measurement	Periodic	Compounded over holding period
Liquidity	Mostly liquid, with few trading restrictions	Illiquid, with sale prohibited or restricted
Investment process	Open-end, security selection	Closed-end, with due diligence, value creation, and exit
Investment manager skills	Industry, company, and financial analysis	Industry, management, and technical experience and expertise, legal and financial analysis
Portfolio diversification potential	Based on correlations of observed periodic returns	Based on different company and investment life cycle phases, as well as unique asset types

LO: Discuss private investment methods and structures and their uses.

In private markets, investors choose between Direct Investment, Co-Investment, and Fund Investment Alternatives based on their resources and willingness to manage the investment, as outlined in the following Exhibit from the curriculum.



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In a leveraged buyout (LBO), a new entity, AcquisitionCo, is created to facilitate the acquisition of TargetCo, using a high level of debt financing alongside equity from the buyout firm. Take-private deals and mergers trigger the target's debt refinancing because of a change of control clauses that demand debt repurchase on ownership changes. Post-acquisition, long-term financing is secured, possibly involving divestitures or mergers. Finally, the acquiring and target firms merge into a new entity (MergeCo), which takes on medium- to long-term debt.

Private debt investors can either directly engage with borrowers or invest via private credit funds to access senior secured debt or mezzanine loans.

Special Purpose Entities (SPEs) are established for project-based investments in areas like real estate and infrastructure.

LO: Discuss the difference between public and private market performance, and calculate, interpret, and discuss the use of performance metrics including distributed to paid-in, residual value to paid-in, and total value to paid-in.

Public markets offer transparency and liquidity, facilitating performance analysis and arbitrage, unlike private markets, where valuation complexities arise from illiquidity and lack of transparency.

Performance in private markets, involving varied investments is best evaluated over longer terms using the internal rate of return (IRR) to account for their cash flow variability.

The IRR assumes cash flows are reinvested at the same rate, which may not apply in less liquid private markets, potentially affecting returns.

Return on Investment (ROI) is a simpler metric comparing cash received to invested.

$$\text{ROI} = \frac{\sum(\text{Cash flows received})}{\sum(\text{Cash flows invested})}.$$

ROI doesn't account for time value of money.

For single-outlay investments, ROI can be converted to an equivalent IRR over the holding period, illustrating their relationship.

$\text{ROI} = (1 + \text{IRR})^n$

Public Market Equivalent (PME) methodologies compare private market fund returns with public markets by simulating private cash flows in a public index, adjusting for timing discrepancies. This creates a terminal value for calculating the PME IRR, offering a direct comparison to public market performance.

GPs use return multiples to convey investment performance to LPs, offering insights into realized vs. unrealized returns.

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These multiples include Paid-In Capital (PIC), Distributed to Paid-In (DPI), Residual Value to Paid-In (RVPI) and Total Value to Paid-In (TVPI),

$$\text{PIC} = \frac{\text{Capital invested}}{\text{Total capital committed}}$$

$$\text{DPI} = \frac{\text{Cumulative distributions}}{\text{Total capital invested}}$$

$$\text{RVPI} = \frac{\text{Net asset value}}{\text{Total capital invested}}$$

TVPI = DPI + RVPI

LO: Compare the risk and return of investing in private markets and public markets as part of a strategic asset allocation.

Post-Global Financial Crisis, private markets outperformed public ones, with private equity funds (2009-2019) averaging a 20.1% IRR versus the S&P 500's 11.8%.

Private equity displays significant return variability, emphasizing the importance of manager skill, while other private assets show less variability among managers.

Investors looking into private markets must account for longer holding periods and the J-curve effect, which distinguish them from public markets and affect risk and returns.

LPs in private markets need to plan for liquidity carefully, adopt a consistent investment pacing strategy, and maintain strong GP relationships to optimize returns, considering the complexities and illiquidities of these investments.

Private equity targets companies at various growth stages for higher returns, focusing on innovation and leveraging buyouts. While offering diversification and potential outperformance, these investments are tied to public market dynamics through valuation and pricing.

Public fixed-income involves low-risk, stable bonds, while private debt covers riskier options like venture debt and mezzanine debt, offering varied risk-return profiles due to higher default risks and illiquidity.

Public real estate investments like REITs offer stable cash flows from direct property ownership. In contrast, private real estate focuses on higher-risk development projects, expecting greater returns for their longer duration, market risks, and illiquidity compared to more diversified public REITs.

Public infrastructure involves mature companies with consistent cash flows, while private infrastructure focuses on riskier new projects expecting higher returns and diversification. Special situations investments in private markets aim for high returns from distressed or event-driven opportunities, thriving during economic downturns.

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