Chapter 1

Introduction to Alternatives

This chapter provides background information on the world of alternative investments, beginning with a definition of alternatives and some common characteristics that distinguish these assets from traditional investments in stocks, bonds, or cash.

Next, this chapter reviews the structure of alternative investment firms and funds, highlighting several important differences compared to traditional assets. We also discuss important techniques and attributes of alternative strategies, including leverage, short selling, hedging, and fees.

With that foundational understanding in place, we present a due diligence framework. Much as institutional investors conduct due diligence on potential investments, we will refer to different elements of this framework throughout the book to help the reader understand the various alternative strategies and the role they may play in investor portfolios.

Finally, we discuss in brief two issues of more than passing interest to investors in alternatives: regulations and performance measurement. Both of these topics are more complex than can be addressed in this book, so we will limit our material to a few of the most important differences between alternatives and traditional investment products.

1.1 What Are Alternatives?

Ask someone on the street about investing and the answer will likely refer to stocks or maybe bonds. Together with cash, these constitute the "traditional" financial assets and are accessible to individuals through direct purchase (buying shares of stock) or through funds (i.e., mutual funds in the United States, unit trusts in Europe). In many countries these assets are closely regulated to provide individual investors with certain protections against fraud and bad actors. Typical regulations require standardized disclosure of financial and other information, transparent pricing, and trading through regulated securities exchanges.

If stocks, bonds, and cash are "traditional investments," what does the term "alternative investments" mean? The first word is the most important, "alternative"—somewhat obviously it means any investment that is not stocks, bonds, or cash—anything else is considered an alternative investment. Note that IPOs (initial public offerings) and SPACs (Special Purpose Acquisition Companies) are considered specialized examples of stocks in this book, as are nearly all ETFs (exchange-traded funds).

Although some alternative investment strategies trade in exchange-listed public assets—hedge funds being one example—many alternative asset classes involve investments in entities that are not traded on an exchange ("unlisted"); these are often referred to as belonging to the "private markets." Private markets assets include ownership stakes in private companies (most commonly Venture Capital and Private Equity), some Real Estate and Infrastructure investments, and Impact Funds as examples. Beyond these investments in companies and projects, alternative investments also include commodities, collectibles, and a wide range of other assets that are not stocks, bonds, or cash.

Alternative investments often share other characteristics that may cause the investment to be riskier (or more expensive) than traditional investments, and as a result, the investor should do more due diligence before investing.

Table 1.1 presents the common features of alternative investments.

To aid understanding of why these features of alternative investments are important, let us describe a few of these characteristics, starting with "Liquidity restrictions." The ability to buy or sell an asset

TABLE 1.1. Common features of alternative investments

- Narrow manager specialization and potentially unconventional investment strategies
- Concentrated portfolios, potentially higher risk due to lower diversification
- Limited and potentially problematic historical risk and return data, making performance measurement more difficult
- Relatively low correlation of returns with those of traditional investments
- Absolute return targets
- High fees and/or performance-based fees ("2 and 20")
- Restrictions on redemptions (i.e., "lockups" and "gates")
- Liquidity restrictions, often associated with a return premium as compensation
- Unique legal and tax considerations
- Less regulation and less transparency than traditional investments
- Not generally publicly traded—these are private investment vehicles
- High due diligence costs, and available for "sophisticated investors" only

without significantly influencing the price of the asset is referred to as "liquidity." Investments in cash, stocks, or bonds, or even mutual funds or unit trusts, are straightforward to trade through a brokerage account. Many of these investments are relatively liquid. In contrast, most alternative investments do not trade on public exchanges, making them harder to buy and sell, and therefore they are described as being less liquid.

Furthermore, many alternatives place restrictions on redemptions (sales), requiring a minimum holding period (also called a lockup) followed by a notice period before it is possible to redeem them. For example, private equity funds invest in unlisted companies that take considerable time to buy and sell, and typically require investors to commit to minimum holding periods of 7–10 years. Some managers investing in less liquid assets may also place "gates" on funds to control the pace of redemptions, or halt redemptions altogether in an extreme case like the Global Financial Crisis. One example of a gate could be a fund that only allows investors to sell one quarter of their holdings at any one time. Investors in alternatives should carefully consider the impact of these additional restrictions on liquidity from lockups and gates when deciding whether (and how much) to invest.

"Limited and potentially problematic historical risk and return data" is another common and important characteristic of alternative

assets. Stocks and mutual funds trade on exchanges, creating a very detailed record of historical price information. Alternative investments, on the other hand, typically don't trade on exchanges, and, as a result, historical data may be limited in scope and detail (e.g., monthly or quarterly data only). In addition, price and performance data are often self-reported by the manager—this is potentially problematic because you must trust that the manager is reporting the correct figures.

1.2 Investing in Alternatives

For reasons which will be explained throughout the book, institutions and wealthy individuals account for the majority of investments in alternative assets. These investors may have direct contact with alternative investment managers, or they may access and invest in these assets through intermediaries like private banks.

From the fund manager's perspective, raising money is one of the most important challenges to building a successful business. Like entrepreneurs in other industries, fund managers therefore tap into different distribution channels to find suitable investors for their fund. Institutions are often large enough to be able to make significant investments, and fund managers attend conferences and hire dedicated staff to reach these investors. Wealthy individuals, on the other hand, have relatively less capital to invest, so it can be more efficient to raise capital from wealthy individuals by partnering with a private bank.

From an investor's perspective, large institutional allocators may enjoy direct relationships with fund managers, which also means avoiding the additional layer of fees charged by intermediaries like private banks. The intermediaries provide benefits such as access to funds and additional due diligence on managers that may justify the additional fees for individual investors who would otherwise find it difficult to invest in these alternative funds.

1.2.1 The Market for Alternatives

One way that investors evaluate the attractiveness of different investments is through the relationship between return and risk. A 2021 study of private markets funds by Morgan Stanley shows historical

return and risk for many major asset classes. Venture Capital and Buyout Funds (two of the major Private Equity strategies that will be described further in Chapter 2) stand out for their superior returns per unit of risk (Figure 1.1).

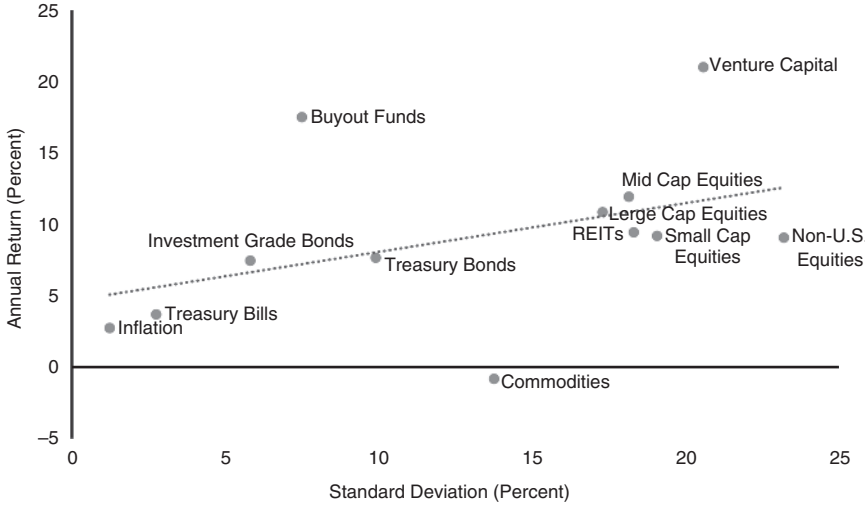

FIGURE 1.1. Performance of major asset classes, 1984–2015.
Source: Mauboussin and Callahan, 2020, Morgan Stanley.

Given this historically strong performance, perhaps it shouldn't be surprising that assets in alternative strategies have been growing faster than public markets. The industry uses "assets under management" (AUM) as a measure of the amount of capital being managed by investment firms. Looking back over the past 40 years of US data, the same Morgan Stanley report documents a tremendous rise in allocations to US Buyout funds.

When viewed in the context of the broader asset management industry, we see that investments in alternative assets are growing more quickly than the industry as a whole: a recent report by the Boston Consulting Group finds that between 2009 and 2020, alternative assets increased their share of total assets from 13% to 15%. (Figure 1.2).

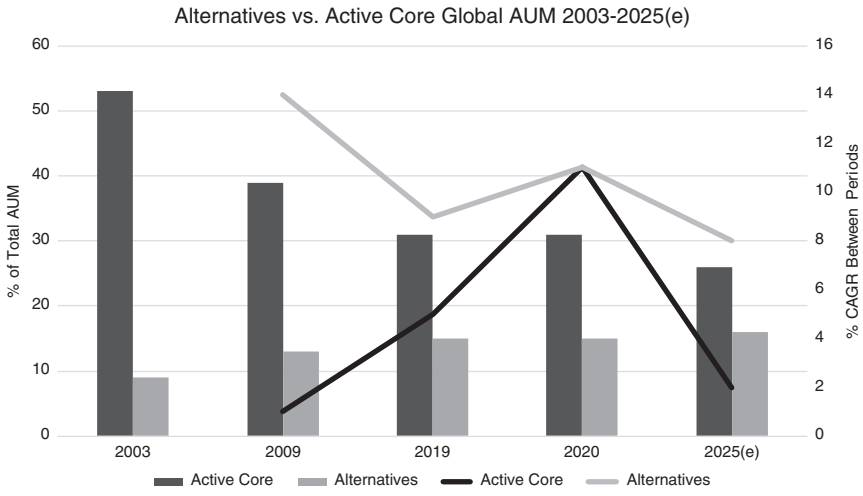

FIGURE 1.2. Comparison of AUM and CAGR, Alternatives vs. Active Core, 2003–2025(e)

The growth in alternative assets is not uniform across asset classes. For example, other studies have shown Private Equity AUM growing faster than other large alternative asset classes like real estate and hedge funds.[1]

1.2.2 Managing Alternative Investment Funds

As explained above, alternative investment strategies are characterized by important differences from the "plain vanilla" investments (stocks and bonds) that are familiar to most individual investors. This section explores some of these differences in greater detail.

1.2.2.1 Illiquid Structures

There are two types of entities involved in most alternative investment funds: the firm responsible for running the fund and the investors in the fund. The firm running the fund is generically called the General Partner (GP). As shown in Figure 1.3, what practitioners call the GP is more properly called a "financial sponsor," which for liability purposes maintains two separate legal entities: the GP which legally runs the fund and assumes liability, and the management company that employs the people making the investment decisions for the fund.

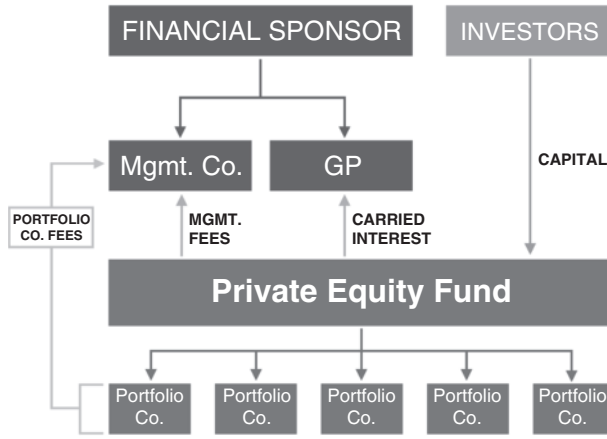

FIGURE 1.3. Roles of financial sponsor and investor.
Source: A Simple Model, https://www.asimplemodel.com/insights/private-equity-fund-structure, last accessed December 14, 2022.

Investors in the fund are called Limited Partners (LPs). As the term suggests, LPs' interests are limited to a financial investment in the fund; they have no other involvement or economic interest. The fund is a separate entity as well, which means it is important to be clear whether something refers to the manager of the fund (GP) or the fund itself. The fund holds the investments that are made, which can include ownership stakes in private companies, shares in company stocks, bonds, or other types of assets. Prior to the collapse of Lehman Brothers during the Global Financial Crisis (GFC) of 2008–2009, LPs were often content to make their investments in a single, shared entity for the fund. These so-called "co-mingled" vehicles offer several conveniences for manager and investor alike, including economies of scale with respect to operational activities such as trading, accounting, and reporting. When Lehman Brothers collapsed, however, many LPs were burned by an important shortcoming of co-mingled vehicles: because the investments from different investors were held in a single fund, it was difficult to settle competing claims on the remaining assets during bankruptcy proceedings. In fact, as of mid-2022, lawsuits are still pending in New York and London—nearly 14 years later.[2]

In the years following the GFC, institutional LPs have become more likely to invest via a "separately managed account" (SMA),

a different structure that ensures that each investor's assets are kept legally separate from other LPs in a fund. The downside for fund managers is that SMAs are operationally more expensive to set up and maintain, so GPs typically require larger minimum investments (on the order of $50 million or more for larger managers) to justify the additional expense.

1.2.2.2 ETFs, Liquid Alternatives, and Interval Funds

Adherents to the "efficient markets hypothesis" believe that all relevant information about a security is already (or immediately) incorporated into its price, meaning that it would be pointless for investors to try to beat the market.[3] Therefore, to capture market returns, or beta, many investors use "passive" strategies designed to mimic the returns of the market index (e.g., S&P 500) as closely as possible with the lowest possible fees. The first products to offer this strategy were index mutual funds; over time the mutual fund design has been eclipsed in popularity by exchange traded funds, or ETFs. In addition to the low fees associated with passive investing in general (because the manager is only trying to mimic the index returns as closely as possible), investors also prefer that ETFs trade during the day like stocks. To capitalize on increasing investor demand, index providers and fund managers alike have developed a wide range of indices and ETFs to track those indices.[4] BlackRock has become the world's largest asset manager in large part due to the success of its passive investing products, iShares.

Despite the attractive components of ETFs, they do have their inherent risks as well. Investors should note that it is often difficult to track market indices closely because it is not possible to purchase each security in the same proportion as a basket of stocks tracked by the indices. The portfolios of stocks in an index are often weighted by market capitalization, which can lead ETFs to overweight stocks that are trading at a premium and underweight stocks that are trading at a discount.

A small subset of the ETF market is referred to as "liquid alternatives." As the term suggests, these products transform otherwise illiquid alternative assets like hedge funds and private equity into liquid versions that trade like mutual funds (daily liquidity) or even stocks (intraday liquidity). As opposed to private investment vehicles available only to accredited investors (see Section 1.4.1), liquid alternative funds

are designed for retail investors and are subject to the same regulations that provide limits and protections to investors in mutual funds, for example. As of August 2022, ETF information provider VettaFi lists 23 ETFs totaling over $4.5 billion AUM under the category "Long/Short."[5] An excerpt from the VettaFi database showing the 10 largest long-short ETFs (Table 1.2) reveals a wide range of strategies and performance, many of which are available to individual investors without accreditation or qualification (see Section 1.3).

TABLE 1.2. The 10 largest long-short ETFs in the VettaFi database

Symbol	*ETF Name*	*Total assets ($)*	*YTD (%)*	*Avg volume*	*Previous closing price*	*1-day change (%)*
XYLD	Global X S&P 500 Covered Call ETF	2,226,690	2.36	561,444	$40.30	0.02
QAI	IQ Hedge Multi-Strategy Tracker ETF	634,859	2.39	238,967	$29.14	–0.07
FTLS	First Trust Long/Short Equity ETF	618,011	2.11	99,481	$49.90	0.26
BTAL	AGFiQ US Market Neutral Anti-Beta Fund	441,962	–4.90	598,635	$20.17	–1.27
CSM	Proshares Large Cap Core Plus	430,795	4.67	15,784	$47.01	–0.15
KMLM	KFA Mount Lucas Managed Futures Index Strategy ETF	248,836	–4.51	228,759	$29.17	–0.41
CTA	Simplify Managed Futures Strategy ETF	145,975	–4.38	269,216	$24.87	–1.50
MARB	First Trust Merger Arbitrage ETF	98,605	–0.31	51,479	$20.11	0.10
LBAY	Leatherback Long/Short Alternative Yield ETF	97,676	0.72	44,037	$29.57	–0.94
FLSP	Franklin Systematic Style Premia ETF	92,928	–1.08	10,103	$21.01	–0.19

Source: Adapted from ETF Database / https://etfdb.com/etfdb-category/long-short/.

Another structure known as "interval funds" offers a partial solution to the issue of liquidity for alternative investments. These funds provide periodic (often quarterly) opportunities for investors to redeem a portion of their holdings. As opposed to liquid alternative ETFs with daily liquidity, interval funds are more suitable for strategies that require longer holding periods such as private investments. For example, US-based advisor Stone Ridge (www.stoneridgeam.com) manages an interval fund that invests in reinsurance-based securities (to be discussed further in Chapter 4, Section 4.2.1). This fund provides better liquidity than a 7- to 10-year lockup, to be sure, but the minimum investment is $15 million[6] and likely out of reach for many otherwise qualified and accredited investors.

1.2.2.3 Funding and Capital Calls

The private markets GPs described above typically raise money for multiple funds over time. Each fund is usually expected to have a lifespan of 7–10 years as measured from the "closing" of the fund and first investments to the sale or disposal of the last remaining assets—some may live as long as 15 years or more. Funds are raised and then closed to new investors; the LPs in the fund commit to invest a certain amount of capital over the life of the fund. Rather than making the full investment when the fund is launched, LPs are expected to deliver their capital to the fund when "called" by the manager (GP) over time, usually driven by the timing of potential investment opportunities for the fund. One common practice is for the initial investment to be 10–20% of the total commitment at closing. The year in which the fund is closed and the first capital is referred to as the "vintage" of the fund.

Consider the following (oversimplified) example. The GP raises a $1 billion fund to invest in private companies around the world. An LP commits to invest $50 million, and at closing delivers $10 million, or 20% of its commitment, to the fund. The GP uses the initial capital (20% of $1 billion, or $200 million) to buy three mid-sized companies it has already identified. Nine months later, the GP has found another two companies to buy for a total of $100 million. The GP calls capital from the LPs in proportion to each commitment; in our case, the LP represents 5% of the total fund ($50 million out of $1 billion) and so is expected to deliver another $5 million to the fund—usually within a week of receiving the capital call.

By timing capital calls in this way, investors' capital spends the least amount of time sitting idle in a low-return riskless account waiting to be invested. This allows GPs to put the capital to work as quickly as possible and maximize their reported performance for their LPs (see the discussion on internal rate of return in Section 1.2.4).

In public markets alternative funds—typically hedge funds and commodity trading advisors (CTAs)—the underlying investments (e.g., stocks) are more liquid than the underlying investments held by private markets funds (e.g., ownership of private companies). The underlying investments are liquid, however, the funds are not. For public markets funds there are no capital calls, but there may be restrictions related to redemptions.

1.2.2.4 Fees

Different alternative assets use slightly different terms, but fee structures usually contain three major components: (1) a management fee that gets paid regardless of performance; (2) an incentive fee that gets paid only if performance exceeds a predetermined level; and (3) any conditions on either of the first two.

Management fees, often 1–2% of assets, compensate the manager for the expenses of running the fund, especially staff salaries. Note that these fees are significantly higher than the fees for either ETFs or mutual funds, even if those funds were to focus on the same investment universe (e.g., S&P 500 stocks). Some very successful hedge funds are in such high demand by investors that instead of charging a fixed percentage management fee, they pass actual expenses through to their investors ("expenses-and-20"). Unsuspecting investors in these funds may end up paying 3% or higher in management fees.

Incentive fees, typically a percentage of any net profits generated by the fund, are designed to align the interests of the manager with the investors (i.e., for the fund to generate strong performance). Regulators often take a dim view of performance-based incentive fees, however, since they might encourage unnecessarily aggressive risk-taking by the manager.

The mechanics of incentive fees differ depending on the type of alternative investment. Hedge funds and CTAs usually refer to this incentive fee as a performance fee; it may be as much as 10–20% of the profits (or more). These funds tend to invest in public markets assets

and the performance during any given measurement period includes a mix of realized (where stocks have been sold) and unrealized (where stocks have appreciated but have not yet been sold) gains. Consequently, the calculation of performance fees is complicated by variability of fund performance over time. For example, a fund that is +10% in year 1 may be –20% in year 2. Naturally the manager would have received performance fees in year 1 and none in year 2 (no profits), but what about year 3? If the fund returns +10% in year 3, theoretically the manager should earn performance fees, but the fact remains that investors would still be losing money over the three-year period, as illustrated in Exhibit 1.1.

EXHIBIT 1.1. Fund performance and fee calculation

	Year 1	*Year 2*	*Year 3*
Fund size Jan. 1	$100 million	$108 million	$86.4 million
Fund performance	+10%	–20%	+10%
Gain (loss)	$10 million	($21.6 million)	$8.64 million
Performance fees	($2 million)	$0	($1.728 million)
Fund size Dec. 31	$108 million	$86.4 million	$93.312 million

Note: This illustration assumes no additional investments are made in the fund during the period and ignores all other fees (including management fees) and expenses. For a more detailed exploration of performance fee calculations, see https://www.preqin.com/academy/lesson-3-hedge-funds/hedge-fund-fees-types-and-structures.

To address this issue, investors in hedge funds and CTAs typically expect the performance fee calculation to be based on what is called the "high water mark" (HWM). The high water mark states that if a fund loses money during a measurement period, then it must recover those losses first before the manager earns performance fees again. In our example above, the manager will not be eligible for performance fees until the value of the fund closes the year above the HWM of $108 million established at the end of year 1. More generally, the impact of HWMs on performance fees can be illustrated, as in Figure 1.4.

Private markets funds like venture capital and private equity have a slightly different approach to fees. Management fees are based on the estimated value of the portfolio instead of market prices since private assets do not trade on an exchange like stocks or bonds do. Performance

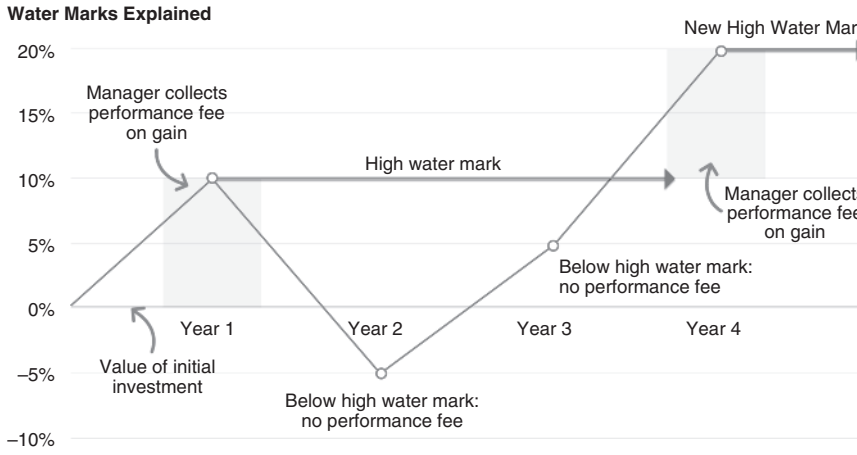

FIGURE 1.4. Explanation of high water mark.

Source: Preqin, https://www.managedfunds.org/wp-content/uploads/2016/06/06.09.16-How-HFs-are-Structured.pdf, last accessed December 14, 2022.

fees, which in this case are referred to as "carried interest," are earned when deals are exited (realized gains). Carried interest may only be earned if performance exceeds a "hurdle rate," often 6–12%. Finally, if a private equity fund pays carried interest fees early in its life but the performance is lower when the fund is finally closed, LPs may receive "claw-back" payments so that the final carried interest paid to the GP ties up to the final performance figure.

One common critique of the fee model common to alternative investing is that many fund managers appear to be getting rich off fees while their investors do not. Investing is a scale-sensitive business, such that a team managing $500 million might be able to invest $2 billion without a proportionate increase in headcount and expenses. Therefore, as fund managers have gotten bigger, the management fees alone can create significant wealth, reducing the incentive for managers to deliver superior investment performance. There is some debate about the robustness of these findings, but studies have shown that smaller and/or first funds tend to outperform their larger or more established competitors. See Chapter 2, Section 2.3 for further elaboration on this topic.

Readers may well wonder what happens to managers of funds with these fee arrangements—especially hedge funds investing in more

liquid assets—when their performance is poor. One natural reaction might be for the manager to increase risk-taking in an attempt to recoup any losses and generate performance fees. If the manager is successful, this could appear to be a favorable outcome for the investor as well, but this risk-seeking behavior could also lead to further, larger losses; *ex ante*, investors in poor performing funds may prefer to avoid this tactic. When fund managers are so far below their HWM that they cannot foresee generating performance fees for several years, it is very common for the manager to attempt to renegotiate the HWM with investors, or failing that, close the fund and then attempt to launch another fund with fresh capital and establish a new HWM.

1.2.3 Alternative Techniques

Leverage, short selling, and hedging are common techniques in some of the most popular alternative asset classes. Hedge funds typically make use of all three, while leverage is also an important component of some private equity strategies. The following section provides a brief introduction to these concepts.

1.2.3.1 Leverage

What happens if instead of using its own money to make an investment, an investor borrowed some money instead? Borrowing money reduces the amount of capital the investor has to contribute for a given investment (e.g., a $1,000 investment could be made using only the investor's capital, or the investor could borrow $500 and only use $500 of its own capital). Use of borrowed capital to amplify returns is called "leverage."[7] The general calculation of investment returns when using leverage can be expressed as:

$$\mathrm{ROE} = \mathrm{ROI} + \left[\, \mathrm{L} \times \left(\mathrm{ROI} - \mathrm{d}\right) \,\right]$$

where

ROE = (levered) return on equity

ROI = (unlevered) return on investment

L = D / E = leverage factor, or ratio of debt (D) to equity (E) invested

d = cost of debt financing

Expanding on the example above, consider the case when an investor buys one hundred shares of a stock at $10.00 per share, and one year later sells that stock for $11.00 per share, a return of 10%. Without leverage, the investor's return is still 10%:

$$\text{ROE} = 10\% + \left[0 \times (10\% - 0\%)\right] = 10\% + 0\% = 10\%$$

If instead of investing $1000 of her own capital, the investor borrows $500 at an annual interest rate of 5%, the leverage ratio L = ($500/$500) = 1 and the levered return on equity is:

$$\text{ROE} = 10\% + 1^{*}\left[10\% - 2\%\right] = 10\% + 8\% = 18\%$$

In this case, the investor has increased her returns because she borrowed half of the money she invested; note that in this example she doubles her returns (less the 2% interest payment) by using half the amount of her own money. Of course, leverage has a similar effect on losses. If instead our investor lost –10% on the investment, after leverage, the ROE would be:

$$\text{ROE} = -10\% + 1^{*}\left[-10\% - 2\%\right] = -10\% - 12\% = -22\%$$

Many alternative investments involve leverage, and investors would do well to be mindful of this when evaluating funds.

1.2.3.2 Short Selling

Short selling is a way to profit when the price of a stock goes down. As an example, let's look at the case of Tencent Holdings (HKG: 0700).[8] From October 11, 2021 to October 10, 2022, Tencent stock declined by –46.81% (Figure 1.5).

If our investor had decided to short Tencent for that one year period—opening the short on October 11, 2021 and covering (or closing) on October 10, 2022—what kind of return would she have achieved? The calculation appears as:

$$\text{ROI} = \left(496.00 - 263.80\right) / 496.00 = 232.20 / 496.00 = 46.81\%$$

Note that this is the same figure as the price decline shown in the price chart. By selling high (shorting) and then buying lower later (called "covering" the short), our investor has profited from the price of a stock going down instead of up.[9]

FIGURE 1.5. Tencent stock performance, October 11, 2021 to October 10, 2022.

Source: Google, "Tencent stock price," retrieved October 10, 2022.

There are (at least) three different motivations for short selling. Our hypothetical Tencent short above is an example of the first and most basic motivation, a bet that a stock will decline in price—often referred to as a directional, single-stock short. We highlight the fact that it is a single-stock short (a bet on the individual stock) to differentiate it from the next kind of short sale: a pair trade.

As the name suggests, pair trades involve two securities. A common type of pair trade is to bet that one competitor in an industry will outperform another in the same industry (e.g., UPS and Fedex). The historical price graph of FDX (white) and UPS (grey) shows how these stocks have performed relative to each other over the past five years (Figure 1.6).

Another way to look at this chart is to look at the area between the white and grey lines, called "the spread." Professional investors using an information service such as Bloomberg will be able to graph the spread by itself as shown in Figure 1.7.

FIGURE 1.6. Five-year price history of FedEx and UPS.
Source: Bloomberg L.P.

FIGURE 1.7. Historical "spread", long UPS / short FedEx.
Source: Bloomberg L.P.

In Figure 1.7, the top left quadrant shows the spread—notice how it looks like the previous stock price chart. On the right-hand side are some descriptive statistics about the spread today and how the spread has changed over time. On the bottom right quadrant the frequency histogram shows that the spread today is about as narrow as it has been during the past five years—note the value highlighted in a different color at the top part of the distribution. If our investor wanted to trade the spread, she could use a pair trade, long FDX and short UPS. In this way she doesn't care if the stock market goes up or down, because as long as FDX outperforms UPS, she would make money.

1.2.3.3 Hedging

The third and final motivation for short selling is risk management, in this case referred to as "hedging." A hedge is a position that is designed to make money (or reduce risk) when other positions are losing money (contributing risk). Long-only managers can't sell short, so they manage risk by looking for assets with low-to-negative correlation with the other positions in their portfolio. Hedge funds, on the other hand, can sell short, and therefore have two additional motivations for short selling.

The first opportunity is to hedge a single-stock position. For example, our investor might love Microsoft (NASDAQ: MSFT) stock but not be comfortable with all the risk, so she could sell short shares of another software company, Oracle (NASDAQ: ORCL), as a hedge. Note that this is not considered a pair trade; the short ORCL is designed to cushion potential losses from the long MSFT position rather than expressing a view on the relative spread between Microsoft and Oracle. As long as MSFT outperforms ORCL, this hedged position will make money.

The second application of hedging occurs at the portfolio level. To begin, let us consider the amount of capital in both longs and shorts in a portfolio. If our manager's portfolio has the same amount of money long and short (e.g., $100 million on each side), that is called "market neutral." In theory, the equal amounts of capital long and short mean her portfolio has no exposure to the market because if the market goes up or down the longs and shorts will cancel each other out. The short portfolio in aggregate acts as a hedge for the long portfolio. This type of portfolio is illustrated in Table 1.3. Note that the sum of the weights on the long and short portfolios are both equal to 1 (100%), and longs and short both sum to $100 million.

But it turns out that even though this is a hedged, market-neutral portfolio, there is another kind of unwanted risk remaining: beta. Beta (represented by the Greek letter, β) is defined as the exposure to market risk. A stock has a beta of 1.0 if it moves in line with the market; if the market increases 1.2%, the 1-beta stock should also increase by 1.2%. "High-beta" stocks move significantly more than the market, both up and down, while "low-beta" stocks don't move as much as the market in either direction. A hot tech IPO could be an example of a high-beta stock, while a conservatively managed utility company might be a low-beta stock.

TABLE 1.3. Sample long and short portfolios.

Long Portfolio

Ticker	*Weight*	β	*Position Size ($)*	*Share Price ($)*	*# Shares*
AES	0.151	2.39	15,100,000	9.440	1,599,576
WMB	0.132	2.2	13,200,000	0.982	13,441,955
DYN	0.129	2.51	12,900,000	4.280	3,014,019
FCX	0.108	1.11	10,800,000	42.130	256,349
NOVL	0.103	2.84	10,300,000	10.530	978,158
GLW	0.098	3.5	9,800,000	10.430	939,597
SANM	0.096	3.73	9,600,000	12.600	761,905
PMCS	0.094	4.5	9,400,000	20.100	467,662
YHOO	0.089	3.04	8,900,000	22.515	395,292
Total	1	2.78	100,000,000		

Short Portfolio

Ticker	*Weight*	β	*Position Size ($)*	*Share Price ($)*	*# Shares*
Q	0.108	2.9	10,800,000	4.320	2,500,000
NWL	0.114	0.85	11,400,000	22.770	500,659
MRK	0.115	0.39	11,500,000	46.200	248,918
SGP	0.118	0.35	11,800,000	17.390	678,551
T	0.118	0.72	11,800,000	20.300	581,281
KSS	0.134	0.81	13,400,000	44.940	298,175
EK	0.145	1.21	14,500,000	25.670	564,862
KG	0.148	0.59	14,800,000	15.260	969,856
Total	1	0.95	100,000,000		

Even when a portfolio is market-neutral, beta can have an unintended impact on performance. If our investor's portfolio is long higher beta stocks compared to the beta of the short positions, then in a market selloff the longs will decrease more than the shorts and what seemed like a market-neutral portfolio still loses money. Take another look at our example portfolio and you'll see that we have this problem: the weighted-average beta of the long portfolio is 2.78, while that for the short portfolio is 0.95.

Some hedge funds try to control risk so that their portfolios are both dollar-neutral and beta-neutral. Without completely changing her portfolio, our investor can use professional portfolio management tools (or a spreadsheet if the portfolio is relatively simple) to adjust the weights of the positions so that she can achieve both objectives at the same time. Portfolio construction and risk management are a rich, quantitative field with a deep literature available for those with an interest in delving deeper into these topics.

1.2.4 Performance Measurement[10]

Throughout this book we will talk about the performance of alternative investments. When investing in publicly traded assets, such as stocks, bonds, currencies, and commodities, performance measurement is relatively straightforward because there is a market price to use as a reference point. Private market assets, such as private companies, however, do not have a readily available market price, which makes performance measurement more complicated.

1.2.4.1 Liquid Assets

Performance measurement is relatively straightforward for individual liquid assets, such as stocks and bonds: the change in price or value during a time period, expressed as a percentage. For example, when performing an internet search for the stock price of Itau Unibanco in Brazil (BVMF: ITUB4), the results in Figure 1.8 show the price change of +1.01%, calculated as the 1-day price change divided by yesterday's price, or 0.26/25.74. The same calculation can be applied for any time period of interest; common measurement periods of returns are daily, monthly, quarterly, annual, year-to-date (YTD), and longer time frames such as 3-year, 5-year, and 10-year returns. Other statistical measures can be calculated based on the time series of returns, the most important of which are measures of *risk*, or "volatility." There are many available risk metrics but the simplest and most common is the standard deviation of daily returns, known by its Greek letter σ.

For investments in *portfolios* of liquid assets, the investment return is calculated as the weighted average of the changes in price of the individual assets. Selecting a corresponding measure of risk is more complicated. Depending on the type of portfolio being analyzed and

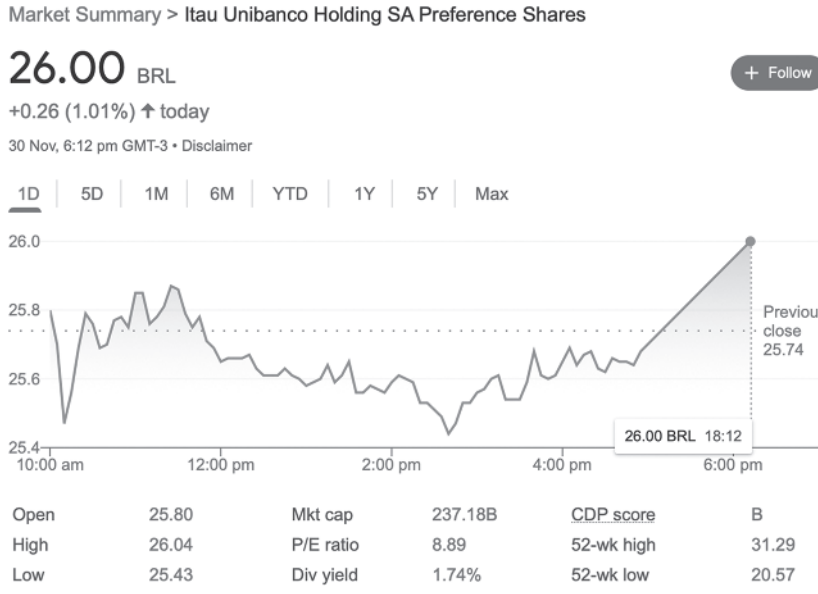

FIGURE 1.8. One-day stock price chart of Itau Unibanco in Brazil.
Source: Google, "banco itau stock price", retrieved December 1, 2022.

the objectives of the investor, several different metrics can be used to assess the performance relative to the amount of risk being taken:

1. the information ratio
2. the Sharpe ratio
3. the Sortino ratio
4. Capture ratios

1. **The information ratio** (abbreviated IR) is an appropriate measure for funds that have a clear benchmark (e.g., a European large cap growth fund). IR captures the amount of additional return delivered by a portfolio in excess of its benchmark, relative to the degree to which the return of the portfolio on average differs from the return of its benchmark:

$$\frac{E\left(R_p\right) - R_{benchmark}}{TE}$$

where $E\left(R_p\right)$ is the historical or average return of portfolio *p*; $R_{benchmark}$ is the historical or average return of the portfolio's benchmark; and *TE* is the tracking error of the portfolio (the standard deviation of the difference between the portfolio and the benchmark return, over time). Funds with a high IR have low tracking error and outperform the benchmark on a consistent basis.

2. **The Sharpe ratio** is a measure of risk-adjusted performance (i.e., the amount of performance generated per unit of risk). The formula divides excess or expected returns by the volatility (standard deviation) of returns:

$$\frac{E\left(R_i\right)-R_f}{\sigma_i}$$

where $E\left(R_i\right)$ is the historical, or expected, return of asset *i*; R_f is the risk-free rate, often represented by the interest rate on short-term US treasury bills; and σ_i is the standard deviation (volatility) of the returns for asset *i*. Although valuable as a measure of risk-adjusted performance, there are some important limitations to this measure. First, it is a standalone measure and does not capture the incremental effect of adding an asset to a portfolio. Second, it is less valuable when returns for an asset are non-normally distributed (e.g., when the probability of a large positive or negative result is more likely than accounted for by the normal distribution [so-called "fat tails"]). Third, the formula is sensitive to the time period being used—annual (or annualized) data are assumed and calculating a Sharpe ratio using non-annualized quarterly or monthly data will generate a measure with a very different magnitude.

3. **The Sortino ratio** measures the return relative to the amount of *downside* risk instead of the full, two-sided risk, a reflection of investors' greater concern with the risk of losses instead of the "risk" of profits. This ratio is particularly useful for assets such as insurance or bank loans where the distribution of historical returns is asymmetrical (skewed), with high

probabilities of small profits and very low probabilities of large losses. To calculate the Sortino ratio, investors replace the two-sided standard deviation σ_i in the Sharpe ratio with a one-sided measure of downside volatility and replace the risk-free rate with a target return.

4. **Capture ratios** measure the performance of a fund manager during periods of positive or negative market returns. *Upside capture* is the ratio between the performance of the fund and the performance of the market during a rising market. A value of 1.0 indicates that the manager performs in line with the market, while upside capture of less than 1.0 means the manager does not completely track the market when moving higher. For example, if the market increases by 10% over a period and a fund increases 8%, then the upside capture would be 0.8 to reflect the fact that the fund only captured 80% of the positive market performance. A similar logic applies to the opposite measure, *downside capture*.

1.2.4.2 Illiquid Assets

Many investors in illiquid, private markets assets—private equity, in particular—measure their performance using internal rate of return (IRR), a financial metric used to measure the profitability of an investment while accounting for the time value of money. Many readers will be familiar with the concept of NPV, or net present value; IRR is the annual return (or discount rate in NPV calculations) that makes the NPV of cash flows in a discounted cash flow analysis equal to zero.[11]

There are a few problems with IRR, including inconsistent definitions across managers and no reference to a benchmark. In some instances, private equity managers draw on lines of credit before issuing a capital call, shortening the amount of time that investors have their capital in the fund and therefore "increasing" IRR. The IRR calculation also assumes investors can reinvest interim cash flows at the IRR, which is unlikely to be the case.

Separate from or in addition to IRR, some private markets funds prefer to use a measure of return on capital without accounting for time. These measures can be called either "multiple on invested capital"

(MOIC) or "total value to paid-in" ratio (TVPI, or sometimes just TPI). These measures are expressed as follows:

$$\text{TVPI}\left(\text{or MOIC}\right) = \left(\text{D} + \text{RV}\right) / \text{PIC}$$

where

D = distributions (any money returned to investors after selling a portfolio holding)

RV = residual value (the estimated value of positions remaining in the portfolio)

PIC = paid-in capital (the amount of funds delivered by the investor, which is not the same [always less than or equal to] as committed capital)

MOIC and TVPI are absolute measures of return, rather than percentages. To illustrate, let us revisit the example in Section 1.2.2.3:

> The GP raises a $1 billion fund to invest in private companies around the world. An LP commits to invest $50 million, and at closing delivers $10 million, or 20% of its commitment, to the fund. The GP uses the initial capital (20% of $1 billion, or $200 million) to buy three mid-sized companies it has already identified.

In this example, the committed capital is $50 million and the paid-in capital is $10 million. If the following year the fund sells one of the companies for a profit of $50 million, the fund could distribute that capital back to its LP investors. In our example, because the investor represents 5% of the fund, it would receive a distribution of 5% * $50 million = $2.5 million. If the residual value of the remaining two positions is $200 million, then our investor's share of that value is 5% * $200 million = $10 million. It follows that:

$$\begin{aligned}\text{TVPI}\left(\text{or MOIC}\right) &= \left(\text{D} + \text{RV}\right) / \text{PIC} = \left(\$2.5 + \$10\right) / \$10 \\ &= \$12.5 / \$10 = 1.25\text{x}\end{aligned}$$

Because these measures of return on capital ignore the timing of cash flows, comparison across funds and time frames is challenging.

To address some of the shortcomings of IRR and MOIC (TVPI), some research and publications refer to "public market equivalent" (PME) returns. PME is expressed as a ratio between the private fund and public market returns, such that a ratio above 1.0 reveals relative outperformance and below 1.0 means underperformance. To illustrate, consider a fund that drew $200 million from an investor on January 1, 2013 and paid out $500 million on December 31, 2017. Alternatively, an investor could have invested the $200 million in the S&P 500, which would have returned $416 million over the same period.[12] The PME would be as shown in Exhibit 1.2.

EXHIBIT 1.2. Calculation of public market equivalent return ($ million)

	Private equity fund	*S&P 500*
January 1, 2013	200	200
December 31, 2017	500	416
PME		500 / 416 = 1.2x

In addition to the methodological problems described above, there is another, structural issue that complicates the measurement of performance for private markets investments. Unlike publicly traded assets, such as stocks and bonds, there is no generally accepted daily price that values a private company, for example, and only when the investor exits the position will the final value be known. Between the purchase and sale of a private asset, therefore, private markets investors use "mark-to-market" valuations for their portfolio holdings.

For the reasons described above, readers whose investing experience is limited to stocks, bonds, or mutual funds/unit trusts may find it difficult to evaluate the performance of private markets investments like venture capital and private equity funds.

1.2.5 Due Diligence

The process of evaluating investment opportunities is referred to as "due diligence." Some readers will be aware that this term is used in

other settings as well (e.g., in mergers and acquisitions the buyer performs "due diligence" on the firm it wants to purchase). Depending on the type of investment being made, investors may perform due diligence at the individual asset level or at the fund level. The set of issues to be examined varies widely between the two levels and across different asset classes as will be explained in the following sections.

1.2.5.1 Individual Assets

- **Financial:** Financial due diligence may take different forms depending on the asset itself. For a real estate property, investors should check the validity of the financial statements provided by the sellers, reviewing a building's rental collections from each of the tenants, checking that the bank accounts tally with the items in accounting ledgers, and monitoring outstanding expenses, such as unpaid utilities, government taxes, bank loans, salaries, and other liabilities. A debt or equity investment in a private company will likely require similar analysis of financial statements and other information. For assets, such as collectibles, however, this step may not be required.
- **Legal:** Legal due diligence sets out to confirm that the ownership of the property, land titles, building permits, and the use of the building are in order and in accordance with what was represented by the seller. In addition, all the tenancy contracts, loan documents, security and maintenance services agreements from suppliers, among other things, need to be reviewed. Given the complexity and volume of work, investors typically hire lawyers to perform this task. While performing the legal due diligence, investors should also consider if potential legal or compliance issues might arise after the transaction is completed.
- **Physical condition:** Tangible assets, such as collectibles or real estate, require due diligence on the physical condition of the asset. This task is usually outsourced to a qualified person, e.g., a licensed engineer, who can properly assess the condition, the quality, and sufficiency of maintenance and upkeep. In a real estate setting, if there were defects in the plumbing, or glitches in the air-conditioning compressor, or deficiencies with the filtration system of the swimming pool, the qualified person will

estimate the cost of rectifying the faults so that the investor can renegotiate the purchase price or make provisions for capital expenditure in their cash flow analysis.

- **Provenance:** For some assets the ownership history, or "provenance," is extremely important. For example, artwork with well-documented provenance will be more valuable since an unbroken trail of verifiable ownership reduces the risk that the artwork could be counterfeit. If an asset was owned or used by someone famous (a house someone famous once lived in, or a football jersey worn in a World Cup match and signed by the famous player), that too can make an asset more valuable.

1.2.5.2 Third-Party Funds

Performing due diligence on third-party managed funds involves a different set of issues; the fund manager performs due diligence on the individual assets as part of its investment process, so the investor needs to investigate the manager of individual assets. Some of the important concepts are described in Table 1.4.

The framework described in Table 1.4 is a highly simplified checklist of some of the more important investment due diligence issues. Professional investors often have teams dedicated to performing due diligence on managers or outsource that function to specialized investment consultants. The following paragraphs provide examples for investors who may not be familiar with these concepts.

First, the investor should review the fund mandate, which is a high-level description of the objectives of the fund, the expected level of risk, and the types of assets allowed in the portfolio. At the same time the investor should review the strategy which describes how the manager intends to invest the funds and generate performance. Since each fund defines its own investment mandate and its own strategy, funds within a given asset class may vary greatly in style and approach. With this information at hand, the investor can make an informed judgment about the suitability of the fund and watch for signs that the manager may be deviating from the mandate or strategy. For example, a manager might have a mandate to deliver consistent but lower risk returns and follow a strategy that includes stocks with high dividends and up to 20% corporate debt. If the investor reviews a newsletter or

TABLE 1.4. Performance of due diligence on third-party managed funds

Concept	*Comments*	*Example*
Mandate	What the manager is authorized to do; may also be called "Objectives"	The income mandate seeks to provide stable and regular income using mainly money-market and other cash investments, government bonds, corporate bonds, and, to a lesser extent, high-dividend equities (to a maximum of 25%)†
Strategy	How the manager describes how the fund will generate performance	To invest in under-covered companies with strong products and local brands, poised to benefit from the growth in domestic consumption in emerging economies
Investment universe	The target set of securities or companies for investment	Stocks included in the MSCI Emerging Markets Index
Investment process	Describe the process from idea generation to asset selection	Screen for liquid stocks trading below their average historical valuation, then fundamental analysis to identify solid companies trading at a discount to fair value
Historical performance	1-, 3-, 5-, 10+-year performance, both absolute and relative to benchmark	Performance disclosures are often highly regulated for public funds and will usually show a table with the fund's performance and the benchmark performance over the same time period for easy comparison
Number of positions, position sizing	How many positions are typically in the fund? How is position size determined? Is there a maximum position size?	50–70 positions, with a maximum position size of 5%
Capacity	The amount of capital a fund could invest without making it too difficult to generate returns. For public markets, this may be approximated by (# positions * average position size) relative to the average daily value traded in the target securities.	Estimated capacity of $1 billion, assuming most positions could be sold in one week and all capital could be returned in one month

TABLE 1.4. (Continued)

Concept	*Comments*	*Example*
Leverage	How much leverage is used? What is the source of financing?	Maximum leverage of 150%
Team/Structure	Experience and size of team, separation of responsibilities (checks and balances). Does it match with the fund strategy?	One portfolio manager and team of four research analysts
Fees	What fees are charged (management fees, incentive fees) and how do they compare with averages for the strategy?	1.5% management fee, 15% performance fee for private funds, or 0.89% expense ratio for public funds
Liquidity	Minimum investment size, restrictions on redemptions (e.g., lockup period)	Quarterly redemptions with 3-month notice period
Transparency	How often is performance reported? What information is provided?	Quarterly letter to investors

† https://www.purecapital.eu/en/wealth-management/our-solutions/personalised-discretionary-management/income-mandate.html

report from the manager and notices the fund has large positions in risky technology growth stocks, that could raise a red flag due to inconsistency with the stated mandate and strategy.

The investment universe, number of positions, and average position size are interrelated and should be analyzed together. The investment universe defines the set of assets that the manager can draw from when building the fund; the universe might be expressed as "stocks in the MSCI Emerging Markets Index." The number of positions is usually given as a range; fundamental research is difficult and time-consuming, so the number of positions is generally smaller than portfolios managed using quantitative techniques that are more easily applied to longer lists of stocks. Average position size is useful when evaluating the size of the positions disclosed by the manager in the context of the strategy. For example, emerging markets stocks may not be very easy to trade, so an emerging markets fund with less than 40 positions and

large ("concentrated") positions can pose significant risk. On the other hand, a large-cap growth fund that holds 400 small positions would be inconsistent with a stated fundamental investment process due to the amount of effort required to identify 400 attractive assets.

Finally, investors need to consider the team responsible for managing the fund. This step is crucial, as the success of a fund is dependent on its manager's ability manage the investments, maximize revenue opportunities, and ensure that the objectives of the fund are met. Due diligence should consider different attributes of the team, including

- the experience the manager has both running that specific fund and in aggregate, e.g., "John Doe has been portfolio manager for the fund since 2016 and has 28 years total investment experience."
- the total size of the research team relative to the size of the portfolio—a team of two people would have a difficult time managing a portfolio of 125 stocks if they are the only ones doing all the fundamental analysis as well.
- separation of responsibilities—the portfolio manager ("PM") could be distracted if he manages other portfolios at the same time, or there may be conflicts of interest in a small firm where the PMs may also hold a compliance or management role.

Due diligence is a difficult and important part of making any investment decision. Especially when investing in private assets or funds which make those kinds of investments, the information required for a thorough analysis may not be available. With experience, however, even individual investors can make better informed investment decisions that minimize some undesirable risks.

1.3 Diversification[13]

One reason investors allocate capital to alternative investments is to diversify their portfolios. Readers familiar with finance and statistics will recall the concept of correlation (or more accurately, covariance), a measure of how two things move relative to each other over time.

To better understand how this relates to investing, imagine a portfolio comprised entirely of shares in restaurant companies. When the Covid-19 pandemic hit and most of the world entered some sort of lockdown, dining at restaurants was severely restricted and all those stocks would have done poorly at the same time, bad news for the *undiversified* portfolio of restaurant stocks. At the same time, however, shares in "work from home" or "lockdown" companies like Zoom and Netflix did very well. Those stocks had a *low correlation* to the restaurant stocks, and so adding Zoom or Netflix would have helped *diversify* the portfolio.

Implicit in that example are several important characteristics of diversification. To begin with, diversification helps reduce risk, in this case, the risk that the entire portfolio reacts the same way to an external event. However, diversification can be costly. It may take more work (analysis) to build a diversified portfolio, since one of the objectives will be to actively search for investments that are low correlation with the rest of the portfolio. Additionally, a diversified portfolio will never perform as well as the strongest of its investments, so investors may regret not having more capital allocated to the riskier assets. However, research shows that diversification is a powerful tool that investors can use to generate long-term performance while simultaneously lowering risk.

Alternative investments are an attractive option for long-term investing in part because they tend to have lower correlation to stocks and bonds. Investment professionals often speak of portfolios in terms of the "efficient frontier," a way of understanding the return (y-axis) and risk (x-axis) of different portfolios formed by combinations of different assets. In Figure 1.9, the dark line represents portfolios formed only from stocks and/or bonds in different proportions.

Portfolios on the light line may also include an allocation to alternatives. The light line is always to the left of the dark line, meaning that for a given value of return (y-axis), the portfolio with an allocation to alternatives will have lower risk than the portfolio that only holds stocks and/or bonds. The alternative assets described in Chapters 2–4 offer investors many options to diversify their portfolios. Chapter 5 describes several techniques investors use to build portfolios of traditional and alternative assets to satisfy different objectives for risk and return.

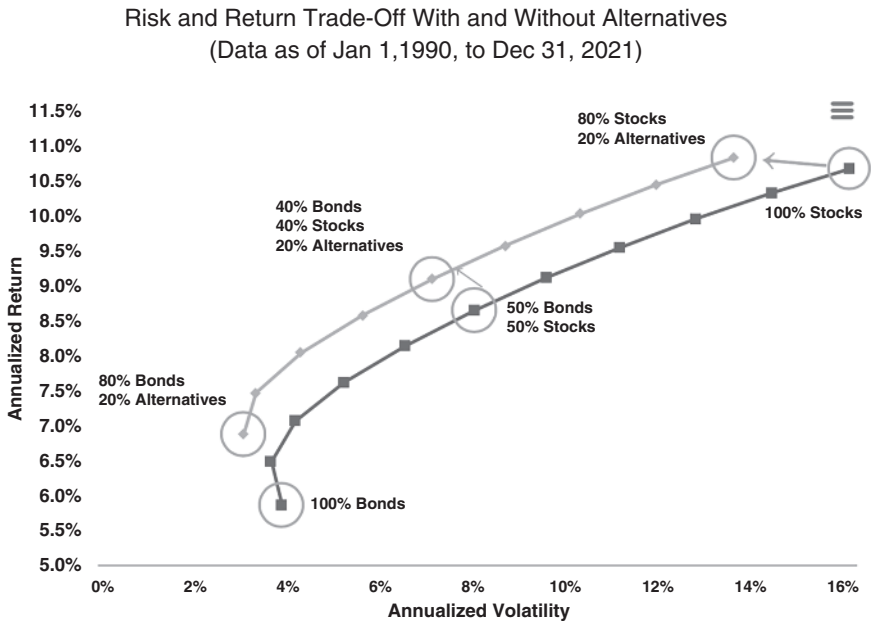

FIGURE 1.9. Risk and return trade-off with and without alternatives.
Source: Morgan Stanley, https://www.morganstanley.com/ideas/alternative-investments-portfolio-diversification, last accessed 28th January 2023.

Finally, it is worth noting that the diversification benefits associated with alternatives apply not only between traditional assets and alternatives but also *within* the set of alternative investments. Just as the portfolio holding only restaurant stocks is undiversified, so too would be a portfolio consisting of only equity long-short hedge funds, or only global private equity funds. This places an incremental burden of manager research and due diligence on the would-be investor in alternative assets; just as mutual funds offer diversified portfolios of stocks and bonds, Chapter 2, Section 2.6 describes a similar product ("funds of funds") for alternative investments.

1.4 Regulation

Securities regulation is a rich, complex, and technical subject well beyond the scope of this book; however, two aspects of regulation are

important for the chapters that follow and merit a high-level explanation: (1) protections for investors; and (2) certain regulations for investment managers.

1.4.1 Regulatory Protections for Investors

Regulatory agencies such as the Securities and Exchange Commission (SEC) in the United States and the Monetary Authority of Singapore (MAS) have a mandate to provide some level of consumer protection when it comes to investments. One of the most common ways in which regulators protect consumers is to restrict who is permitted to invest in unregulated alternative investments such as hedge funds and private equity. The reasoning being applied is that the average retail investor may not be able to properly assess the risks involved in alternative investments, so only "sophisticated" investors are permitted to make such investments. Countries may define "sophisticated" in different ways, but the basic principle is to use either income or wealth as a proxy for investment knowledge as described in Table 1.5.

Even with such consumer protections in place, fraud (and theft) is still a part of modern financial markets, and investors still lose money. This has been a noticeable problem in the unregulated market for cryptocurrencies and tokens (see Chapter 4, Section 4.4), but even well-known businesses are vulnerable to unintentional and intentional risks such as those described below.

1.4.1.1 Accounting Fraud

One of the largest (known) cases of accounting fraud concerned the US energy company Enron.[14] In the wake of the deregulation of energy markets, by 1990 Enron was established as an energy trading company and supplier. Enron executives used a mark-to-market accounting policy and off-balance sheet special purpose vehicles (SPVs) to hide losses from investors. The prestigious audit firm Arthur Andersen was complicit in this fraud, instructing Enron to shred documents; Arthur Andersen was disgraced and essentially dissolved. Enron filed for bankruptcy on December 2, 2001, and its top executives were variously convicted of fraud, conspiracy, and insider trading.

TABLE 1.5. Accredited investor equivalents in different countries

Country	*Accredited investor equivalent*
United States	Accredited Investor ▪ An individual whose income exceeds $200,000 in each of the two most recent years (or $300,000 in joint income with a person's spouse) and who reasonably expects to reach the same income level in the current year ▪ An individual whose net wealth exceeds $1 million, excluding value of primary residence
Canada	Accredited Investor ▪ An individual who, alone or together with a spouse, owns financial assets worth more than $1 million before taxes but net of related liabilities ▪ An individual who, alone or together with a spouse, has net assets of at least $5,000,000 ▪ An individual whose net income before taxes exceeded $200,000 (or $300,000 in joint income with a spouse) in both of the last two years and who expects to maintain at least the same level of income this year ▪ An individual who currently is, or once was, a registered adviser or dealer, other than a limited market dealer

The EU and Norway	Elective Professional Client
	▪ The "Qualitative Test": The firm undertakes an adequate assessment of the expertise, experience, and knowledge of the client that gives reasonable assurance that the client is capable of making their own investment decisions
	▪ The "Quantitative Test": Client meets at least two of the following:
	  ▪ has carried out transactions of significant size on the relevant market at an average frequency of 10 per quarter over the previous four quarters
	  ▪ has a financial portfolio exceeding EUR 500,000
	  ▪ works or has worked in the financial sector for at least one year
	▪ The client must state in writing that it wishes to be treated as a professional client and the firm must give the clear warning of the protections that client may lose

Singapore	Accredited Investor ▪ An individual whose net personal assets exceed S$2 million ▪ An individual whose income in the preceding 12 months exceeds S$300,000
Hong Kong	Professional Investor ▪ Individuals, either alone or with any associates on a joint account, having a portfolio of not less than HK$8 million or its equivalent in foreign currency
Australia	Sophisticated Investor ▪ A person who has net assets of at least A$2.5 million; or ▪ A person who has a gross income of A$250,000 for each of the last two financial years

Source: https://toniic.com/accredited-investor-equivalents/.

1.4.1.2 Ponzi Scheme

Bernie Madoff ran one of the largest known Ponzi investment schemes before confessing in 2008 as a result of the Global Financial Crisis.[15] Starting from modest origins in the 1960s, Madoff formed a broker-dealer called Madoff Securities. Afterwards his firm began to offer investment funds that were described as following a derivatives strategy called "split-strike conversion"—and clients, most of them retail, only understood that the track record was consistently positive year after year. Regardless of whether the markets moved up or down, Madoff continued to post positive returns until the market went sharply negative at the beginning of the Global Financial Crisis in 2008. At that point, as investors clamored to redeem their holdings in the fund, it was revealed that Madoff had not actually been running a special proprietary investment strategy, but rather he had been running a Ponzi scheme.

1.4.1.3 Mismanagement

Long-Term Capital Management (LTCM), founded by John Meriwether and colleagues from Salomon Brothers in 1994, specialized in fixed income arbitrage. In this strategy, LTCM tried to identify assets that were relatively mispriced based on a modeled fair value, going long on the underpriced assets and short on the overpriced assets. If its models were correct, LTCM could realize a profit when the assets converged to their theoretical values. Because the absolute price differentials were quite small, fixed income arbitrageurs like LTCM typically used a lot of leverage to transform small returns into larger returns of greater interest to investors. Unfortunately for LTCM, just because the models flagged assets as relatively mispriced, that didn't mean that the mispricing would correct itself straightaway. During one period in 1998, prices for assets in LTCM's portfolio were mispriced *and continued to become even more mispriced*; with leverage, the losses quickly reached a point where the firm could no longer afford to stay in business and the fund was liquidated.

1.4.2 Regulations for Fund Managers

As a rule, investments in stocks or bonds that trade on an exchange enjoy some level of protection as a result of regulatory restrictions placed

on the companies that issue stocks or bonds to the public. For example, companies with public securities may be required to disclose audited financial information on a regular basis and hold annual shareholder meetings where owners of the stock may vote on certain company matters. In the United States, an important regulation is the Sarbanes-Oxley Act of 2002. Passed in response to the bursting of the "internet bubble" in 2001 as well as the cases of accounting fraud at Enron, described above, and WorldCom, the "SOX" or "Sarbox" Act strengthened rules for accounting and external audit firms, enhanced requirements for corporate financial disclosures, and addressed conflicts of interest for securities analysts, investment banks, and other securities firms.

Investors in stocks and bonds, including institutional investors managing mutual funds and hedge funds, benefit from the improved oversight enabled by Sarbanes-Oxley. To protect the ultimate investors in commingled funds, another layer of regulatory protection covers certain investment products in different jurisdictions.

- **United States:** Mutual funds in the United States are subject to the terms of the Investment Company Act of 1940. Under the terms of the so-called '40 Act, covered funds are subject to restrictions in concentration of holdings (limits on the amount of capital allocated to any one issuer or industry); limitations on the percentage ownership of any one security without disclosure (10% of shares outstanding); must provide regular (commonly implemented as daily) liquidity; implement symmetrical performance fees that reward profits and givebacks on losses; and disclose information such as fund holdings on a regular basis. To this last point, for example, investment managers with more than $100 million AUM must submit 13F filings to the SEC that report holdings as of the end of the previous calendar quarter within 45 days of the quarter-end.
- **Europe**. Member states of the European Union have attempted to harmonize their securities regulations under the Markets in Financial Instruments Directive (abbreviated MiFID). More specifically for investment funds, the Undertakings for Collective Investment in Transferable Securities (UCITS) directives impose restrictions on liquidity, diversification, and transparency in a similar vein to the US '40 Act.

Alternative investment managers may be subject to less restrictive regulations or may be entirely unregulated, depending on the type of investments being made, the size of the manager, and the jurisdiction in which the fund is managed. In the United States, for example, there are exemptions available under the '40 Act that remove many of the requirements (e.g., allowing performance fees that do not allow for givebacks if performance is negative). Because managers of exempted funds are not subject to the same level of regulation, as a consequence they may only accept investments from accredited investors as described in Section 1.4.1.

The relationship between investor "sophistication" and the "lighter" regulation of alternative investment managers is the most relevant aspect of regulation for readers of this book. In the chapters that follow, we describe a wide range of alternative investments that are available to institutional or accredited investors but may not be available to (or appropriate for) the general public. Where different structures exist to provide regulated access to alternative strategies for retail investors, we highlight those structures appropriately.

1.5 Summary

This chapter introduces readers to the exciting and complex world of alternative investments, beginning with the definition of alternatives (not stocks, bonds, or cash) and continuing on to an overview of the market and some important characteristics of funds, such as structures, funding mechanisms, and fees. Common techniques, such as leverage and short selling, were described next, followed by a review of issues associated with performance measurement for alternatives. Additional issues and characteristics of investments in individual assets and funds were covered in Section 1.2.5, on due diligence, preparing readers for the long list of potential questions to ask when considering an investment in alternatives. The case for making such investments is supported by the benefits of portfolio diversification, and the low(er) correlation that alternative investments may have with traditional investment portfolios. Finally, the chapter concluded with a brief overview of regulation and the relationship with both investors and fund managers.

After reading this foundational information, readers will be better prepared for the remainder of the book which explores and explains the different types of alternative investments, starting in Chapter 2 with the most common "traditional" alternative investments: venture capital, private equity, hedge funds, infrastructure, and commodities. Real estate is conspicuously absent from that list, but only because it merits a separate discussion in Chapter 3. Finally, Chapter 4 presents a list of "modern alternatives" in various stages of maturity and accessibility to different types of investors.

Notes

1. Note the unequal time periods: 2003, 2009, 2019, 2020, and 2025(e). The CAGR refers to the compound annual growth rate between two time periods, even though they may be of very different length.
2. https://www.bloomberg.com/features/2022-lehman-brothers-collapse-plan-repay-after-bankruptcy/.
3. For more information on the efficient market hypothesis, see https://www.investopedia.com/terms/e/efficientmarkethypothesis.asp.
4. Academic research has identified a whole host of different "factors"—"any characteristic relating a group of securities that is important in explaining their return and risk" (https://www.msci.com/documents/1296102/1336482/Foundations_of_Factor_Investing.pdf/004e02ad-6f98-4730-90e0-ea14515ff3dc). A type of ETF called a "smart beta" product allows investors to allocate capital to these factors. As an example, the size factor states that over time, small stocks should outperform large stocks. Most equity indices are market cap-weighted, meaning that the constituent weight of any one stock in the index is based on its market cap, and larger stocks have larger weights in the index. An investor looking to capture the size factor could buy an ETF where the constituents of the S&P 500 are equal-weighted instead of market cap-weighted like the S&P 500 index. The difference in performance between this equal-weighted ETF and the traditional, market cap-weighted ETF, represents the performance of the size factor.
5. https://etfdb.com/etfdb-category/long-short/.
6. https://www.stoneridgefunds.com/documents/Stone_Ridge_Interval_Fund_Prospectus.pdf?v=7.

7. Real estate owners will be familiar with one common type of leverage: a mortgage. The use of leverage in real estate investing is explained in detail in Chapter 3 and the Appendix.
8. This example uses the Hong Kong (Hang Seng) listing for Tencent for illustrative purposes only; some investors may not be able to short stocks listed on certain exchanges.
9. For simplicity, we have ignored the financing cost in this example. When hedge funds borrow the stock to sell it short, they pay fees that would be subtracted from the return, similar to the financing cost of leverage explained in Section 1.2.3.1. If the stock pays a dividend while the hedge fund is short, the fund must pay those dividends as well because the owner of the stock would have received dividends had it not lent the stock to the hedge fund.
10. Readers looking for more information on this topic may refer to https://www.morganstanley.com/im/publication/insights/articles/articles_publictoprivateequityintheusalongtermlook_us.pdf.
11. Calculating IRR (or NPV) is best done with a financial calculator or spreadsheet. The material here is drawn from https://www.investopedia.com/terms/i/irr.asp and mirrors that which can be found in any number of corporate finance textbooks.
12. The value of an equivalent $200 million investment in the S&P 500 over the same period would be calculated based on the change in the closing price from the beginning to the end of the period.
13. See https://www.investopedia.com/investing/importance-diversification/ for a non-technical description of diversification.
14. See https://www.investopedia.com/updates/enron-scandal-summary/.
15. Interested readers may wish to refer to https://en.wikipedia.org/wiki/Madoff_investment_scandal or one of the many articles and videos available on the topic.