

LM02 Types of Financial Returns

1. Introduction: Types of Financial Returns	2
2. Types Of Returns for Financial Assets, Instruments, and Indicators	2
2.1 Types of Returns	2
2.2 Types of Returns: Financial Assets	2
2.3 Types of Returns: Financial Instruments	3
2.4 Types of Returns: Financial Indicators	4
2.5 Long-Term Financial Asset Returns	6
2.6 Risks and Returns	8
Summary	11

Required disclaimer: IFT is a CFA Institute Prep Provider. Only CFA Institute Prep Providers are permitted to make use of CFA Institute copyrighted materials which are the building blocks of the exam. We are also required to create / use updated materials every year and this is validated by CFA Institute. Our products and services substantially cover the relevant curriculum and exam and this is validated by CFA Institute. In our advertising, any statement about the numbers of questions in our products and services relates to unique, original, proprietary questions. CFA Institute Prep Providers are forbidden from including CFA Institute official mock exam questions or any questions other than the end of reading questions within their products and services.

CFA Institute does not endorse, promote, review or warrant the accuracy or quality of the product and services offered by IFT. CFA Institute®, CFA® and “Chartered Financial Analyst®” are trademarks owned by CFA Institute.

Studying the curriculum issued by CFA Institute is essential to success. Prep Provider courses and materials are developed to complement the curriculum and to facilitate the learning process, not to replace it.

© Copyright CFA Institute

Version 1.0

1. Introduction: Types of Financial Returns

This learning module extends on the previous learning module, which introduced the calculation and interpretation of rates and returns. Investors earn returns through two sources:

- Price return: which is uncertain
- Capital distribution return: which can be fixed or variable

The proportion of total return obtained from these two sources depends on the nature of the financial asset (e.g., bonds provide mostly capital distribution return, while equities provide mostly price return).

2. Types Of Returns for Financial Assets, Instruments, and Indicators

2.1 Types of Returns

Price return: Price return is typically uncertain. Many financial assets and instruments generate returns primarily through price changes; hence, variability in price changes is a key focus of risk analysis.

Factors that influence the price return for equities include:

- The company's performance
- Market sentiment
- Economic and fiscal conditions
- Other factors

Factors that influence the price return for bonds include:

- The level of interest rates
- The issuer's financial health

Fixed capital distribution return: This is the most common type of return for debt (e.g., fixed coupon-paying bonds). Typically, this rate of return remains constant throughout the investment period.

Variable capital distribution return: This is the most common type of return for equity (e.g., dividend-paying stocks). It is also relevant for certain types of debt (e.g., floating-rate bonds whose coupon payments change based on changes in a reference rate).

2.2 Types of Returns: Financial Assets

The main financial assets are cash, equity, debt, and hybrids (that combine characteristics of equity and debt).

Cash: Cash includes coins, bank notes, currency, and non-interest-bearing bank deposits. It does not generate any return, yet having cash available is an important portfolio

management strategy. Cash is used to purchase investments, and every investment is eventually converted back into cash. Idle cash is often invested in short-term bonds or interest-bearing bank accounts to earn some return. These investments can be converted to cash quickly when required.

Equities: Also called stocks, shares, or ownership interests. Equities generate return through two sources:

- **Price return:** Typically, price appreciation accounts for a significant portion of equity returns. Equity prices are influenced by multiple factors, such as company-specific fundamental factors, broader economic indicators (e.g., GDP growth rates, inflation, etc.), market sentiment (optimistic, pessimistic, or neutral), and global events (e.g., wars.)
- **Capital distribution:** Equities may distribute capital to investors in the form of dividends. A company can pay dividends on a quarterly, semiannual, or annual basis. There may also be special one-off dividends tied to corporate actions. Some rapidly growing companies may choose not to pay dividends and instead reinvest profits for future growth. While mature companies, with fewer growth opportunities, may distribute a majority of their profits as dividends. Investors can choose companies that provide the type of return they desire.

Bonds: Also called debt, loans, or fixed-income instruments. They are contractual agreements where an investor lends a specific amount of money (the principal) to an issuer (a corporation, government, or other organization) in exchange for regular, predetermined, contractual coupon payments. The principal is typically paid back to the investor at bond maturity. Bonds generate return through two sources:

- **Price return:** Bond values are influenced by multiple factors, such as the creditworthiness of the issuer, interest rates, and the maturity of the bond. Bond prices are inversely related to interest rates. When interest rates go up, bond prices come down, and vice versa. Generally, longer-dated bonds are more sensitive to interest rate movements than shorter-term bonds.
- **Capital distributions:** Typically, capital distributions account for a significant portion of bond returns. Bonds are particularly appealing to investors looking for steady cash income streams.

Hybrids: Hybrids are financial assets that blend equity (potential for appreciation) and debt (fixed returns) characteristics, e.g., preferred stock and convertible bonds.

2.3 Types of Returns: Financial Instruments

Financial instruments are the means through which financial assets are standardized, packaged, and traded in financial markets. The standardization facilitates the efficient exchange of these instruments between investors. E.g., stocks and bonds.

Derivatives are financial instruments whose value is derived from the performance of an underlying financial asset or financial indicator, such as exchange rate, interest rate, or market index. The value of a derivative is based on the expected future price movements of the underlying. An example of a derivative is a call option, which gives the buyer the right—but not the obligation—to purchase an underlying asset (like stocks) at a specified strike price within a set timeframe.

Instructor's Note: These concepts are covered in detail in the 'Derivatives' section of the curriculum.

2.4 Types of Returns: Financial Indicators

Financial indicators are observable but not directly tradable indicators of value. Unlike financial assets and instruments, financial indicators do not generate cash flows. Important financial indicators include: interest rates, exchange rates, and market indexes.

Interest rates:

Interest rates are normally traded through risk-free government bonds, whose prices reflect the current interest rate environment. Bond prices are inversely related to interest rates. If you believe interest rates will fall (rise), you can purchase (sell) bonds.

Interest rates impact the valuation and performance of various financial instruments, including bonds.

As discussed in the previous learning module, the risk-free rate is determined by the return on short-term, risk-free, government debt.

Example: The risk-free rate

(This is based on the case study from the curriculum.)

When evaluating the risk-free rate, investors often use the 3-month US Treasury bill, or T-bill, that has a face value of USD1,000. If a T-bill is currently priced at USD990, or a discount of USD10, it does not pay any interest. There are 90 days remaining before the bill matures and is repaid. Interest is calculated using 365 days in the year. Calculate the annualized interest rate of this T-bill.

Solution:

The total return on this T-bill is:

$$r = \frac{P_1 - P_0 + \text{Inc}}{P_0} = \frac{1,000 - 990 + 0}{990} = 1.01\%$$

This holding period rate is then annualized:

$$r_{\text{annualized}} = (1 + r_{\text{period}})^c - 1 = (0.0101)^{\frac{365}{90}} - 1 = 4.16\%$$

Foreign exchange rates:

- A foreign exchange rate is the price or cost of one currency expressed in terms of another currency.
- Consider an exchange rate quote of 1.4500 USD/EUR.
- The numerator currency (USD) is called the price currency, and the denominator currency (EUR) is called the base currency.
- It implies that one EUR is exchangeable with 1.45 USD.
- To determine appreciation or depreciation of a currency: if the quoted rate increases in terms of the base currency → the base currency has appreciated, and vice versa.
- If one currency in a currency exchange pair appreciates, the other currency depreciates.

Example

Determine whether the following currencies have appreciated or depreciated.

Currency pair	Current exchange rate	Exchange rate three years later
USD/EUR	1.4160	1.4051
INR/USD	60.4560	61.3869
CHF/USD	0.8895	0.8863

Solution:

In USD/EUR, the quoted exchange rate decreases → EUR depreciates (relative to USD), and USD appreciates.

In INR/EUR, the quoted exchange rate increases → USD appreciates (relative to INR), and INR depreciates.

In CHF/USD, the quoted exchange rate decreases → USD depreciates (relative to CHF), and CHF appreciates.

When investing in a foreign asset, an investor's return is determined not only by the asset's return but also by the movement of the exchange rate. This is demonstrated in the following example.

Example:

(This is based on the case study from the curriculum.)

On the final trading day of 2020, a US investor bought USD1 million worth of a European company's bonds. The bonds were priced at EUR112.54 for every EUR100 of face value. At this time, the USD/EUR exchange rate was 1.2216.

By the end of 2021, these bonds were trading at EUR107.769 per EUR100 face value, and the USD/EUR exchange rate had moved to 1.1373. The bonds also paid a coupon of EUR1.5 per EUR100 face value.

Calculate the return on this investment in USD terms.

Solution:

The annual return on the bond in EUR is:

$$r_{\text{EUR}} = \frac{P_1 - P_0 + \text{Inc}}{P_0} = \frac{107.769 - 112.54 + 1.5}{112.54} = -2.91\%$$

Through this investment, the US investor has also indirectly invested in EUR, and by looking at the change in the exchange rate, we can see that EUR (the base currency) has depreciated. The depreciation of EUR can be calculated as:

$$r_{\text{exchange rate}} = \frac{\text{new exchange rate} - \text{old exchange rate}}{\text{old exchange rate}} = \frac{1.1373 - 1.2216}{1.2216} = -6.90\%$$

Therefore, the overall USD return is:

$$r_{\text{USD}} = (1 + r_{\text{EUR}})(1 + r_{\text{exchange rate}}) - 1 = (1 - 0.0291)(1 - 0.0691) - 1 = -9.61\%$$

Thus, the investor suffered a double loss, a loss on the investment and a loss on the exchange rate movement.

Market indexes: A market index reflects the aggregated value of stocks, bonds, or other asset classes traded in a market and indicates the overall performance of a specific market or the entire market. For example, the S&P 500 Index is a stock market index tracking the performance of 500 of the largest, publicly traded companies in the US.

Market indexes are often used as a benchmark to assess performance. For example, we can compare the returns of a mutual fund to the S&P 500 to check if the fund manager has outperformed or underperformed the market.

2.5 Long-Term Financial Asset Returns

This section analyzes the historical return of major US asset classes for a 45-year period from 1979 to 2023. Asset classes included in the analysis are:

- Large-cap stocks (Russell 1000 Index)
- Small-cap stocks (Russell 2000 Index)
- Corporate bonds (Bloomberg US Corporate Total Return Index)
- Government bonds (Bloomberg US Treasury Total Return Index)

Exhibit 8 from the curriculum lists the arithmetic and geometric average annual returns as well as the highest and lowest annual returns for this time period. The total returns are split into returns from capital distributions and returns from price appreciation.

Series	Return Type	Arithmetic Mean	Geometric Mean	Highest Annual Return	Lowest Annual Return
Equity	---	---	---	---	---
Large capitalization	Total return	13.35%	12.26%	37.77%	-37.60%
Russell 1000 Index	Capital appreciation	10.42%	9.32%	34.39%	-39.02%
---	Capital distribution	2.64%	2.58%	5.81%	1.15%
Small capitalization	Total return	12.60%	11.23%	47.25%	-33.79%
Russell 2000 Index	Capital appreciation	10.68%	9.32%	45.37%	-34.80%
---	Capital distribution	1.71%	1.63%	3.70%	0.99%
Debt/bond/fixed income	---	---	---	---	---
US corporate bonds	Total return	7.62%	7.43%	39.21%	-15.76%
---	Capital appreciation	0.34%	0.06%	23.12%	-18.92%
---	Capital distribution	7.23%	7.10%	13.43%	3.32%
US Treasury bonds	Total return	8.29%	7.62%	41.76%	-29.25%
---	Capital appreciation	1.49%	0.76%	25.88%	-31.27%
---	Capital distribution	6.69%	6.57%	13.37%	2.26%
30-Day T-bill (risk-free rate)	Total return	2.52%	2.50%	6.20%	-0.01%
Inflation	---	---	---	---	---
Annual inflation rate	---	3.57%	---	13.30%	0.10%

Sources: Bloomberg, FRED, and author calculations.

A few key observations from this data are:

- Equities provide higher average returns over time than bonds. Equity returns are primarily driven by capital appreciation, while bonds provide returns mainly through coupon payments. The difference between the highest and lowest returns (the dispersion of returns) shows that equities are riskier than bonds.
- Small-cap stocks have occasionally outperformed large-cap stocks, suggesting the evidence of a temporary small-cap premium. However, this premium appears to diminish over time.
- Despite offering higher yields on paper, US corporate bonds underperformed US Treasury bonds due to the impact of defaults.
- Long-term government bonds provide higher returns than short-term government bonds, implying a greater required rate of return for committing capital over a longer horizon. (Data supporting this point is shown in a separate exhibit in the curriculum.)

- The US 30-Day T-Bill, commonly used as a proxy for the risk-free rate, has a nominal return that closely matches the average inflation rate, indicating a low real return.

Example:

(This is based on the case study and knowledge check example from the curriculum.)

1. Using the geometric average total returns shown in Exhibit 8, calculate the relative outperformance of large-capitalization equity versus long-term corporate debt.

Solution:

The relative outperformance of large-cap equity is:

$$\frac{1 + 12.26\%}{1 + 7.43\%} - 1 = \frac{1.1226}{1.0743} - 1 = 4.50\%$$

2. Using the geometric average total returns in Exhibit 8, calculate the small-cap premium: the difference of the average growth in value between small-capitalization stocks over large-capitalization stocks.

Solution:

The small-cap premium (discount) is:

$$\frac{1 + 11.23\%}{1 + 12.26\%} - 1 = \frac{1.1123}{1.1226} - 1 = -0.92\%$$

3. What are the limitations of the data shown in Exhibit 8 when it comes to performance?

Solution:

Three limitations of the data are:

- Past returns may not be indicative of future performance.
- The data reflects gross returns and not net returns.
- The impact of taxes and inflation has not been factored in.

4. Using the geometric means shown in Exhibit 8, estimate the annualized relative outperformance of long-term government bonds versus long-term corporate bonds.

Solution:

The outperformance of government bonds compared to corporate bonds is:

$$\frac{1 + 7.62\%}{1 + 7.43\%} - 1 = \frac{1.0762}{1.0743} - 1 = 0.18\%$$

2.6 Risks and Returns

Risk can be defined as the uncertainty between the expected returns on an investment and the actual, realized returns. Risk can be categorized into:

- **Macro risks or systematic risks:** These are broad economy-wide risks that affect the entire market. Systematic risk cannot be mitigated and is therefore also called non-diversifiable risk. Examples of macro risk include:
 - Inflation risk: Risk that the investment return will deviate from expectations solely due to the effects of inflation.
 - Interest rate risk: Refers to the uncertainty of returns due to interest rate fluctuations.
 - Market risk: Refers to the possibility that market forces will affect financial assets in an unexpected manner.
- **Micro risks or unsystematic risks:** These are factors specific to the individual issuer or sector. Unsystematic risk can be mitigated through diversification and is therefore also called diversifiable risk. Examples of micro risks include:
 - Business risk: Risk inherent in the nature of the firm's operation.
 - Financial risk: Risk that arises from the use of financial leverage (debt).
 - Credit risk: Refers to a firm's ability to meet its promised payments (interest and principal payments).
 - Sector risk or industry risk: This is similar to market risk. It represents the possibility that forces particular to a sector will affect assets within that sector in an unexpected manner. E.g., a sudden spike in the prices of a key raw material.

A simple way to measure risk is to look at the range of past annual returns. A narrower range implies lower risk; the returns are relatively consistent and predictable. A wider range implies higher risk; the returns are inconsistent and less predictable. Investors demand a higher risk premium as compensation for taking on greater volatility and uncertainty. Therefore, higher-risk investments generally provide higher potential returns, and lower-risk investments generally provide lower potential returns. This is known as the '**risk-return trade-off**.'

Example: Asset allocation and returns

(This is based on the case study from the curriculum.)

Consider three hypothetical investors with different investment objectives.

- Investor A seeks aggressive capital growth, prioritizing long-term capital appreciation.
- Investor B looks for a balanced approach, seeking returns from both growth and income.
- Investor C desires more steady income, with some growth to hedge against inflation.

Exhibit 12 shows the expected returns from three different asset classes.

Asset	Total Return	Capital Appreciation	Capital Distribution
Large-capitalization equities	12.00%	8.50%	3.50%
Long-term government bonds	5.75%	0.75%	5.00%
T-bills	3.00%	N/A	3.00%

How much to allocate to each asset class depends on the investment objective of the investor. An aggressive investor will allocate more to equity, while a conservative investor will allocate more to debt.

Exhibit 13 shows asset allocations that align with the investment objectives of the three investors.

Investor	Asset Allocation (in %)			Annual Return (in %)		
	Large-Capital-ization Equities	Long-Term Gov-ernment Bonds	T-Bills	Total Return	Capital Appreciation	Capital Distributions
A	80	10	10	10.48	6.88	3.60
B	60	35	5	9.36	5.36	4.00
C	50	45	5	8.74	4.59	4.15

Investor A has an 80% allocation to large-capitalization equities, 10% to long-term government bonds, and 10% to T-bills.

The total return on this allocation can be calculated as:

$$80\% \times 12.00\% + 10\% \times 5.75\% + 10\% \times 3.00\% = 10.48\%$$

The return from capital appreciation on this allocation can be calculated as:

$$80\% \times 8.50\% + 10\% \times 0.75\% + 10\% \times 0\% = 6.88\%$$

The return from capital distributions on this allocation can be calculated as:

$$80\% \times 3.50\% + 10\% \times 5.00\% + 10\% \times 3.00\% = 3.60\%$$

We can perform similar calculations for Investor B and Investor C and arrive at the numbers presented in the table above.

Investor A's strategy maximizes capital appreciation through a large allocation in equities. Investor B strikes a balance, receiving income through bonds while tapping into equities. Investor C adopts a conservative allocation, prioritizing income through bonds; however, returns are almost evenly split between income and the modest capital appreciation.

Summary

LO: Calculate, compare, and interpret different types of returns for financial assets, instruments, and indicators.

Equities provide higher average returns over time than bonds. Equity returns are primarily driven by capital appreciation, while bonds provide returns mainly through coupon payments. Equities are riskier than bonds.

Risk can be defined as the uncertainty between the expected returns on an investment and the actual, realized returns. Risk can be categorized into:

- Macro risks or systematic risks: These are broad economy-wide risks that affect the entire market, e.g., inflation risk, interest rate risk, and market risk.
- Micro risks or unsystematic risks: These are factors specific to the individual issuer or sector, e.g., business risk, financial risk, credit risk, and sector risk.

According to the 'risk-return trade-off,' higher-risk investments generally provide higher potential returns, and lower-risk investments generally provide lower potential returns.