

# Foundations of Accounting & Finance

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Week - 11

Lecture – 51

## Risk and Return - Part I

### Introduction

In the previous sessions, we have focused on the asset side of Corporate Finance, examining the balance sheet and investments. Specifically, we dealt with concepts such as NPV (Net Present Value) and IRR (Internal Rate of Return), analysing the potential returns from different projects in light of time value of money. Now, we are shifting our attention to the other side of the balance sheet: equity and liabilities.

As we explore equities and liabilities, we will get into risk and return. While many might say that "high risk, high return," it's essential to understand that this principle implies a higher expected return for higher risk investments. However, no one guarantees a high return on high-risk ventures. The term "expected" is crucial here, underscoring the uncertain nature of returns in high-risk scenarios.

### The context

#### Up to 35% returns in 2023! These sectoral indices have substantially outperformed the BSE Sensex this year

In 2023, the performance of different sectors has varied widely. While some have strongly outperformed the Sensex and surged up to 35 per cent, there are a few that have declined sharply

#### Decrease in Value of sectoral Indices



Source: Business Today

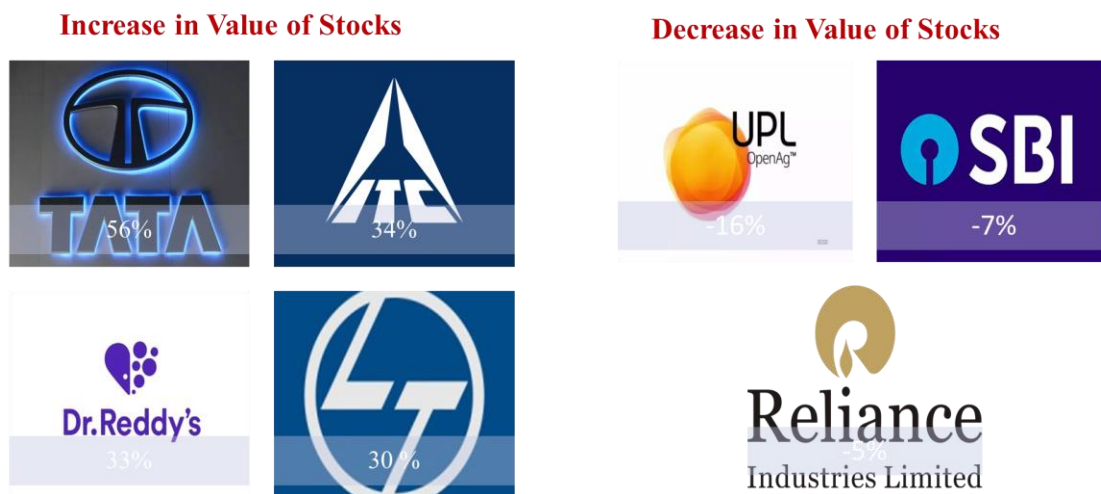
The context is a newspaper article highlighting sectoral performance in 2023. According to the article, various sectoral indices have outperformed the overall BSE index. Capital goods, for instance, saw a remarkable return of 35 percent, followed by realty at 29 percent, auto at 23 percent, FMCG at 16 percent, and healthcare at 21 percent. These sectors have surpassed the performance of the broader index, indicating significant growth.

However, not all sectors performed well. The oil and gas index declined by 8.4 percent, while the power index dropped by 5 percent. This disparity underscores the importance of risk in investment decisions. While investing solely in the capital goods index would have yielded a substantial 35 percent return, investing in oil and gas would have resulted in an 8.4 percent loss.

This illustrates the inherent risk associated with investments, where the downside risk is always present. Diversifying one's portfolio becomes crucial to mitigate this risk. By spreading investments across various sectors, investors can balance potential losses with gains. While this strategy may not yield the highest possible return, it helps minimize the risk of significant losses. Therefore, prudent investors opt for diversification to manage risk effectively.

Moving beyond sectoral indices, investors may also consider individual stocks for further diversification.

### ***Industry specific stocks***



Let us focus on the manufacturing sector, particularly on specific companies within it. While the capital goods index showed a 35 percent increase, Tata Motors experienced a notable surge of 56 percent in the past year. This significant rise surpasses the sectoral average, indicating robust performance for Tata Moto₹ Conversely, Reliance Industries witnessed a decline of 5 percent, showcasing negative growth in contrast.

Similarly, within the healthcare sector, there are variations in performance. For instance, Reddy's saw a commendable increase of 33 percent, while the banking sector faced a downturn of 7 percent.

These fluctuations highlight the diversity of performance within industries. Not all companies within a sector experience uniform growth rates. Tata Motors' substantial increase alongside Reliance Industries' decline exemplifies this disparity.

Diversification is key to managing investment risk effectively. By spreading investments across different sectors and companies, investors can mitigate the impact of adverse movements in individual stocks. While Tata Motors may have yielded positive returns, Reliance would expose investors to potential losses. Thus, diversification serves as a crucial risk management strategy, ensuring a balanced investment portfolio.

### *The core question?*

- Tremendous potential profits and also the risk of losing money!!
- What should you, as an investor expect when you invest your own money?

## **Returns**

### **Rupee Returns**

Returns on investment can be analysed through two primary avenues: dividends and capital gains. When investing in equity, these sources of returns are paramount. Dividends represent the portion of profits distributed to shareholders, providing a direct income stream. Additionally, capital gains occur when the market value of an investment appreciates over time, resulting in profit on selling.

For instance, consider a scenario where an investor purchases shares of a company at ₹ 150 per share. Over time, the market value of these shares increases to ₹ 300 per share. The difference of ₹ 150 per share represents the capital gain realized by the investor. Further, if the company pays dividends during the holding period, they also contribute to the investor's overall returns.

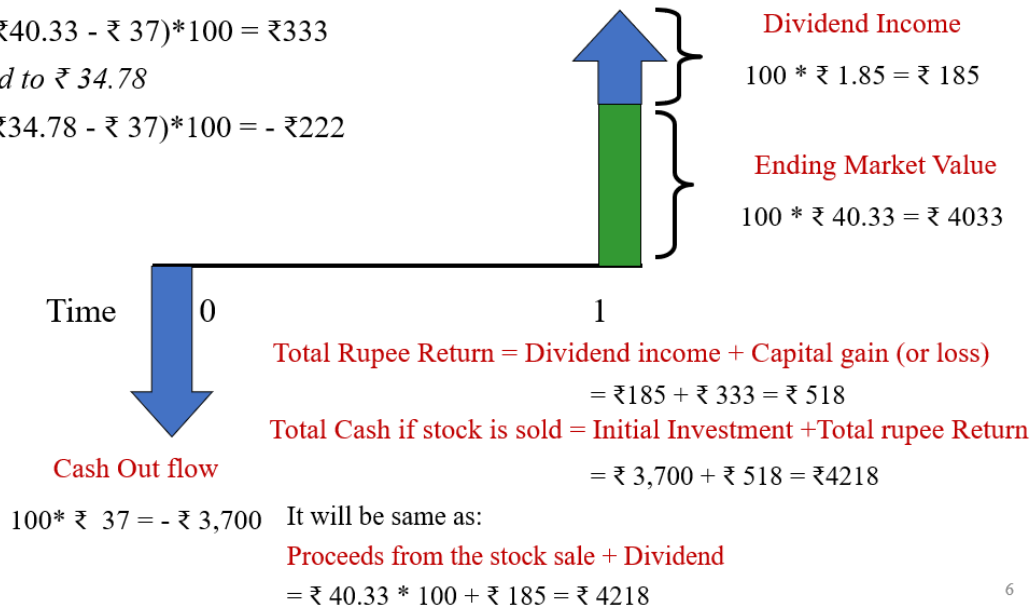
In summary, returns on equity investments encompass both dividends received and capital gains accrued. These combined elements reflect the profitability of an investment and are crucial factors in assessing performance. Let us delve into an example to illustrate these concepts further.

## An example for rupee return

$$\text{Capita Gain} = (\text{₹}40.33 - \text{₹} 37) * 100 = \text{₹}333$$

If, Price dropped to ₹ 34.78

$$\text{Capita Loss} = (\text{₹}34.78 - \text{₹} 37) * 100 = - \text{₹}222$$



In this example, let us consider investing in shares of a company. At time zero, you purchase 100 shares of a company at ₹37 per share. During the holding period, the company issues a dividend of ₹1.85 per share. Hence, the total dividend earned amounts to ₹185 (100 shares \* ₹1.85).

Upon deciding to sell the shares at the end of the holding period, the market price has risen to ₹40.33 per share. After accounting for transaction costs, let us assume the net selling price per share is ₹40.33.

The total selling price for 100 shares would be ₹4033. Considering the initial investment of ₹3700, the net gain from selling the shares is ₹333 (₹4033 - ₹3700).

Alternatively, if the selling price had decreased to ₹34.78 per share, resulting in a capital loss, the total loss would amount to ₹222 (₹3700 - ₹3478). However, since the dividend of ₹185 was received, the net loss would be ₹37 (₹ 222 - ₹ 185).

Thus, depending on the selling price and associated gains or losses, the overall return on the investment can vary. In the scenario where the selling price exceeds the initial investment, a profit is realized, whereas selling at a loss leads to a reduction in capital. These dynamics illustrate the importance of monitoring market fluctuations and understanding the implications for investment returns.

**If you hold the stock and don't sell it at the year-end. Should you still consider the capital gain as part of your return?**

Whether to consider capital gains as part of your return when holding onto stocks without selling depends on the two perspective. For tax purposes, capital gains are typically not considered until the stocks are sold. This approach aligns with accounting principles, where unrealized gains are not recognized until they are realized through a sale transaction. Consequently, there are no capital gains taxes incurred on unrealized gains.

However, from an investor's standpoint, it is essential to track the value of the investment, including any capital gains that may have accrued during the holding period. Knowing the current value of the shares provides valuable insight into the overall performance of the investment portfolio.

Therefore, while accounting principles and tax regulations may defer recognition of capital gains until realized, investors often track and consider these gains to assess the true worth and performance of their investments. This nuanced understanding helps investors make informed decisions about their portfolios.

### **Percentage Returns**

Expressing risk in percentages is a convenient way to summarize and compare risks across different investments. But when it comes to determining the return on investment, it is crucial to consider your risk appetite.

The return you seek depends on your willingness and ability to tolerate risk. If you are comfortable with high levels of risk, you may pursue investments with the potential for significant returns, although they also come with the risk of substantial losses. Conversely, if you prefer low-risk investments, you might opt for options such as fixed deposit with a bank, offering modest returns but minimal risk.

In essence, the relationship between risk and return guides your investment decisions, shaping the desired level of return you aim to achieve based on your risk tolerance.

## Example for Percentage Returns

$$\text{Dividend yield} = \text{Div}_{t+1} / P_t$$

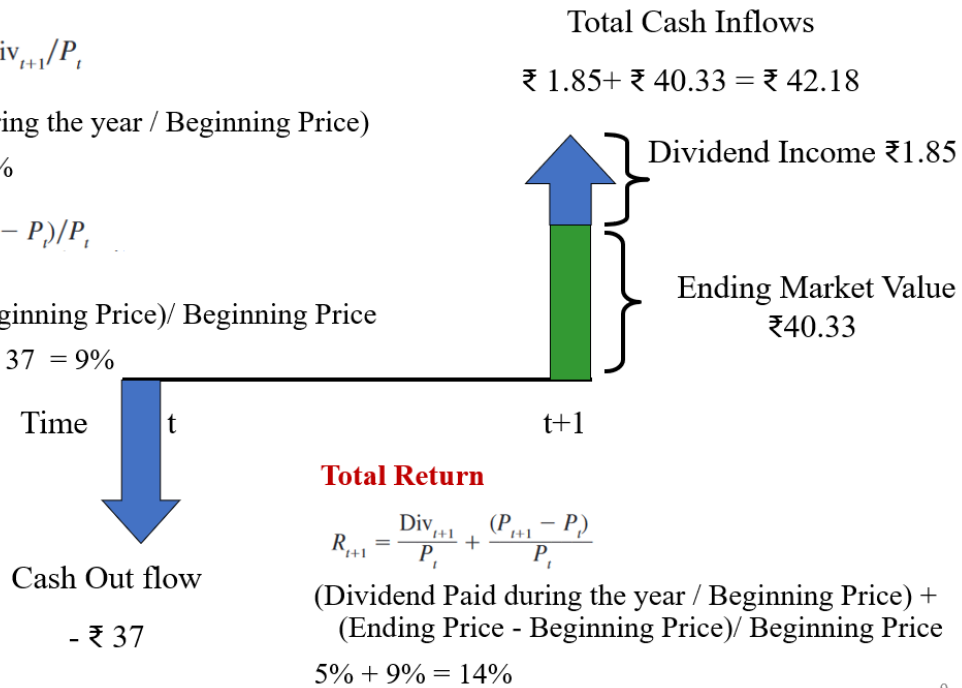
(Dividend Paid during the year / Beginning Price)

$$(\text{₹ } 1.85 / \text{₹ } 37) = 5\%$$

$$\text{Capital gain} = (P_{t+1} - P_t) / P_t$$

(Ending Price - Beginning Price) / Beginning Price

$$(\text{₹ } 40.33 - \text{₹ } 37) / \text{₹ } 37 = 9\%$$



Let us consider the same example again. I purchase a stock for ₹37, receive a dividend of ₹1.85, and its market value at time t plus 1 is ₹40.33. When I sell the stock, my total cash inflow is ₹42.18. Now, let us delve into the concept of dividend and capital gain yield.

The dividend yield is calculated by dividing the dividend received at time t plus 1 (₹1.85) by the initial price (₹37), resulting in a dividend yield of 5 percent. On the other hand, the capital gain yield, expressed as a percentage, is determined by dividing the difference between the selling price (₹40.33) and the purchase price (₹37) by the purchase price, yielding a capital gain yield of 9 percent.

Combining both yields, my total return on investment is approximately 14 percent. This figure reflects the combined return from dividends and capital gains. Therefore, I have earned a 14 percent return on my investment through a combination of dividend income and capital appreciation.

Expressing returns in percentages allows for a clear understanding and comparison of investment performance.

### Example

Keurig Green Mountain (GMCR), coffee making by the cup fame, began 2014 at ₹75.54 per share. Keurig Green Mountain paid dividends of ₹1.00 during 2014, and the stock price at the end of the year was ₹132.40. What was the return on GMCR for the year?

### Solution:

Let us calculate the return for Keurig Green Mountain (GMCR) using the provided data.

1. **Dividend Yield:** Dividend yield is calculated by dividing the dividends paid during the year (₹1.00) by the initial share price (₹75.54). This gives us a dividend yield of approximately 1.32 percent.
2. **Capital Gain Yield:** Capital gain yield is determined by subtracting the initial share price from the ending share price and dividing the result by the initial share price. So,  $(₹132.40 - ₹75.54) / ₹75.54$  equals a capital gain yield of roughly 75 percent.
3. **Total Return:** To find the total return, we sum up the dividend yield and the capital gain yield. Thus, the total return for GMCR for the year is approximately 76.60 percent.

		Gain
Initial price	₹	75.54
Dividend paid	₹	1.00
Ending share price	₹	132.40
Output area:		
Total return		76.60%
Dividend yield		1.32%
Capital gain yield	₹	56.86 75%

### Example

In 2014, GameStop's stock price at the end of the year was ₹33.80 per share, and dividends of ₹1.32 were paid. The stock began the year at ₹49.26 per share.

### Solution:

Let us calculate the return for GameStop using the data provided.

1. **Dividend Yield:** Dividend yield is calculated by dividing the dividends paid during the year (₹1.32) by the initial share price (₹49.26). This gives us a dividend yield of approximately 2.68 percent.
2. **Capital Gain Yield:** Capital gain yield is determined by subtracting the initial share price from the ending share price and dividing the result by the initial share price. In this case, it's  $(₹33.80 - ₹49.26) / ₹49.26$ , resulting in a capital gain yield of approximately -31.4 percent (negative due to the decrease in stock price).

3. **Total Return:** To find the total return, we sum the dividend yield and the capital gain yield. The negative capital gain yield will partially offset the positive dividend yield. Thus, the total return for GameStop for the year 2014 is approximately -28.70 percent.

	<b>Loss</b>
Initial price	₹ 49.26
Dividend paid	₹ 1.32
Ending share price	₹ 33.80
<i>Output area:</i>	
Total return	<b>-28.70%</b>
dividend yield	2.68%
capital gain yield	-31.4%

### Example

Suppose a stock begins the year with a price of ₹25 per share and ends with a price of ₹35 per share. During the year, it paid a ₹2 dividend per share. What are its dividend yield, its capital gains yield, and its total return for the year? (Excel)

Suppose you had ₹5,000 invested. The total rupee return you would have received on an investment in the stock is

### Solution:

Let start with the dividend yield. Dividend yield is calculated by dividing the dividend (₹2) by the initial share price (₹25), resulting in a dividend yield of 8 percent.

Next, we calculate the capital gains yield. It is obtained by subtracting the initial share price from the ending share price, then dividing the result by the initial share price. This gives us the percentage change in stock price over the year as 40%.

To find the total return, we sum the dividend yield and the capital gains yield. This provides us with the overall return on the investment for the year which is 48% for this example.

Suppose you had ₹5,000 invested in this stock. The total rupee return on your investment would be ₹2,400.



	<i>Input area:</i>	
Initial price	₹	25.00
Dividend paid	₹	2.00
Ending share price	₹	35.00
	<i>Output area:</i>	
Dividend Yield		8.00%
Capital gain Yield		40.00%
Total Return		48.00%
Investment		5000
Rupee Return for investment		2400

In summary, we have determined the dividend yield, capital gains yield, and total return for the stock investment. While dividend returns cannot be negative, capital gains returns can. However, in this example, both returns are positive.