ANAND RATHI
WEALTH LIMITED

Acknowledgements

"Nothing is difficult! What you don't know today is already known to someone else!
Gather courage to begin the journey of learning, and you will be able to conquer anything!"

- **Rakesh Rawal**, CEO, Anand Rathi Wealth Limited

Dear Readers,

We are delighted to announce the second edition of the Knowledge Series book. The first edition received many positive responses, building our confidence that this book needs a second edition. Our philosophy has always been to make our thought process uncomplicated so that an investor can get the entire perspective before investing. In addition to our market notes and relevant updates about India's growth story, the Knowledge Series book is another endeavour to create financial awareness for our clients and readers. The aim is to simplify concepts so that the reader can learn the subject, become good at it and implement it to make prudent financial decisions. We believe that this book will enable readers to take responsibility for their money.

We have divided the books into 2 editions – creating an e-version of the first edition book and publishing the latest 10 notes in the second book. This book focuses on the core aspects of the business and macro-economic topics that are significant for long-term investing.

We want to thank the author of this book, Chirag Muni, who has been relentlessly spearheading this cause of creating a knowledge pool so that our financially empowered clients can traverse their investment journey smoothly. As our Dean, you have single-handedly brought the organisation's aspiration to life.

This note would not have been possible without the support of our CEO Mr Rakesh Rawal and our Deputy CEO, Feroze Azeez. They have been the torch bearers of making finance & investing uncomplicated. We would also like to thank the product team members, Shweta Rajani, Chintak Shah, Kalpesh Koradia, Dipali Shah, Sanober Marolia, Minisha Rupani, and Kedar Joshi under the leadership of Chethan Shenoy, and Sujan Hajra for their selfless support and the RM community for doing justice by sharing this wealth of knowledge with their clients continuously.

We are grateful to Chairman Rathiji for being our most prominent teacher and the guiding light. The Knowledge Series book is an intricate part of Rathiji's vision of investor education. And it is our privilege to be able to bring it to fruition.

Menaal. Shah
Managing Editor

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Author

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01 Understanding Futures Contract

Objective: *Simplifying the concept of a Futures contract of the derivative market*

What is a Futures contract?

The simplest type of derivative contract is the 'FORWARD' or 'Futures' contract. 'FORWARD' contract is an older avatar of the 'Futures' contract. The Futures contract is an agreement to buy or sell an underlying asset at a later date for a predetermined price. The core of both 'FORWARD' and 'Futures' contract is the same.[1] However, the significant differences between them are as shown below:

Forward Contract	Future Contract
• Customised Contract • Traded Over the Counter (OTC) • Has Counter Party Risk • Not Regulated (in India) • Settlement is Flexible (Physical or Cash)	• Standardised Contract • Exchange Traded • No Counter Party Risk • SEBI Regulated (in India) • Mostly Cash Settled

In this note, we will focus on understanding futures contract.

Main elements of Futures contracts

- **Underlying Asset:** Can be Index, Stock, Commodity, Currency, etc.
- **Size or Quantity:** This outlines the number of underlying asset's units being bought or sold.
- **Expiry Date:** It is the end date on which the contract needs to be settled & would cease to exist.
- **Price:** It is the price at which both the parties agree to respectively buy and sell the underlying asset
- **Type of Settlement:** It can be Physical, or Cash Settled.

What is Physical Settlement?

Under **Physical Settlement** the seller is obligated to deliver the underlying asset and the buyer is obligated to pay the agreed price and take the delivery of the underlying asset upon the contract's exp iry.

To understand this better, let us take an example of a Futures Contract with Real Estate as an underlying.

1. Forward Contracts vs. Futures Contracts: What's the Difference?
https://www.investopedia.com/ask/answers/06/forwardsandfutures.asp#:~:text=A%20forward%20contract%20is%20a,the%20end%20of%20the%20contract.

Example: On March 12, 2023, Divya (buyer) agrees to buy one apartment from Aarti (seller) on April 30, 2023, at a price of Rs. 100

The main elements, therefore, are as below

- **Underlying Asset:** Apartment (Real Estate)
- **Quantity:** 1
- **Expiry Date:** April 30, 2023
- **Price:** Rs. 100
- **Type of Settlement:** Physical

Now on expiry, irrespective of the apartment price, Divya (buyer) is obligated to pay Rs. 100 to Aarti (seller) and Aarti, on the other hand, is obligated to deliver the apartment to Divya.

What is Cash Settlement?

Under Cash Settlement, both the buyer and seller settle the contract in cash based on the price differential between the agreed price and the actual price of the underlying asset on the expiry date of the contract.

Continuing with the same example, consider Divya and Aarti as 2 parties to the 'Futures' contract.

On March 12, 2023, Divya (buyer) agrees to buy 1 apartment from Aarti (seller) on April 30, 2023, at a price of Rs. 100

The main elements, therefore, are as below

- **Underlying Asset:** Apartment (Real Estate)
- **Quantity:** 1
- **Expiry Date:** April 30, 2023
- **Price:** Rs. 100
- **Type of Settlement:** Cash

Let us understand the impact of this contract on both parties on April 30, 2023, using various scenarios.

Scenario 1: The actual price of the apartment goes higher and becomes Rs. 120 on the expiry date

In this case, Divya (buyer) will be HAPPY since, as per the contract, she will still be able to buy the apartment from Aarti at a previously agreed price of Rs. 100. Aarti (seller) will be SAD as she will be obligated to sell the apartment at a price of Rs. 100 (and not at its higher market price of Rs. 120).

On expiry, this contract is cash-settled, and the settlement happens as follows:

- Divya (buyer) will have a net gain of Rs. 20 (Actual price of the apartment on expiry – 100) * 1) and Aarti (seller) will have a net loss of Rs. 20.

Scenario 2: The actual price of the apartment goes lower and becomes Rs. 80 on the expiry date

In this case, Aarti (seller) will be HAPPY since, as per the contract, she will still be able to sell the apartment to Divya at a previously agreed price of Rs. **100**. Divya (buyer) will be SAD as she will be obligated to buy the apartment at a price of Rs. **100** (and not at its lower market price of Rs. 80).

On expiry, this contract is cash-settled, and the settlement happens as follows:

- Aarti (seller) will have a net gain of Rs. 20 ((100- Actual px. of the apartment on expiry) * 1) and Divya (buyer) will have a net loss of Rs. 20.

Scenario 3: The actual price of the apartment stays the same (Rs. 100) on the expiry date

In this case, neither Divya (buyer) nor Aarti (seller) would benefit as the actual price of the apartment on expiry, i.e. April 30, 2023 turned out to be exactly equal to the previously locked-in price of Rs. 100

The summary of the above 3 scenarios as on expiry date (April 30, 2023) is shown below

Scenario	Locked-In Price	Actual apartment px. on April 30, 2023	Emotional Impact		Financial Impact	
			Divya (buyer)	Aarti (seller)	Divya (buyer)	Aarti (seller)
1	100	120	***Happy***	***Sad***	20	-20
2	100	80	***Sad***	***Happy***	-20	20
3	100	100	No Impact	No Impact	0	0

Possible Profit and Loss Impact for the buyer & seller in a Futures Contract is as shown below

Possible P&L Impact	Buyer	Seller
Max Profit	***Unlimited***	***Agreed Price (100)***
Max Loss	***Agreed Price (100)***	***Unlimited***

How is the price of a futures contract derived?

- Futures' market should ideally quote at a higher price than the 'Cash' market because the seller has to get compensated for holding on to the underlying till the expiry date.

- This differential between Cash and Futures price is called the futures premium and the extent of premium should be ideally equal to Cash price/Spot price today, grown at risk-free rate[2] for the tenor of the contract.
- Futures price is estimated by the below pricing formula and is called the **'Theoretical Fair Value'**

Futures price = Spot price * (1 + Rf)

Where Rf – Risk-free rate (p.a.)

Example: If the Risk-free rate - Rf prevalent in the market is 7.5% p.a. and Aarti wants to sell her apartment, then she has the below 2 options

- **Option 1**: Sell in Cash Market and get Rs. 99 immediately. Aarti can then deploy this Rs. 99 at 7.5% p.a. (risk-free rate) for 48 days and get back Rs. ~100 on April 30, 2023 (i.e. 99.* (1 + (7.5% * 48/365)
- **Option 2:** Enter into a Futures Contract to sell her apartment at Rs. 100 after 48 days (i.e. on April 30, 2023)

Thus, with both Option 1 and Option 2, Aarti will have Rs. 100 on April 30, 2023, and hence Aarti will be indifferent to selling her apartment either in Cash Market today or in the Futures market on April 30, 2023.

2. The risk-free rate of return is the interest rate an investor can expect to earn on an investment that carries zero risk. It is common practice to refer to the T-bill rate as the risk-free rate. 'Risk-Free Rate'. Corporate Finance Institute, https://corporatefinanceinstitute.com/resources/valuation/risk-free-rate/.

If you do classwork and not your homework, then you will never learn enough and add substantial value to the client

- **Rakesh Rawal**, CEO, Anand Rathi Wealth Limited

02 Application of Futures Market

Objective: *Understanding the advantages and applications of the Futures market*

Advantages of Futures market over Cash market

1. For Buyer in Futures Contract

Leverage

It enables the buyer to participate in a large quantum with a relatively small amount of capital (margin).

Let us understand this with an example:

Divya is a buyer and is very bullish about an apartment that is priced at Rs. 100 in the cash market and has Rs. 100 available to invest.

To capitalize on her view, Divya has 2 options:

- **Option 1** – Buy 1 apartment in Cash Market by paying Rs. 100
- **Option 2** – Buy the apartment in Futures Market by paying margin money (say 20% is the margin required per contract)

Thus, Divya would be able to buy 5 Futures contracts by depositing Rs. 100 as margin

(Through Futures contract, Divya could leverage and enter into a transaction that was 5 times higher than the Cash market using the same capital as margin.)

Payoff

Scenario 1: If on the expiry date (April 30, 2023), Divya's view turns out correct and the price of the apartment rises to Rs. 140 then,

- **Payoff in Option 1 (Cash Market):** Profit of Rs. 40 (as she was able to buy 1 apartment in Cash)
- **Payoff in Option 2 (Futures Market):** Profit of Rs. 200 ((140 – 100) * 5) (as she was able to buy 5 Futures contracts by paying a margin of Rs. 100)

Scenario 2: If on the expiry date (April 30, 2023), Divya's view turns out incorrect and the price of the apartment falls to Rs. 80 then,

- **Payoff in Option 1 (Cash Market):** Loss of Rs. 20 (as she was able to buy 1 apartment in Cash)
- **Payoff in Option 2 (Futures Market):** Loss of Rs. 100 ((100 – 80) * 5) (as she was able to buy 5 Futures contracts by paying a margin of Rs. 100.)

By using the leverage available in Futures Contract, Divya will have the advantage of maximizing the gains. Still, at the same time, she will carry more risk as it can also amplify her losses in the Futures market as compared to the Cash market.

2. For Seller in Futures Contract

Short Selling

It enables the seller to sell an underlying asset without owning it.

Let us understand this with an example:

Aarti is a seller and is very bearish about an apartment that is priced at Rs. 100 in the cash market. Currently, she doesn't own the apartment and has Rs. 100 available to invest.

To capitalize on her view, Aarti has 2 options:

- **Option 1** – Sell the apartment in Cash Market (where she would be required to provide the delivery of the apartment). Since Aarti doesn't own the apartment, she would not be able to sell the apartment in the Cash Market as short selling isn't permitted in the Cash market.
- **Option 2** – Sell the apartment in the Futures Market by paying margin money (say 20% is the margin required per contract)

Thus Aarti would be able to sell 5 Futures contracts by depositing Rs. 100 as margin

(Through Futures contract, Aarti entered in a sell transaction without actually owning the underlying by providing Rs. 100 as margin)

Payoff

Scenario 1: If on the expiry date (April 30, 2023), Aarti's view turns out correct, and the price of the apartment falls to Rs. 80 then,

- Payoff in Option 1: ZERO (as she was not able to SHORT SELL the apartment in Cash)
- Payoff in Option 2: Profit of Rs. 100 ((100 – 80) * 5) (as she had sold 5 Futures Contracts by paying a margin of Rs. 100)

Scenario 2: If on the expiry date (April 30, 2023), Aarti's view turns out incorrect, and the price of the apartment rises to Rs. 140 then,

- Payoff in Option 1: ZERO (as she was not able to SHORT SELL the apartment in Cash)
- Payoff in Option 2: Loss of Rs. 200 ((140 – 100) * 5) (as she had sold 5 Futures Contract by paying a margin of Rs. 100)

By Short Selling, Aarti will have the advantage of capitalizing on her bearish view in the Futures market without owning the underlying.

Applications

Speculation

- Speculation using futures contract is mainly done by traders who generally do not own the underlying but have an opinion on the underlying asset's price.
- They are willing to capitalise on this view-based opportunity in exchange for taking higher risks.
- A Futures contract enables the buyer to leverage and the seller to short sell. Thereby increasing both potential gains and potential losses in a speculative venture.

Arbitrage

- Due to the speculation (Leverage & Short Selling), the price of the futures contract can deviate from its Theoretical Fair Value.
- When there are too many Bullish Speculators, they will use leverage in the futures market to maximise their profits. Hence, they will be willing to pay higher than the Theoretical Fair Value taking the Futures price higher (Futures Price > Cash Price = Futures will be quoting at a much higher premium).
- When there are too many Bearish Speculators, they will start short selling in the futures market to maximise their profits. Thereby driving down the Futures price (Futures Price < Cash Price = Futures will be quoting at a discount).
- When either of the above happens, 'ARBITRAGE'[3] opportunity emerges.

Type of Arbitrage

Cash & Carry Arbitrage:

This arbitrage arises when **Actual Futures Price > 'Theoretical Fair Value'**

Consider the below example:

- As seen in the above table, the Actual Futures Price is Expensive as compared to the Theoretical Fair Value
- This may happen when several speculators are bullish and, want to maximise profits based on this speculation (Leverage)
- Hence, these speculators would be willing to pay a higher price of Rs. 101 which is Rs. 1 more than the Theoretical Fair Value
- An arbitrager spots this opportunity and initiates the below trades
    - Buys the underlying in the Cash market today (i.e., March 12, 2023) by paying Rs. 99
    - Contract to sell the above underlying asset on April 30, 2023, at Rs. 101 (i.e. Sell Expensive and Buy Cheap)
    - In this example, the arbitrager's profit will be Rs. ~1 (which is Rs. 1 higher than the Theoretical Fair Value).

3. Arbitrage is the strategy of taking advantage of price differences in different markets for the same asset. 'Arbitrage'. Corporate Finance Institute, https://corporatefinanceinstitute.com/resources/wealth-management/arbitrage/

Reverse Arbitrage:

This arbitrage arises when **Actual Futures Price < 'Theoretical Fair Value'**

Consider the below example:

- As seen in the above table, the Actual Futures Price is Cheaper compared to the Theoretical Fair Value
- This may happen when too many short sellers exist in the market, and since they don't have an alternative to sell in the Cash market, they sell in the Futures market. Thereby driving down the Futures price
- An arbitrager spots this opportunity and initiates the below trades
    - Sell in Cash market today (i.e., March 12, 2023) (Since short selling isn't permitted in the Cash market, an arbitrager will borrow securities from a third-party who is holding the stock and then Sell in the Cash market)
    - Contract to buy the above underlying asset on April 30, 2023, at Rs. 98 (i.e. Sell at 99 and buy at 98)
    - In this example, the arbitrager's profit will be Rs. 1

The above trade also explains 2 important financial concepts:

1. **Securities Lending & Borrowing Scheme (SLBS):**[4] As the name suggests, SLBS allows participants to borrow and lend securities. Borrowers spot a reverse arbitrage opportunity or are short-sellers who borrow the security and sell it in Cash Market. Lenders hold the security and want to make an incremental return on their idle portfolio.

.

2. **Index Funds operating at negative costs:** These funds lend securities from their portfolios to earn and hence can operate at negative costs and they are currently in existence in the USA.

4. NSE - National Stock Exchange of India Ltd., www1.nseindia.com/products/content/equities/slbs/slbs.htm

Hedging

- Hedging using futures contract help businesses or individuals to protect themselves against volatile price movements in the underlying asset.
- Continuing with the same example, Aarti wants to sell her own apartment but at a future date and Divya wants to purchase the same but at a later date.
- In this case, Aarti (seller) would want protection against any decrease in real estate prices and a Divya (buyer) would want protection against any increase in real estate prices for their futuristic deal.
- So, to mitigate the risk, Aarti (seller) and Divya (buyer) enter into an agreement where Aarti would sell the apartment and Divya would buy the apartment at a later date, but fix the price today.
- Therefore, hedging helps genuine buyers and sellers who want protection against any price volatility.

5. A hedge is a strategy that seeks to limit risk exposures in financial assets. 'Hedge Definition: What It Is and How It Works in Investing'. Investopedia, https://www.investopedia.com/terms/h/hedge.asp

03 Understanding Options Contract

Objective: *Simplifying the concept of Option contracts of the Derivative market*

What is an Options contract?

- An Option contract[6] is a derivative contract that gives the Option Buyer the right to buy or sell the underlying asset on expiry at a stated price.
- Analogy: The most common analogy to understand Option contract is 'Buying Car Insurance'. The person buying car insurance is the Option Buyer who pays the premium and has the right to claim car damages in case of any eventuality. The insurance company is the Option Seller who takes the premium and is legally bound to settle the damages when claimed by the car insurer.
- There are 2 parties associated with these contracts - Option Buyer and Option Seller

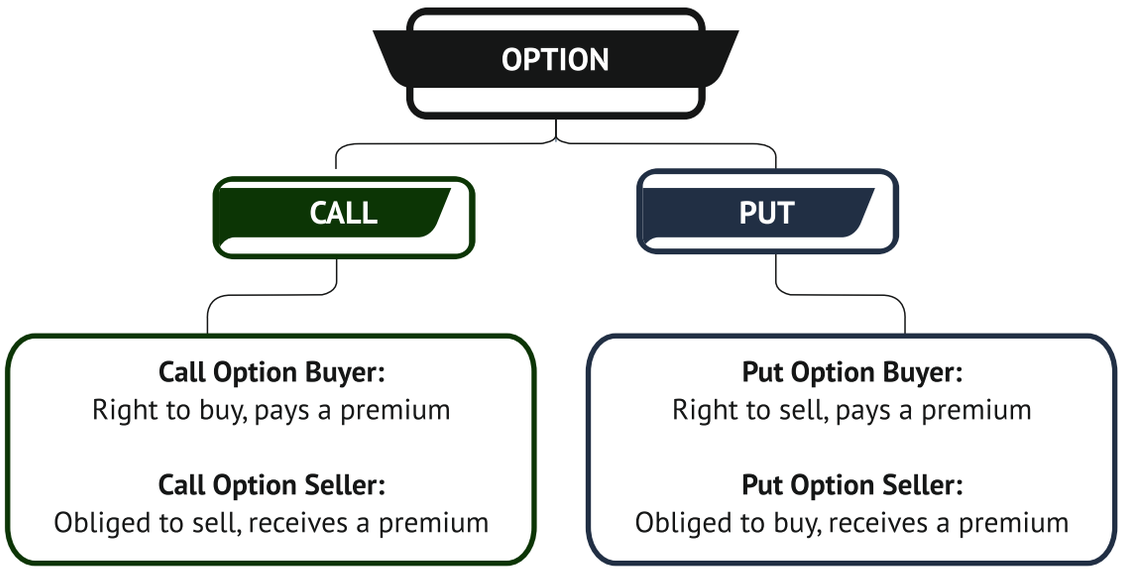
Option Buyer	Option Seller
• Gets the Right to exercise an option	• Takes the obligation to honour contract
• Pays a Premium to get this right	• Receives Premium to take this obligation
• Exercises Right only in favorable situation	• Legally bound to settle the contract when buyer exercises his right

Main elements of Options contract

- **Underlying Asset:** Can be Index, Stock, Commodity, Currency, etc.
- **Size or Quantity:** This outlines the number of underlying asset's units being bought or sold.
- **Expiry Date:** It is the end date on which the contract needs to be settled & would cease to exist.
- **Strike Price:** It is the price at which the underlying contract will be bought or sold by the Option buyer on the expiry.
- **Premium:** The price that the Option Buyer pays to the Option Seller for entering into the contract.

6. Options: Calls and Puts'. Corporate Finance Institute, https://corporatefinanceinstitute.com/resources/derivatives/options-calls-and-puts/

Types of Options Contract



Understanding Call Option Payoff

Example: On March 13, 2023, Poonam became the **Call Option Buyer** who entered a contract to buy an apartment at **Rs. 100** after 48 days on April 30, 2023, and she is willing to pay a PREMIUM of Rs. 20 today.

Swetha becomes the **Call Option Seller** and agrees to sell this Apartment at **Rs. 100** after 48 days on April 30, 2023. For this obligation to sell, she is collecting a premium of Rs. 20 today

The main elements of this Call option Contract are as shown below -

- **Underlying Asset:** Apartment
- **Size or Quantity :** 1
- **Expiry Date :** April 30, 2023
- **Strike Price :** Rs. 100
- **Premium:** Rs. 20

Let us understand the impact of this contract on both the Call Option Buyer and Seller on April 30, 2023, using various scenarios

Scenario 1: The price of the Apartment on expiry is greater than the agreed Strike Price of Rs. 100 and is Rs. 140

- Poonam (Call Option buyer) will exercise her **right to buy** and claim to buy the Apartment at the agreed Strike Price of Rs. 100 and not at the prevailing higher price of Rs. 140 on expiry. Since these contracts are mostly cash-settled, Poonam's profit will be **Rs. 20** (Price of Apartment on expiry – Strike Price – Premium Paid) or (140 – 100 – 20)
- Swetha (Call Option seller) will have no choice but to **oblige and sell** the Apartment at the agreed Strike Price of Rs. 100 and not at the prevailing higher price of Rs. 140 on expiry. Since these contracts are mostly cash-settled, Swetha's loss will be Rs. 20 (Price of Apartment on expiry – Strike Price – Premium Received) or (140 – 100 – 20)

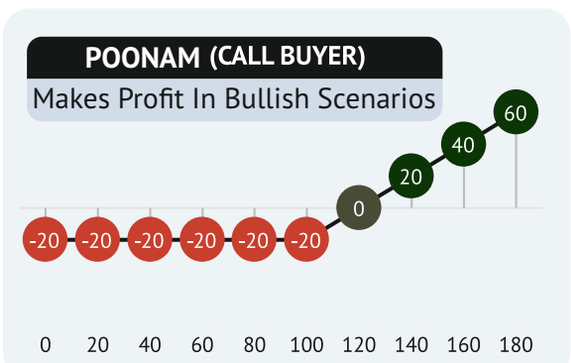
Scenario 2: The price of the Apartment on expiry is less than the agreed Strike Price of Rs. 100 and is Rs. 60

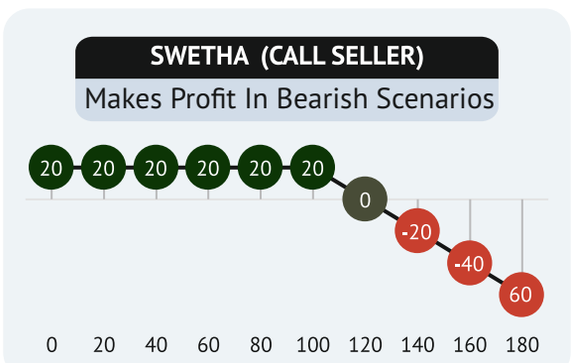
- Poonam (Call Option buyer) will **not** exercise her **right to buy** as logically she can buy the Apartment at its prevailing lower price of Rs. 60 from the market on expiry. In this case, Poonam's Loss will be Rs. 20 (premium paid)
- Swetha (Call Option seller) will have **no obligation to sell** as Poonam did not exercise her right to buy. Hence, in this case, Swetha's Profit will be Rs. 20 (premium received)

The payoff table is as shown below:

	Poonam - CB*	Swetha - CS*	Poonam - Call Buyer's Payoff			Swetha - Call Seller's Payoff		
Px. of Apt. on Expiry	(Right to Buy)	(Oblig. To Sell)	(Prem. Paid)	(P/L)	(Net P/L)	(Prem. Rcvd)	(P/L)	(Net P/L)
0	x	-	-20	0	-20	20	0	20
20	x	-	-20	0	-20	20	0	20
40	x	-	-20	0	-20	20	0	20
60	x	-	-20	0	-20	20	0	20
80	x	-	-20	0	-20	20	0	20
100	x	-	-20	0	-20	20	0	20
120	Ex. Right	Oblig.	-20	20	0	20	-20	0
140	Ex. Right	Oblig.	-20	40	20	20	-40	-20
160	Ex. Right	Oblig.	-20	60	40	20	-60	-40
180	Ex. Right	Oblig.	-20	80	60	20	-80	-60

**CB- Call Buyer | CS- Call Seller*





Put Payoff Summary	Poonam (CB)	Swetha (CS)
Max Profit	Unlimited	Premium (20)
Max Loss	Premium (20)	Unlimited
Breakeven Pt.	120 (Strike + Premium)	

Understanding Put Option Payoff

On March 13, 2023, Firdous became a **Put Option Buyer** who entered into a contract to sell an apartment at Rs. 100 after 48 days on April 30, 2023, and she is willing to pay a PREMIUM of Rs. 20 today.

Nitika becomes the **Put Option Seller** and agrees to buy this Apartment at Rs. 100 after 48 days on April 30, 2023. For this obligation to buy, she is collecting a PREMIUM of Rs. 20 today.

The main elements of this Put option contract are as shown below

- **Underlying Asset :** Apartment
- **Size or Quantity :** 1
- **Expiry Date:** April 30, 2023
- **Strike Price :** Rs. 100
- **Premium :** Rs. 20

Let us understand the impact of this contract on both the Put Option Buyer and Seller on April 30, 2023, using various scenarios

Scenario 1: The price of the Apartment on expiry is lower than the agreed Strike Price of Rs. 100 and is Rs. 60

- Firdous (Put Option buyer) will exercise her **right to sell** and will want to sell the Apartment at the agreed Strike Price of Rs. 100 and not at the prevailing lower price of Rs. 60 on expiry. Since these contracts are mostly cash-settled, Firdous's profit will be **Rs. 20** (Strike Price – Price of Apartment on expiry – Premium Paid) = (100 – 60 – 20)

- Nitika (Put Option seller) will have no choice but to **oblige and buy** the Apartment at the agreed Strike Price of Rs. 100 and not at the prevailing lower price of Rs. 60 on expiry. Since these contracts are mostly cash-settled, Nitika's loss will be Rs. 20 (Strike Price – Price of Apartment on expiry – Premium Received) = (100 – 60 – 20)

Scenario 2: The price of the Apartment on expiry is greater than the agreed Strike Price of Rs. 100 and is Rs. 140

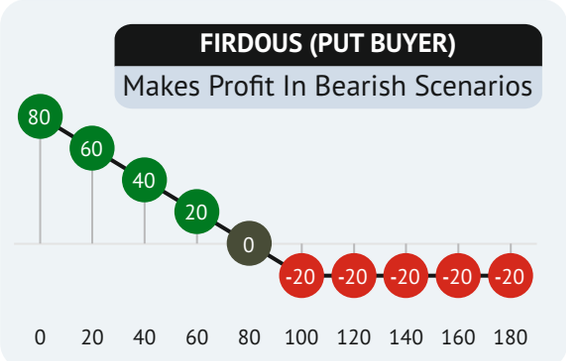
- Firdous (Put Option buyer) will **not** exercise her **right to sell** as logically she can sell the Apartment at its prevailing higher price of Rs. 140 in the market on expiry. In this case, Firdous's Loss will be **Rs. 20** (premium paid)

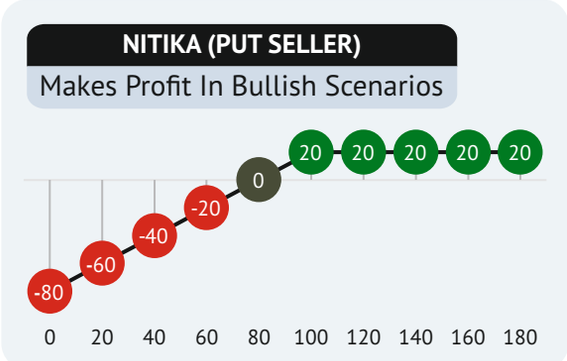
- Nitika (Put Option seller) will have **no obligation to buy** as Firdous did not exercise her right to sell. Hence, in this case, Nitika's Profit will be **Rs. 20** (premium received)

The payoff table is as shown below:

	Firdous - PB*	Nitika - PS*	Firdous - Put Buyer's Payoff			Nitika - Put Seller's Payoff		
Px. of Apt. on expiry	(Ex. Right)	(Oblig.)	(Prem. Paid)	(P/L)	(Net P/L)	(Prem. Rcvd)	(P/L)	(Net P/L)
0	Ex. Right	Oblig.	-20	100	80	20	-100	-80
20	Ex. Right	Oblig.	-20	80	60	20	-80	-60
40	Ex. Right	Oblig.	-20	60	40	20	-60	-40
60	Ex. Right	Oblig.	-20	40	20	20	-40	-20
80	Ex. Right	Oblig.	-20	20	0	20	-20	0
100	x	-	-20	0	-20	20	0	20
120	x	-	-20	0	-20	20	0	20
140	x	-	-20	0	-20	20	0	20
160	x	-	-20	0	-20	20	0	20
180	x	-	-20	0	-20	20	0	20

**PB- Put Buyer | PS- Put Seller*



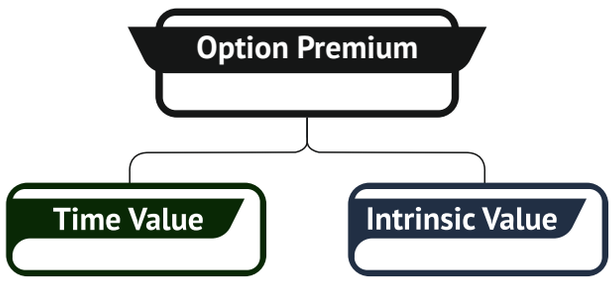


Put Payoff Summary	Firdous (PB)	Nitika (PS)
Max Profit	Strike-Premium (80)	Premium (20)
Max Loss	Premium (20)	Strike-Premium (80)
Breakeven Pt.	80 (Strike -Premium)	

04 Understanding Options Moneyness & Premium

Objective: *Understanding Options Premium and simplifying the concept of Option Moneyness (Types of Options)*

Options Premium



- Options Premium[7] is the price at which an option contract is being traded on the exchange
- Options Premium = Intrinsic Value + Time Value
- Intrinsic Value is always positive and can never go below Zero
- **Intrinsic Value** is the money the option buyer makes from an options contract provided he has the right to exercise that option on the given day

Consider the below example:

a. **Call Option:** Buyer has the **right to buy** (RTB) – Pays Option Premium – Expectation is that the market will go higher. Buyer will exercise the RTB when Spot Nifty > Option Strike

- **Spot Nifty - 18000**
- **Option Strike - 17900**

If the above option is exercised immediately, then the Call Buyer will make a profit of **= 18000 - 17900 = 100** (Intrinsic value of 17900 Strike Call Option) i.e. Buying Nifty that is worth 18000 today at 17900.

Thus, Intrinsic Value for Calls will only exist for Strike Prices that are lower than the current Spot Price. In the below example, for the Spot Nifty 18000 and Call Strike 17,500, the Buyer, on exercising his RTB, can make a profit of Rs. 500 (Difference between Spot & Stike price). Therefore, the intrinsic Value for Call Strike 17,500 is 500.

Comparatively, the Intrinsic Value for all Strike greater than or equal to the current Spot Nifty will be zero because, for such Strikes, the Buyer will not exercise his RTB

Spot Nifty	18000					
Strike	19000	18500	18000	17900	17500	17000
Intrinsic Value – Call Options	0	0	0	100	500	1000

7. Understanding the Options Premium'. Investopedia, https://www.investopedia.com/articles/active-trading/112213/getting-handle-options-premium.asp

b. Put Option: Buyer has the **right to sell** (RTS) – Pays Option Premium – Expectation is that the market will go lower. Buyer will exercise the RTS when Spot Nifty < Option Strike

- **Spot Nifty - 18000**
- **Option Strike - 18100**

If the above option is exercised immediately, then the Put Buyer will make a profit of **= 18100 - 18000 = 100** (Intrinsic value of 18100 Strike Put Option)
i.e. Buying Nifty that is worth 18000 today at 17900.

Thus Intrinsic Value for Puts will only exist for Strike Prices greater than the current Spot Price. In the below example, for the Spot Nifty 18000 and Put Strike 18,500, the Buyer, on exercising his RTS, can make a profit of Rs. 500 (Difference between Spot & Stike price). Therefore, the intrinsic Value for Put Strike 18,500 is 500.

Comparatively, the Intrinsic Value for all Strike lesser than or equal to the current Spot Nifty will be zero because, for such Strikes, the Buyer will not exercise his RTS

Spot Nifty	18000					
Strike	19000	18500	18100	18000	17500	17000
Intrinsic Value – Put Options	1000	500	100	0	0	0

- **Time value** of an option is any additional amount an investor is willing to pay over its current Intrinsic value

Continuing with the above example 1, if we have Premium values as shown in the table below, for Call options with Strikes greater than or equal to the Current Spot, the entire Premium amount is equal to the Time Value. For Strikes lesser than the Current Spot, it is equal to Premium minus Time Value.

Spot Nifty	18000					
Strike	19000	18500	18000	17900	17500	17000
Intrinsic Value – Call Options	0	0	0	100	500	1000
Premium	10	50	90	140	530	1025
Time Value	10	50	90	40	30	25

Continue from the above example 2, if we have Premium values as shown in the table below, For Put options with Strikes lower than or equal to the Current Spot the entire Premium amount is equal to the Time Value. For Strikes greater than the Current Spot, it is equal to Premium minus the Intrinsic value.

Spot Nifty	18000					
Strike	19000	18500	18100	18000	17500	17000
Intrinsic Value – Put Options	1000	500	100	0	0	0
Premium	1025	530	140	90	50	10
Time Value	25	30	40	90	50	10

Options Moneyness

- Moneyness of Options[8] is a classification method where each option contract gets classified as either – In the Money (ITM), At the Money (ATM) or Out of the Money (OTM) option
- In the Money (ITM): Options Contract with Strikes having Intrinsic Value are said to be ITM options (I for intrinsic Value & M for in the money)
- At the Money (ATM): Options Contract with Strikes which are closest to the Spot Price of the underlying are said to be ATM options
- Out of the Money (OTM): Options Contract with Strikes having Zero Intrinsic Value and are away from the Spot Price of the underlying are said to be OTM options
- An example of this classification for Calls and Puts is as shown below. Consider the Spot Nifty to be at 18000

For Call Options

STRIKES < SPOT			= SPOT	STRIKES < SPOT			
17700	17800	17900	18000	18100	18200	18300	
300	200	100	0	0	0	0	← **Intrinsic Values**
ITM			**ATM**	**OTM**			

8. 'What Is Option Moneyness?' Investopedia, https://www.investopedia.com/articles/optioninvestor/08/option-moneyness.asp

For Put Options

STRIKES < SPOT			= SPOT	STRIKES > SPOT			
17700	17800	17900	18000	18100	18200	18300	
0	0	0	0	100	200	300	← Intrinsic Values
OTM			**ATM**	**ITM**			

A combined summary of it is as shown below

SPOT NIFTY				
CALLS		18000	PUTS	
Moneyness	Intrinsic Value	Strike	Intrinsic Value	Moneyness
OTM	0	19000	1000	ITM
OTM	0	18500	500	ITM
OTM	0	18100	100	ITM
ATM	**0**	**18000**	**0**	**ATM**
ITM	100	17900	0	OTM
ITM	500	17500	0	OTM
ITM	1000	17000	0	OTM

Business can only happen if the minds match. Understanding the risk factors is more critical, and the returns are the outcome of how well we manage the risk!

- **Rakesh Rawal**, CEO, Anand Rathi Wealth Limited

05 Categorising Risk & Its Measurements

Objective: *Understanding the various types of risks across asset classes*

Very often, when investors take investment decisions or build portfolios, the return potential of the asset class or products drives the decision. The second crucial, but often overlooked aspect is the risk factor. After all, when it comes to investments, risk and return always go hand-in-hand. There are 6 key risks that investors must factor in before making investment decisions.

Different risks can affect different asset classes within a portfolio, i.e. stocks, gold, bonds and real estate.

1. Equity Risk (Market Risk)

Equity risk is commonly referred to as Market risk, which means, the potential loss in any investment due to the fall in equity markets.

Measuring Equity Risk

Beta

It is a measure of the volatility of a security concerning the market or its benchmark. By definition, the market has Beta of 1, hence if a mutual fund or stock also has a Beta of 1, then it means, it will fluctuate in the same proportion as the market. A stock or a mutual fund that swings more than the market or benchmark over time has Beta of more than 1. A Beta measure helps investors to understand whether a stock or mutual fund is moving in the same direction as the rest of the market. Also, it helps investors to understand the volatility or risk when compared to the market or its benchmark.[9]

Standard Deviation (SD)

It is another measure to calculate the volatility. Standard Deviation is the mean variation in a set of data values from its average expected outcome. A low standard deviation tells us that most of the data is very close to the average, which makes it less risky. In contrast, a high standard deviation means that a lot of data is far from the average value, making it riskier. For example, if there are two Funds A & B, both delivering an average return of 15% and have standard deviations of 10 & 20 respectively, it indicates that Fund A is less volatile (SD-10) and has the probability of delivering returns closer to its mean (15%). In contrast, Fund B has higher volatility (SD-20) and has a tendency to deliver returns further from the mean and therefore is riskier.

Value at Risk (VaR)

It is a statistical measure of the riskiness of the portfolio. It is defined as the maximum rupee amount expected to be lost over a given time horizon or the worst-case scenario, at a pre-defined confidence level. VaR is a single risk measure quantifying three variables – i) the amount of potential loss ii) with its probability iii) over a defined time frame. For example, VaR of 3% at 95% confidence over the next one month indicates that a portfolio value will not depreciate more than 3% over the next month with a 95% certainty. VaR helps decide whether the possible gain is worth the maximum potential loss.[11]

9. 'Beta: Definition, Calculation, and Explanation for Investors'. Investopedia, https://www.investopedia.com/terms/b/beta.asp.
10. 'Determining Risk with Standard Deviation'.
Investopedia, https://www.investopedia.com/ask/answers/021915/how-standard-deviation-used-determine-risk.asp.
11. 'Understanding Value at Risk (VaR) and How It's Computed'. Investopedia, https://www.investopedia.com/terms/v/var.asp.

2. Credit Risk:

Credit risk refers to the probability of loss due to a borrower's failure to make payments on any debt.

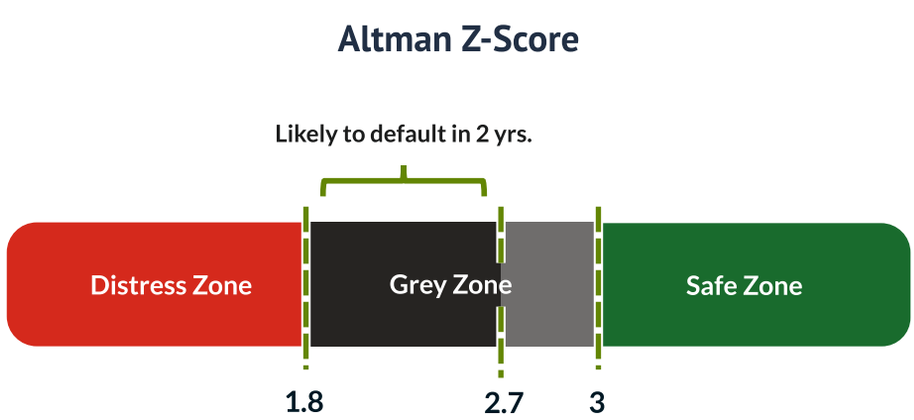
Analysing Credit risk

Ratings

A credit rating is a rating given to companies, which signifies the degree of safety, in terms of their capacity to repay their financial obligations on time. As per credit rating agencies, a credit rating of AAA[12] denotes the highest degree of safety regarding timely servicing of financial obligations. Such instruments carry the lowest credit risk. Any company rating below BBB is considered to be a below investment grade as such a bond will carry a higher risk of default. The credit ratings are provided by credit rating agencies such as CRISIL, CARE, and ICRA.

Altman Z-Score

The Altman Z-Score predicts the probability of default by the company. The formula comprises 5 fundamental financial ratios to help determine the financial health of a company. Studies show that the Z-Score can predict 80-90% of bankruptcies one year before the event of default occurs. In other words, the formula provides high confidence probabilities but not a certainty.[13]



3. Liquidity Risk

Liquidity risk is the risk in which an investor is unable to liquidate his/her assets at a desired point in time or is only able to liquidate at a significant cost. This risk usually occurs due to the inability to convert a security or asset to hard cash. Let us consider two Funds A & B from the same AMC – Fund A, being an open-ended fund where the liquidity is available in T+3 days, and Fund B, a 3-year closed-ended fund. Ideally, one should go ahead for Fund A, as there is no liquidity risk. However, if Fund B provides a risk premium in the form of an additional return of say at least 3-4% p.a. over Fund A, then the investor may consider giving up his liquidity and invest in Fund B.

12. CRISIL Credit Ratings- Long Term Scale. 'Credit Ratings Scale'. CRISIL, https://www.crisil.com/en/home/our-businesses/ratings/credit-ratings-scale.html
13. Altman, Edward I. "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy."
The Journal of Finance 23, no. 4 (1968): 589–609. https://doi.org/10.2307/2978933.

Measuring Liquidity Risk

The most common way to measure liquidity risk is the bid-ask spread and volume.

Bid-ask spread

A low or narrow bid-ask spread tends to reflect a more liquid market, while an illiquid market will tend to have a wider bid-ask spread. E.g., in an open-ended Mutual Fund, the bid-ask spread would be 0, since the repurchase price is equal to the sale price. However, in a real estate transaction, the gap between the bid from the buyer and the ask from the seller could be significantly higher, indicating lesser liquidity in the asset class.

Volume

Another measurement of liquidity risk are the trading volumes of a stock or the supply and demand for an asset class. If there is a vast market of sellers and buyers of the respective asset class or instrument, then the market can be considered to be liquid.

4. Interest Rate Risk

Interest rate risk is the risk of change in the price of a debt instrument due to a change in interest rate. Bond prices and interest rate have an inverse relation. So, if the interest rate increases, the risk is that the price of the bond will fall.[14]

Measuring Interest Rate Risk

Modified Duration

It measures the sensitivity of the change in price of a bond to the change in interest rate. The modified duration explains the extent of rise or fall in bond price, for a change in interest rate. For example, if the modified duration of a fund is 2 years, a 1% fall in interest rates would lead to the bond price rising by 2%, and a 1% increase in interest rates would lead to the bond prices declining by 2%.[15]

5. Foreign Exchange Risk

Foreign exchange risk is also known as currency risk. In this globalised world, from a point of view of having a geographical diversification, investors will have assets spread globally. Before making these investments, investors must assess the foreign currency risk. Currency risk is the risk of depreciation in the currency of the country where the investor has invested.

If for example, a U.S. investor invests in an Indian 7.17% bond, and the value of the Rupee depreciates by 4% against the Dollar for that year – the investor's real return will be 3.17%.

14. 'Interest Rate Risk Definition and Impact on Bond Prices'. Investopedia, https://www.investopedia.com/terms/i/interestraterisk.asp.
15. 'What Is Modified Duration?' Investopedia, https://www.investopedia.com/terms/m/modifiedduration.asp.

Measuring Foreign Exchange Risk

In the short term, volume or demand-supply dynamics between the home and foreign currency will determine the fluctuations in the exchange rate between the two countries.

In the long-term, interest rate parity is a key determinant of the change in the exchange rate between the two countries. Interest rate parity is nothing but the differential between the risk-free rates of the home and the foreign country. For example, risk-free rates of India and the U.S. are 7.17% and 3.46% respectively. The differential of 3.71% between the two indicates that Rupee will depreciate against the U.S. dollar by an average of 3.71% p.a.[16]

6. Event Risk

Event risk is the possibility that an unforeseen event will negatively affect a company, industry, or portfolio. Event risk is caused due to external factors such as natural calamities, adverse news reports such as an industrial accident, scandal, bankruptcy or hostile takeover.

While an event risk is not measurable, generally its impact is short-term in nature and countered by ensuring the longevity of the portfolio. For example, events like budgets and elections have a very short-term effect on the portfolio. However, in the long-term, fundamentals and macro factors of the economy have the most significant bearing on the portfolio returns.

16. 'Interest Rate Parity (IRP) Definition, Formula, and Example'. Investopedia, https://www.investopedia.com/terms/i/interestrateparity.asp.

In today's dynamic world, nobody can predict the future but you can prepare for it. In order to do so, it is important to have an analytical approach because if you can measure something, you can improve it.

- **Chirag Muni**, Associate Director, Anand Rathi Wealth Limited

06 Guide to NRI Taxation on Investments

Objective: *To understand the tax implications for NRIs on Investments made in India (This note has an annexure)*

One of the biggest concerns for NRIs investing in India is the tax implication on investments. While it may appear to be complicated, knowing a few tax concepts can simplify an investor's strategy for long-term investing in India.

Who is an NRI?

Under the Income Tax Act, 1961 (ITA),[17] a person is considered as a non-resident for a Financial Year (FY) if he/she resides in India for less than 182 days.

However, from April 1, 2020, Indian Citizens/Overseas Citizens of India ('OCI') will be considered a non-resident in India in two scenarios:[18]

1. Period of stay is less than 120 days in the current year.
2. Period of stay is more than 120 days but less than 182 days in the current year and less than 365 days in the cumulative 4 years

In Budget 2020, it is also proposed that, for all Indian Citizens, in order to be considered as Non-Resident in India, he/she has to be a bonafide resident of any other country.

For an NRI, the scope of taxable income in India will only be his or her Indian income, subject to provisions under the Double Taxation Avoidance Agreement (DTAA). Since the taxability of the Indian income is dependent on DTAA, between India and his/her country of residence, it is crucial to understand the concept of DTAA.

Double Taxation Avoidance Agreement

The Double Taxation Avoidance Agreement (DTAA) is a tax treaty between two countries to help taxpayers avoid paying double taxes on the same income. DTAA becomes applicable in cases where an individual is a resident of one nation but earns income in another.[19]

Generally, for each type of income, there are 2 methods by which two nations avoid double taxation under DTAA:

- **Single country taxation method:**

The DTAA will determine which country has the right to tax such income, and the individual will have to pay the tax only in that country. For example, for an NRI residing in UAE, the DTAA between India and UAE says that for any capital gain arising out of sale of any Mutual funds in India, the tax will have to be paid in UAE and not in India.

- **Tax differential method:**

Under this method, both the countries have the right to tax the same income. However, to avoid double taxation, only differential taxes will have to be paid in the country of residence of the individual. Let us take the DTAA between India and the U.S., which says that for any capital gains, the tax will be levied by both the countries. For example, for an NRI residing in the U.S., if the LTCG tax on sale of Equity Mutual funds is 10% in India and is taxed at 20% in the U.S.- in such a case, the individual will have to pay 10% differential in the U.S., after paying 10% taxes in India.

17. https://incometaxindia.gov.in/Documents/residential-status.htm
18. 'Non-Resident Individual for AY 2022-2023'. Income Tax Department, https://www.incometax.gov.in/iec/foportal/help/individual/return-applicable-0
19. 'Double Taxation Avoidance Agreement (DTAA)| Coverfox'. Coverfox Insurance, https://www.coverfox.com/personal-finance/tax/city-compensatory-allowance/..

According to the Ministry of External Affairs' latest data,[20] there are 3.2 crore Indians living abroad. Of those Indians living abroad, 44.6 lakh reside in the U.S., 34.2 lakh live in UAE, 17.6 lakh reside in U.K. and 6.5 lakh live in Singapore. Therefore, it is imperative to know the tax treaties between India and these countries. Since our focus is on long-term investment by NRIs, we need to understand the implications of Capital Gains on the commonly held assets in India by NRIs of these countries.[21]

India–UAE Tax treaty (Applicable to NRIs residing in UAE)

Capital Asset held in India	DTAA Method	Country of Taxation	Tax Rate in India (LTCG)	UAE* Tax Rate	Tax Impact to NRI
Listed Equity/PMS	Single Country	India	10% without indexation	0%	10% to be paid in India
Equity MF	Single Country	UAE	10% without indexation	0%	No tax to be paid
Debt MF	Single Country	UAE	Slab Rate # (30%)	0%	No tax to be paid
Listed Bonds/Debentures	Single Country	UAE	10% without indexation	0%	No tax to be paid
Real Estate	Single Country	India	20% with indexation	0%	20% to be paid in India
Gold	Single Country	UAE	20% with indexation	0%	No tax to be paid

**UAE does not levy any income tax on Individuals*

Slab rate if purchased on/after 1st April 2023. If purchased before 1st April 2023, Long term (>3 year) will be taxed at 20% with indexation.
Above rates are exclusive of surcharge and cess.

India–US Tax treaty (Applicable to NRIs residing in the U.S.)

Capital Asset held in India	DTAA Method	Country of Taxation	Tax Rate in India (LTCG)	U.S.* Tax Rate	Tax Impact to NRI
Listed Equity/PMS	Tax Differential	Both	10% without indexation	20%	10% in India and 10% differential in U.S.
Equity MF	Tax Differential	Both	10% without indexation	37%	10% in India and 27% differential in U.S.
Debt MF	Tax Differential	Both	Slab Rate # (30%)	37%	Tax as per Slab Rate in India and differential if any, in U.S.
Listed Bonds/Debentures	Tax Differential	Both	10% without indexation	20%	10% in India and 10% differential in U.S.
Real Estate	Tax Differential	Both	20% with indexation	20%	20% tax in India and differential, if any, in the U.S
Gold	Tax Differential	Both	20% with indexation	20%	20% tax in India and differential, if any, in U.S

**The tax rates mentioned above are the highest tax rates possible in the U.S.*

Slab rate if purchased on/after 1st April 2023. If purchased before 1st April 2023, Long term (>3 year) will be taxed at 20% with indexation.
Above rates are exclusive of surcharge, cess and State tax.

20. NRIs-and-PIOs_1.pdf (mea.gov.in)
21. International Taxation >Double Taxation Avoidance Agreements. https://incometaxindia.gov.in/Pages/international-taxation/dtaa.aspx.

India-UK Tax treaty (Applicable to NRIs residing in the UK)

Capital Asset held in India	DTAA Method	Country of Taxation	Tax Rate in India(LTCG)	UK Tax Rate	Tax Impact to NRI
Listed Equity/PMS	Tax Differential	Both	10% without indexation	20%	10% in India and 10% differential in UK
Equity MF	Tax Differential	Both	10% without indexation	45%	10% in India and 35% differential in UK
Debt MF	Tax Differential	Both	Slab Rate # (30%)	45%	Tax as per Slab Rate in India and differential if any, in UK
Listed Bonds/ Debentures	Tax Differential	Both	10% without indexation	20%	10% in India and 10% differential in UK
Real Estate	Tax Differential	Both	20% with indexation	28%	20% in India and 8% differential in UK
Gold	Tax Differential	Both	20%with indexation	20%	20% tax in India and differential if any in UK

**The tax rates mentioned above are the highest tax rates possible in the UK*

Slab rate if purchased on/after 1st April 2023. If purchased before 1st April 2023, Long term (>3 year) will be taxed at 20% with indexation.
Above rates are exclusive of surcharge and cess.

India-Singapore Tax treaty (Applicable to NRIs residing in Singapore)

Capital Asset held in India	DTAA Method	Country of Taxation	Tax Rate in India (LTCG)	Singapore* Tax Rate	Tax Impact to NRI
Listed Equity/PMS	Single Country	India#	10% without indexation	0%	10% to be paid in India
Equity MF	Single Country	Singapore	10% without indexation	0%	No tax to be paid
Debt MF	Single Country	Singapore	Slab Rate^ (30%)	0%	No tax to be paid
Listed Bonds/Debentures	Single Country	Singapore	10% without indexation	0%	No tax to be paid
Real Estate	Single Country	India	20% with indexation	0%	20% to be paid in India
Gold	Single Country	Singapore	20% with indexation	0%	No tax to be paid

**Singapore does not levy any income tax on Capital Gains*

^ Slab rate if purchased on/after 1st April 2023. If purchased before 1st April 2023, Long term (>3 year) will be taxed at 20% with indexation .
Above rates are exclusive of surcharge and cess.

#Applicable for shares acquired after 01.04.2017 and sold after 31.03.2019. For shares acquired before 01.04.2017, the country of taxation will be Singapore. In cases where shares are purchased after 01.04.2017 but sold before 31.03.2019, the country of tax will be India and at 50% of applicable rates in India.

India–Hong Kong Tax treaty (Applicable to NRIs residing in the Hong Kong)

Capital Asset held in India	DTAA Method	Country of Taxation	Tax Rate in India (LTCG)	Hong Kong* Tax Rate	Tax Impact to NRI
Listed Equity/PMS	Single Country	India	10% without indexation	0%	10% to be paid in India
Equity MF	Tax Differential	Both	10% without indexation	0%	10% to be paid in India
Debt MF	Tax Differential	Both	Slab Rate #	0%	Tax as per Slab Rate to be paid in India.
Listed Bonds/Debentures	Tax Differential	Both	10% without indexation	0%	10% to be paid in India
Real Estate	Single Country	India	20% with indexation	0%	20% to be paid in India
Gold	Tax Differential	Both	20% with indexation	0%	20% to be paid in India

**Hong Kong does not levy any income tax on Capital Gains*

Slab rate if purchased on/after 1st April 2023. If purchased before 1st April 2023, Long term (>3 year) will be taxed at 20% with indexation.
Above rates are exclusive of surcharge and cess.

Now that we know that in countries like UAE and Singapore, no taxes are to be paid in India, it is also essential to understand that all NRIs are subject to TDS under Section 195 on their income in India. In order to avoid TDS, an individual needs to have a Tax Residency Certificate (TRC)[22] issued by his or her country of residence. TRC is issued by the government of a country stating that the individual is a tax resident of that country, enabling the Individual to take the benefit of the tax treaty.

Conclusion

This note highlights the tax advantages for Indians living in the UAE and Singapore if they invest in Indian markets. NRIs residing in these two countries enjoy more tax benefits when compared to an Indian living in India.

22. https://tax2win.in/guide/tax-residency-certificate-trc-indian

Of all the subjects, Mathematics is the only one
you can't run away from!
Money and math are interwoven -
If you have money, you need math to keep it and grow it.
So, money is not an optional subject for anyone!

- **Feroze Azeez**, Deputy CEO, Anand Rathi Wealth Limited

07 Understanding Inflation

Objective: *Understanding Inflation, its measures, and its impact on investors. (This note has an annexure)*

Inflation is a monetary phenomenon that affects all aspects of the economy. It influences government policies and affects businesses, investments, consumer spending, etc. Hence, it is crucial to understand inflation, the factors that drive it, and ultimately its impact on Investors.

What is Inflation?

Inflation is defined as the rise in the general price level of goods and services in an economy, over a period of time. When price levels of goods and services rise, each unit of currency buys fewer goods and services, thus reducing the purchasing power of money.[23]

Let's take the example of wheat.

Price of 1kg in July 2022:[24] ₹25
Let's say the average household Consumption per month is 4kg
Cost for a household in a month: ₹25 x 4= ₹100

Cost of 1kg in July 2023 : ₹30
Cost for a household in a month: ₹30 x 4= ₹120
Change in price: +₹5/kg

Inflation rate: (5/25)*100 = 20%

Therefore, it means that for ₹100 (@₹25/kg) a household was earlier getting 4kg of wheat. Now, due to inflation, one will get only 3.33kg for the same ₹100 (100 * 4/120) of wheat.

Causes of Inflation

There are several factors that can cause inflation, they can be broadly classified into two types:

1. **Demand-Pull inflation**
2. **Cost-Push inflation**

1. Demand-Pull Inflation

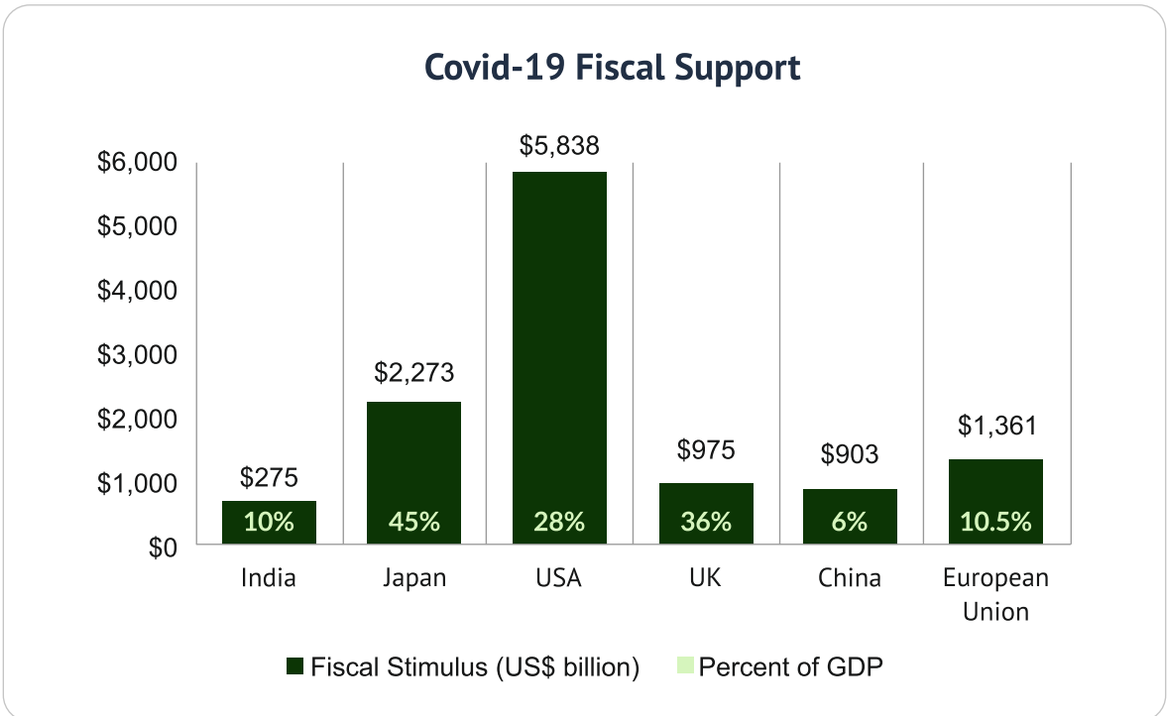
When the overall demand for products and services in an economy grows faster than its production capability, it pushes the prices higher, thus leading to inflation.

What can cause demand-led inflation?

1. **Money supply-** An increase in a country's Money supply can cause inflation. An increase in money supply leads to an increase in consumer expenditure when people have more money. As a result, demand grows faster than supply can, leading to an increase in prices.

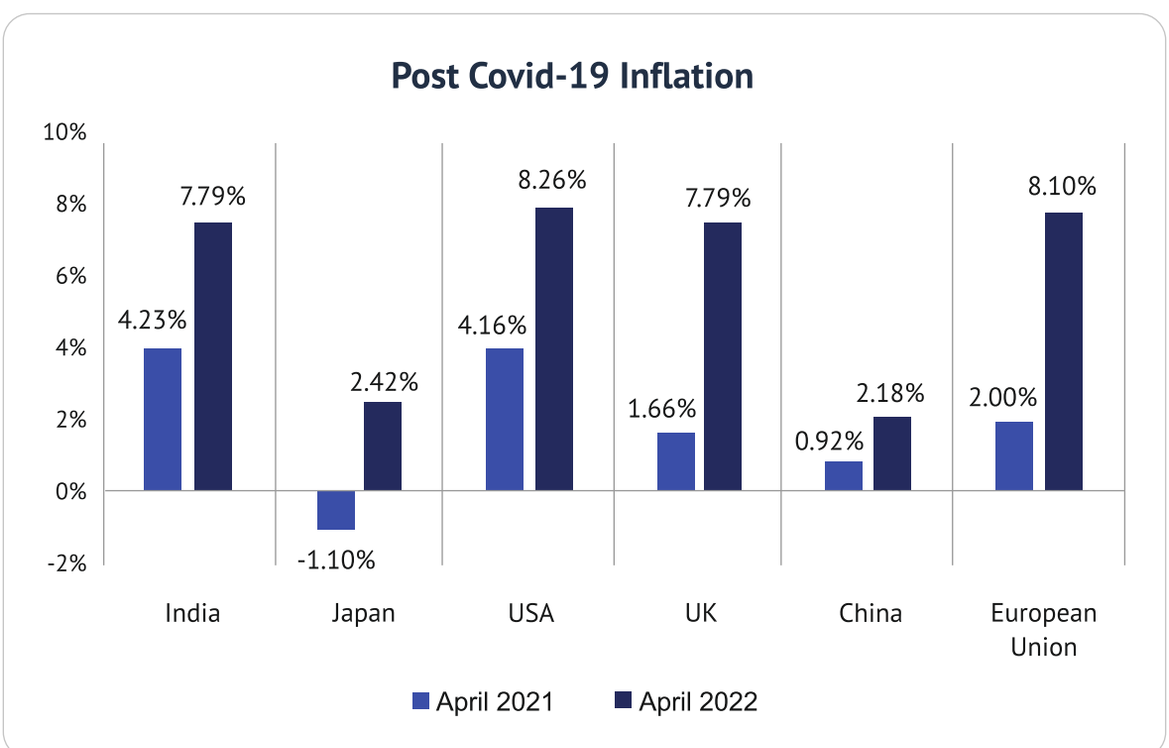
   For example, During the Covid-19 pandemic, there was an increase in the money supply as countries provided large fiscal support to their citizens. The total global fiscal support provided during Covid-19 was $16,910 bn, 16.4% of the global GDP.[25]

23. Inflation: What It Is, How It Can Be Controlled, and Extreme Examples'. Investopedia, https://www.investopedia.com/terms/i/inflation.asp
24. https://fcainfoweb.nic.in/reports/Report_For_mthly_avg_Zonewise.aspx
25. Fiscal Policies Database https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19



**Fiscal Support until Sep-2021, Source: World Bank | IMF*

Post-Covid-19 Pandemic, there was an increase in the overall demand for goods and services, pushing the prices higher. The global inflation rate increased from 2.5% in April 2021 to 7.8% in April 2022.[26]



Source: World Bank | IMF

26. World Economic Outlook Database, October 2022 https://www.imf.org/en/Publications/WEO/weo-database/2022/October

2. When an economy is growing, the employment rate and purchasing power increase. This leads to a steady increase in demand, which results in higher prices.

3. A change in government policy. For example, if a government reduces taxes, households are left with more disposable income in their pockets. This can lead to an increase in consumer spending, leading to a rise in prices.

2. Cost-Push Inflation

This type of Inflation is caused by an increase in the prices of goods & services due to either an increase in input costs such as raw materials, labor wages, industrial machinery or a fall in supply due to factors like natural disasters, wars, govt. regulations etc.

What can cause Cost-push / Supply-led inflation?

Increase in Costs:

- **Cost of Production Inputs -** An increase in the cost of domestic or imported raw materials or an increase in labor expenses to make a product or provide a service will raise the price of the finished product or service.

  For example, the price of building materials such as cement, clay bricks and steel increased by 20% annually in FY 21-22, this increased the cost of construction for developers and resulted in the hike in the prices of newly constructed properties.[27]

- **Domestic regulations/laws which increase costs -** Due to changes in govt. regulations like Anti-dumping laws, taxation, quotas, bans, import restrictions, etc., the inflation rate can increase or decrease.

  For example, the central government's excise duty rate directly affects the retail prices of petrol and diesel. Between April 2020 to April 2021, the excise duty on petrol increased by 64.6% and diesel by 100.8%. During the same period, the retail price of petrol increased by 27% and diesel by 32.85% [28]

- **Exchange Rate -** If the domestic currency depreciates, the price of imported goods and services increases, as you need to pay more Rupees for the same amount of Dollars. This results in the rise in prices of goods and services which depend on these imports as inputs.

Fall in Supply:

- **Natural disasters -** natural disasters like floods, droughts, unexpected rainfall, etc. can have an adverse effect on the prices of goods and services.

  For example, the 2020 Assam flood destroyed more than 2,67,203 hectares of crops across 5 states. It led to shortages of critical vegetables produced in the region, resulting in a stark price rise.

27. https://eaindustry.nic.in/key_economic_indicators.asp
28. Prices:Petroleum Planning & Analysis Cell – PPAC, https://www.ppac.gov.in/content/149_1_PricesPetroleum.aspx
29. https://timesofindia.indiatimes.com/city/guwahati/veggie-prices-spike-in-assam-as-floods-hit-supply-chain/articleshow/78486921.cms

- **Global Supply Chain dynamics -** global supply chain disruptions that cause shortages can lead to a rise in prices worldwide. For example, Russia-Ukraine War disrupted global supply chains, causing shortages of critical commodities. With Russia and Ukraine supplying 2.3% and 0.3% of the world's exports respectively, it has resulted in an outsized impact on inflation, trade, and output at the global level.

Measures of Inflation

Different methods are used to measure the changes in the general price levels of goods and services. The widely used method is as follows:

Consumer Price Index (CPI):

CPI, also known as Headline CPI, is widely used as a macroeconomic indicator of inflation by governments and central banks globally. In April 2014, the Reserve Bank of India (RBI) adopted the CPI with the base year of 2012 as its key measure of inflation and uses it to make Monetary Policy decisions.

CPI is calculated as the weighted average of the percentage price changes for a specified 'basket' of consumer products/services. The weight of each component reflects its relative importance in household consumption in the same period.

CPI indicates the cost of living, the purchasing power of consumers, and the expensiveness of different articles (items).

In India, CPI includes 260 items which are broadly classified into 6 groups with their respective weights that make up the primary components.[30]

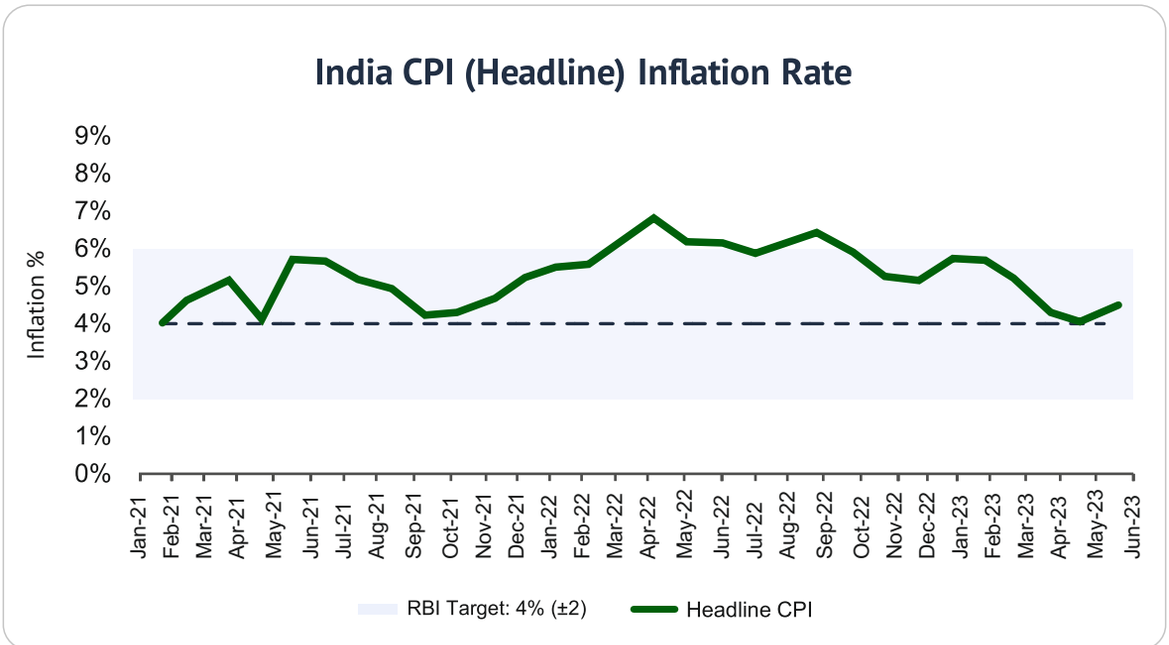
CPI Component	Weight (%)
Food and Beverage	45.86
Housing	10.07
Fuel and Light	6.84
Clothing and Footwear	6.53
Pan, Tobacco, and Intoxicants	2.38
Miscellaneous	28.32
Total CPI	**100**

India's Headline CPI inflation rate for May 2023 was 4.31%. The average Headline CPI rate from April 2012 to April 2023 is 5.9%.[31]

Inflation forecast by RBI	Q1	Q2	Q3	Q4	FY22 -23
CPI	4.6%	6.2%	5.7%	5.2%	5.4%

Source: RBI

30. https://mospi.gov.in/documents/213904/0/CPI-Changes_in_the_Revised_Series.pdf
31. https://dbie.rbi.org.in/BOE/OpenDocument/1608101729/OpenDocument/opendoc/openDocument.faces?logonSuccessful=true&shareId=0



Source: RBI

How do different levels of Inflation impact the economy?

Inflation affects the value of money (purchasing power) and indicates the overall stability of a country's economy.

Low *(< 2%)	Moderate (2%-6%)	High (> 6%)
Sustained Low inflation is a sign of demand for goods and services decreasing, this tends to slow down economic growth and depress the wages of workers.	Moderate inflation is generally considered to be a sign of a healthy economy, as the economy grows, demand for goods and services increases.	Sustained High inflation is generally considered as harmful as it erodes the purchasing power and may reduce consumer spending. It can also increase the unemployment rate, as businesses try to cut down their costs.

**For India, based on RBI's Inflation Target[32] of 4% (± 2%)*

Role of Central Banks and Government

The Central bank and Government work together to maintain a healthy level of prices in the country.

- **RBI:** Since they cannot influence the rising costs or fall in supply, they influence the overall demand in the economy via interest rates. An increase in Interest rates increases the cost of borrowing and reduces the supply of money in the economy. It leads to a fall in demand, inevitably reducing inflation and vice versa

32. https://www.rbi.org.in/scripts/FS_Overview.aspx?fn=2752

- **Government:** They can influence the costs and the supply in the economy, they do so via policies such as a reduction in indirect taxes, an increase in imports of key commodities, etc., depending on the requirements. They can also increase the direct tax rate in order to reduce disposable income, which will reduce demand and prices.

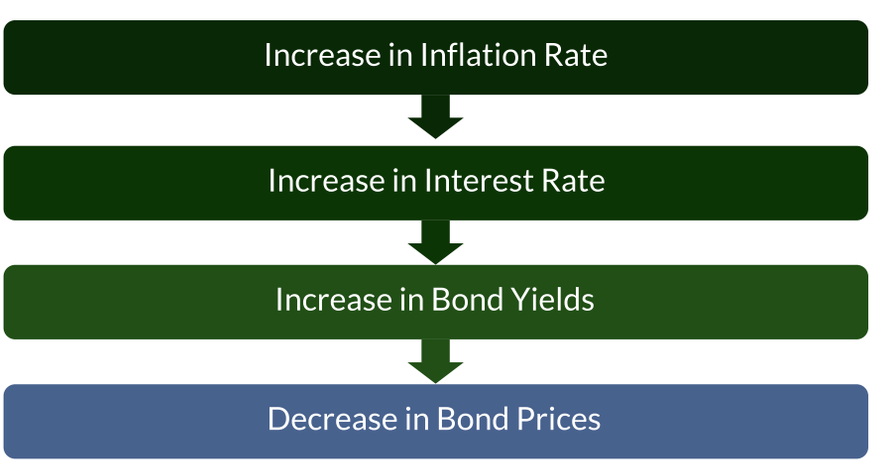
Inflation		RBI	Govt.	Action
Demand-Pull Inflation	Rise in Demand	✔	✔	**RBI-** Increase Interest rates in order to increase the cost of borrowing and cool down growing demand. **Govt.-** Increase Direct Taxation in order to reduce disposable income and inevitably reduce demand & prices.
Cost-Push Inflation	Rising Costs	✖	✔	Policies like reduction in GST or excise taxes can reduce the cost for businesses and bring down the prices of final goods and services
	Fall in Supply	✖	✔	Increase in imports to support local supply, which will mitigate shortages and reduce prices

Impact on Investor Portfolio

Impact of Inflation on Debt Investments

Inflation affects the bond or fixed income market via interest rates. To reduce the inflationary pressure, central banks increase the rate of interest. Since bond prices and interest rates are inversely correlated, when interest rates go up or are expected to go up, prices of existing bonds fall and vice versa. It happens because the newer issues of bonds for the same tenure will carry higher interest rates, thus reducing the demand for existing bonds and their prices.[33]

RBI's intervention and Impact:



33. The Inverse Relationship Between Interest Rates and Bond Prices
https://www.investopedia.com/ask/answers/why-interest-rates-have-inverse-relationship-bond-prices/

Impact of Inflation on Equity Investments

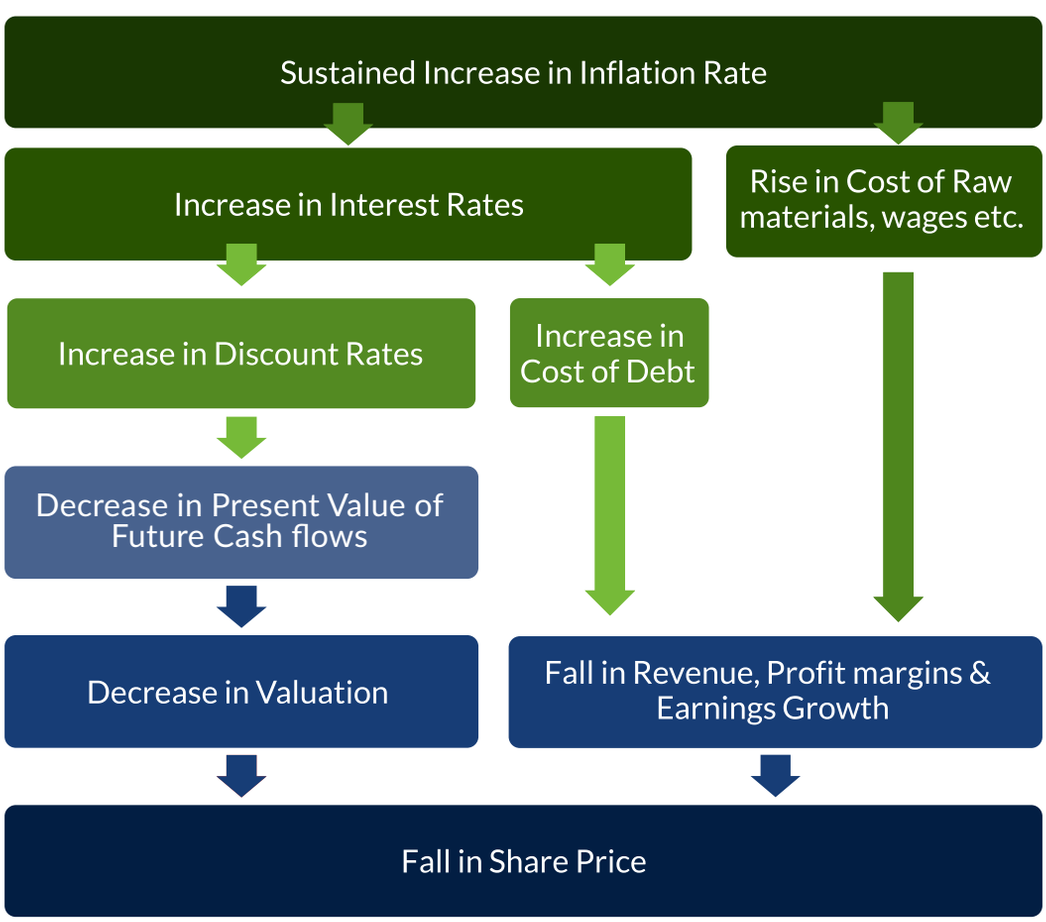
- A sustained high inflation rate increases the cost of production/ operations for businesses. It leads to a fall in revenue and profit margins and inevitably results in a fall in earnings. It can have an impact on the company's share prices and lead to short-term volatility in the market.

Impact of increase in Interest rates on Equity

- **Cost of Debt:** If the central bank increases interest rates in response to rising inflation to curb consumption or to slow it down, the debt burden of companies will increase, further increasing their costs and inadvertently reducing their earnings which can ultimately impact the share price of the company.
- **Valuation:** A sustained rise in inflation has a negative impact on company valuation, as company valuation (under DCF) depends on the discounted present value of future earnings. The discount rate increases if the interest rate rises.

$$\textit{Valuation} = \frac{\textit{Sum of Future Cash Flows for 'n' years}}{\textit{Discounted at the interest rate for 'n' years}}$$

As such, if the interest rises, valuations decrease. For e.g. – Rs. 100 expected a year later if we discount at 6%, the present value would be 94. If the same is discounted at 7%, the present value would decrease to 93.



Conclusion

Rising inflation impacts the real rate of return of any portfolio. Real return, also known as inflation-adjusted return, is the actual return you get after adjusting for inflation.

Therefore investors must consider the following points while planning their investments.

- When setting objectives for their portfolio, investors must remember that their target return should be much higher than inflation in order to preserve and create wealth.
- Historically, when deciding their asset allocation, one has seen equity investments deliver a higher rate of real return compared to other asset classes.

India Inflation-Adjusted Asset Performance (2012-2023)

Particulars	Equity		Bonds	Gold	Inflation
	Nifty 50 TRI	Nifty	Nifty 10Yr G-Sec Index	Gold INR/10gms	CPI
31-May-12	6,275.4	4924.2	1080.9	28,830	100
31-May-23	27057.40	18599	2176.39	57,750	179.1
Absolute Return	331%	278%	101%	100%	79%
Annualized Nominal Return (A)	**14.21%**	**12.84%**	**6.57%**	**6.52%**	5.44%
Annualized Inflation Rate (B)	5.44%	5.44%	5.44%	5.44%	x
***Annualized Real Return (A-B)**	**8.77%**	**7.40%**	**1.13%**	**1.08%**	**x**

Equity and Bond Source: NSE | Gold Source: RBI & Bombay Bullion Association | Inflation Source: RBI

**Using the Non-Compounding formula, refer to the annexure for the real rate of return formula*

- As it can be seen from the table above, if one had invested in equities, their 11-year average annualized returns would have been around 12.84% and with average inflation of 5.44%, their real returns[34] would be 7.40%.

Therefore, one must create an optimal portfolio depending on their return objective and risk appetite.

34. https://www.niftyindices.com/reports/historical-data, https://www.rbi.org.in/scripts/PublicationsView.aspx?id=21136

Investment decisions must be logical and data-driven.
We often forget the data and let emotions
cloud our judgment.
It only results in deviating from your goals.

- **Rakesh Rawal**, CEO, Anand Rathi Wealth Limited

08 Fundamentals of Forex Reserves

Objective: *To understand the concept of forex reserves held by the Reserve Bank of India (RBI) and its impact on the economy and by extension, on the financial markets*

(This note has an annexure)

A country's economic health is measured by fundamental macroeconomic parameters such as Gross Domestic Product, Forex Reserves, Inflation, Interest Rate, Fiscal Deficit and Current Account Deficit. By extension, formulating an investment strategy for foreign and domestic investors requires considering these six macroeconomic factors.

In this note, we will be focusing on Forex Reserves.

What are Forex Reserves?

Foreign exchange reserves are assets denominated in a foreign currency held on reserve by central banks, which is the RBI in India. Foreign exchange reserves include foreign currencies, foreign bank deposits, foreign treasury bills, and short and long term foreign government securities, as well as gold reserves, special drawing rights (SDRs), and International Monetary Fund (IMF) reserve positions.[35]

Why do central banks hold Forex Reserves?

- Globally, central banks of emerging markets need to have large Forex reserves. Most of them need to fund the deficit either on the current account or the capital account transactions.
- Emerging central banks also need to have large Forex reserves to have the flexibility to intervene in the Forex market. RBI intervenes to avoid large volatility and guard against sharp undervaluation or overvaluation of the domestic currency. Most countries try to keep their home currency undervalued since it increases export competitiveness (cheaper exports in foreign currency) and allows import substitution (as imports become costlier in domestic currency).
- Countries also keep foreign exchange reserves as a precautionary measure to handle the sudden outflow of a large amount of foreign currency and avoid any economic crisis.

How do central banks operate in the forex market?

Central Banks, as part of keeping a check on currency volatility, anonymously intervene in the market periodically. This intervention may eventually, lead to the accumulation or depletion of Forex reserves.

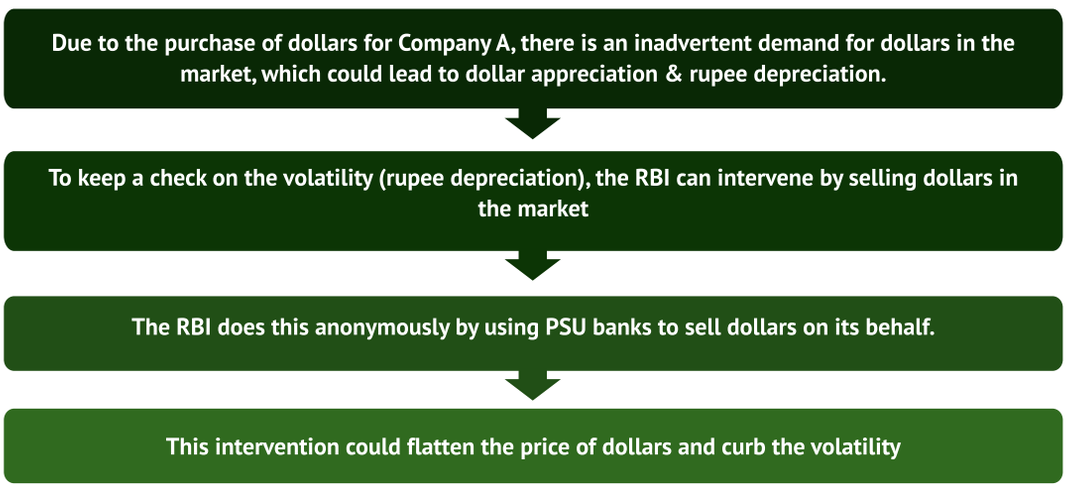
Let us understand the step by step process of RBI's intervention with 2 examples:

Example 1:

Company A wants to import oil worth $20 billion. In this case, the company will approach its bank to purchase dollars, thereby creating a huge demand for dollars in the market. Suppose the bank does not have sufficient dollars. In that case, it will have to buy dollars from the market using an electronic trading / broking system like Thompson Reuters or CCIL Forex clearing, which is used by all banks, including the RBI. This trade can be negotiated offline between the various banks or sourced by putting a bid-offer in the electronic trading / broking system.

35. Foreign Exchange Reserves: What They Are, Why Countries Hold Them https://www.investopedia.com/terms/f/foreign-exchange-reserves.asp

RBI's intervention and Impact:

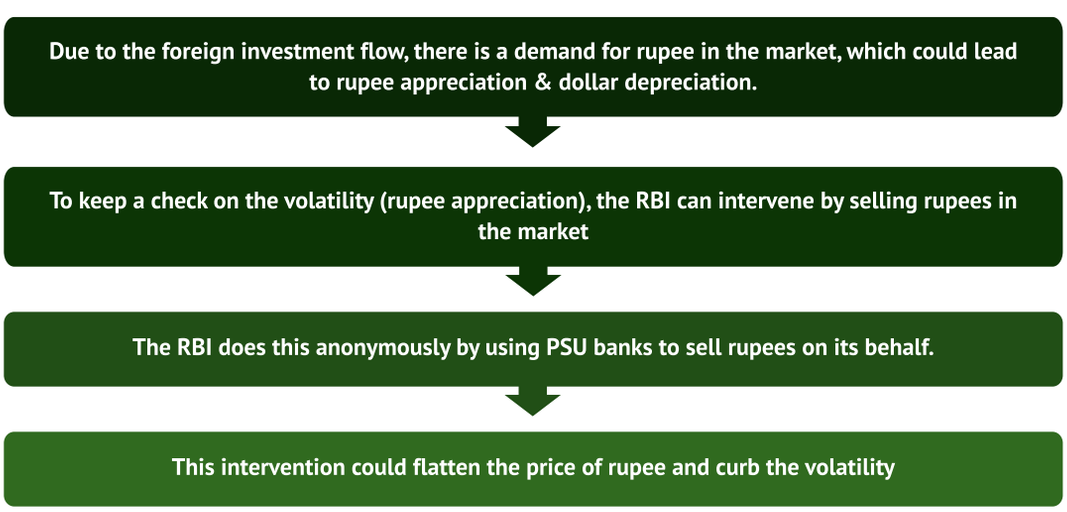


Example 2:

Company B is a telecom company that has attracted investments worth $25 billion from various tech giants. In this case, the investors will approach the banks to convert the dollars into rupees, thereby creating a huge demand for rupees in the market.

Once Company B's transaction is executed, the banks will trade with other banks using an electronic trading / broking system like Thompson Reuters or CCIL forex clearing to reduce their foreign currency holding. As per RBI's regulation, a bank cannot have a net overnight position of foreign currency holding more than 20% of its total capital. Therefore, banks settle the surplus with either the other banks or RBI using the electronic trading / broking system.

RBI's intervention and Impact:



What is the broader impact of Forex operations on the financial market?

The RBI's day-to-day operations in the Forex market indirectly impact the bond and equity markets. Consequently, it affects several other aspects of investments.

1. Impact of Forex operations on Bond Market:

- As explained in example 1 above, when there is a large outflow of foreign currency, RBI intervenes in the Forex market and starts selling dollars to manage volatility (rupee depreciation).
- However, when it sells dollars, it is withdrawing the rupee liquidity from the system. To inject this liquidity back into the system, RBI starts buying bonds from the market.
- With RBI buying bonds from the market, it reduces the supply of bonds, thereby increasing bond prices and reducing bond yields. Such as an action is positive for the existing bond investors.
- However, if RBI sells dollars but does not buy bonds in the market - in that case, it will be negative for the existing bond investors because less money will chase more number of bonds. In effect, it could decrease the price of the bonds and increase the yield of the bonds.
- If we take example 2 from above, the impact of the bond market will be the opposite.

2. Impact of Forex operations on Equity Market:

- Unlike bonds, there is no direct relationship between RBI's foreign exchange operation and the equity market performance. However, a depreciating rupee is negative for existing FPIs (Foreign Portfolio Investors) as it decreases foreign currency return on Indian assets. In effect, it means that the FPIs get lesser returns from their existing equity assets in India.
- Over the last decade, the rupee has been depreciating by 3-4% p.a. against the dollar. If the equity market index rises by 15% in rupee terms, the dollar return for a foreign investor is 11% (15% – 4%). Therefore, a foreign investor has to keep this factor in mind while deciding to invest in India.[36]

What is our global position?

- India is today the fifth largest in terms of Forex reserves.
- It has jumped from being ninth-largest in October 2012 ($295.29 billion) to fifth largest in March 2023 ($509 billion), a significant improvement in the last few years.[37]
- Amongst the top 10 countries in terms of Forex reserves, India ranks fourth on **Forex reserves to external debt ratio.** India is one of the few countries whose Forex reserve is as much as or higher than its external/foreign debt.[38]

36. https://www.nasdaq.com/market-activity/currencies/usdinr/historical
37. https://www.rbi.org.in/Scripts/WSSView.aspx?Id=25234
38. https://tradingeconomics.com/country-list/total-reserves-percent-of-total-external-debt-wb-data.html

Forex Reserves to External Debt Ratio (2023)

Rank		Reserves	Ext Debt	Reserves to External Debt Ratio
1	Taiwan	560	193	2.90
2	China	3,184	2,491	1.28
3	Russia	418	355	1.18
4	India	510	625	0.82
5	South Korea	402	665	0.60
6	Brazil	310	586	0.53
7	Switzerland	813	2343	0.35
8	Japan	1,134	4,543	0.25
9	Hong Kong	431	1789	0.24
10	Singapore	299	1793	0.17

**Numbers in USD bn / Data as on March 2023 / Source: CEIC*

Conclusion:

- With high forex reserves, India is in a position to comfortably sail through any external liabilities and shocks. High forex reserves imply a robust economy and a positive macroeconomic indicator for investments.
- India is in a sweet spot as its reserves have been steadily increasing. For RBI, these large forex reserves act as a great tool to intervene in the forex market during extreme periods of volatility.
- Large reserves can help the RBI keep the rupee depreciation under control. Consequently, from an equity market perspective, the attractiveness of India as an investment destination goes up for FPIs.

Learning is about having zero resistance. It is about absorbing and correcting your thought process and not showing yourself in a good light!

- **Feroze Azeez** Deputy CEO, Anand Rathi Wealth Limited

09 Understanding GDP & Its Impact

Objective: *To understand GDP and its impact on investors and markets*

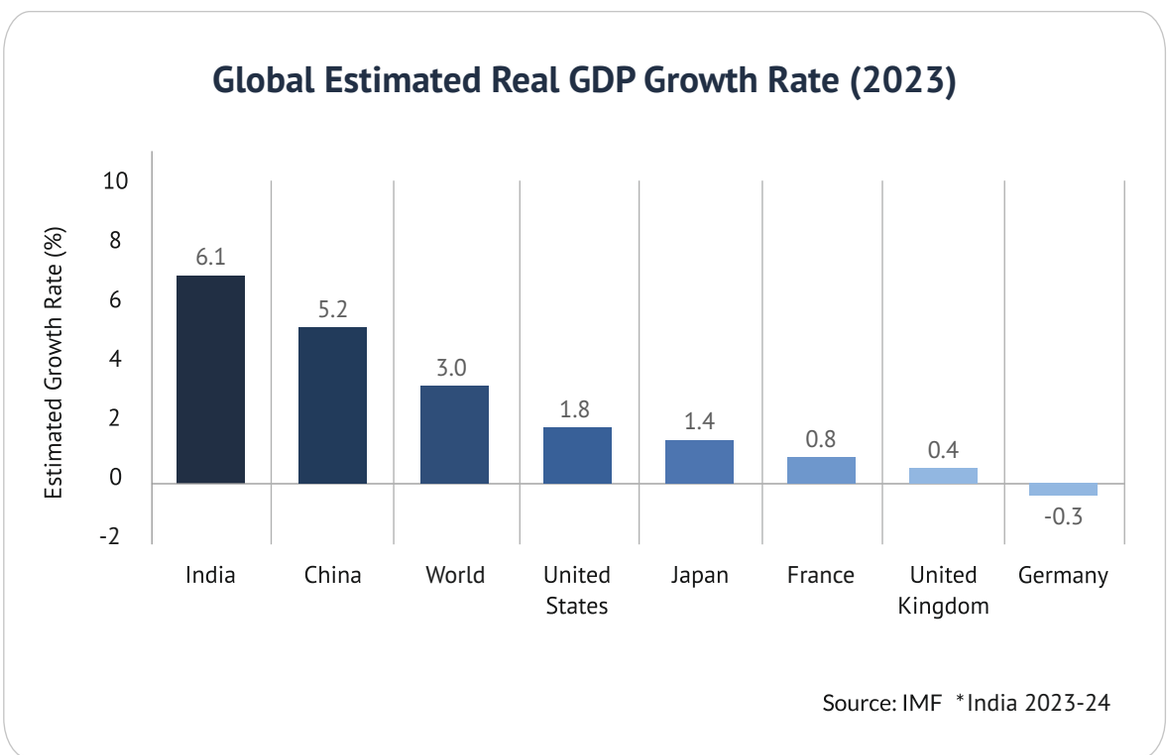
Gross Domestic Product (GDP) is one of the major macro indicators used to track the health of a nation's economy. Consequently, it has its impact on the markets. In this note we will focus on the fundamentals of GDP and its impact on the market as well as the investors.

What is GDP?

Gross domestic product is the total value of everything produced in the country in a financial year. It doesn't matter if it's produced by citizens or foreigners. If they are located within the country's boundaries, their production is included in GDP. For example, a mobile phone manufactured in India, sold in India or abroad will be included in GDP.

Two terms of GDP: Real and Nominal

Real GDP: Real GDP is a calculation of GDP that is adjusted for inflation. Real GDP is calculated to represent the growth rate of the economy. Real GDP is always calculated on constant prices from the base year (2011-2012), hence real GDP reflects the actual growth in output in a year.

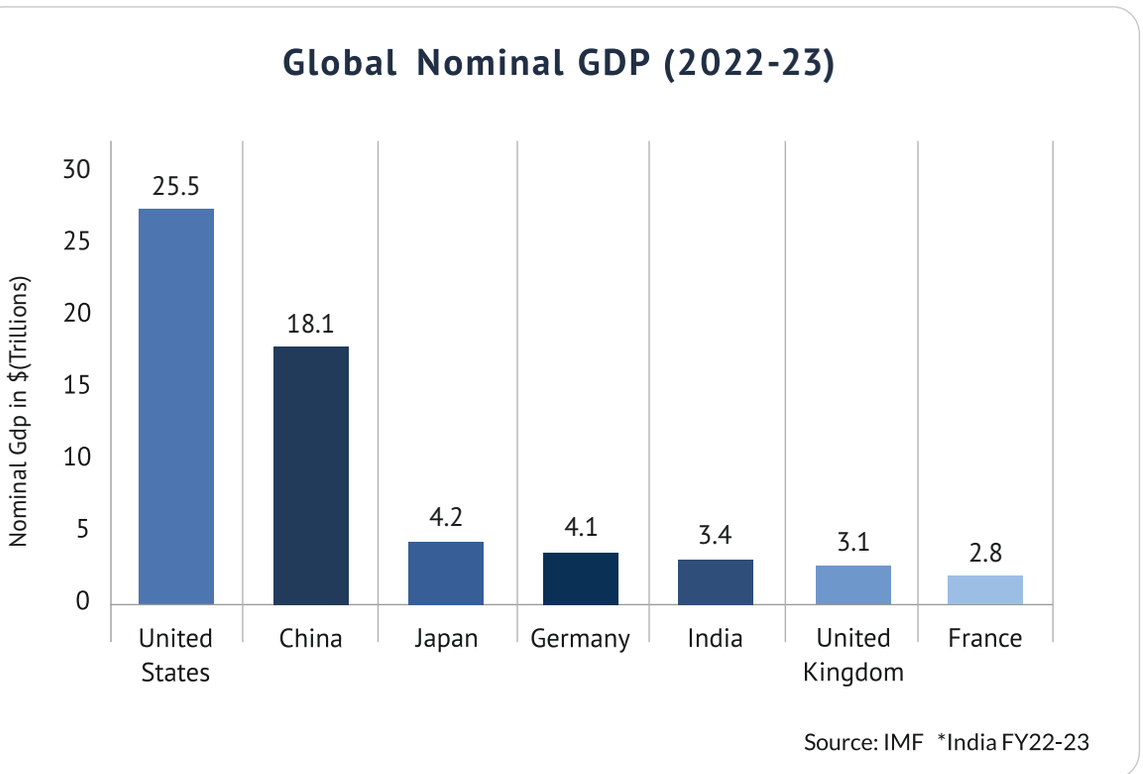


Source: IMF *India 2023-24

The average real growth rate across the world[39] was 6.3% in 2021 and 3.5% in 2022. India's growth rate was at 9.1% in 2021-22 and 7.2% in 2022-23. IMF predicts that India's growth rate will be 6.1% for 2023-24 and above 6% for the next few years. This would mean India would continue to be the fastest growing large economy.

39. https://www.imf.org/en/Countries/IND

Nominal GDP: Nominal GDP is calculated with inflation. The prices of goods and services are calculated at current price levels. Nominal GDP is usually represented in value terms. In nominal terms, India's GDP is at $3.38 trillion as of 2022-2023 and it is estimated to be $3.73 trillion in 2023-2024



The graph above shows that India is currently the 5th largest economy in the world.[40]

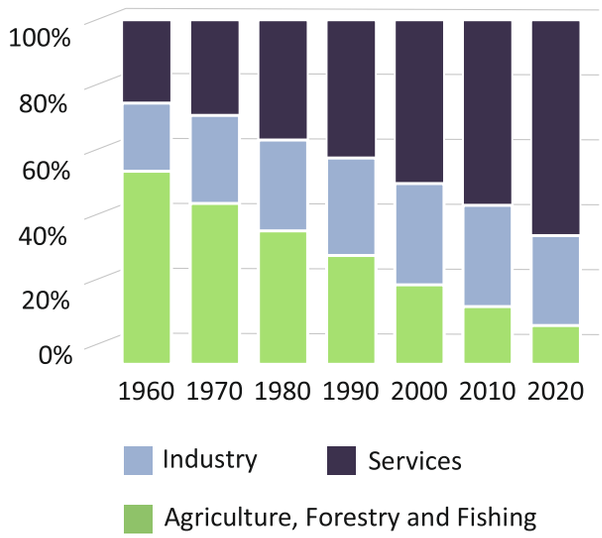
Sector wise contribution to GDP (Nominal)

Indian economy is classified into three major sectors; Agriculture and Allied Sector, Industry and Service sector.

1. **Agriculture & Allied Sector:** Apart from Agriculture, this sector includes forestry and fishing also. In 1950s, the sector was the highest contributor to GDP with more than 50% share. However, with the economy expanding, its contribution has been declining and currently it contributes nearly 18% as of March 2023.[41]
2. **Industry Sector:** This sector includes Mining and quarrying, Manufacturing, Gas, Electricity, Construction and Water supply, etc. Currently it is contributing around 28% of the Indian GDP as of March 2023.
3. **Service Sector:** Service sector includes Financial, real estate & professional services, Public Administration, defense, trade, hotels, transport, communication and services related to broadcasting and other services. As of 2023, the service sector is the backbone of the Indian economy and contributing around 54% to the Indian GDP.

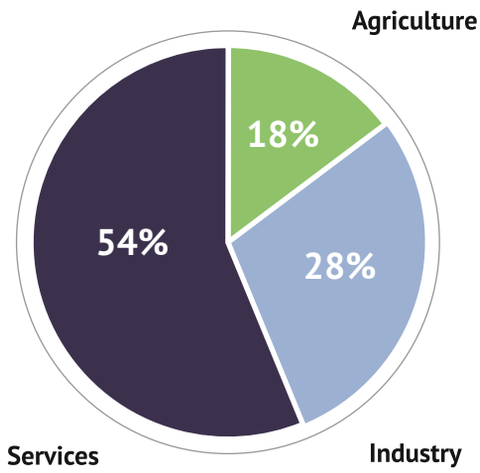
40. https://www.imf.org/external/datamapper/NGDPD@WEO/OEMDC/ADVEC/WEOWORLD
41. https://rbi.org.in/Scripts/PublicationsView.aspx?id=21100, https://data.imf.org/regular.aspx?key=61545852

India: Sector wise contribution to GDP (1960-2020)



Source: National Statistics Office

India's GDP Composition (2022-2023)

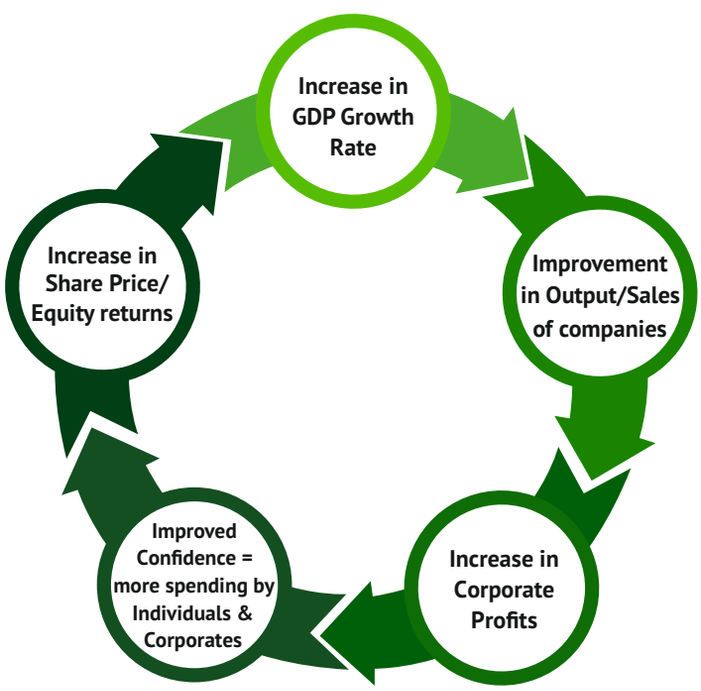


Source: National Statistics Office

GDP and its correlation to Markets

A strong GDP growth for the economy indicates that the output from different sectors is improving. This indicates that output or sales of companies are increasing and it translates into higher corporate profits or Earnings per share (EPS). Consequently, the EPS growth determines the share price movement of the company individually and the equity market collectively.

Thus, over medium to long term, there is a positive correlation between GDP growth and Equity markets. This suggests that if GDP growth rate is expected to increase, it will in turn reflect positively on the returns of the equity markets. This is explained in the chart below:



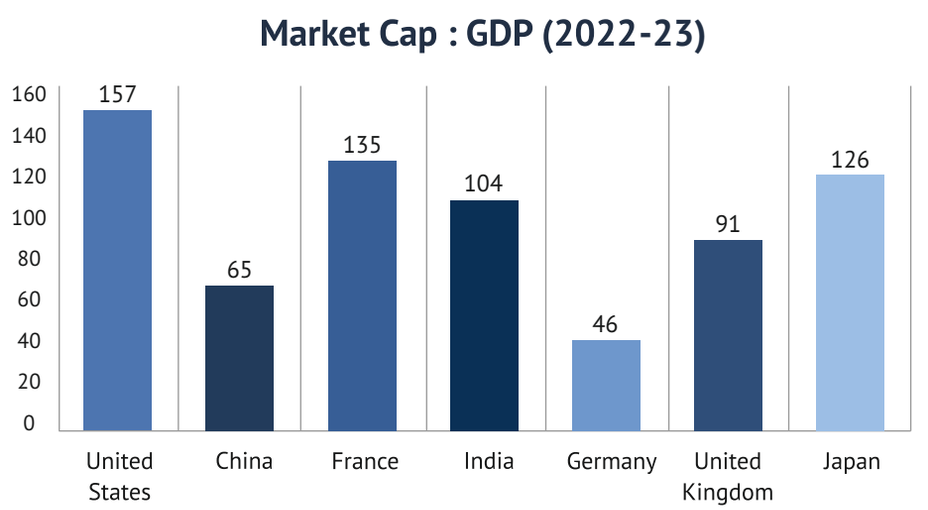
Using GDP in analyzing Equity Market and Corporate health

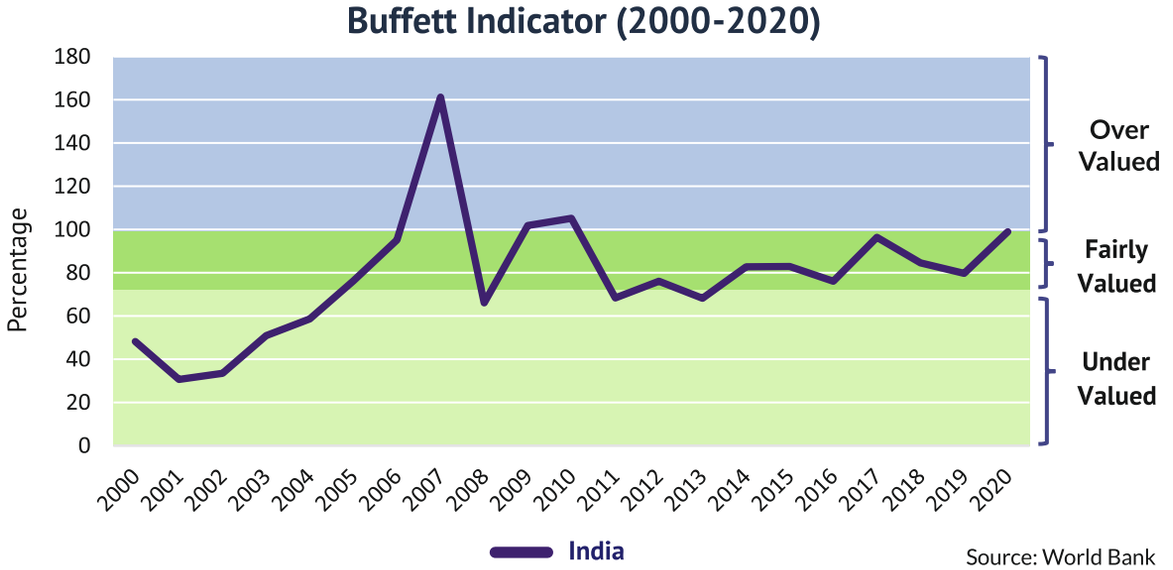
1. Market Cap: GDP

- It was introduced in the 1990s by Warren Buffett, hence most commonly known as the Buffett indicator.
- This ratio is used to determine if the overall equity market is undervalued or overvalued.

  A range below 70% of Market Cap: GDP indicates that the market is undervalued, if the range is between 75%-95% it indicates that the market is fairly valued, while anything above 95% indicates it to be overvalued. Since the ratio for the Indian Markets for the last three years has been in the range of 70%-100% it gives an indication to investors that the markets are not overheated.
- In 2007, the market cap: GDP reached a peak of 147%. However, it has declined to 103.6% in the FY2022-23.

India stands fairly valued when compared to some of the largest economies such as US, France and Japan[42]



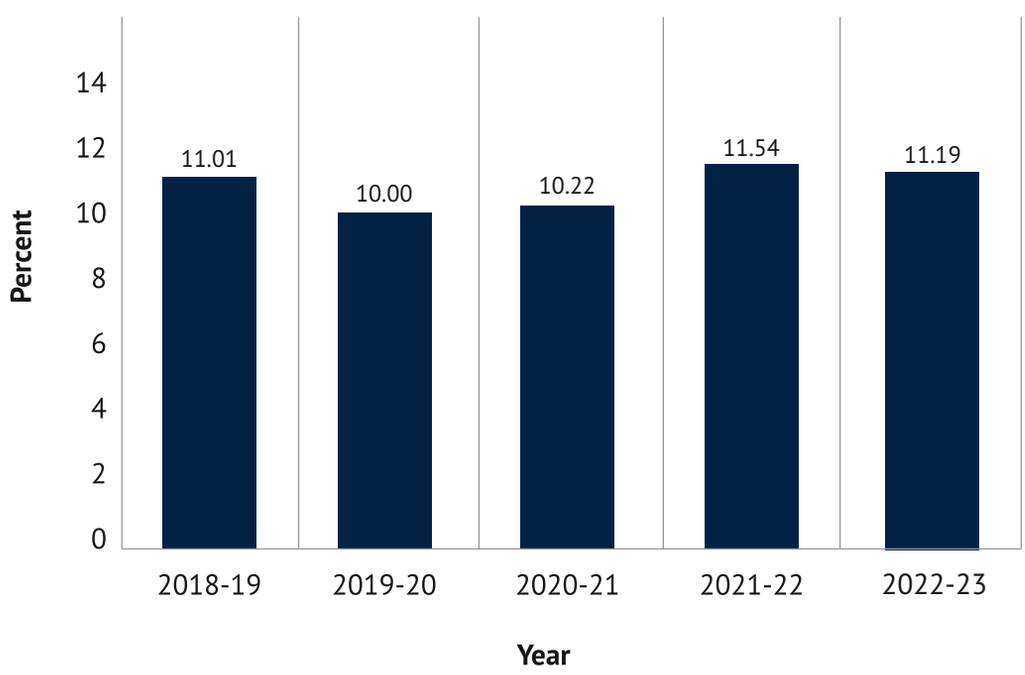


Source: World Bank

42. https://www.theglobaleconomy.com/rankings/stock_market_capitalization/, https://www.ceicdata.com/en/indicator/market-capitalization--nominal-gdp

2. Tax: GDP

- The tax to GDP ratio is the ratio of a nation's tax revenue relative to its GDP. It is 11.19% in FY22-23, higher than the estimates for the period.
- It includes indirect as well as direct tax. An increase in Tax: GDP ratio suggests an increase in government revenue. This could mean that the Government would have more room to invest in priority sectors. Therefore, an increase in public expenditure would have a multiplier effect on the economy. This in turn, will have a positive impact on the GDP growth.



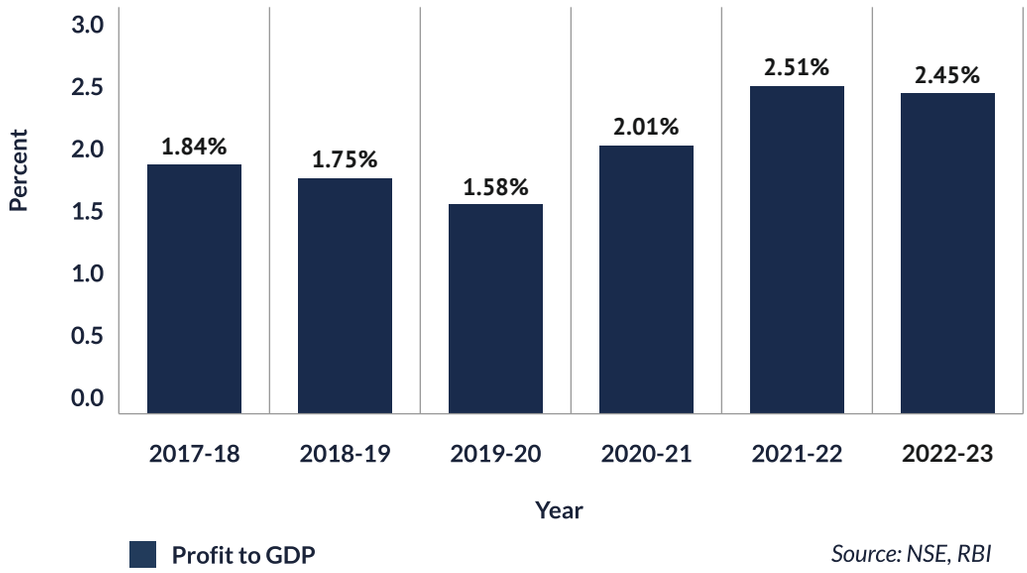
Source: National Statistics Office

3. Corporate profit: GDP

Corporate profit is a good indicator of the productivity of an economy. A healthy ratio shows that economic growth is sustainable. India's corporate profit to GDP ratio averaged at 1.93% from 2015-2020 (for Nifty 50 companies). India's corporate profit to GDP ratio had dropped to 1.5% in FY19-20, the lowest reading in 5 years. The ratio then recovered to 2.51% in 2021-22, the highest reading in 5 years. It is 2.45% in 2022-23.

If we look at NIFTY 500 companies, India's corporate profit to GDP ratio had dropped to 2.3% in FY18-19, the lowest reading since 2003-04. The ratio has recovered to 4.1% in FY22-23.

43. https://dor.gov.in/sites/default/files/FINANCIAL%20YEAR.pdf, https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/apr/doc202241442201.pdf



Source: NSE, RBI

Conclusion and key learnings

An understanding of Gross Domestic Product is important for investors because it can affect how the financial markets behave, both positively and negatively. Given the fair market valuation, robust tax collection, and a high probability of corporate profits improving, it will positively reflect on the Indian economy and the GDP growth. For the investors, the equity markets, therefore, becomes a wealth of opportunities.

You have one CFO for your company but for your own wealth, you have more than one CFO! How does that logic work?

- **Rakesh Rawal**, CEO, Anand Rathi Wealth Limited

10 All about Employee Provident Fund

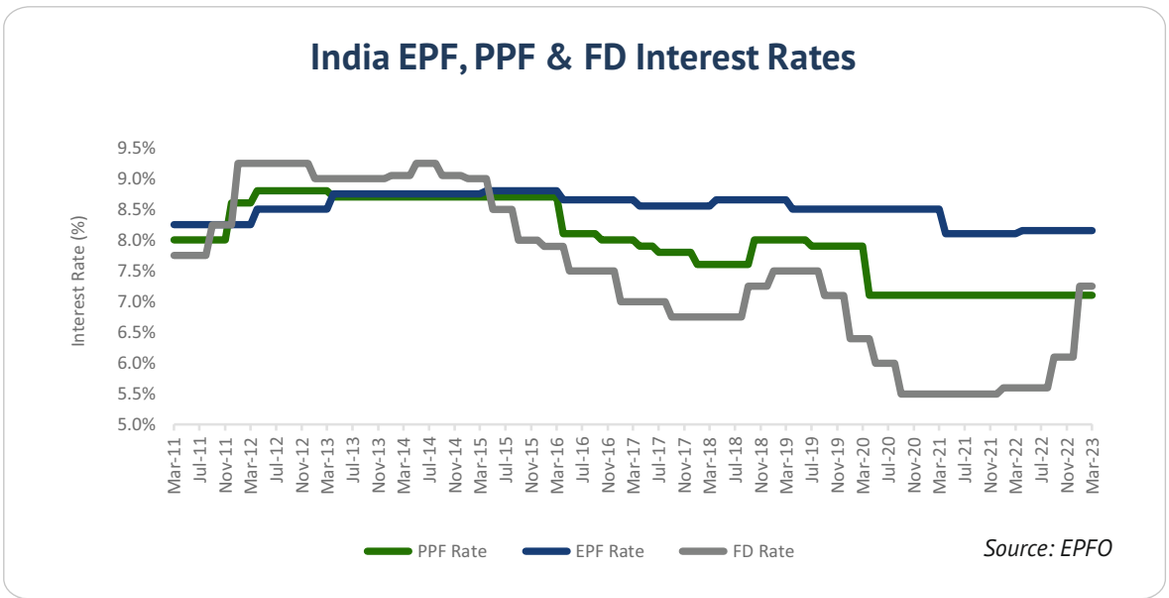
Objective: *Understanding the features, benefits, and tax implications of contributing to Employee Provident Fund (EPF) (This note has an annexure)*

EPF is an essential component of saving for salaried individuals. However, it is a passive debt investment often forgotten since it is directly deducted from one's salary.

This note will focus on different aspects of EPF, keeping the return, risk, liquidity, and taxation in mind.

1. Returns:

The current rate of return for EPF is 8.15%.[44] The EPFO (Employee Provident Fund Organisation) reviews and releases the rate of return annually. Historical data shows that the interest rate on EPF has been reducing marginally. However, compared to fixed deposits and PPFs, EPFs returns have been consistently higher in the last 12 years.



Interest is credited to your EPF account till such time there is a regular contribution to the EPF. However, if an employee takes early retirement before the age of 58 and stops contributing to the EPF, the interest will be credited until the age of 58 years. However, if a person retires after 58, he will continue to get interest for the next 3 years.

2. Liquidity

Ideally, EPF is to be held till retirement, i.e., 58 years. However, there are certain exceptions in which an individual can partially withdraw from the EPF account.

- An individual can withdraw 90% of his EPF once he crosses 54 years.
- An individual can withdraw 100% if he is unemployed for over 2 months.
- Also, an individual can partially withdraw his EPF for exceptions such as medical purposes, marriage, Purchase of land or purchase/construction of a house, home loan repayment, and house renovation

44. https://www.epfindia.gov.in/site_docs/PDFs/MiscPDFs/InterestRate_OnPFAccumulationsSince1952.pdf

3. Risk

- EPF is considered the highest grade investment with the lowest risk, as it is managed by the EPFO, which is backed by the Government.

4. Taxation of EPF

An investor's tax impact of EPF is on three levels – Contribution, yearly interest, and withdrawal.[45]

a) Contribution

Employer's contribution – Employer's contribution up to ₹ 7.5 lakhs (The combined limit for EPF, NPS, and Superannuation Fund) per Financial Year (FY) is not considered part of an individual's taxable salary. Any amount above ₹ 7.5 lakhs is taxed at the marginal rate of taxation.

- An employee's contribution is considered as part of the taxable salary of an individual.
- Employee's contribution is eligible for deduction under Section 80C up to ₹ 1.5 lakhs per FY.

b) Yearly Interest

- Interest on employer's contribution – Interest earned on employer's contribution is exempt from tax. However, from FY20-21, interest earned on employer's contribution above ₹7.5 lakhs per FY will be taxable on an annual basis.
- Interest on employee's contribution – Interest earned on employee's contribution is exempt from tax. However, from FY21-22, interest earned on employees' contributions over ₹2.5 lakhs per FY will be taxable on an annual basis.

Let us examine the impact of the above aspects across 3 different salary brackets:

Example 1: Basic Salary ₹ 20,00,000

	Amount	Remarks
Employer's Contribution	₹ 2,40,000	12% of the Basic Salary of 20L
Employee's Contribution	₹ 2,40,000	12% of the Basic Salary of 20L
Total Yearly Interest (8.15%)	[240,000+240,000] x 8.15% ₹ 39,120	Pre-Tax interest
Taxable Interest on Employer's Contribution	NIL	Taxable interest is NIL because employer contribution is less than ₹7.5L
Taxable Interest on Employee's Contribution	NIL	Taxable interest is NIL because employee contribution is less than ₹2.5L
Tax to be paid	NIL	
Total Post Tax Interest	₹ 39,120	

45. https://www.epfindia.gov.in/site_docs/PDFs/Circulars/Y2022-2023/WSU_IT_PF_TDS_4581.pdf

Example 2: Basic Salary ₹50,00,000

	Amount	Remarks
Employer's Contribution	₹ 6,00,000	12% of the Basic Salary of 50L
Employee's Contribution	₹ 6,00,000	12% of the Basic Salary of 50L
Total Yearly Interest (8.15%)	[600,000+600,000] x 8.15% =₹ 97,800	Pre-Tax Interest
Taxable Interest on Employer's Contribution	NIL	Taxable interest is NIL because employer contribution is less than ₹ 7.5L
Taxable Interest on Employee's Contribution	[600,000-250,000]x8.15% =350,000 x 8.15% =₹ 28,525	Employee contribution is exceeding the threshold of 2.5L. Interest on such excess contribution of ₹ 3.5L will be taxable.
Tax to be paid (35.88%)	₹ 28,525 x 35.88% = ₹ 10,234.77	The tax rate is assumed to be inclusive of a 15% surcharge (where total taxable income is between ₹ 1 crore to ₹ 2 crores)
Total Post Tax Interest	₹ 97,800 - ₹ 10,234.77 = ₹ 87,565.2	

Example 3: Basic Salary ₹1,00,00,000

	Amount	Remarks
Employer's Contribution	₹ 12,00,000	12% of Basic Salary of 100L
Employee's Contribution	₹ 12,00,000	12% of Basic Salary of 100L
Total Yearly Interest (8.15%)	[12,00,000+12,00,000]x 8.15% = ₹ 1,95,000	Pre-Tax Interest
Taxable Interest on Employer's Contribution	[12,00,000-750,000] x 8.15% =450,000 x 8.15% = ₹ 36,675	The employer contribution is exceeding the threshold of 7.5L. Interest on such excess contribution of ₹ 4.5L will be taxable.
Taxable Interest on Employee's Contribution	[12,00,000-250,000] x 8.15% =950,000 x 8.15% = ₹ 77,425	Employee contribution is exceeding the threshold of 2.5L. Interest on such excess contribution of ₹ 9.5L will be taxable.
Tax to be paid (35.88%)	[₹36,675 +₹77,425] x35.88% = ₹ 40,939	The tax rate is assumed to be inclusive of a 15% surcharge (where total taxable income is between ₹ 1 crore to ₹ 2 crores)
Total Post Tax Interest	₹195,600 - ₹40,939 = ₹ 1,54,661	

What happens to interest earned on accumulated EPF balance?

Interest earned on EPF balance before the tax amendments will continue to remain tax-free. For example, before the amendments, if an Individual has an **accumulated EPF balance of ₹1,00,00,000,** then the yearly interest of ₹8.15 lakhs will continue to remain tax-free. However, interest earned on future contributions will be taxable, as discussed in the above examples.

a) Tax impact on withdrawal

Under Income Tax Act, withdrawals from EPF are entirely tax-free under the following conditions:

- If an Individual has rendered continuous service for 5 years or
- The employee's service has been terminated because of ill-health, downsizing or closure of the employer's business, or other causes beyond the control of the employee

If the above conditions are not satisfied, then the following will be the tax implications:

- Total employer's contribution till date will be taxable as salary
- Employee's contribution will also be taxable to the extent of the benefit taken under Section 80C
- The entire interest on the employer and employee contribution will be taxable under Income from Other Sources

5. Additional Benefits

- The corpus accumulated in this account is ring-fenced from personal liability as per Section 10 of the EPF Act. To put it in context, the corpus accumulated in EPF is not liable to the attachment for debt or liability incurred by the EPF account holder.
- On the demise of the EPF account holder, along with the accumulated EPF corpus, the nominee also gets insurance proceeds of ₹7 lakh under the Employees Deposit Linked Insurance (EDLI) scheme as long as the employer avails of this scheme by contributing 0.5% of basic salary with a maximum of ₹75 per month per employee.

All the above features of EPF clearly indicate that it is an excellent debt investment. Therefore, individuals building their investment portfolio must factor in EPF as part of their debt allocation to achieve their overall wealth goals.

Key takeaways

1. An individual with a basic salary of up to **₹20.83** lakh will continue to get **8.15%** tax-free returns. So, his EPF contribution should continue.
2. For an individual whose basic salary is exceeding ₹62.5 lakhs will be contributing **more than ₹15 lakhs to EPF.** So, for the first ₹15 lakhs, the interest will be 7.18%. And, for contributions exceeding ₹15 lakhs, one will be only generating **5.23% p.a.** on a post-tax basis *(refer to annexure)***.** Therefore, one should explore the possibility of restricting the contribution to ₹15 lakhs and explore other avenues.
3. For an individual in the basic salary bracket of **₹20.83 lakh to ₹62.50 lakhs,** the range of post-tax return will be **7.18% to 8.15%.** Hence, it is still a good debt alternative, and therefore, one should continue.

4. As per the Bangalore Income Tax Appellate Tribunal (2018) [ACIT vs Dilip Ranjrekar], interest earned after cessation of employment will be taxable. Therefore, post-retirement one would be generating only **5.23% p.a. on accumulated EPF balance.** Consequently, one could consider withdrawing from EPF and exploring other investment avenues.[46]

46. https://www.casemine.com/judgement/in/5d3168bd3321bc7180e380a2

ANNEXURE

1. Fundamentals of Forex Reserves

Macro-Economic Indicators

1. **Gross Domestic Product (GDP) -** It is the final value of the goods and services produced within the geographic boundaries of a country during a specified period of time, normally a year.
2. **Forex Reserves-**Foreign exchange reserves are assets denominated in a foreign currency that is held by a central bank
3. **Inflation-** It is a quantitative measure of the rate at which the average price level of a basket of selected goods and services in an economy increases over some period of time.
4. **Interest Rate (Repo rate)-** It is the rate at which the central bank of a country (Reserve Bank of India in case of India) lends money to commercial banks in the event of any shortfall of funds. The Repo rate is used by monetary authorities to control inflation.
5. **Fiscal Deficit-** It is the difference between the total income of the government (total taxes and non-debt capital receipts) and its total expenditure.
6. **Current account deficit-** It is the shortfall between the total exports and imports of a country.

Please note:

As per RBI's net overnight open position limit regulation, a bank cannot have a foreign currency exposure of more than 20% of its total capital. This norm is subject to change as per RBI regulation.

2. Guide to NRI Taxation

Process to obtain TRC from UAE

(Known as Tax Domicile Certificate in UAE)

Eligibility:

1. Physical Presence of more than 183 days in a year will make a person resident, hence eligible to apply for a TRC.

Process:

1. Create a new account on MOF website and apply through MOF website (link:)
2. Review of the submitted documents by the department and adoption
3. Payment of certificate's fees
4. The customer will receive the certificate through email once the payment operation finished.

Fees:

1. For issuing the certificate: Pay 2,000 Dirhams + 3 Dirhams, paid through e-Dirham Card (Approx Rs. 36,000)
2. For submitting the application: Pay 100 Dirhams + 3 Dirhams, paid through e-Dirham Card.

Documents Required:

1. Passport Copy
2. Valid Residence Copy
3. Certified Tenancy Contract / Title Deed
4. Certified bank statement for at least 6 months during the required year
5. Source of Income/Salary Certificate
6. Immigration Report of residency (Exit & Entry report)

The Seven UAE Countries:

Abu Dhabi, Dubai, Ajmam, Fujairah, Ras al Khaimah, Sharjah and Umm al Quwain.

Singapore

TRC is known as Certificate of Residence (COR) in Singapore.

Eligibility:

For an individual to be regarded as a tax resident, he has to satisfy at least one of the following tests:

- Physically present in Singapore for at least 183 days in the calendar year preceding the year of assessment; or
- Exercises employment in Singapore for at least 183 days in the calendar year preceding the year of assessment
- The individual must reside in Singapore and that his absence from Singapore must be temporary and reasonable.

Process: A resident can apply for COR on

Fees: Around $300 (approximately INR 20,300)

Estimated time to process: 7 – 14 days

NRO Account vs NRE Account

Any person who is a "Person Resident outside India" as per Section 2 of Foreign Exchange Management Account cannot maintain a Resident Account but will have to maintain NRO or NRE Account.

NRO – Non Resident Ordinary Account

NRE – Non Resident External Account

Following is the main difference between NRO and NRE Account:

Balance held in NRE Account is freely repatriable whereas balance held in NRO account can be repatriated up to $ 1 million (INR 7 crores) per financial year without any RBI approval after that RBI approval is required.

Interest Earned from NRE Savings Account or Fixed Deposit will be tax-free in India in the hands of non-resident- however the same will be taxed in the country of residence of the taxpayer as per their slab rates.

At the time of remittance from NRO account, a CA Certificate under Form 15CA/CB will have to be obtained which confirms that all due taxes have been paid.

3. Understanding Inflation

India CPI Basket Sub-Groups and Weights

Group Code	Sub-group Code	Description	Rural + Urban Combined Weights %
	1.1.01	Cereals and Products	9.67
	1.1.02	Meat and Fish	3.61
	1.1.03	Egg	0.43
	1.1.04	Milk and Products	6.61
	1.1.05	Oil and Fats	3.56
	1.1.06	Fruits	2.89
	1.1.07	Vegetables	6.04
	1.1.08	Pulses and products	2.38
	1.1.09	Sugar and Confectionery	1.36
	1.1.10	Spices	2..50
	1.1.11	Non-alcoholic beverages	1.26
	1.1.12	Prepared Meals, Snacks, Sweets etc.	5.55
1		Food and Beverages	45.86
2		Pan, Tobacco and intoxicants	2.38
	3.1.1	Clothing	5.58
	3.1.2	Footwear	0.95
3		Clothing and Footwear	6.53
4		Housing	10.07
5		Fuel and Light	6.84
	6.1.01	Household goods and services	3.8
	6.1.02	Health	5.89
	6.1.03	Transport and communication	8.59
	6.1.04	Recreation and Amusement	1.68
	6.1.05	Education	4.46
	6.1.06	Personal Care and effects	3.89
6		**Miscellaneous**	**28.32**
All Groups			**100**

Source: RBI

The Wholesale Price Index (WPI)

Until 2014, the Wholesale Price Index was used as the primary tool to track and manage Inflation in India. It measures the changes in the price of 697 goods sold and traded in bulk by wholesale businesses to other businesses. It tracks the supply and demand dynamics in industry, manufacturing, and construction.

WPI Basket is broadly classified into 3 groups with respective predefined weights in the basket:

a) **Primary Articles:** It contains food articles, non-food articles, minerals, and crude petroleum & natural gas as sub-categories

b) **Fuel and Power:** It tracks the price movements in petrol, diesel, and LPG.

c) **Manufactured Products:** It comprises manufactured products such as textiles, apparel, paper, chemicals, plastic, cement, etc., and manufactured goods such as sugar, tobacco products, vegetable oil, etc.

The WPI Inflation rate (yoy) for May 2023 was (-)3.61% as compared to 16.63% in May 2022. The average WPI rate from April 2012 to April 2023 is 3.99%.

WPI Component	Weight (%)
Primary Articles	22.6
Fuel & Power	13.2
Manufacturing Products	64.2
Total WPI	**100**

India WPI Basket Sub-Groups and Weights

Group Code	Sub-group Code	WPI Components	Weights
	1.1.01	Food Articles	15.26
	1.1.02	Non-food Articles	4.12
	1.1.03	Minerals	0.83
	1.1.04	Crude Petroleum & Natural Gas	2.41
1		**Primary Articles**	**22.62**
	2.1.01	Coal	2.14
	2.1.02	Mineral Oils	7.95
	2.1.03	Electricity	3.06
2		**Fuel & Power**	**13.15**
	3.1.1	Manufacture of Food Products	9.12
	3.1.2	Manufacture of Beverages	0.91
	3.1.3	Manufacture of Tobacco Products	0.51
	3.1.4	Manufacture of Textiles	4.88
	3.1.5	Manufacture of Wearing Apparel	0.81
	3.1.6	Manufacture of Leather and related Products	0.54
	3.1.7	Manufacture of Wood and of Products of Wood and Cork	0.77
	3.1.8	Manufacture of Paper and Paper Products	1.11
	3.1.9	Printing and Reproduction of Recorded Media	0.68
	3.1.10	Manufacture of Chemicals and Chemical Products	6.47
	3.1.11	Manufacture of Pharmaceuticals, Medicinal Chemical and Bot anical Products	1.99
	3.1.12	Manufacture of Rubber and Plastics Products	2.30
	3.1.13	Manufacture of other Non-met allic Mineral Products	3.20
	3.1.14	Manufacture of Basic Met als	9.65
	3.1.15	Manufacture of Fabricated Met al Products, Except Machinery and Equipment	3.15
	3.1.16	Manufacture of Computer, Electronic and Optical Products	2.01
	3.1.17	Manufacture of Electrical Equipment	2.93
	3.1.18	Manufacture of Machinery and Equipment	4.79
	3.1.19	Manufacture of Motor Vehicles, Trailers and Semi-trailers	4.97
	3.1.20	Manufacture of other Transport Equipment	1.65
	3.1.21	Manufacture of Furniture	0.73
	3.1.22	Other Manufacturing	1.06
3		**Manufactured Products**	**64.23**
		ALL COMMODITIES	**100.00**

Real Rate of Return:

The real rate of return is the return you get after adjusting the normal or nominal returns for inflation. The Fisher's equation is used to calculate the Real Rate of Return. The formula is as follows:

Fishers Equation:

$$\textbf{Real Return} = \frac{(1+\text{Nominal Return})}{(1+\text{Inflation Rate})} - 1$$

E.g. for a 10% nominal return and a 7% inflation rate, the real return is:

$$\textbf{Real Return} = \frac{(1+0.1)}{(1+0.07)} - 1$$

Real Return = 0.028 or 2.80%

The approximation or a simplified version of the formula is as follows:

Real Return = Nominal Return – Inflation Rate

E.g. Real Return = 10% – 7%

Therefore, Real Return = 3%

4. All About Employees Provident Fund

Taxation – calculation of the post-tax returns in detail

Basic Salary-₹ 1 crore							
First 62.5L	62,50,00			Next 37.5L	37,50,000		
	Employer	Employee	Total		Employer	Employee	Total
Contribution	₹ 7,50,000	₹ 7,50,000	₹ 15,00,000	Contribution	4,50,000	4,50,000	9,00,000
Interest	₹ 61,125	₹ 61,125	₹ 1,22,250	Interest	₹ 36,675	₹ 36,675	₹ 73,350
Tax	–	₹ 14,621	₹ 14,621	Tax	₹ 13,159	₹ 13,159	₹ 26,318
Post Tax	₹ 61,125	₹ 46,504	₹ 1,07,629	Post Tax	₹ 23,516	₹ 23,516	₹ 47,032
Post-tax interest earned			₹ 1,07,629	Post-tax interest earned			₹ 47,032
Post-tax interest earned (%)		annual	7.18%	Post-tax interest earned (%)		annual	5.23%
Tax saving on employer's contribution		per tranche	₹ 2,69,100	Tax saving on employer's contribution		per tranche	

Liquidity - Reasons for withdrawal of EPF as mentioned by the EPFO

Reasons	Withdrawal Limit	No. of years of Service Required	Other Conditions
Unemployment	100%	No criteria	A person should be unemployed for 2 months
Medical purposes	Six times the monthly basic salary or the total employee's share plus interest, whichever is lower	No criteria	Medical treatment of self, spouse, children, or parents
Marriage	Up to 50% of employee's share of contribution to EPF	7 years	For the marriage of self, son/daughter, and brother/sister

Education	Up to 50% of employee's share of contribution to EPF	7 years	Either for account holder's education or child's education (post matriculation)
Purchase of land or purchase/construction of a house	For land – Up to 24 times of basic monthly salary plus dearness allowance For house – Up to 36 times of basic monthly salary plus dearness allowance, The above limits are restricted to the total cost	5 years	I. The asset, i.e., land or the house, should be in the employee's name or jointly with the spouse. ii. It can be withdrawn just once for this purpose during the entire service. iii. The construction should begin within 6 months and be completed within 12 months from the last withdrawn instalment.
Home loan repayment	Least of below: Up to 36 times of basic monthly salary plus dearness allowance The total corpus consists of employer and employee contributions with interest. Entire outstanding principal and interest on housing loan	10 years	I. The property should be registered in the name of the employee or spouse or jointly with the spouse. ii. Withdrawal permitted subject to requisite documents as stated by the EPFO relating to the housing loan availed. iii. The accumulation in the member's PF account (or together with the spouse), including the interest, has to be more than Rs 20,000.
House renovation	Least of the below: Up to 12 times the monthly basic salary and dearness allowance, or Employees' contribution with interest, or Total cost	5 years	i. The property should be registered in the name of the employee or spouse or jointly held with the spouse. ii. The facility can be availed twice: a. After 5 years of the completion of the house b. After the 10 years of the completion of the house
Partial withdrawal before retirement	Up to 90% of accumulated balance with interest	Once the employee reaches 54 years and withdrawal should be within one year of retirement/superannuation	

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