

# JuiceNotes<sup>TM</sup>

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Derivatives

CFA Level 2  
**2026**

# Your CFA Journey with FinTree

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A Guided Roadmap from Enrollment to Exam Day

At FinTree, we believe in smart preparation driven by structure, support, and consistency. Our unique LPR Methodology – Learn, Practice, Revise – is designed to guide you through each stage of your CFA prep journey with clarity and confidence.

## Roadmap from Enrollment to Exam Day

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### 1. Enrollment & Onboarding:

- Receive a welcome call from your dedicated Success Manager (RM)
- Added to a WhatsApp broadcast list for timely updates
- Join a peer group to engage in discussions, share queries, and stay motivated
- Get a personalized study plan and guidance on how to start your prep journey

### 2. Learning Phase (Initial Months)

- Watch Main Concept Videos and read the official CFA curriculum
- Focus on understanding foundational concepts topic-wise
- Attend live weekend classes to deepen understanding and clarify doubts

### 3. Practice Phase (Mid Journey)

- Watch EOC and Blue Box videos to apply concepts to CFA-style questions
- Attempt Learning Evaluation Sessions (LES) for topic-wise testing
- Give Weekly Tests based on a structured test calendar
- Weekly Test results are discussed in class on Sunday for deeper insight into common errors and personal improvement

### 4. Revision Phase (Final 60 Days)

- Revise thoroughly using Juice Notes and Crash Course videos
- Solve the LES twice –
- Vertically (topic by topic)
- Horizontally (across topics like in actual exams)
- Attempt mock exams as per our 60-day revision schedule
- Review mocks in detail, focusing on time management, accuracy, and weak areas

### 5. Final Phase - IPASS

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# Derivatives

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# Placement Assistance Overview

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## What is Placement Assistance?

- Placement Assistance at FinTree is a structured support system that helps students transition smoothly from learning to employment.
- Our goal is to connect students with the right opportunities in the finance and analytics sectors through a personalized and practical approach.
- We find relevant job openings according to the skills and experience relevant with the candidates' expectations.

## Process of Placement Assistance

All relevant job openings are shared via **WhatsApp Broadcasts** to ensure students receive timely updates and can apply promptly.

### **How can candidates get added to Placement Broadcasts –**

- Placement team will share a form, which needs to be filled.
- Once the candidate has filled the form, he/she will be added to broadcast network within next 48hrs & the candidate will be notified.
- You will start receiving the latest opportunities on your WhatsApp Number.
- Candidates can apply in multiple openings based on their career aspiration.

We will also assist you with resume building, career counselling & interview preparation.

**If you need any assistance, request you to contact on +917447443045**

## Placement Highlights

- **Top Recruiters:** Goldman Sachs, PWC, Barclays, Crisil, BNP Paribas, HSBC
- **Key Roles:** Financial Analyst, Equity Research, IB Analyst, Risk & Valuation
- **Packages:**
  - Freshers: ₹4.5–8 LPA
  - Experienced: Up to ₹20 LPA and more...
- **Alumni Placed At:** Morningstar, Deutsche Bank, EY, Deloitte, Bank of America, Centrum, Purnartha

## Pricing and Valuation of Forward Commitments

### FinTree Fruit 1: INTRODUCTION

#### Forward Commitments

Feature	Forwards	Futures	Swaps
Traded	OTC	Exchange-traded	OTC
Standardized	No	Yes	No
Counterparty	Default risk	Clearinghouse guarantees	Default risk
Margin	Negotiated	Daily margining (mark-to-market)	Negotiated
Settlement	At maturity (or negotiated)	Daily (mark-to-market)	Periodic (net cash flows exchanged)
Value at Initiation	Zero	Zero	Zero

#### Pricing vs. Valuation:

**Pricing:** Determine price/rate at initiation (sets value = 0)

**Valuation:** Determine value during/after contract life

#### Law of one price :

Two investments have equivalent future cash flows regardless of what will happen in the future, then these two investments should have the same current price.

#### Convergence :

As expiration approaches, the price of a forward or futures contract converges to the spot price, becoming equivalent to a spot transaction at expiration.

Convergence property:  $FT = fT = ST$

For futures,  
Basis = Spot – Futures

At expiration: Basis  $\rightarrow 0$

#### Before expiration:

Futures > Spot if carry costs > carry benefits  
Futures < Spot if carry benefits > carry costs

**FinTree Fruit 2 : CARRY ARBITRAGE**

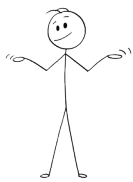
The arbitrageur seeks to make a profit following two rules:

**Rule 1: Do not use your own money; and**

**Rule 2: Do not take any price risk.**

**Cash and Carry Arbitrage**

Mr. X

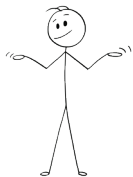


**How to exploit an Arbitrage given current situation ?**

Today	After 1 Year
<ol style="list-style-type: none"> <li>1. Borrow 100 @10% From Bank</li> <li>2. Buy Gold @100</li> <li>3. Take a short position on 1 yr forward Contract</li> </ol>	<ol style="list-style-type: none"> <li>1. Take Gold and execute forward contract and receive \$150.</li> <li>2. Repay \$110 to Bank.</li> <li>3. Arbitrage <math>150 - 110 = 40</math>    <math>PV \text{ of } 40 = \frac{40}{(1+10\%)} = 36.36</math></li> </ol> <p>Arbitrage = 36.36</p>

**Reverse Cash and Carry Arbitrage**

Mr. X



**How to exploit an Arbitrage given current situation ?**

Today	After 1 Year
<ol style="list-style-type: none"> <li>1. Borrow Gold From Friend</li> <li>2. Sell Gold @100</li> <li>3. Invest 100 @10%</li> <li>4. Enter Into Long Forward Contract.</li> </ol>	<ol style="list-style-type: none"> <li>1. Receive \$110</li> <li>2. Buy Gold @90</li> <li>3. Return Gold to Friend</li> <li>4. Arbitrage = 20    <math>PV \text{ of } 20 = \frac{20}{(1+10\%)} = 18.18</math></li> </ol> <p>Arbitrage = 18.18</p>

**Example1 :**

Spot Price = \$100 RFR = 12% Maturity = 6 months  
 Calculate No arbitrage forward price.

**Solution :**

$$\begin{aligned} \text{NAFP} &= 100 \times (1+12\%)^{6/12} \\ &= 105.83 \end{aligned}$$

**Example2 :**

Spot Price = 200 RFR = 8% Maturity = 91 days (Convention : Actual/Actual)

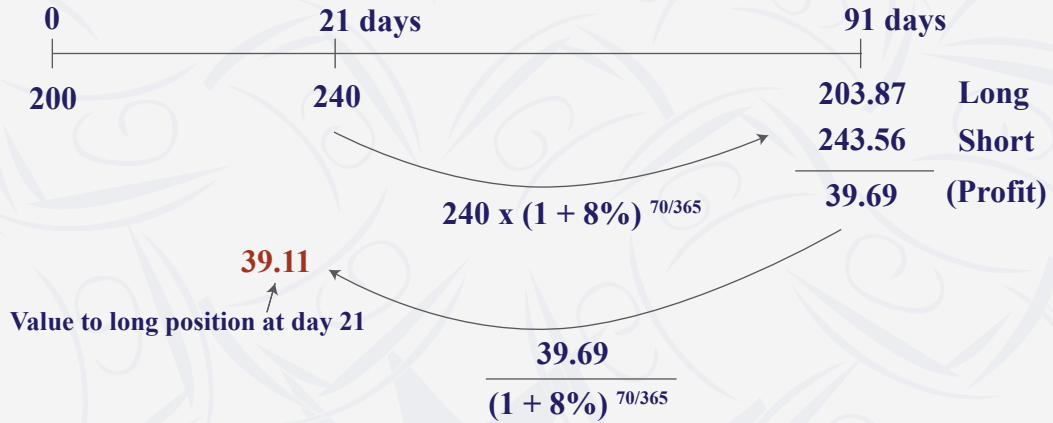
Calculate :

- NAFP
- If spot price after 21 days is 240 determine value to the long position

**Solution :**

1.  $\text{NAFP} = 200 \times (1+8\%)^{91/365} = 203.87$

2. "Make a phone call method"



Therefore, Value to the long position at day 21 is 39.11

**Carry Arbitrage Model When Underlying Has Cash Flows :**

For many instruments, there are significant carry costs and benefits.

- CB = Carry Benefits (e.g., dividends, coupons, foreign interest)
- CC = Carry Costs (e.g., storage, insurance)

Forward Price equation including Cash Flows :

$$F_0 = FV(S_0 + CC_0 - CB_0)$$

**Example3 :**

Spot Price = \$1000, RFR = 5%, Dividend after 2 months = \$10, Maturity = 6 months

Calculate :  
Forward Price after six months

**Solution :**

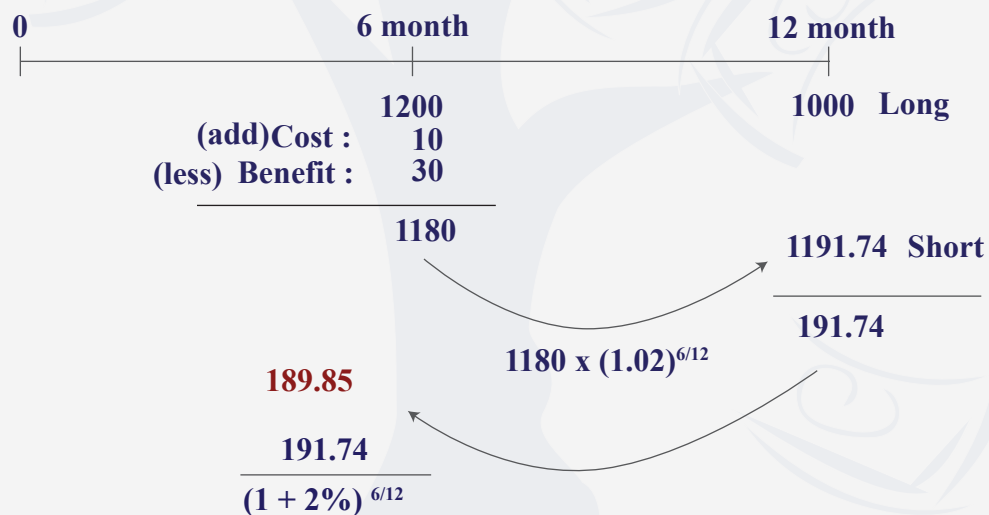
$$\begin{aligned} \text{Forward Price} &= 1000 \times (1+5\%)^{6/12} - 10 \times (1+5\%)^{4/12} \\ &= 1014.57 \end{aligned}$$

**Example4 :**

A long one-year forward contract on a productive asset was entered at a forward price of \$1,000. Now, six months later, the underlying asset is selling for \$1,200. The present value of the cost to store, insure, and maintain the asset for the next 6 months is \$10.00, and the asset will generate income over the next 6 months with a present value of \$30.00. Assume annual compounding for all costs and benefits and a risk-free rate of 2%.

Based on the current spot price and the no-arbitrage approach, what is the value of the position?

**Solution :**



A Dividend Index Point represents the total amount of dividends expected to be paid by the stocks in an index over a certain period

Formula of forward price using continuous compounding,

$$F_0 = \text{Spot price} \times e^{(r+C-B)t}$$

### FinTree Fruit 3 : PRICING EQUITY FORWARDS AND FUTURES

#### Equity Futures Contract Price with Continuously Compounded Interest Rates

##### Example5 :

The continuously compounded dividend yield on the S&P 500 is 1.6%, and the current stock index level is 3,200. The continuously compounded annual interest rate is 7%. Based on the carry arbitrage model, the 182 days futures price will be closest to:

##### **Solution :**

$$\begin{aligned} \text{Future Price} &= S \times e^{(\text{int. rate} - \text{div yield}) \times t} \\ &= 3200 \times e^{(7\% - 1.6\%) \times 182/365} \\ &= 3287.33 \end{aligned}$$

#### Equity Forward Pricing and Forward Valuation with Discrete Dividends

##### Example6 :

Suppose Apple Inc. common stock is trading for \$150 and is expected to pay a \$1.50 dividend in one month. The U.S. one-month risk-free rate is 3.0%, quoted on an annual compounding basis.

The forward contract expires in one month.

The one-month forward price for Apple Inc. common stock will be closest to:

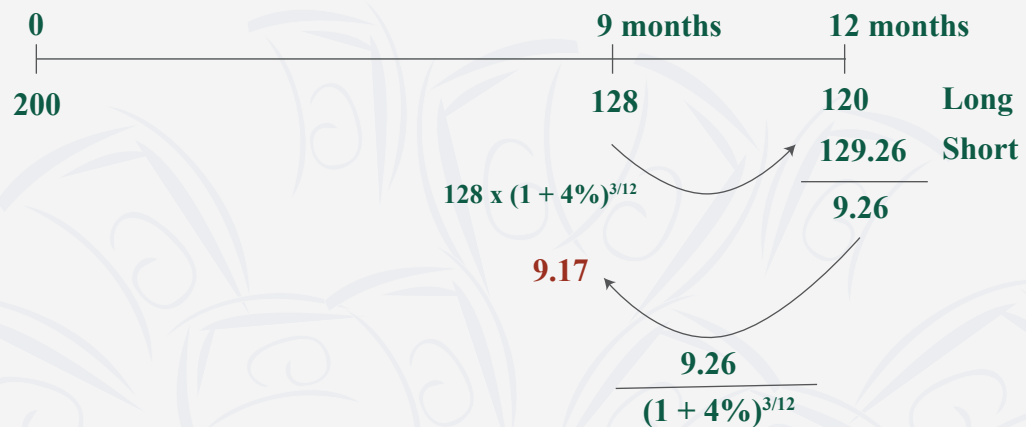
##### **Solution :**

$$\begin{aligned} F_0 &= FV(S_0) + FV(CC_0) - FV(CB_0) \\ &= 150 \times (1 + 3\%)^{1/12} - 1.5 \\ &= 148.86 \end{aligned}$$

Equity Forward ValuationExample7 :

Suppose we bought a one-year forward contract on an asset at a price of \$120. Now, nine months have passed, so there are three months to expiration. The underlying asset is currently trading at \$128, and the risk-free interest rate is 4%, annual compounding.

If there are no carry benefits or costs, the value of the existing forward contract is closest to:

**Solution :**

Value of existing forward contract is closest to 9.17

Interest Rate Forward and Futures Contracts :**Characteristics of US LIBOR:**

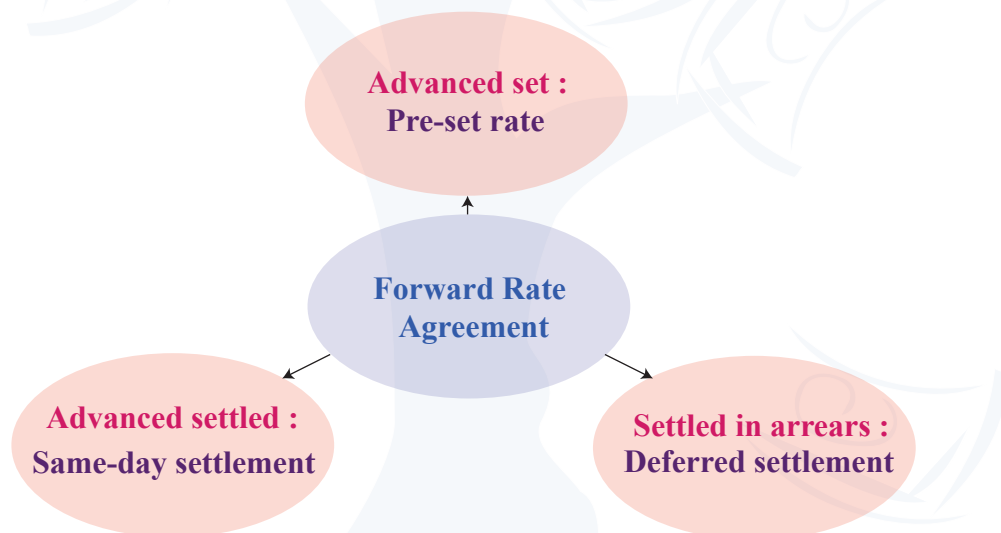
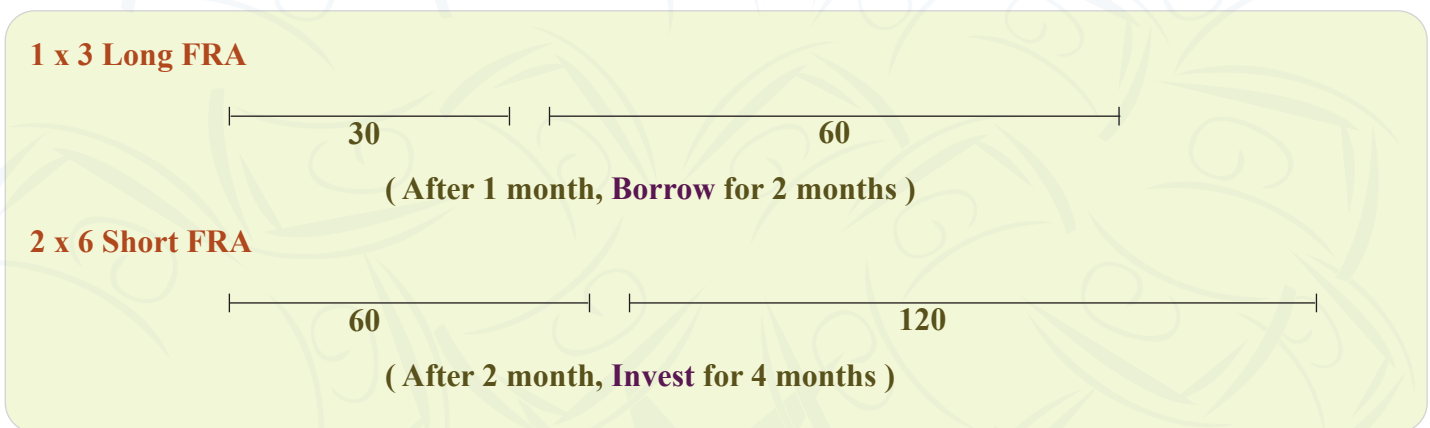
- It is a rate at which one bank lends another bank
- For short term
- Currency is USD
- Issued out of US
- It is an add-on rate
- Different LIBOR exist for different maturities
- 360 day convention is used

**Forward Rate Agreements (FRAs) :**

- OTC contract on interest rates (not on actual deposits).
- Agreement to pay/receive difference between fixed & floating rate.
- No principal exchange.
- Underlying = interest rate
- FRA price = fixed rate  $FRA_0$  set at initiation so contract value = 0.

Role	Pays	Receives	View on Interest Rates
Long FRA	Fixed	Floating	Profits when rates ↑
Short FRA	Floating	Fixed	Profits when rates ↓

**Notations :**



**Example 8 :**

**Notional Amount = \$500 Million**

**Term Structure:**

**After 90 days, term structure is:**

Maturity	SOFR
90 days	3%
180 days	3.5%
270 days	3.8%
360 days	4.2%
450 days	4.4%
540 days	4.75%

Maturity	SOFR
90 days	3.45%
180 days	4.03%
270 days	4.37%
360 days	4.83%
450 days	5.06%
540 days	5.46%

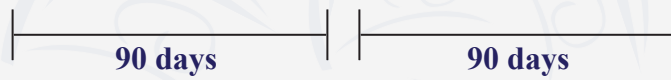
**Calculate:**

a) Price 3 x 6 FRA

b) Value long side FRA

**Solution :**

a) 3 x 6 FRA



$$= \left[ \frac{1 + 3.5\% * 180/360}{1 + 3\% * 90/360} - 1 \right] \times \frac{360}{90}$$

$$= 3.97\%$$



3.97%	Borrow
3.45%	→ 90 day rate after 90 days
(0.52%)	Loss

**Annualised Loss Amount = 0.52% x \$500 Mil**  
**= 2.6 Mil**

**Amount after 90 days = 2.6 Mil x 90/360**  
**= 0.65 Mil**

**Amount for Today =  $\frac{0.65}{1 + 3.45\% * 90/360}$  = 0.64 Mil**

**Value of Long side FRA = (0.64) Million**

**Example9 :**

Notional Amount = \$400 million

Term Structure:

After 30 days, term structure is:

Maturity	SOFR
30 days	2.2%
60 days	2.5%
90 days	2.7%
120 days	2.95%
150 days	3.2%
180 days	3.45%

Maturity	SOFR
30 days	2.64%
60 days	3.00%
90 days	3.24%
120 days	3.54%
150 days	3.84%
180 days	4.14%

Calculate:

a) Price 3 x 5 FRA

b) Value long FRA

**Solution :**

a) 3 x 5 FRA



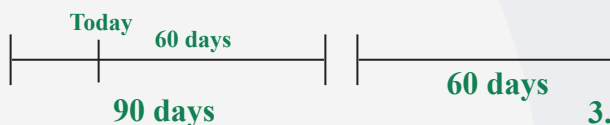
$$= \left[ \frac{1 + 3.2\% * 150/360}{1 + 2.7\% * 90/360} - 1 \right] \times \frac{360}{60}$$

$$= 3.9235\%$$

b)



$$2 \times 4 \text{ FRA} = \left[ \frac{1 + 3.54\% * 120/360}{1 + 3\% * 60/360} - 1 \right] \times \frac{360}{60} = 4.06\%$$



3.92%	Borrow
4.06%	→ 60 day rate after 60 days
0.14%	Profit

Annualised Profit Amount = 0.14% x \$400 Mil

Amount after 60 days = 0.56 Mil x 60/360 = 0.09333

Amount for Today =  $\frac{0.09333}{1 + 3.54\% * 120/360}$  = 0.09224 Mil

**FinTree Fruit 4 : PRICING FIXED-INCOME FORWARD AND FUTURES CONTRACTS**

<b>Bond Prices</b>	
<b>Clean Price</b>	<b>Quoted bond price (excludes accrued interest)</b>
<b>Dirty Price</b>	<b>Full price = Clean Price + Accrued Interest</b>
<b>Accrued Interest (AI)</b>	<b>Interest earned since last coupon, paid by buyer</b>

**Forward/Futures Contract on Bond**

- Usually quoted on a clean price basis
- At expiration, value = Market price (clean) – Forward price

**Example10 :**

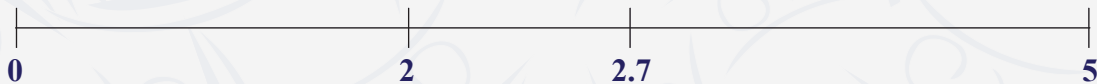
FV = 1000

Coupon = 10%

5 year Bond

YTM = 12%

Calculate Flat price of bond if it mature in year 2.7

**Solution :**

**FV = 1000**  
**N = 3**  
**I/Y = 12**  
**PMT = 100**  
**CPT = PV**  
**PV = 951.96**

**Bond Value at yr 2.7 =  $951.96 \times (1 + 12\%)^{0.7} = 1030.55$**

**( This is full price of bond which include Accrued Interest)**

**Accrued Interest =  $100 \times 0.7 = 70$**

**Flat Price = Full Price - Accrued Interest =  $1030.55 - 70 = 960.55$**

**Therefore, Flat price of bond is 960.55.**