Mitigating financial risk

EY CAFTA Case Championship 2020

CAFTA
Finance with finesse

Dear participant,

We are extremely excited to welcome you to the EY CAFTA Case Championship 2020!

EY CAFTA Case study championship is the by-product of a strong conviction of EY's financial upskilling mission. It aims to give students an opportunity to hone their skills in business and consulting, be innovative and analytical about solving the every-day complex business problem statements and showcase their skills to the wide network of industry experts.

This is your opportunity to sharpen and prove your skills to the esteemed panel of carefully selected judges from industry, acquire unique industry insight through mentorship sessions from the consulting experts and present your solution to the most impactful audience.

What we are looking for are leaders for tomorrow by reviewing talents of today!

Prerequisite: Before starting the below stated case study, we hope you have thoroughly brushed yourself with the CAFTA videos and modules shared with you for the relevant stream you had applied for.

This case study revolves around ***mitigating financial risk*** for a company. The question statements would revolve around the foreign exchange risks a company faces and the associated strategies, techniques and processes that it can implement to manage them. Using statistical tools, modelling packages and analytical dashboards, you are expected to enable a creative transformation to company's FX risk management policy and bring about a fresh outlook and analysis to the management for taking some key decisions with respect to their current FX management.

The final outcome (detailed answers to each question), your answers along with methodology used must be submitted by 22nd October, 11.59 PM. It is also mandatory for you to submit any additional working/coding script/dashboard/excel worksheet as annexures to the case study solution.

(The format of submitting the case study solution will be communicated with you shortly in a separate thread.)

We look forward to your point of view on some complex financial problems outlined in this case study. Embrace yourself to use this unique opportunity to demonstrate your passion, creativity and intelligence.

We wish you all the best and look forward to your submissions!

Rules and Regulations

- An overall spirit of sportsmanship is expected from all participants throughout the duration of the competition
- Any violation of the rules may result in disqualification of the team. Any decision of disqualification is final.
- Only one solution can be submitted per participant / team
- Please adhere to the deadlines. No extension will be given.
- The submissions are final, and no modifications are allowed post submission
- Feel free to use all resources available to you in order to research and develop the solution to the problem statements.
- All work submitted must represent the your / team's own words, ideas, and work. Using public material is allowed, but you are required to cite the sources. Failure to cite sources will be considered plagiarism, and will be liable for disqualification

Orion Ltd, a leading pharma company headquartered in Mumbai, India, is a manufacturer of generic drugs. The company has 3 manufacturing plants in India and 1 each in Malaysia, Mexico and Germany.

The Group CFO's office has appointed you as the Group treasurer of the company and one of your first mandate is to relook some of the key questions in FX risk management process which the company has not been able to address since some time.

1. **Financial performance**

The company has operations across 4 different entities, spread across 4 countries of India, Brazil, Germany and Mexico. **Refer Exhibit 1** for group's revenue, costs and net profits at a consolidated level and for each entity

2. **FX exposure, hedge strategy and outstanding hedges**

Foreign currency outflows at each entity comprises of raw material in the form of API, technology know-how, machines and spare parts etc. Foreign currency inflows at each entity is on account of sales of medicines to other companies located in a foreign country, royalty etc.

Since the company wants to protect its net margins (ie profit after tax), the company recognizes accounting exposure (ie balance sheet exposure) as its FX exposure for each entity.

The company has a FX risk management policy which mentions the below parameters

- Hedge minimum 60% of balance sheet exposure
- Permissible products: Forwards and plain vanilla options

Refer Exhibit 2 for entity wise FX exposure and outstanding hedges as on 30th July 2020.

3. **Outlook on currency markets**

You feel that the US Dollar will depreciate against all currencies because of the US central bank's ultra-loose monetary policy in response the effect of the pandemic on US economy. Your view is strengthened after reading different news articles such as:

- https://www.livemint.com/opinion/online-views/the-almighty-us-dollar-might-be-losing-lustre-as-a-global-currency-11598281032416.html
- https://cointelegraph.com/news/us-printed-more-money-in-one-month-than-in-two-centuries

Currency movement since April 2020 also shows US Dollar weakness against the four currency pairs to which the company is exposed to. The currency pairs are

- US Dollar / Indian Rupee ("USD/INR")
- US Dollar / EURO ("USD/EUR")
- US Dollar / Malaysian Ringit ("USD/MYR")
- US Dollar / Mexican Peso ("USD/MXN")

Refer Exhibit 3 for currency movement from April 2020 to July 2020.

4. **Decision making for taking hedges**

It is 17th August today and USD/INR price is 74.88 and you are informed that there is an USD inflow of $15 million on 16th October. You want to hedge the inflow of USD buy entering into a forward contract to sell USD against INR for maturity of 16th October. You want to take all the hedges before the US Central bank's monetary policy, which is on 16th September. Which means, you have 1 month to hedge $15 million. However, you do not know whether you should hedge all the $15 million today or should you hedge it just 1 day before US central bank policy meeting or should you hedge it in a staggered period, over 1 month.

You want that such decisions are scientific without timing the market and without any bias on the market view. You are contemplating making a statistical tool or model that helps you take a decision on the amount of incremental hedges that should be taken.

5. Company board meeting

Macro-economic parameters impacting currency prices
In the Management Board Strategy meeting, two of the board members were keen to know how macro-economic parameters can be used to analyse movement of currency pairs. Excerpts from the meeting

Board member 01: I remember reading some time back that in the financial year of 2018-2019, India imported ~$120 billion worth of petroleum oil. Since India has a high current account deficit, lower crude prices will lead to less demand for USD and hence INR will appreciate. And if crude prices are higher, INR will depreciate.

You: Just like a USD/INR prices are correlated to crude, in the same way, USD/INR is also correlated to Foreign Institutional Investors ("FII") inflow into equity markets. If there is substantial FII inflow in the equity market, it means that FIIs want to buy INR by selling USD, and hence INR tends to appreciate. In periods of crisis, when FII outflows happen, there is demand of USD, since FIIs want to buy USD and repatriate it to their home currency. This leads to demand on USD and subsequent depreciation of INR.

Board member 02: Yes, that is true. In 2013, currencies of the FRAGILE 5 countries depreciated because of their high reliance on foreign investment and high current account deficit.

Board Member 01: In our next board meeting, please present to us the different macro-economic factors such as commodity, inflation, GDP, current account deficit etc that affect the currency pairs that our company has FX exposure to. You can look at any two of currency pair out of the four, ie any two from USD/INR, USD/EUR, USD/MYR and USD/MXN. We are also looking to issue foreign currency bond with a 2-year maturity. We have not decided whether the currency of issue will be USD or EUR. From a currency movement perspective, can you tell us which currency bond will be beneficial for us.

You: Sure, I will present to you a detailed analysis of factors effecting any two currency pairs and will also share a model for two of the currency pairs which incorporates the macro-economic parameters to predict currency movement in the short term and medium term. I will use correlation, mutli-variate regression or any other statistical tool to build this model. This model will help in taking hedging decisions for us and choosing the optimum currency of foreign currency bond issuance.

You went back to your desk and as a first level analysis extracted charts and data from Bloomberg around USD/INR spot price, crude spot price and FII inflow into Indian stock markets
Refer Exhibit 4 for chart of (i) USD/INR and crude (ii) USD/INR and FII inflow

Case Study Questions: *Basis company's background and scenario understanding, answer the below mentioned questions.*

To bring a transformation to the FX risk management activity you will have to get answers on the below questions

1. Understand the pharmaceutical business, develop process flows and highlight processes where a pharmaceutical company may be exposed to foreign exchange risk. Provide clear explanation on these incidences of risk and suitable mitigation techniques that can be adopted by the company.
2. For different types of FX exposures of Orion
    a. Transaction Exposure: Mention the different sub-types of FX exposures that the treasury team should be aware about (***Hint:*** Identify the different departments within a company whose operations lead to generation of FX exposure for the company. The treasury team should be aware about these FX exposures)
    b. Translation exposure: Mention the leading practices for pharmaceutical companies in India and in global market to protect the FX risk of net investment in foreign subsidiaries. Mention the companies that manage this type of FX risk (Hint: Look at annual reports to identify the companies and their strategies to manage this risk)
3. Develop a statistical tool or a model that can help in deciding on the method of taking $15 million of forward contracts over a period of 1 month without taking any view on the FX markets (Hint: You may use any one of the approaches from VAR, scenario analysis, sensitivity analysis or develop your unique approach)
4. Review the economic situation of the last 5 years and understand how key macro-economic variables have impacted the currency pairs relevant for Orion
    a. Prepare a report on macro-economic factors effecting any two currency pairs out of the four currency pairs (ie USD/INR, USD/EUR, USD/MYR and USD/MXN):
    b. Prepare a daily, weekly and monthly analytical dashboard (Excel, PowerBI, Tableau or any other visualization tool) which helps to monitor macro-economic parameters for these two currency pairs. *Note: This should be usable by FX teams in their day-to-day working to analyse currency movements*
    c. Prepare a model for any 2 of these currency pairs which incorporates the macro-economic parameters to predict currency movement over a two-year period. (***Hint***: You can use correlation, multivariate regression or any other statistical tool to build this model)

Exhibit 1 - Financial performance for FY 19-20

	Entity 01	Entity 02	Entity 03	Entity 04
Geography of Operation	India	Brazil	Germany	Mexico
Functional Currency	INR	BRL	EUR	MXN
Revenue from operations	**14,251**	**5,487**	**5,843**	**2,280**
of which				
Domestic sales	5,502	1,427	993	442
International sales	8,749	4,060	4,850	1,858
Costs				
Cost of material consumed (domestic)	3,459	1,185	920	591
Cost of material consumed (Imports)	2,930	1,010	784	503
Employee cost	1,414	439	1,169	296
Other expenses	4,149	1,811	2,337	752
Total Cost	**11,952**	**4,444**	**5,210**	**2,143**
Profit before tax	2,299	1,042	633	137
Tax	575	156	177	14
Profit after tax	**1,724**	**886**	**456**	**123**

(Figures in INR crore)

Exhibit 2 - FX exposure and outstanding hedges as on 30th June 2020

	Entity 01	Entity 02	Entity 03	Entity 04
Geography of Operation	India	Brazil	Germany	Mexico
Functional Currency	INR	BRL	EUR	MXN
Imports (In INR)	2,930	1,010	784	503
Exports (in INR)	8,749	4,060	4,850	1,858
Imports (In USD)	39	13	10	7
Exports (in USD)	117	54	65	25
Net Import (+) / Exports (-): In USD	-78	-41	-54	-18
Hedges	**44**	**27**	**34**	**17**
Of which: Forwards	30	22	10	15
Of which: Vanilla Puts	14	5	24	2
Hedge ratio	57%	66%	63%	94%
Consolidated Net monetary asset (Translation exposure) (In INR)	7440	N/A	N/A	N/A
Consolidated Net monetary asset (Translation exposure) (In USD)	99	N/A	N/A	N/A

(Figures in INR crore)

Exhibit 3 – Currency movement from April 2020 to July 2020.

Exhibit 4:

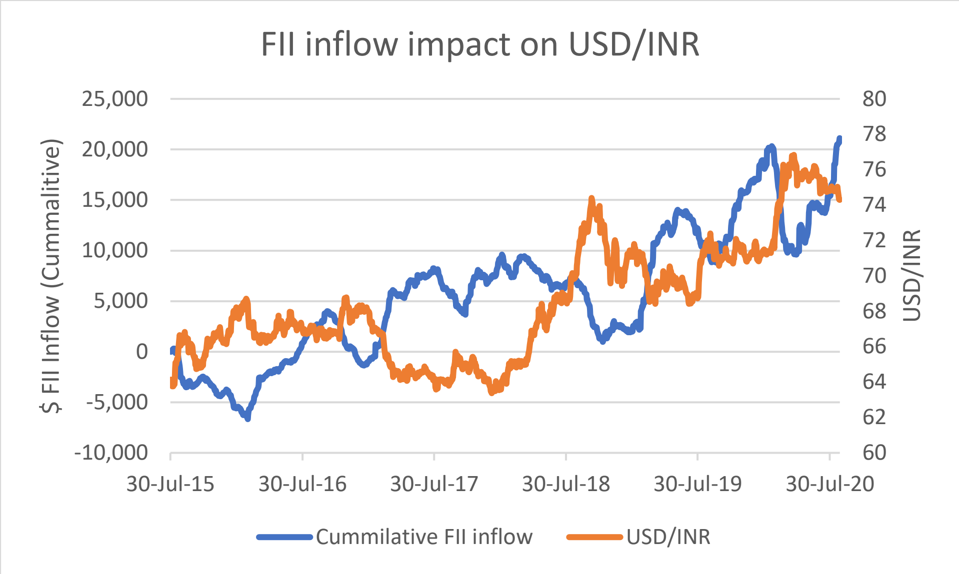
a. USD/INR and Crude price:

Chart showing correlation of Crude prices with USD/INR. The correlation impact is with some lag

(Chart Source: Bloomberg)

b. USD/INR and Cumulative $ FII inflow into stock market:

Chart showing correlation of Cumulative $ FII inflow with USD/INR. The correlation impact is with some lag



(Data Source: Bloomberg)