Foreign Exchange Risk in Albania

Besion KOLLI
European University of Tirana, Tirana , Albania
besion.kolli@gmail.com

Abstract

Foreign exchange risk is the potential for loss due to an adverse change in foreign exchange rates, and applies to all exchange rate–related products whose positions are valued in a currency that differs from the bank's reporting currency. Eventual movements in the exchange rate are a risk for investors and businesses with international operations. Therefore, they adopt strategies to minimize the impact of eventual adverse movements. This is known as hedging, and it involves using financial instruments to increase protection against currency fluctuations. Hedging makes transactions, cash flows and cost structures more stable and predictable. There are different strategies which are designed to manage foreign exchange risk. Each of them, however, is constructed under specific assumptions, for a specific risk profile. The question arises as to which strategy would be expected to yield the best results in a given scenario. The first part of the current study describes how do banks measure and hedge the foreign exchange risk by using a set of simulated foreign exchange cash flows to compare the profits resulting from the use of different foreign exchange risk management strategies. The key risk metrics to measure the foreign exchange risk considered for this study are: Value at Risk and Stress Testing. The risk management strategies considered to hedge foreign exchange risk for the study are: forward currency contracts, currency options, and currency swaps. The study analyses and evaluates these foreign exchange risk management strategies to find out which of the strategies is appropriate in particular situations for banks and for non-financial corporates. The second part gives some statistics about open foreign currency position and the risk appetite in the Albanian banking market and how non-financial firms could use financial derivatives to hedge the foreign exchange risk.

Key words: *foreign exchange risk, risk management strategies, forward currency contracts, currency options, currency swaps*

Introduction

The foreign exchange market is an over-the-counter (OTC) marketplace that determines the exchange rate for global currencies. Participants are able to buy, sell, exchange and speculate on currencies. Foreign exchange markets are made up of banks, forex dealers, commercial companies, central banks, investment management firms, hedge funds, retail forex dealers and investors.

Foreign exchange risk most often affects businesses engaged in exporting and importing products or supplies. It also applies to businesses that offer services in multiple countries and individuals who invest internationally. Any time an investor must convert money into another currency to make an investment that face potential changes in the currency exchange rate between their home currency and the currency of their investment. These changes will affect the investment's value or the business' bottom line. A business exposes itself to foreign exchange risk by having payables and receivables affected by currency exchange rates. This risk originates when a contract between two parties specifies exact prices for goods or services, as well as delivery dates. If a currency's value fluctuates between when the contract is signed and the delivery date, it could cause a loss for one of the parties. (https://www.investopedia.com/terms/f/foreignexchangerisk.asp)

The issue of foreign exchange risk management for non-financial firms is independent from their core business and is usually dealt by their corporate treasuries. Most multinational firms have also risk committees to oversee the treasury's strategy in managing the exchange rate risk. This shows the importance that firms put on risk management issues and techniques. (Papaioannou, 2006)

This paper reviews the different type of risk management strategies of exchange rate risk, examines best practices on exchange rate risk management from the banking system, and analyses the advantages and disadvantages of various hedging approaches for non-financial firms. It concentrates on the major types of risk affecting firm's foreign currency exposure, and pays more attention to techniques on hedging transaction and balance sheet foreign exchange risk.

LiteratureReview

Foreign Exchange RiskMeasurement

Value at Risk

A crucial aspect in a firm's exchange rate risk management decisions is the measurement of these risks. At present, a widely used method is the value-at-risk

(VaR) model. Broadly, value at risk is defined as the maximum loss for a given exposure over a given time horizon with z% confidence. (Papaioannou, 2006) . VaR is probabilistic, and gives a risk manager useful information on the probabilities associated with specified loss amounts. By comparison, many traditional measures (e.g., duration– convexity, Greeks, etc.) only give us the answers to 'what if' questions and don't give an indication of likelihoods (Dowd, 2005) One of the negative side of this type measurement is we don't know what happens in 100%-z% of the cases

Stress Test

Stress tests supplement value-at-risk (VaR). VaR is used to provide a probability-based boundary on likely losses for a specified holding period and confidence level (for example, the maximum loss that is likely to be experienced over one day with a 99% level of confidence). Firms employ VaR prospectively, to assess the risk of potential portfolio allocations, and retrospectively, to assess the risk-adjusted performance of individual business units. (Bank for International Settlements, 2001) A stress test simulates extreme or unfavourable, yet plausible, economic and financial conditions in order to study the consequences on both the performance of the entity and its ability to honour redemption requests, even at a discounted net asset value. Primarily, stress tests are tools that help to analyse the strength of the strategies that have been put in place. They provide periodic scenario analyse in order to address risks arising from potential changes in market conditions that might adversely impact the profit and loss. During normal periods, the stress test identifies the weaknesses of a management strategy and helps the firm to prepare themselves operationally for a crisis; during crisis periods, the stress test helps to direct crisis management and resolution strategy. Based on this risk mapping, the implementation of a stress test involves defining scenarios that represent the risks then introducing a regular schedule for calculating the impact of these scenarios on the profit and loss of the entity. Once the scenarios are in place, their results are calculated periodically and used by the risk management teams and/or managers as a decision-making tool in order to detect anomalies (thanks to predefined alert thresholds) and monitor extreme risk. Lastly, the results of the stress tests should be conveyed within, in particular to executive and decision-making bodies, so that any corrective measures can be taken. (Financial Markets Authority of France, 2017)

HedgingStrategies

Firms that consider any residual exposure to exchange rate fluctuations undesirable often choose to explicitly purchase insurance using financial derivative contracts.

The main types of derivatives used in hedging are foreign exchange forward contracts, cross-currency interest rate swaps, and foreign exchange options. (Becker & Fabbro, 2006)

Forward currency contracts

A simple way to limit risk surrounding exchange rate fluctuations is a commitment to an outright purchase or sale of currency at a specified future date, for a predetermined price. For firms expecting to receive or make foreign currency payments at a specific future date, forwards are a flexible and readily available hedging instrument. (Becker & Fabbro, 2006)

Currency Options

Currency options give the holder the right, but not the obligation, to purchase ('call') or sell ('put') an amount of one currency for another at a given future date, for a prearranged exchange rate ('strike'). Importantly, the holder of the instrument has discretion over whether or not to exercise his right to transact, allowing for a greater degree of flexibility than forwards, and leaving open the possibility of gaining from favourable exchange rate movements. This flexibility comes at a premium built into the price of the option.

Currency Swaps

A swap is a financial operation in which two parties agree to an exchange of cash flows. There exist different categories of swaps: interest rate swaps, equity swaps, commodity swaps and currency swaps. A currency swap, as the name indicates, is an exchange, by two foreign borrowers with opposing needs, of a certain amount of currencies via a financial intermediary (usually a bank). The main goal of a currency swap is to decrease the cost of financing for both firms involved. It requires that: 1) their financial needs are opposed and 2) there exists an absolute (or a comparative) advantage in borrowing for one (both) of the firms involved in the transaction. (Morel, 2004)

Data andMethodology

The management of foreign exchange risk involves three questions. First, what exchange risk does the firm face, and what methods are available to measure foreign exchange exposure? Second, based on the nature of the exposure and the firm's ability to forecast currencies, what hedging or exchange risk management strategy should the firm employ? And finally, which of the various tools and techniques of the foreign exchange market should be employed: forwards, options, or any other tool?

The effects of using hedging strategies such as forward currency contracts, currency options on the revenues of firms were calculated and compared. The objective of the study was to identify strategies which not only hedged against foreign exchange risk, but also yielded good returns, and to suggest conditions under which these foreign exchange risk management strategies may be preferable over others.

The data for the purpose of this study were gathered from secondary source like websites, books and reports etc. The research period selected is 2017 – 2018. Spot rates of the EUR/ALL exchange rate were analysed in for different timeframes: daily, weekly, monthly and quarterly frequency for the period of 2017- 2018 (24 Months).

The company selected were companies like call centre and textile companies which their revenues is in euro and is generating by producing or offering services entirely for the Italian Market. Data about the open foreign exchange exposure of the Albanian banking market are retrieved from the Bank of Albania Statistical Reports. This data is crucial to see how much space bank have in engaging in foreign exchange transaction with their clients. An analysis between the open foreign exchange position between banks and non-financial is done to emphasize the changes in how foreign exchange risk is managed differently by the two types of companies. A set of 20 individual interviews was done with 20 Owners of construction companies on how they manage the foreign exchange risk.

The following foreign exchange risk management strategies were considered for the quantitative analysis:

*Without hedging:*This represents the base series of cash flows in LEK, when thetransaction is not hedged. This is the most risky way of handling international financial exposure. According to this strategy, transactions will take place at the corresponding spot exchange rate.

*Hedging with forward currency contacts:*According to this strategy, the trader will enter into forward currency contracts at the beginning of the planning period to hedge the expected cash flows. The forward rates were calculated considering Interest Rate Parity.

*Hedging with currency options:*According to this strategy, the trader will enter into a currency options contract at the beginning of the planning period to hedge the expected cash flows. A series of outflows of foreign currencies can be hedged by buying currency call options, while a series of inflows of foreign currencies can be hedged by buying currency put options. The model used to calculate the option price is the Black Scholes Model.

For the two hedging strategies we will be analysing not only the firm side but also the bank side.

Data Analysis andResults

The foreign exchange open position of the banking market during March 2014 – February 2019 was in average 8% and reaching maximum 13.7%. The regulatory limit set by the bank of Albania is 20%. This situation gives plenty of space to the banks to engage in derivative transactions.

According to the results of interviews with the owners of building construction firms they use what is called "natural hedging" to manage the risk of the foreign exchange. They import most of the building materials in euro and also sell properties in euro thus limiting the impact from the fluctuations of the exchange rate in the local market.

According to Monitor, sector sales in 2017 are estimated to be about ALL 50 billion, according to data from the Enterprise Survey 2016 and operators for the growth rate in 2017. While losses due to the euro's depreciation by 5% are All 3.5 billion, or 27 million euros.

Let's take the below example to see what happens for a company that at 31.12.2017 sign a contract to deliver products in the Italian Market in June 2018. The payment for this products will be 1.000.000 Euro and will be payed from the Italian Counterparty. Spot Rates for EUR/ALL at end of December 2017 : 132.95

Spot Rate for EUR/ALL at end of June 2018 : 125.93

No Hedging. The firm decide to use only spot rates available on end of June. The loss from this strategy are 55.000 Euro

Hedging with forward currency contracts. The firm decide to negotiate a forward rate to lock the EUR/ALL exchange rate. Therefore, the forward exchange rate is just a function of the relative interest rates of two currencies. In fact, forward rates can be calculated from spot rates and interest rates using the formula Spot x (1+domestic interest rate)/(1+foreign interest rate), where the 'Spot' is expressed as a direct rate (ie as the number of domestic currency units one unit of the foreign currency can buy). So we have the below situation :

- Spot Rates for EUR/ALL at end of December 2017 :132.95
- Spot Rate for EUR/ALL at end of June 2018 :125.93
- Forward Rate for EUR/ALL at End of June 2018 :134.08

Using the hedging strategy with forward contract the firm would have made around 60.000 Euros. The problem with this strategy is if the exchange rate would have gone up the firm couldn't make a profit in comparison with the spot rate at end of June 2018.

Hedging with currency options contacts. The Black-Scholes formula (alsocalled Black-Scholes-Merton) was the first widely used model for option pricing. It's used to calculate the theoretical value of European-style options using current stock prices, expected dividends, the option's strike price, expected interest rates, time to expiration and expected volatility. The formula, developed by three economists – Fischer Black, Myron Scholes and Robert Merton – is perhaps the world's most well-known options pricing model. It was introduced in their 1973 paper, "The Pricing of Options and Corporate Liabilities," published in the Journal of Political Economy. Black passed away two years before Scholes and Merton were awarded the 1997 Nobel Prize in Economics for their work in finding a new method to determine the value of derivatives (the Nobel Prize is not given posthumously; however, the Nobel committee acknowledged Black's role in the Black-Scholes model). According to the calculations made. We have the below situation: Spot Rates for EUR/ALL at end of December 2017 : 132.95 Spot Rate for EUR/ALL at end of June 2018 : 125.93 Forward Rate for EUR/ALL at End of June 2018 : 134.08 Put Price : 3.2 ALL

Effective Exchange Rate = 134.08-3.2= 130.88

With this strategy the company generates a profit of 39.300 Euro.

Now let's look to a different scenario where we have the following spot rates for EUR/ALL :

Spot Rates for EUR/ALL at end of December 2017 : 132.95 Spot Rate for EUR/ALL at end of June 2018 : 140.00

No Hedging. The firm decide to use only spot rates available on end of June. The profit from this strategy are 50.000 Euro

Hedging with forward currency contracts. The firm decide to negotiate a forward rate to lock the EUR/ALL exchange rate. Therefore, the forward exchange rate is just a function of the relative interest rates of two currencies. In fact, forward rates can be calculated from spot rates and interest rates using the formula Spot x (1+domestic interest rate)/(1+foreign interest rate), where the 'Spot' is expressed as a direct rate (ie as the number of domestic currency units one unit of the foreign currency can buy). So we have the below situation :

- Spot Rates for EUR/ALL at end of December 2017 :132.95
- Spot Rate for EUR/ALL at end of June 2018 :140.00
- Forward Rate for EUR/ALL at End of June 2018 :134.08

Using the hedging strategy with forward contract the firm would have made a loss of potential profit not achieved of 42.300 Euros.

Hedging with currency options contacts. The Black-Scholes formula (alsocalled Black-Scholes-Merton) was the first widely used model for option pricing. It's used to calculate the theoretical value of European-style options using current stock prices, expected dividends, the option's strike price, expected interest rates, time to expiration and expected volatility. The formula, developed by three economists – Fischer Black, Myron Scholes and Robert Merton – is perhaps the world's most well-known options pricing model. It was introduced in their 1973 paper, "The Pricing of Options and Corporate Liabilities," published in the Journal of Political Economy. Black passed away two years before Scholes and Merton were awarded the 1997 Nobel Prize in Economics for their work in finding a new method to determine the value of derivatives (the Nobel Prize is not given posthumously; however, the Nobel committee acknowledged Black's role in the Black-Scholes model).

According to the calculations made. We have the below situation: Spot Rates for EUR/ALL at end of December 2017 : 132.95. Spot Rate for EUR/ALL at end of June 2018 : 140.00 Forward Rate for EUR/ALL at End of June 2018 : 134.08 Put Price : 3.2 ALL

Effective Exchange Rate in the case of not exercising the option is= 140.00-3.2= 136.8.

Below is a summary of the three strategies.

Values in EURO	Scenario 1 (Exch Rate goes down)		Scenario 2 (Exch Rate goes up)	
Strategy	Profit(Loss) in compwith Dec 2017	Profit (Loss)in comp with Jun 2018	Profit(Loss) in comp with Dec 2017	Profit (Loss)in comp with Jun 2018
No Hedging	-55.000	-	+50.000	-
FX Forward	60.000	9.000	9.000	-43.000
FX Options	39.000	-16.000	27.500	-23.000

Limitations

A major limitation of the study was in considering only a two foreign exchange risk management strategies, under a stringent set of assumptions. For example, the strike price used in the study for the options strategy was set at the exchange rate at the beginning of the planning period, but in practice, a range of strike prices is usually available. Other currencies, especially the USD, could have been investigated too. There is a vast scope for further research in this area. Furthermore, several other foreign exchange risk management strategies, including currency swaps, risk-sharing, and risk- shifting could also be used to hedge foreign exchange

risk. Another limitation is that the study did not address a fundamental and technical study of currencies, which would have helped in better implementation of the strategies. In particular, there is scope for further research into the relationship between optimal foreign exchange risk management strategies and the fundamentals and technical analysis of different currencies. Finally, the study has used historical data to compare the strategies, so that the inferences that have been drawn can only hold for a similar trend in exchangerates.

Conclusions

It is always dangerous to remain unhedged against foreign exchange rate fluctuations. There are several foreign exchange risk management strategies available, but it is very important to select that which best suits one's risk profile. This in turn depends on the how the situation is analysed. From the results of the study, using currency options, one should be careful in selecting the right strike price. On the other hand, for currency inflows, hedging with forward currency contracts was found to result in highest returns whenever there was a decreasing trend in the exchange rate and hedging with currency options contracts was found to result in highest returns whenever there was a increasing trend in the exchange rate.

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