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THE EXPOSURE OF CONSTRUCTION FIRMS IN SHKODRA REGION TO THE EXCHANGE RATE RISK AND ITS HEDGING

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Abstract

The high scale of dependency of Albanian businesses with neighbor countries and broader, makes them face a high exchange rate risk. Most of them import the raw materials and very often set their prices in foreign currency like euro or US dollar in order to hedge from the exchange rate risk. Hedging from this risk is difficult due to many reasons where the most three important are: the nonfunctioning of Tirana stock exchange, the commercial banks still do not offer hedging instruments to be traded and used widely, and the lack of financial knowledge from our businesses' representatives on hedging instruments.

Construction is one of the industries that is most exposed to exchange rate risk. This is due to the large amounts of raw material importing, the large amount of capital involved in, etc.

In this paper we aim to show to what extend the constructing firms operating in Shkodra region are exposed to exchange rate risk and what they do to hedge from it. We will also give some ways on how they can improve their hedging mechanisms.

This paper ends with some recommendations on how these firms can hedge from this risk.

I. Introduction

Living in a global economy, more and more firms find it necessary to pay strong attention to foreign exchange exposure, as well as finding appropriate hedging solutions. We should keep in mind that changes in exchange rates can affect not only firms that are directly engaged in international trade but also firms operating only domestically.

The high scale of dependency of Albanian businesses with neighbor countries and broader, makes them face a high exchange rate risk. Most of them import the raw materials and very often set their prices in foreign currency like euro or US dollar in order to hedge from the exchange rate risk. Hedging from this risk is difficult due to many reasons where the most three important are: the nonfunctioning of Tirana stock exchange, the commercial banks still do not offer hedging instruments, and the lack of financial

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knowledge from our businesses' representatives on hedging instruments.

Construction is one of the industries that is most exposed to exchange rate risk. This is due to the large amounts of raw material importing, the large amount of capital involved in, loans denominated in foreign currency, large amounts of receivable accounts in foreign currency, etc.

The construction sector, during the last two decades, has been playing an active role as a strong contributor to the Albanian economy development in general, and to its GDP growth in particular. This industry, even though facing many difficulties in the last 4 years, remains a strong reference in the economic growth. This is due to its large weight in the GDP composition, to the effects it has on other industries related directly to it (Tourism etc.), or even to the unemployment rate.

As mentioned above, construction industry in Albania has been facing serious problems since the financial crash in 2008. Most of developed economies went down, as well as our economy. Immigrants, who for years have been the main customers of construction industry, suddenly stopped investing their money due to financial problems they were facing in the countries they were living. Our government who has been a strong contributor to this sector with all the investments it has been making in developing the infrastructure of Albania did not pay its monetary obligation to the construction firms, pushing them toward more serious liquidity problems (actually the executive debt is supposed to be around 100 million euros[1]). Another reason for the sales decline and delays in payment is due to the decrease of bank crediting.

Yet, this industry remains the key in developing countries like Albania. This is the reason why we focused on this industry and try to find a solution on how it can protect its receivables or payables, in order to hedge from exchange rate risk.

The *objectives* of this paper are (i) to identify the types of exposure to the exchange rates, (ii) to find out to what extend construction firms in Shkodra region are exposed and (iii) to give some strategies how to be hedged.

The *methodology* used in this paper is mainly focused on interviews and opinions of the representatives of the firms. We contacted 15 firms operating in this industry. We will be using and analyzing their financial statements and also try to measure their economic exposure to exchange rate risk, based on their selling prices.

II. **Literature review**

Exchange risk is a potential gain or loss that occurs as a result of an exchange rate change. Exchange rates cannot

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[1] *Albanian Constructors Association, December 2012*

be forecasted with perfect accuracy, but the firm can measure its exposure to exchange rate fluctuations. In order to increase the value of the firm, the management should take in consideration different techniques in reducing this exposure. Exposure to exchange rate fluctuation comes in three forms: (i) economic exposure, (ii) transaction exposure, (iii) translation exposure.

Economic exposure is defined as the extent to which the value of the firm would be affected by unanticipated changes in exchange rates. Any anticipated change in exchange rates would have been already discounted and reflected in the firm's value. Exchange rate fluctuations affect *asset and operating exposure*. Asset exposure is the change in value of the home currency value of asset and liabilities. Fluctuating exchange rates can seriously alter the relative competitive position of firms in domestic and foreign markets, affecting operating cash flow.

Transaction exposure is defined as the sensitivity of "realized" domestic currency values of the firm's contractual cash flows denominated in foreign currencies to unexpected exchange rate changes. Since settlements of these contractual cash flows affect the firm's domestic currency cash flows, transaction exposure is sometimes regarded as a short-term economic exposure. Transaction exposure arises from fixed-price contracting in a world where exchange rates are changing randomly. Whenever the firm has foreign currency denominated receivables or payables, it is subject to transaction exposure, and their settlements are likely to affect the firm's cash flow position.

Translation exposure refers to the potential that the firm's consolidated financial statements can be affected by changes in exchange rates.

According to Eun-Resnick (2004), economic exposure to currency risk can be properly measured by the sensitivity of the future home currency values of the firm's assets and liabilities and the firm's operating cash flows to random changes in exchange rates.

From the perspective of a domestic firm that owns an asset in a foreign country, the exposure can be measured by the coefficient (b) in regressing the domestic currency value (P) of the foreign asset on the domestic/foreign exchange rate (S):

$$P = a + b \times S + e$$

Where a is the regression constant and e is the random error term with mean zero, that is $E(e) = 0$; $P = SP^*$, where P^* is the local currency price of the asset (the foreign currency). As we can see from the above equation, the regression coefficient b measures the sensitivity of the domestic currency value of the asset (P) to the exchange rate (S). If the regression coefficient is zero ($b = 0$), the domestic currency value of the asset is independent of exchange rate movements, which means no exposure. From what we just mentioned, we can conclude that the

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regression coefficient is the exposure. Statistically the coefficient of exposure is defined as:

$$b = \frac{Cov\ (P,S)}{Var\ (S)}$$

Where Cov(P,S) is the covariance between the domestic currency value of the asset and the exchange rate, and the Var(S) is the variance of the exchange rate.

On the other hand we can decompose the variability of the domestic currency value of the asset , Var(P), into two separate components: exchange rate-related and residual:

$$Var(P) = b^2 Var(S) + Var(e)$$

The first term in the right hand side, $b^2 Var(S)$, represents the part of the variability of the domestic currency value of the asset that is related to random changes in the exchange rate, whereas the second term, Var(e), captures the residual part of the domestic currency value variability that is independent of exchange rate movements.

According to Dufey-Giddy (2003), some firms refrain from active management of their foreign exchange, even though they understand that exchange rate fluctuations can affect their earnings and value. They make this decision for a number of reasons.

First, managers do not take time to understand the issue. They consider any use of risk management tools, such as forwards, futures, and options, as speculative. Or they argue that such financial manipulations lie outside the firm's field of expertise.

Second, managers claim that exposure cannot be measured. They are right—currency exposure is complex and can seldom be gauged with precision. But, as in many business situations, imprecision should not be taken as an excuse for indecision.

Third, they say that the firm is hedged. All transactions such as imports or exports are covered with forward contracts, and foreign subsidiaries finance in local currencies. This ignores the fact that the bulk of the firm's value comes from transactions not yet completed, so that transactions hedging is a very incomplete strategy.

Fourth, they say that the firm does not have any exchange risk because it does all its business in dollars (or yen, or whatever the home currency is). But a moment's thought will make it evident that even if you invoice French customers in dollars, when the euro drops, your prices will have to adjust or you'll be undercut by local competitors. So revenues are influenced by currency changes.

Fifth, they argue that doing business is risky and the firm gets rewarded for bearing risks, business and financial. What this argument overlooks is that investors may reward the firm for risks in which the outcome, while uncertain, is expected to be positive. That is rarely the case in financial market bets in which the outcome tends to reflect odds that are 50–50.

Finally, they assert that the balance sheet is hedged on an accounting basis—especially when the "functional currency" is held to be the dollar. The misleading signals that balance sheet exposure measures can give are documented in later sections of this paper.

III. Construction Industry in Shkodra-general description

Construction firms operating in Shkodra are mainly considered domestic firms as they do not conduct their business in more than one country but they operate locally. But this does not mean that they are not subject to exchange rate exposure. First, most of these firms have loans denominated in foreign currency (euro). In this way they face transaction exposure. If Albanian lek depreciates against euro, the loan repayment will be more expensive. The firm will need more lek to purchase a certain amount of euros. Second, the selling prices these firms offer are set in euros. In this situation, the firms face economic exposure because of the uncertainty of the amount of local currency they will receive when selling the apartments. If euro depreciates against Albanian lek, when converting the euros to lek, the firms will have less lek.

Third, accounts receivables or payables in foreign currency as euro, US dollar, or British pound make the firms face transaction exposure.Constructing firms try to auto hedge themselves from exchange rate risk by setting the prices in euro (even though this is informal because they declare to the Tax authorities the prices in home currency, lek). In this way as loans and other obligations have to be paid in mostly in euro, they try to make in this way their receivables in the same currency as well.

This technique is not very successful, because most of the time inflows and outflows do not match. Especially during these last four years that construction sector has been facing serious liquidity problems.

From the questionnaires we found out these results:

Table 1

Average selling price/m2	€ 550
Range of collecting receivables	180-360 days
Range of bank loan/Total Assets	15%-50%

73% of the interviewees had never heard before of hedging financial instruments, while 20% had heard but were not

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familiar with. The 20% that were familiar with these type of instruments were people graduated the last decade and had studied them at university classes, but never used any. As we expected, none of them were using these kind of hedging instruments. 47% did nothing to hedge from the exchange risk. They just accepted this risk as business risk. While 53% tried to match their inflows and outflows currency, even though they failed in most of the cases. After we explained the importance of these instruments in creating hedging strategy, 73% expressed their willingness to use these instruments if they were offered. 20% were not sure because they found it suspicious, and 7% were not going to use them because it looked like gambling. Once again confirming the lack of financial knowledge.
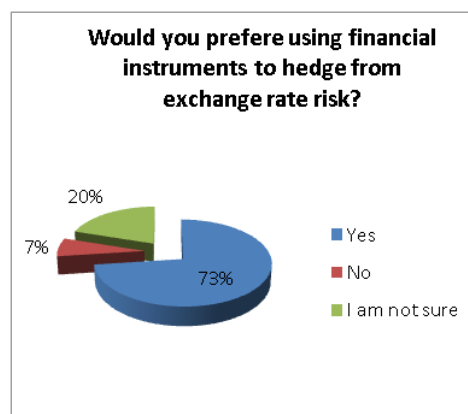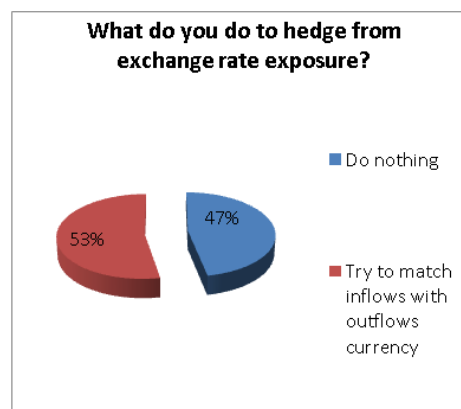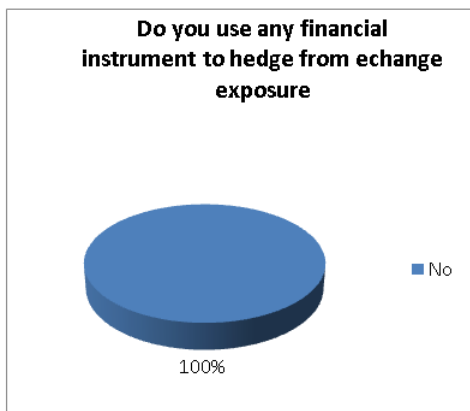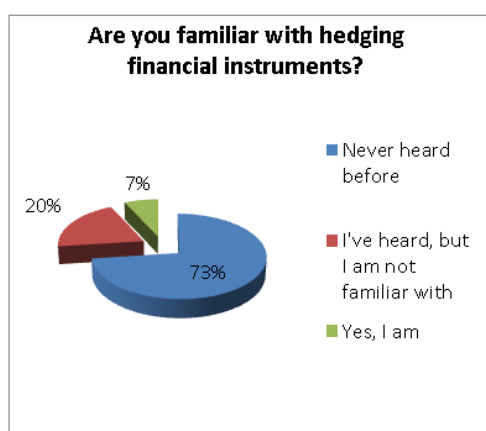
I.   Measuring economic exposure and hedging strategies

The model used to analyze the economic exposure is from Eun-Resnick (2004). Supose that there are three states of economy by which the price/m^2 in euro and the exchange rate ALL/euro will be affected. The states of economy are equally likely to occur, thus the probability for each is 1/3. First, let us consider the *first case* where the foreign currency price/m^2 (P*) and the lek price of the euro (S) are positively correlated, so that depreciation (appreciation) of the euro against the lek is associated with a declining (rising) foreign currency price of the asset. The lek price/m^2 on the future date can be 67600, or 74250, or 81200, depending on the realized state of the world.

Table 2

	Probability	P* (euro)	S	P = S x P* (leke)
Case 1				
1	1/3	520	130	67600
2	1/3	550	135	74250
3	1/3	580	140	81200
Case 2				
1	1/3	619	130	80470
2	1/3	596	135	80460
3	1/3	575	140	80500
Case 3				
1	1/3	550	130	71500
2	1/3	550	135	74250
3	1/3	550	140	77000

Case 1:
Cov(P,S) = 22667
Var(S) = 16.67
b = €1360

Case 2:
Cov(P,S) = 50
Var(S) = 16.67
b = €3

Case 3:
Cov(P,S) = 9167
Var(S) = 16.67
b = €550

The parameter b that we obtained in case 1 is b = €1360. This represent the sensitivity of the future lek value of the liability in euro to random changes in the exchange rate. This finding implies that the firm faces a substantial exposure to currency risk.   The second case implies that the foreign currency value of the price/m2 is negatively correlated with the lek price of the euro. As we can see from table 1, the effect of the exchange rate changes are nearly offset by movements of the prices in euro. In this case hedging might not be necessary.

The third case the euro price/m2 does not change. This might be the case of a contractual agreement. This case of economic exposure represents a transaction exposure. In this case what is the risk is €550. This means that the exposure coefficient b = €550.

Once the magnitude of exposure is known, the firm can hedge by simply selling the exposure amount forward. In the third case it is possible to eliminate completely the variability of the future lek price/m2. In the first case where the firm faces an exposure coefficient b of €1360, it can sell forward this amount. The lek proceeds that the firm will receive are given by: 1360(F-S), where F is the forward exchange rate and S is the spot rate realized on the maturity date. We assume the forward exchange rate to be ALL135/euro, which is the same as the expected future spot rate. The calculations are shown in table 3.

Table 3

	State 1	State 2	State 3	Variance
Case 1				
Foreign currency price (P*)	520	550	580	
Exchange rate (S)	130	135	140	
Lek Value (P = SP*)	67600	74250	81200	30831667
Proceeds from forward contract	6800	0	-6800	
Lek Value of hedged position (HP)	74400	74250	74400	5000
Case 3				
Foreign currency price (P*)	550	550	550	
Exchange rate (S)	130	135	140	
Lek Value (P = SP*)	71500	74250	77000	5041667
Proceeds from forward contract	2750	0	-2750	
Lek Value of hedged position (HP)	74250	74250	74250	0

As shown in the table, the variance of the hedged position is only 5000ALL^2, whereas that of the unhedged position is much larger. This result implies that much of the uncertainty regarding the future dollar value of the asset is associated with exchange rate uncertainty. As a result, once the exchange exposure is hedged, most of the variability of the dollar value of the asset is eliminated. The residual variability of the dollar value of the asset that is independent of exchange rate changes, Var(e), is equal to 5000ALL^2. In the third case complete hedging is possible,

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in the specific sense that there will be no residual variability.

Some of the hedging financial instruments are as following:

Foreign Exchange Forwards. Foreign exchange is, of course, the exchange of one currency for another. Trading or "dealing" in each pair of currencies consists of two parts, the spot market, where payment (delivery) is made right away (in practice this means usually the second business day), and the forward market. Forward contracts are the most common means of hedging transactions in foreign currencies. The trouble with forward contracts, however, is that they require future performance, and sometimes one party is unable to perform on the contract. When that happens, the hedge disappears, sometime at great cost to the hedger. This default risk also means that many companies do not have access to the forward market in sufficient quantity to fully hedge their exchange exposure. For such situations, futures may be more suitable. Forward are usually offered from banks. Commercial banks in Albania are not allowed to offer forward contracts with maturity longer than one day. They have to close out the position within the day. Thus these instruments cannot be used from our businesses yet.

Currency Futures. Outside of the interbank forward market, the best-developed market hedging exchange rate risk is the currency futures market. In principle, currency futures are similar to foreign exchange forwards in that they are contracts for delivery of a certain amount of a foreign currency at some future date and at a known price. In practice, they differ from forward contracts in important ways. Futures are traded in financial exchanges. Developed financial exchanges do not offer futures on lek currency, and Tirana stock exchange still does not trade these instruments. Thus our firms still cannot use futures.

Foreign Currency Debt. Debt, borrowing in the currency to which the firm is exposed or investing in interest-bearing assets to offset a foreign currency payment, is a widely used hedging tool that serves much the same purpose as forward contracts. This is what our firms mostly use.

Currency Options. Many companies, banks, and governments have extensive experience in the use of forward exchange contracts, whereas currency options—or option contracts in general— are still used far less frequently. However, as market participants have developed a better understanding of option pricing, trading, and hedging of options positions over the last couple of years, the use of options has become more frequent. But yet, far away for our firms to be understood and used.

II. Conclusions

Foreign exchange is among the most important risks facing most economic agents, whether they are corporations, institutional investors, or households. In recent times, the volatility of these rates has increased substantially and, as a result, agents have a greater need to hedge against these risks. A number of hedge instruments have been developed to manage these risks effectively. Broadly speaking, there are forward and futures contracts, which represent agreements to deliver a specified quantity of these assets at a prespecified price on a future date, and option contracts, which confer on the holder the right to deliver the assets at a prespecified price, only if it is worthwhile to do so on the future date.

The first step for financial hedging exchange forecasting, so the firm should review the likelihood of adverse exchange movements. The second step is to asses the cash flows and earnings under each scenario. Then the firm should decide whether to hedge or not. The fouth step is to select the hedging instruments and the last one is to construct a hedging program.

Construction firms in Shkodra do not hedge financially from the exchange rate exposure.

Considering the large degree of exposure, it is more than necessary that banks introduce hedging instruments from the exchange rate and trade them widely.

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References:

- Campbell J. Y., -De Medeiros K. S., Viceira L. M. Global currency hedging. The Journal of Finance, Vol. LXV, no. 1, February 2010, pp. 87-121
- Dufey G., Giddy I. H., Management of corporate foreign exchange risk. Chapter 6 in Choi, Frederick D.S., 2003, (3rd eds), *International finance and accounting handbook*, Hoboken, NJ: John Wiley & Sons
- Eun, Resnick, 2004, International financial management, 4th ed., (pp. 282-348), New York, NY: The McGraw-Hill Companies.
- Madura J., 2008, International financial management, 9th ed. (pp. 280-306), Mason, OH: Thomson South-Western
   Stapleton R. C., Subrahmanyam M. G. Interest rate and foreign exchange risk management products: overview of hedging instruments and strategies, Chapter 7 in Choi, Frederick D.S., 2003, (3rd eds), *International finance and accounting handbook*, Hoboken, NJ: John Wiley & Sons