

# Estimating Market Risk in a Listed Vietnam Bank and what affect Beta Capm of Listed Banks? - A Case of Eximbank

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## Abstract

Huy, D.T.N., & Hang, N.T stated we need to estimate macro effects on beta and build better risk model at Vietnam banks. We run OLS regression and selected Eximbank in Vietnam for studying market risk subject with macro determinants.

Banks in Vietnam play a major roles in economic promoting as well as contribute to community activities over years. Huy, D.T.N mentioned we need to enhance risk management in commercial banks.

Our study shows that for external, SP 500 and trade balance have positive relation with beta EIB. Moreover, for internal, We can infer from the above table 11 that:CPI and IM have positive relation with beta.

Then risk policies were suggested.

**Keywords:** Bank market risk • Vietnam banks • Eximbank • Beta CAPM • Inflation

## Introduction

First, we recognize the importance of bank risk management has risen to a new level in recent years.

Therefore, this study will address below research question:

Question: To what extent macro indicators has affected beta CAPM of Eximbank - EIB and implied policies?

## Literature Review

First, Khasawneh stated that contradicting to theory of agency cost, between bank performance and debt financing there is negative relation.

Second, Das and Rout [1] mentioned under covid 19 impact, many countries experienced higher volatility than crisis 2008, if risk is measured using Value-at-Risk models.

Moreover, Gupta specified that Information system (IS) is important in almost all the functional areas of any bank.

Kahihu et al said that in Kenya, there is positive impacts from leverage and interest rate on financial performance of MFIs-microfinance [2].

And last but not least, Sibanda mentioned digital technology has transformed banking from classical model to innovative Fintech collaborative model [3].

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## Methodology

### Method and data

This study used synthesis, inductive methods and used explanatory research designs. OLS regression was conducted for quantitative model. The study used data which was collected and analyzed from bank system and Bureau of statistics and stock market from 2011-2020 [4].

**Looking at descriptive statistics below, we see that:**

- The highest standard dev is belong to VnIndex and the 2<sup>nd</sup> highest is IM (Table 1).
- Correlation b.t IM and beta higher than that b.t beta and G (Table 2).
- Correlation b.t trade balance and beta higher than that b.t beta and SP 500 (Tables 3 and 4).

## Main Results

### Overall results

We figure out that:

- CPI, G, IM, Rf and beta EIB have positive correlation see Figures 1, 3,4 and 6.
- Exchange rate, R and beta EIB have negative correlation see Figures 2 and 5.
- VNIndex, trade balance and beta have positive correlation see Figures 7 and 8.

### OLS Regression results

**Then we figure out that: in a single model**

- Between CPI and beta there is positive correlation (Table 5).
- Between exchange rate and beta there is negative correlation (Table 6).

**Table 1.** EIB beta and other factors descriptive.

	Beta EIB	CPI	G	IM	R	Rf	Vn Index
Mean	1.2	004	0.05	162.0	0.1	0.05	680.2
Media	1.13	0.03	0.05	150.0	0.1	0.05	606.6
Max	4.7	0.18	0.07	267.2	0.1	0.13	1067.5
Min	-0.4	0.006	0.01	117.4	0.08	0.01	351.5
Std.dev	1.10	0.04	0.01	36.9	0.03	0.02	226.7
Jarque-Bera	18.5	19.4	9.1	8.6	6.9	4.0	1.7
Prob	0.00009	0.00005	0.01	0.01	0.03	0.13	0.42

**Table 2.** EIB beta and other internal factors correlation.

	Beta EIB	CPI	G	IM	R	Rf	Vn Index
Beta EIB	1	0.2	0.1	0.3	-0.2	0.2	0.18
CPI	-	1	0.03	0.1	0.5	0.6	-0.5
G	-	-	1	0.2	-0.04	0.06	0.01
IM	-	-	-	1	0.1	-0.01	0.05
R	-	-	-	-	1	0.4	-0.7
Rf	-	-	-	-	-	1	-0.8
VnIndex	-	-	-	-	-	-	1

**Table 3.** EIB beta and other external factors descriptive.

	Beta EIB	Ex rate	SP500	Trade balance
Mean	1.2	22394	2245	-75.1
Median	1.13	22700	2138	-125
Max	4.7	23230	3703	498
Min	-0.4	20618	1292	-1162
Std.dev	1.10	837	685	402
Jarque- Bera	18.5	2.7	0.8	2.08
Prob	0.00009	0.2	0.6	0.3

**Table 4.** EIB beta and other external factors descriptive.

	Beta EIB	Ex rate	SP500	Trade balance
Beta EIB	1	-0.2	0.02	0.2
Ex rate	-	1	0.7	0.04
SP500	-	-	1	0.3
Trade balance	-	-	-	1

**Table 5.** EIB beta and OLS for CPI.

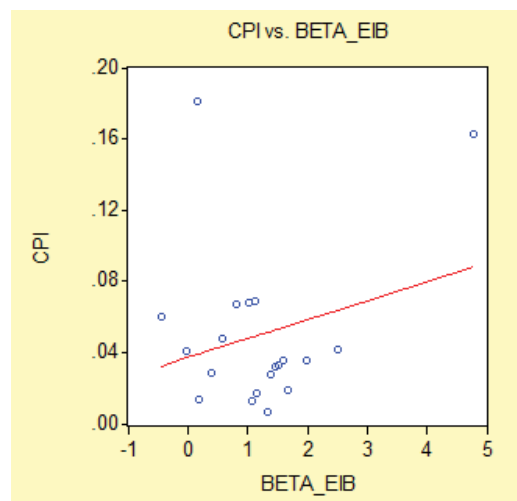
Variable	Coefficient	Std error
CPI	6.2	5.5
C	0.9	0.3
R squared	0.06	-
Akaike info criteria	3.1	-

- Between IM and beta there is positive correlation (Table 7).
- R and beta has negative relation but Rf and beta has positive relation (Tables 8 and 9).

### Analysis

We can infer from the above table 10 that: for external, SP 500 and trade balance have positive relation with beta EIB.

Moreover, We can infer from the above table 11 that:CPI and IM have positive relation with beta [5].



**Figure 1.** CPI vs. BETA\_EIB.

### Discussion and Conclusion

Because SP 500 and trade balance have positive relation with beta EIB And from the above table 11:CPI and IM have positive relation with beta: we suggest that agencies need to control trade balance and IM, and reduce CPI to reduce risk.

### Limitation of Research

We can expand our research model for other industries and other markets.

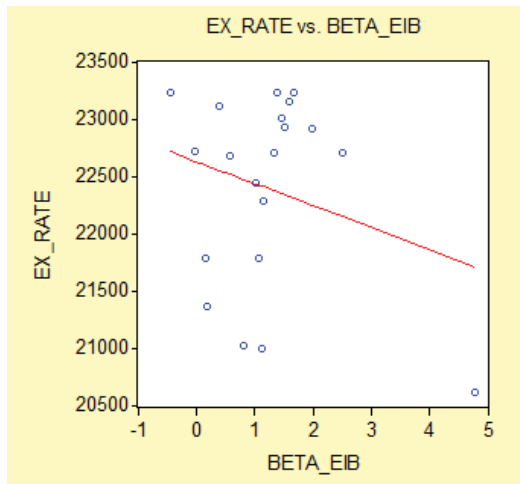


Figure 2. EX\_RATE vs. BETA\_EIB.

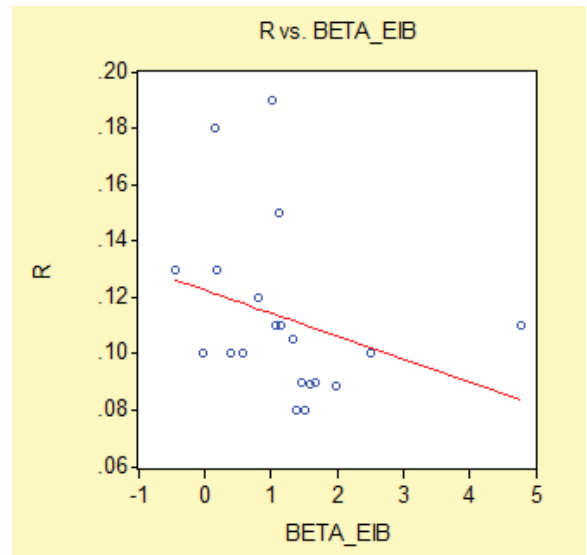


Figure 5. R vs. BETA\_EIB.

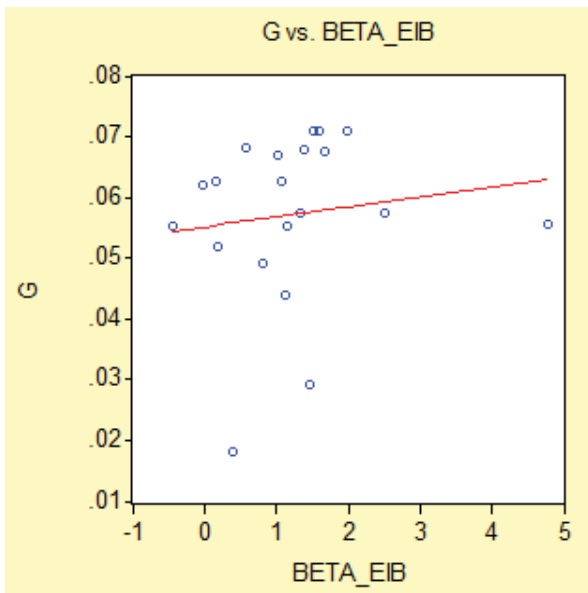


Figure 3. G vs. EX\_RATE.

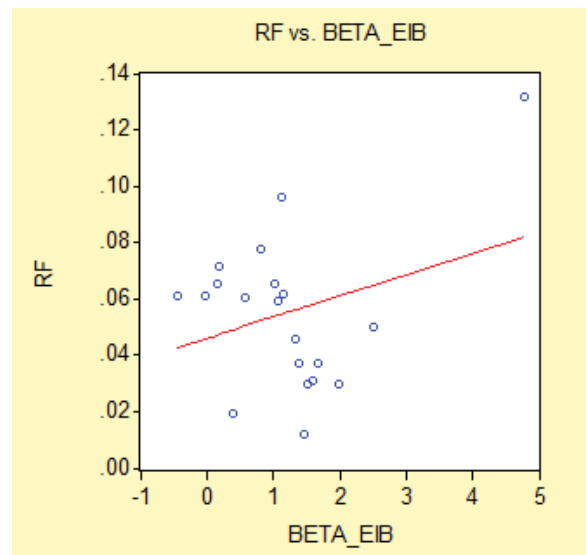


Figure 6. RF vs. BETA\_EIB.

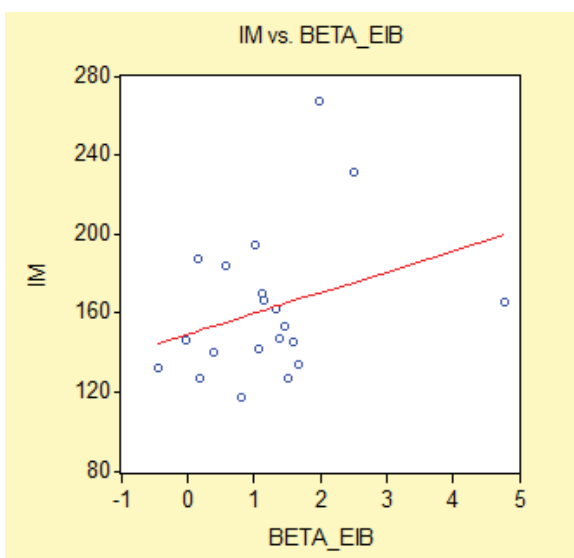


Figure 4. IM vs. BETA\_EIB.

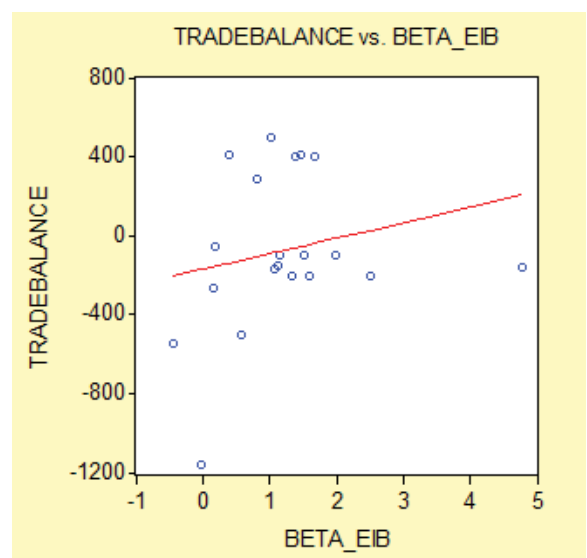


Figure 7. TRADEBALANCE vs. BETA\_EIB.

**Table 6.** EIB beta and OLS for Exchange rate.

Variable	Coefficient	Std error
Ex rate	-0.0003	0.0003
C	8.7	6.7
R squared	0.06	-
Akaike info criteria	3.1	-

**Table 7.** EIB beta and OLS for IM.

Variable	Coefficient	Std error
IM	0.009	0.006
C	-0.3	1.11
R squared	0.09	-
Akaike info criteria	3.08	-

**Table 8.** EIB beta and OLS for R,Rf.

Variable	Coefficient	Std error
R	-21.05	8.1
Rf	23.2	9.02
R squared	0.34	-
Akaike info criteria	2.8	-

**Table 9.** EIB beta and OLS for G, VNIndex.

Variable	Coefficient	Std error
G	10.2	18.8
VNIndex	0.0008	0.001
R squared	0.04	-
Akaike info criteria	3.2	-

**Table 10.** EIB beta and OLS for 3 external factors.

Variable	Coefficient	Std error
Ex Rate	-0.0006	0.0004
SP500	0.0005	0.0006
Trade balance	0.0002	0.0007
C	15.4	9.39
R squared	0.16	-
Akaike info criteria	3.2	-

**Table 11.** EIB beta and OLS for 6 internal factors.

Variable	Coefficient	Std error
CPI	5.08	5.1
G	-3.1	12.6
IM	0.008	0.005
R	-5.6	11.2
Rf	43.9	12.8
VNIndex	0.005	0.002
C	-5.4	2.9
R squared	0.6	-
Akaike info criteria	2.4	-

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