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Macroeconomic Impacts on Bank Performance and Evaluating Relationship Between Beta CAPM and Bank Cost of Equity – A Case of ACB BANK in 2 Stages

Dinh Tran Ngoc Huy, MBA[1], Pham Anh Dung, PhD[2*], Le Thi Han, Master[3], Le Ngoc Nuong, PhD[4] & Pham Hung Nhan, Master[5]

[1]Banking University HCMC, Ho Chi Minh City, Vietnam. [2]Appolos University, Montana, US. [3]Ho Chi Minh University of Banking, Vietnam. [4]Thai Nguyen University of Economics and Business Administration (TUEBA), Thai Nguyen, Vietnam. [5]Political School of Ca Mau Province, Vietnam. Corresponding Author Email: dungphamster@gmail.com[*]

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ABSTRACT

There are 2 special stages of Vietnam economy during time 2011–2020: first is pre-Low (L) inflation stage 2011–2016 and second is post-L inflation stage (2015-2020). Our paper's objective is to analyze and measure effects of multi factors (internal and external) on both beta CAPM and cost of equity of CB commercial bank in Vietnam market. By using OLS regression which is a reliable method, our research results tell that firstly, A reduction of Rf and beta will reduce cost of equity and expected return. Last but not least, because ex rate and trade balance have positive impact on beta in pre-L inflation time, but negative impact in post-L inflation stage: we recommend increase trade balance to reduce risk in post-L inflation time. Therefore, our study can be expanded for other markets.

Keywords: Effects; Market risk premium; Risk policies; Vietnam banks; Beta CAPM; Market risk comparison.

1. Introduction

First, we recognize the importance of digital data in risk management function in banking also increase to a new level in recent years.

Next, Many economic experts have said that a bank that is too cautious with risks will create barriers to growth. However, this is probably not true for the Asia Commercial Joint Stock Bank (ACB).

In fact, the financial numbers show ACB's growth rate. Specifically, the bank's second-quarter 2023 report recorded consolidated pre-tax profit of nearly 10,000 billion VND, growing nearly 11% over the same period and completing 50% of the plan set at the beginning of the year.

Recently, ACB was also recognized in the TOP 50 Most Effective Business Companies in Vietnam 2023, TOP 3 Banking Industry voted by Investment Bridge Magazine and TOP 50 Best Listed Companies in Vietnam by the Magazine Forbes Vietnam honored (source: nld.com.vn).

In this paper we will consider to measure effects of market return and market risk premium on beta CAPM and cost of equity of a single big listed bank, Asia Commercial Bank (ACB) in Vietnam.

Research Questions:

Question 1: Explain the econometric model of measuring multi-factor effects on the beta CAPM of ACB bank?

Question 2: Measuring effects of market risk premium, beta and other factors on cost of equity of the selected bank?

Question 3: Present any risk policies we can derive?

2. Literature review

First, Gupta (2019) specified that Information system (IS) is important in almost all the functional areas of any bank i.e. HR, Marketing, Finance, etc. It also helps in risk management and cash management along with maintaining long-run customer relationship.

Second, Huy, D.T.N (2015) stated important role of risk management in corporate governance model of firms.

And we summarize previous studies as follows (Figure 1):

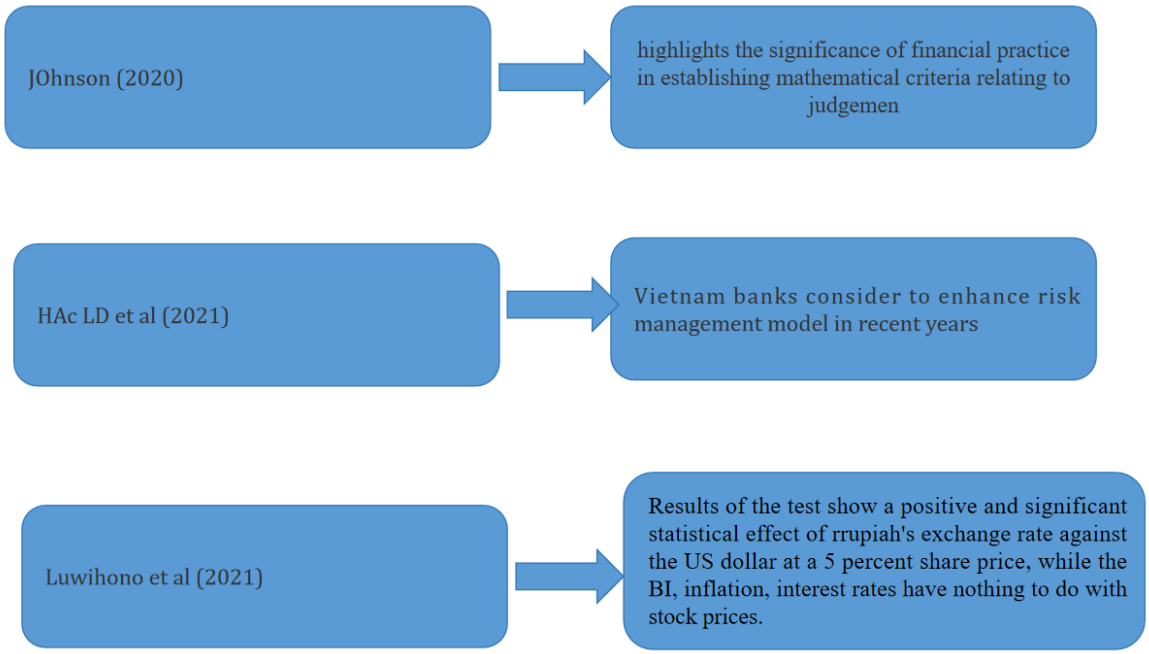

Figure 1. Summary of previous studies

(SOURCE: Author Synthesis)

Next, Imran et al (2021) found that the market premium and the interest rate factors are significantly affecting the industry equity premium of all the nonfinancial sectors.

3. Methodology

3.1. Method and Data

This study mainly use combination of quantitative methods via multi-factor econometric model and qualitative methods including synthesis, inductive and explanatory methods.

Authors also use experiences and observations for conducting analysis.

For quantitative analysis, the study is supported with OLS regression.

Data is collected from reliable internet sources and websites.

Looking at descriptive statistics below, we see that:

Figure 2 shows correlation between market risk premium and beta higher than between beta and CPI.

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Correlation Matrix

	COSTOFE...	BETAACB	CPI	G	IM	MARKETR...	MRPREMIUM	R	RF	TAXRATE	VNINDEX
COSTOFE...	1.000000	0.334446	0.164136	-0.377754	-0.168089	0.829095	0.831605	-0.319485	-0.632067	-0.167202	0.531913
BETAACB	0.334446	1.000000	0.301399	0.015720	0.399440	-0.223717	-0.217378	0.010349	0.026587	-0.089052	0.049427
CPI	0.164136	0.301399	1.000000	0.084484	0.413573	0.044033	0.053683	-0.414518	-0.243796	-0.707927	0.410282
G	-0.377754	0.015720	0.084484	1.000000	0.183920	-0.515443	-0.522605	-0.269621	0.483805	0.056223	-0.056199
IM	-0.168089	0.399440	0.413573	0.183920	1.000000	-0.415068	-0.407101	0.092178	0.127750	-0.163191	0.004536
MARKETR...	0.829095	-0.223717	0.044033	-0.515443	-0.415068	1.000000	0.998988	-0.301768	-0.681740	-0.193176	0.514370
MRPREMIUM	0.831605	-0.217378	0.053683	-0.522605	-0.407101	0.998988	1.000000	-0.327596	-0.713634	-0.207865	0.542624
R	-0.319485	0.010349	-0.414518	-0.269621	0.092178	-0.301768	-0.327596	1.000000	0.618393	0.549008	-0.876653
RF	-0.632067	0.026587	-0.243796	0.483805	0.127750	-0.681740	-0.713634	0.618393	1.000000	0.424264	-0.823547
TAXRATE	-0.167202	-0.089052	-0.707927	0.056223	-0.163191	-0.193176	-0.207865	0.549008	0.424264	1.000000	-0.650696
VNINDEX	0.531913	0.049427	0.410282	-0.056199	0.004536	0.514370	0.542624	-0.876653	-0.823547	-0.650696	1.000000

Figure 2. Correlation matrix internal factors

(SOURCE: Author Analysis with Eview)

4. Main Results

4.1. Overall results

We analyze from below charts that:

- Chart 1: between cost of equity and CPI, positive corr in both post-L inflation time and in pre-L inflation period.

- Chart 2: in post-L time, negative corr between G and cost of equity but slightly positive corr between beta and G.

Pre-L inflation **Post-L inflation**

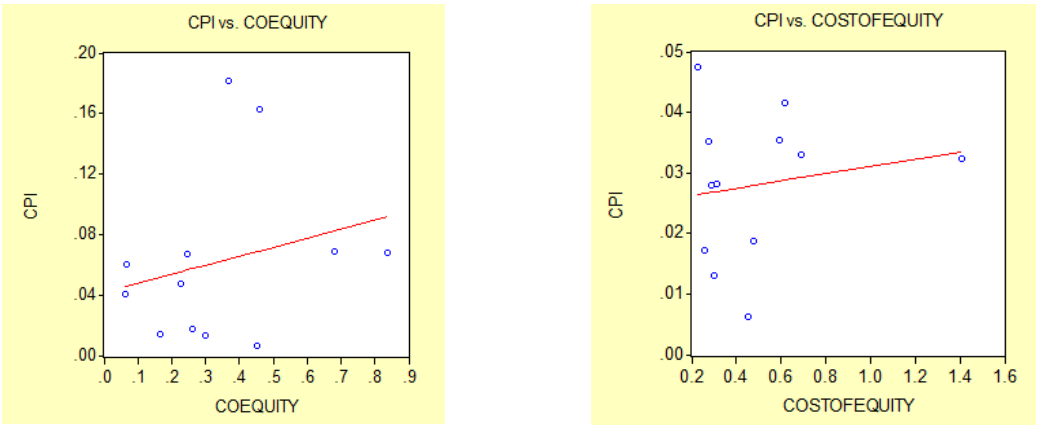

Chart 1. CPI and cost of equity in 2 stages

(SOURCE: Author Analysis with Eview)

Beta **Cost of equity**

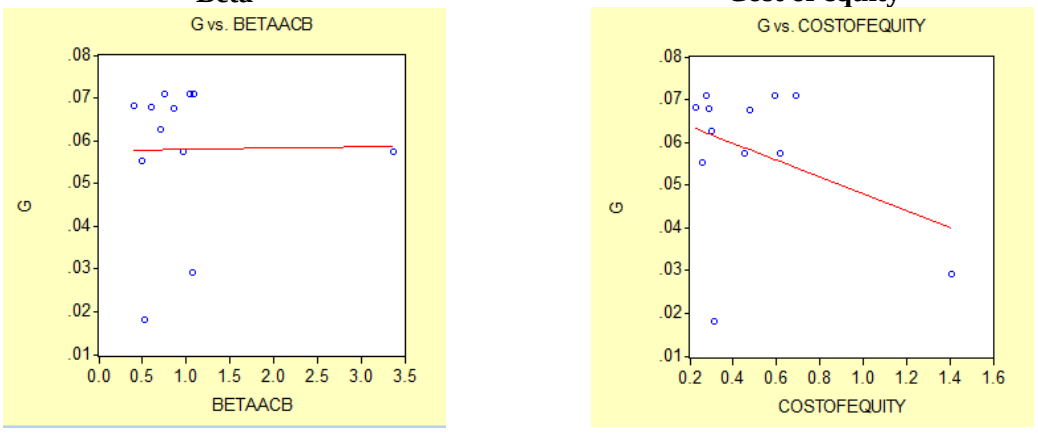

Chart 2. Corr with GDP growth G

(SOURCE: Author Analysis with Eview)

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4.2. OLS Regression results

4.2.1. OLS results for Beta ACB

We analyze from below figures:

Figure 3: IM has positive impact on beta, but IM and R has negative impact on cost of equity.

Dependent Variable: BETAACB
Method: Least Squares
Date: 03/29/22 Time: 16:45
Sample: 1 12
Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IM	0.007452	0.005408	1.377830	0.1983
C	-0.252127	0.927583	-0.271810	0.7913

R-squared	0.159552	Mean dependent var	0.990000
Adjusted R-squared	0.075507	S.D. dependent var	0.786789
S.E. of regression	0.756502	Akaike info criterion	2.430788
Sum squared resid	5.722947	Schwarz criterion	2.511605
Log likelihood	-12.58473	F-statistic	1.898415
Durbin-Watson stat	3.085762	Prob(F-statistic)	0.198305

Figure 3. Single OLS for Beta

(SOURCE: Author Analysis with Eview)

Dependent Variable: COSTOFEQUITY
Method: Least Squares
Date: 03/29/22 Time: 17:12
Sample: 1 12
Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BETAACB	0.334029	0.140357	2.379854	0.2532
CPI	-0.997856	0.909019	-1.097728	0.4704
G	-2.786015	2.515693	-1.107454	0.4676
IM	0.004002	0.000982	4.073653	0.1532
MARKETRETURN	-0.439475	8.152174	-0.053909	0.9657
MRPREMIUM	0.434636	8.166774	0.053220	0.9662
R	-0.210901	1.655039	-0.127430	0.9193
RF	2.850532	2.086021	1.366493	0.4022
TAXRATE	2.429141	2.562441	0.947979	0.5170
VNINDEX	-0.000542	0.001471	-0.368701	0.7751
C	-0.673747	1.020082	-0.660483	0.6284

R-squared	0.998635	Mean dependent var	0.343333
Adjusted R-squared	0.984982	S.D. dependent var	0.234218
S.E. of regression	0.028703	Akaike info criterion	-4.915228
Sum squared resid	0.000824	Schwarz criterion	-4.470731
Log likelihood	40.49137	F-statistic	73.14668
Durbin-Watson stat	2.817969	Prob(F-statistic)	0.090765

Figure 4. Multi factors impact on cost of equity pre-L inflation time

(SOURCE: Author Analysis with Eview)

Dependent Variable: COSTOFEQUITY
Method: Least Squares
Date: 03/29/22 Time: 16:27
Sample: 1 12
Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BETAACB	0.238099	0.007831	30.40564	0.0209
CPI	-1.837862	0.843642	-2.178486	0.2740
G	4.347220	0.846931	5.132909	0.1225
IM	0.000271	0.000196	1.380547	0.3991
MARKETRETURN	8.123325	5.277828	1.539142	0.3668
MRPREMIUM	-6.883159	5.302922	-1.297994	0.4179
R	0.828013	2.178574	0.380071	0.7688
RF	-10.47397	4.960079	-2.111655	0.2816
TAXRATE	2.607941	1.653395	1.577324	0.3597
VNINDEX	-0.000121	0.000138	-0.880008	0.5406
C	-1.020148	0.455562	-2.239317	0.2674

R-squared	0.999770	Mean dependent var	0.492000
Adjusted R-squared	0.997469	S.D. dependent var	0.328251
S.E. of regression	0.016514	Akaike info criterion	-6.020749
Sum squared resid	0.000273	Schwarz criterion	-5.576252
Log likelihood	47.12450	F-statistic	434.4922
Durbin-Watson stat	2.974112	Prob(F-statistic)	0.037319

Figure 5. Muti-factors impact on cost of equity in Post-L inflation

(SOURCE: Author Analysis with Eview)

5. Discussion

- For external factors, there is an opposite trend: negative corr in post-L time and positive corr in pre-L time, for trade balance and exchange rate impact on the cost of equity.

- In post-L inflation: coefficient 8.1 positive corr, while in pre-L inflation; coefficient -0.4 negative corr.

Next, when we consider the impact of the tax rate on the cost of equity:

- In post-L inflation: coefficient 2.6 > In pre-L inflation; coefficient 2.4.

6. Conclusion

Risk Management Information System (RMIS) implications

Because R, IM and Rf have positive impact on beta ACB while G and MR Premium have positive corr in pre-L inflation time but negative corr in post-L inflation stage: we suggest increasing industrial manufacturing (IM) and Rf to reduce market risk (beta) during post-L inflation stage.

Last but not least, because ex rate and trade balance have positive impact on beta in pre-L inflation time, but negative impact in the post-L inflation stage: we recommend increase trade balance to reduce risk in post-L inflation time.

Mukhamadeev, et al. (2019) stated the role of information systems for entrepreneurship education in developing countries in the example of the Azerbaijan education system and Internet banking.

7. Limitation of Research

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

Declarations

Source of Funding

The study has not received any funds from any organization.

Competing Interests Statement

The authors have declared no competing interests.

Consent for Publication

The authors declare that they consented to the publication of this study.

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