**THE MEASUREMENT OF MACRO INFLUENCE ON BETA CAPM WITH VAR MODEL – A CASE STUDY OF OF ACB BANK IN VIETNAM**

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**ABSTRACT**

Objective: One of this study’s purposes is to state formulation of weighted beta capm index, a development from traditional beta capm formula by Sharpe (1964) and Lintner (1965).

Methodology: This study mainly use combination of quantitativemethods and qualitative methods including synthesis, inductive and explanatory methods.

For quantitative analysis, the study is supported with VAR model with Eview

Findings: authors suggest that Ministry of Finance, State bank of Vietnam and relevant agencies need to control CPI (not increase too much) and also not increasing lending rate so much for beta ro reduce. Also we need to sablize Vnindex and exchange rate so that beta more stable.

Therefore, our study can be expanded for other markets.

**Key words:** VAR, risk policies, Vietnam banks, beta CAPM, market risk comparison

**JEL:** M21, G30, G32, G38

**1.Introduction**

First, we recognize from 2016, Asia commercial bank (ACB) in Vietnam improved its internal audit to detect and early warn operational risks at branches and transaction offices; at the same time, review and amend policies, regulations and regulations in line with the actual situation as well as the provisions of law, towards the operating standards of international banks.

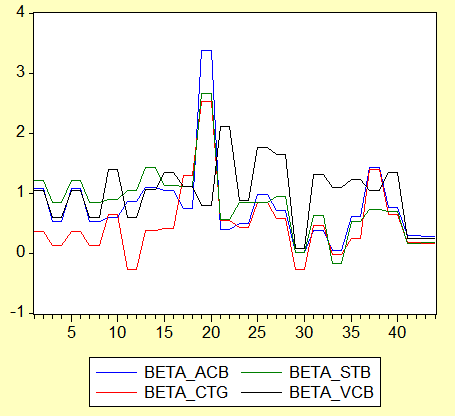
Simultaneously, flexible management, closely following market movements and in line with ACB's risk appetite in each period helped ACB control risks and improve operational quality.

Communication to guide employees to improve the quality of internal customer service, implement emulation programs, contribute to the creation of initiatives that are always focused and maintained towards the goal of service quality improvement. customer service and building a culture of people ACB is always customer-oriented.

(source: acb.com.vn)

Next, we refer to below chart to see beta of ACB commercial bank hiest in period 20th and move in same trend with other banks beta in Vietnam over past years:

Chart 1 – ACB business results



*(source: finance.vietstock.vn/ACB)*

ACB is one of the banks that completed the three pillars of Basel II early in accordance with Circular 41/2016/TT-NHNN and Circular 13/2018/TT-NHNN to improve risk management capacity and proactively internal ready to respond even in the most stressful situations of the market

Research questions:

Question 1: What are results of **MEASUREMENT OF MACRO INFLUENCE ON BETA CAPM WITH VAR MODEL – A CASE STUDY OF OF ACB BANK?**

Question 2: What are recommendations for risk policies?

**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.

Then, We summarize previous studies as follows:

Table 1 – Summary of previous studies

|  |  |  |
| --- | --- | --- |
| **Authors** | **Year** | **Contents, results** |
| Dai and Philippon | 2004 | analyzed the effect of budget deficit on interest rate, during the period 1965-2004 for United States. They concluded that there is a positive relation such that an increase in deficit can result in higher interest rate. |
| Conover, Jensen, Johnson | 1999 | firms react to this lower discount rate of their future cash flow and increasing income by adjusting their financial plans to generate higher sales and higher profits which leads to higher dividends. Johnson, Jensen and Conover in their empirical study from 1956-1995, considered index monthly returns for twenty developed markets and found that monetary expansion and stock returns had a positive relation for most of the countries. This result supports Blanchard’s theory regarding money supply effect on stock returns. |
| Suh | 2009 | conducted a time-series test on CAPM and FF3 for a specific estimation of the equity capital in a corporate investment decision-making perspective. The data was collected from a wide variety of stocks for over five years, conducted daily and monthly. The most consistent result of the study was the market risk premium. The results of the study show that the market risk premium, for individual stocks and portfolios, is significant in its results and the two models worked as complements. CAPM was generally better at estimating the large-growth portfolio returns and was not able to provide a reasonable estimate for the small-value portfolios |
| Balcilar et al. | 2016 | it is extremely difficult to ignore the existence of extreme risks because to uncertainty has several sources, including turbulent financial markets |
| Kassi et al | 2019 | show that the different measures of market risk have significant negative influences on the companies’ financial performance. The elasticities are greater following the degree of financial leverage compared with the book-to-market ratio and the gearing ratio. In most cases, the firm’s age, the cash holdings ratio, the firm’s size, the debt-to-assets ratio, and the tangibility ratio have positive effects on financial performance, whereas the debt-to-income ratio and the stock turnover hurt the performance of these non-financial companies. Therefore, decision-makers and managers should mitigate market risk through appropriate strategies of risk management, such as derivatives and insurance techniques |

**(source: author synthesis)**

**3. Methodology**

**Method and Data**

This study mainly use combination of quantitativemethods and qualitative methods including synthesis, inductive and explanatory methods.

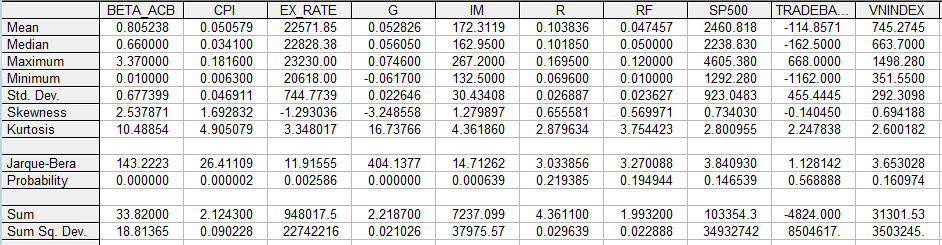
For quantitative analysis, the study is supported with VAR model with Eview.

Data is collected from reliable internet sources and websites.

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

* Std. Dev of GDp growth and Risk free rate Rf are lowest values
* Mean value of R is 0.10 and Rf is 0.047

**Figure 1 - Descriptive statistics**

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**(source: author analysis with Eview)**

**4.Main results**

**4.1 Overall results**

**We see from charts that:**

* First, ther is positive corr between beta and : VnIndex, exchange rate (chart 3, chart 5)
* Second, there is negative relation beteen beta and: R, Cpi, Rf (chart 2, chart 4, chart 8)

**Chart 2 – CPI and beta**

|  |  |
| --- | --- |
| **VCB** | **STB** |

**(source: author analysis with Eview)**

**Chart 3 – VNIndex and Beta**

|  |  |
| --- | --- |
| **VCB** | **STB** |

**(source: author analysis with Eview)**

**Chart 4 – Rf and beta**

|  |  |
| --- | --- |
| **VCB** | **STB** |

**(source: author analysis with Eview)**

**Chart 5 – Ex rate and Beta**

|  |  |
| --- | --- |
| **VCB** | **STB** |

**(source: author analysis with Eview)**

**Chart 6 – G and beta**

|  |  |
| --- | --- |
| **VCB** | **STB** |

**(source: author analysis with Eview)**

**Chart 7 – IM and beta**

|  |  |
| --- | --- |
| **VCB** | **STB** |

**(source: author analysis with Eview)**

**Chart 8 – R and beta**

|  |  |
| --- | --- |
| **VCB** | **STB** |

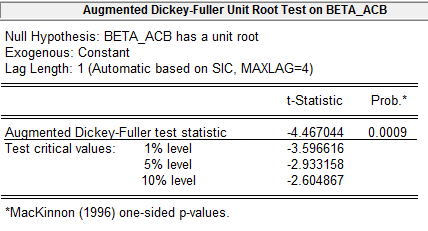
**(source: author analysis with Eview)**

**4.2 VAR results**

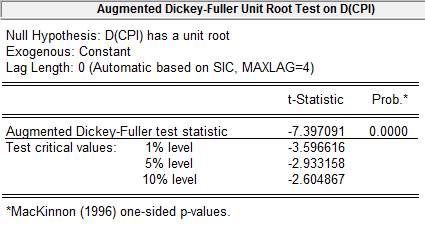
**We follow below steps:**

**Step 1: Test unit root**

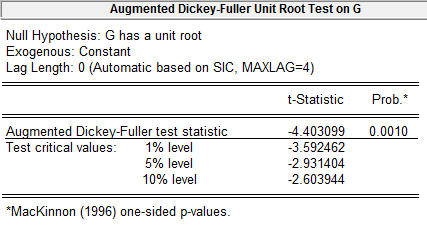
**Variable Beta ACB:**

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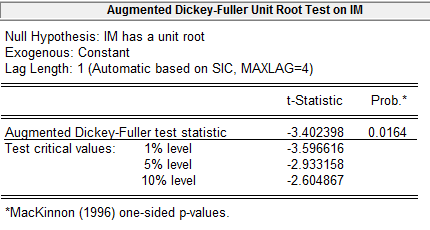
**Variable CPI**

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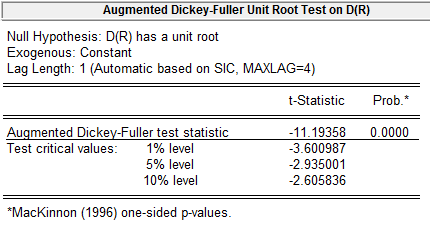
**Variable G**

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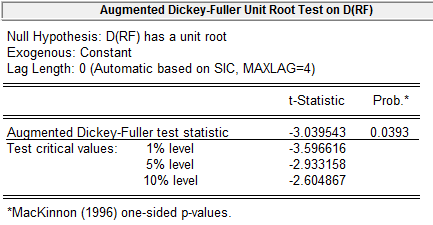
**Variable IM**

****

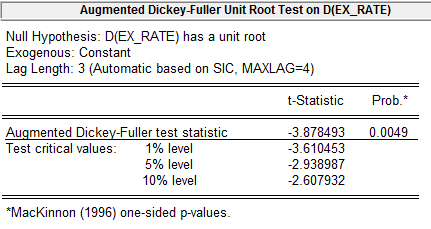
**Variable R**

****

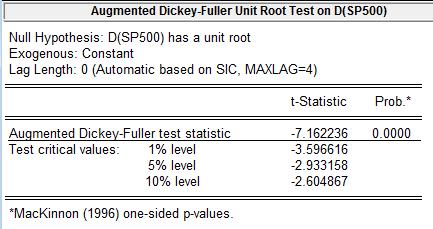
**Variable Rf**

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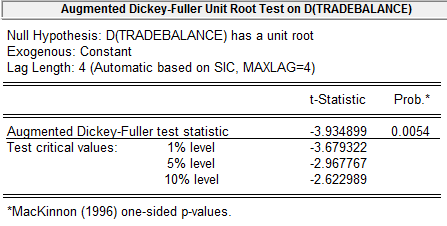
**Variable Exchange rate**

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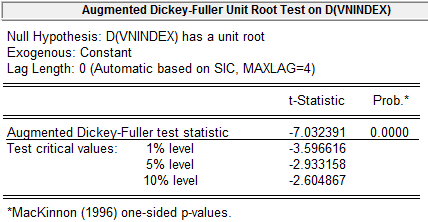
**Variable SP500**

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**Variable Trade balance**

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**Variable VnIndex**

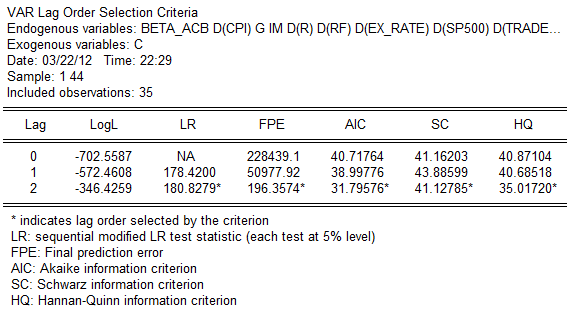
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**Next after testing unit root for all variables, we have VAR model following:**

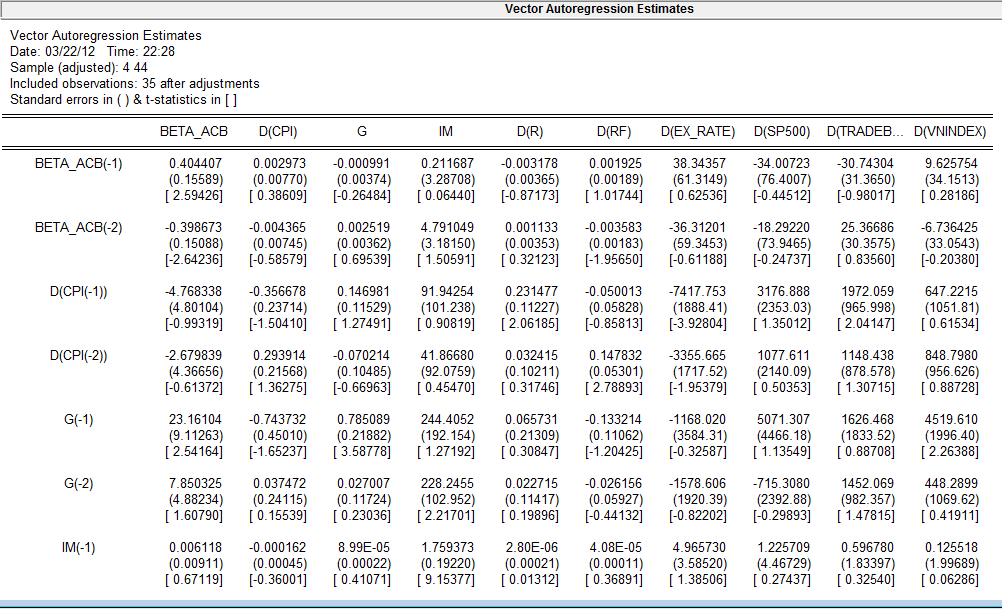
**Beta\_ACB D(CPI) G IM D(R) D(Rf) D(Ex\_rate) D(SP500) D(Tradebalance) D(VNIndex)**

**Step 2:**

**Choose Lag length = 2 (minimum AIC)**

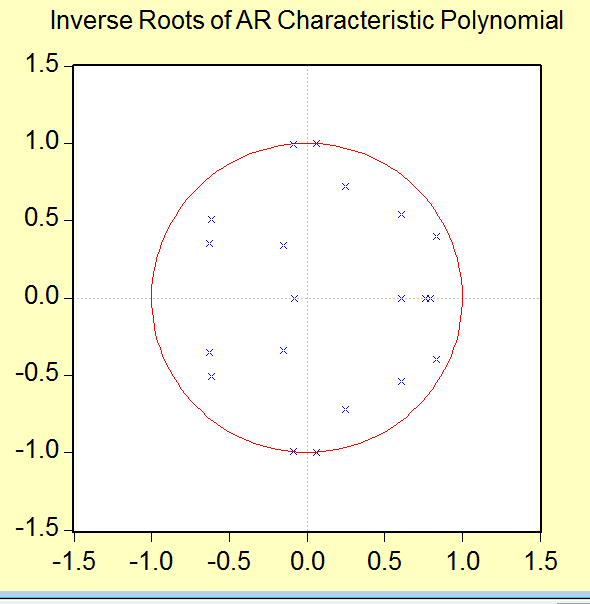
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**Choose Quick Estimate VAR**

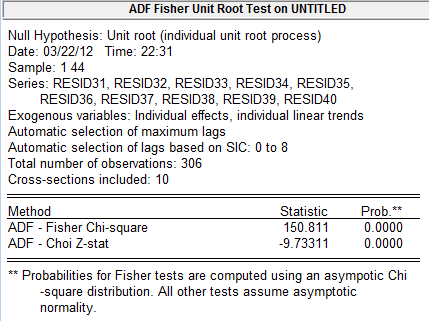
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**Step 3: Test model stability**

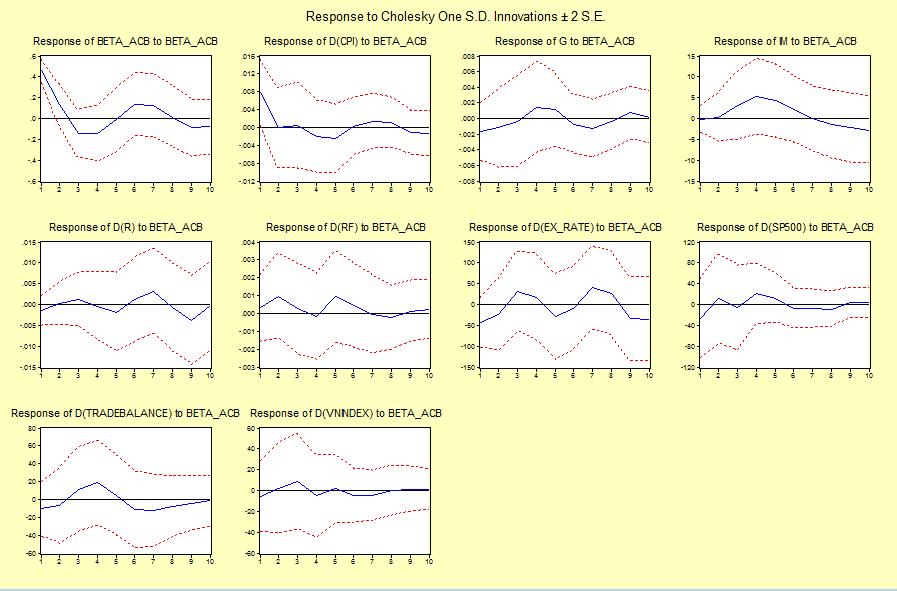
**AR Roots Graph**

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**Step 4: Test residual**

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**Step 5: Test Cholesky**

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(source: author analysis with Eview)

Analysis:

* First, in medium term if CPI reduces then Beta ACB declines
* Second, in long term if lending rate declines then beta ACB will declines
* Third, in long term if exchange rate declines then beta ACB will decline
* Fourth, in long term if Vnindex stabel then beta ACB will be table
* Fifth, from AR root graph all results located in the circle, our model has no error.

**4. Discussion and conclusion**

* In above results of Cholesky impulse testing, we find out: First, in medium term if CPI reduces then Beta ACB declines
* Second, in long term if lending rate declines then beta ACB will declines
* Third, in long term if exchange rate declines then beta ACB will decline
* Fourth, in long term if Vnindex stabel then beta ACB will be table

**Therefore, we would suggest that:**

Ministry of Finance, State bank of Vietnam and relevant agencies need to control CPI (not increase too much) and also not increasing lending rate so much for beta ro reduce. Also we need to sablize Vnindex and exchange rate so that beta more stable.

**Limitation of research**

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

**Conflicts of interest**

There is no conflict of itnerest

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