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Where Beta Going - Case in Viet Nam Commercial Electric Industry During Post-Low Inflation Period 2015-2017

Dr. Pham Tuan Anh, Dinh Tran Ngoc Huy*,
Dr. Le Thi My Phuong, Luong Minh Lan and
Nguyen Thi Phuong Thanh

Abstract--- *The Vietnam economy and commercial electric industry have gained lots of achievements after the financial crisis 2007-2011, until it reached a low inflation rate of 0.6% in 2015. Software companies face challenges in expanding Vietnam market such as pricing policy and supporting services, etc. This paper measures the volatility of market risk in Viet Nam electric industry after this period (2015-2017). The main reason is the vital role of the software company group in Vietnam in the economic development and growth in recent years always go with risk potential and risk control policies. This research paper aims to figure out how much increase or decrease in the market risk of Vietnam commercial electric firms during the post-low inflation period 2015-2017. First, by using quantitative combined with comparative data analysis method, we find out the risk level measured by equity beta mean in the commercal electric industry is acceptable, i.e it is little lower than (<) 1.Then, one of its major findings is the comparison between risk level of electric industry during the financial crisis 2007-2009 compared to those in the post-low inflation time 2015-2017. In fact, the research findings show us market risk fluctuation, measured by asset and equity beta var, during the post-low inflation time has decreased slightly. Finally, this paper provides some ideas that could provide companies and government more evidence in establishing their policies in governance. This is the complex task but the research results shows us warning that the market risk volatility might be higher during the post-low inflation period 2015-2017. And our conclusion part will recommend some policies and plans to deal with it. Finding new potential markets and credit and financing policies are among directions for electric companies.*

JEL classification numbers--- *G00, G390, C83*

Keywords--- *Risk Management, Asset Beta, Financial Crisis, Commercial Electric Industry, Policy.*

I. INTRODUCTION

Throughout many recent years, Viet Nam commercial electric market is evaluated as one of active markets, which has certain positive effect for the economy. The development of commercal electric industry goes parrallel with financial market and economic growth. Quality of electrcal products is trying to achieve both effectiveness, durability and easy to use.

Dr. Pham Tuan Anh, Thuong Mai University, Vietnam. E-mail: phamtuananh@tmu.edu.vn
Dinh Tran Ngoc Huy, MBA, Banking University, Ho Chi Minh City Viet Nam, Graduate School of International Management, International University of Japan, Niigata, Japan. E-mail: dtnhuy2010@gmail.com*
Dr. Le Thi My Phuong, College of Commerce, Da Nang, Vietnam. E-mail: lemyphuong.k11tc@gmail.com
Luong Minh Lan, M.Econ, Van Lang University, HoChi Minh City, Vietnam. E-mail: minhlanf12@gmail.com
Nguyen Thi Phuong Thanh, Master, Thai Nguyen University of Information Technology and Communications. E-mail: ntpthanh@ictu.edu.vn

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Generally speaking, central banks aim to maintain inflation around 2% to 3%. Increases in inflation significantly beyond this range can lead to possible hyperinflation, a devastating scenario in which inflation rises rapidly out of control. Looking at exhibit 1, we can see the Vietnam economy has controlled inflation well. High inflation might lead to higher lending rate and harm the commerce al electric industry because of rising material price.

This study will calculate and figure out whether the market risk level during the post-low inflation time (2015-17) has increased or decreased, in commercial electric industry, compared to those statistics in the financial crisis time (2007-2009).

The paper is organized as follows: after the introduction it is the research issues, literature review, conceptual theories and methodology. Next, section 3 will cover main research findings/results. Section 4 gives us some discussion and conclusion and policy suggestion will be in the section 5.

II. Body Of Manuscript

2.1 Research Issues

The scope of this study are:

Issue 1: Whether the risk level of commercial electric firms under the different changing scenarios in post-low inflation period 2015-2017 increase or decrease so much, compared to in financial crisis 2007-2009?

Issue 2: Because Viet Nam is an emerging and immature financial market and the stock market still in the starting stage, whether the dispersed distribution of beta values become large in the different changing periods in the commercial elctric industry.

This paper also tests three (3) below hypotheses:

Hypothesis 1: Comparing two (2) periods, during the financial crisis impact, the beta or risk level of listed companies in commercial electric industry will relatively higher than those in the post-low inflation environment.

Hypothesis 2: Because Viet Nam is an emerging and immature financial market and the stock market still in the recovering stage, there will be a large disperse distribution in beta values estimated in the commercial electric industry.

Hypothesis 3: With the above reasons, the mean of equity and asset beta values of these listed commercial electric firms tend to impose a high risk level, i.e., beta should higher than (>) 1. This hypothesis is based on the context of emerging markets including Viet Nam where there lacks of sufficient information and data disclosure although it might have high growth rate.

2.2 Literature review

Fama, Eugene F., and French, Kenneth R., (2004) also indicated in the three factor model that “value” and “size” are significant components which can affect stock returns. They also mentioned that a stock’s return not only depends on a market beta, but also on market capitalization beta. The market beta is used in the three factor model, developed by Fama and French, which is the successor to the CAPM model by Sharpe, Treynor and Lintner.

Dimitrov (2006) documented a significantly negative association between changes in financial leverage and contemporaneous risk-adjusted stock returns.

Umar (2011) found that firms which maintain good governance structures have leverage ratios that are higher (forty-seven percent) than those of firms with poor governance mechanisms per unit of profit. Chen et all (2013) supported regulators' suspicions that over-reliance on short-term funding and insufficient collateral compounded the effects of dangerously high leverage and resulted in undercapitalization and excessive risk exposure for Lehman Brothers. The model reinforces the importance of the relationship between capital structure and risk management. And Gunaratha (2013) revealed that in different industries in Sri Lanka, the degree of financial leverage has a significant positive correlation with financial risk.

During the financial crisis 2007-2009 in Viet Nam and global financial markets, high inflation causing high lending rates have created risks for many industries such as real estate and the whole economy. Mohamad et all (2014) showed that financial risk is vital through using both return on asset and return on equity in the performance equation. This result also implied that we cannot avoid the inverse relation of financial risk and performance; therefore, bank system would be better to make a trade-off between risk and performance.

Wang et all (2014) presented results showing that firms with long-term institutional investors receive significantly positive abnormal returns around the offering announcement.

Then, Gunarathna (2016) revealed that whereas firm size negatively impacts on the financial risk, financial leverage and financial risk has positive relationship.

Hami (2017) showed that financial depth has been affected negatively by inflation in Iran during the observation period.

Park et all (2019) found that sentiment caused by investors' inattentiveness mainly drives the underlying potent relationship between investor sentiment and aggregate stock returns. The results accord with the notion that investor attention generally improves market efficiency.

2.3 Conceptual theories

Positive sides of low inflation: Low (not negative) inflation reduces the potential of economic recession by enabling the labor market to adjust more quickly in a downturn, and reduces the risk that a liquidity trap prevents monetary policy from stabilizing the economy. This is explaining why many economists nowadays prefer a low and stable rate of inflation. It will help investment, encourage exports and prevent boom economy.

Negative side of low inflation: it leads to low aggregate demand and economic growth, recession potential and high unemployment. Production becomes less vibrant. Low inflation makes real wages higher. Workers can thus reduce the supply of labor and increase rest time. On the other hand, low product prices reduce production motivation.

The central bank can use monetary policies, for instance, increasing interest rates to reduce lending, control money supply or the Ministry of finance and the government can use tight fiscal policy (high tax) to achieve low inflation.

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Financial and credit risk in the bank system can increase when the financial market becomes more active and bigger, esp. with more international linkage influence. This affects to risk increasing in software sector. Hence, central banks, commercial banks, commercial electrc firms and the government need to organize data to analyze and control these risks, including market risk.

2.4 Methodology

We use the data from the stock exchange market in Viet Nam (HOSE and HNX) during the financial crisis 2007-2009 period and the post – low inflation time 2015-2017 to estimate systemic risk results. We perform both fundamental data analysis and financial techniques to calculate equity and asset beta values.

In this study, analytical research method and specially, comparative analysis method is used, combined with quantitative data analysis. Analytical data is from the situation of listed commercial electric firms in VN stock exchange.

Specifically, stock price data is from live data on HOSE stock exchange during 3 years 2015-2017, which presents the low inflation environment. Then, we use both analytical and summary method to generate analytical results from data calculated.

Finally, we use the results to suggest policy for both these enterprises, relevant organizations and government.

III. MAIN RESULTS

3.1 General Data Analysis

We get some analytical results form the research sample with 10 listed firms in the commercial electric market with the live date from the stock exchange.

3.2 Empirical Research Findings and Discussion

In the below section, data used are from total 10 listed commercial electric companies on VN stock exchange (HOSE and HNX mainly). Different scenarios are created by comparing the calculation risk data between 2 periods: the post – low inflation period 2015-2017 and the financial crisis 2007-2009.

Market risk (beta) under the impact of tax rate, includes: 1) equity beta; and 2) asset beta. We model our data analysis as in the below figure:

	Risk level (equity beta)	**Risk level (asset beta)**	**Other measures**	**Gap**
Post – low inflation period	**Scenario …**	**Scenario ..**	**Scenario ..**	**Analysis**
Financial crisis time				

Figure 1: Analyzing market risk under two (2) scenarios: post – low inflation period 2015-2017 compared to the financial crisis 2007-2009

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Table 1: The Volatility of Market Risk (beta) of Commercial Electric Industry in the Post- low Inflation Period 2015-2017

		2015-2017 (post - low inflation)			
Order No.	**Company stock code**	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Financial leverage**	**Note**
1	TSB	-1.044	-0.529	49.3%	assume debt beta = 0; debt ratio as in F.S 2015; FL calculated as total debt/total capital
2	BTH	0.021	0.015	28.2%	
3	DZM	0.027	0.013	53.9%	
4	DVH	0.061	0.000	99.9%	
5	LGC	0.444	0.166	62.6%	
6	CJC	0.282	0.000	74.0%	
7	TYA	0.448	0.224	50.0%	
8	PPS	0.399	0.022	94.4%	
9	GLT	0.074	0.036	51.7%	
10	NAG	-0.004	-0.002	41.6%	

Table 2: The Statistics of Volatility of Market Risk (beta) of Commercia Electric Industry in the Post- low Inflation Period 2015-2017

	2015-2017 (post - low inflation)	
Statistic results	**Equity beta**	**Asset beta (assume debt beta = 0)**
MAX	0.448	0.224
MIN	-1.044	-0.529
MEAN	0.071	-0.006
VAR	0.1874	0.0399
Note: Sample size : 10 (We just take a sample of 10 firms to make comparison)		

Table 3: The Comparison of Volatility of Market Risk (beta) of Commercil electric Industry in the Post- low Inflation Period 2015-2017 and the Financial Crisis 2007-2009

		2007-2009 (financial crisis)		2015-2017 (post - low inflation)		
Order No.	**Company stock code**	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Note**
1	TSB	0.376	0.102	-1.044	-0.529	assume debt beta = 0; debt ratio as in F.S 2015 and 2008
2	BTH	0.701	0.465	0.021	0.015	
3	DZM	1.372	0.551	0.027	0.013	
4	DVH	0.136	0.041	0.061	0.000	
5	LGC	0.890	0.361	0.444	0.166	
6	CJC	0.587	0.091	0.282	0.000	
7	TYA	1.145	0.359	0.448	0.224	
8	PPS	0.092	0.007	0.399	0.022	
9	GLT	0.687	0.482	0.074	0.036	
10	NAG	1.220	0.472	-0.004	-0.002	

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Table 4: The Difference between Volatility of Market Risk (beta) of Commercial Electric Industry in the Post- low Inflation Period 2015-2017 and the Financial Crisis 2007-2009

		GAP (+/-) 2015-17 compared to 2007-09		
Order No.	**Company stock code**	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Note**
1	TSB	-1.420	-0.631	values (2015-17) minus (-) 2007-09
2	BTH	-0.680	-0.450	
3	DZM	-1.345	-0.538	
4	DVH	-0.075	-0.041	
5	LGC	-0.446	-0.195	
6	CJC	-0.305	-0.091	
7	TYA	-0.697	-0.135	
8	PPS	0.307	0.015	
9	GLT	-0.613	-0.446	
10	NAG	-1.224	-0.474	

Table 5: Statistics of Volatility of Market Risk (Beta) of Commercial Electric Industry in the Post- low Inflation Period 2015-2017 Compared to those in the Financial Crisis 2007-2009

	2007-2009 (crisis)		2015-2017 (post - low inflation)		GAP (+/-) 2015-17 compared to 2007-09	
Statistic results	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Equity beta**	**Asset beta (assume debt beta = 0)**
MAX	1.372	0.551	0.448	0.224	-0.924	-0.327
MIN	0.092	0.007	-1.044	-0.529	-1.136	-0.536
MEAN	0.721	0.293	0.071	-0.006	-0.650	-0.299
VAR	0.1953	0.0439	0.187	0.040	-0.008	-0.004
Note: Sample size : 10						

Based on the above calculation result table, we analyze data as follows:

Firstly, we see in the table 1 that more commercial electric firms (8 over 10 firms) have equity beta values lower (<) than 1, which means risk level acceptable. No firm has equity beta > 1. There are 2 firms with negative equity beta (< 0).

And table 2 provides evidence for us to see that equity beta mean of the sample is 0.071, much lower than (<) 1. It is acceptable.

Then, looking at the table 3, we recognize that there are no firm with equity beta values > 1 in the post-low inflation period 2015-17 while there are 3 firms with equity beta values > 1 in the financial crisis 2007-2009.

Next, table 5 shows that both equity beta var and equity beta mean in the post- low inflation period are lower (>) than those in the financial crisis 2007-2009.

In addition to, looking at the below chart 1, we can find out:

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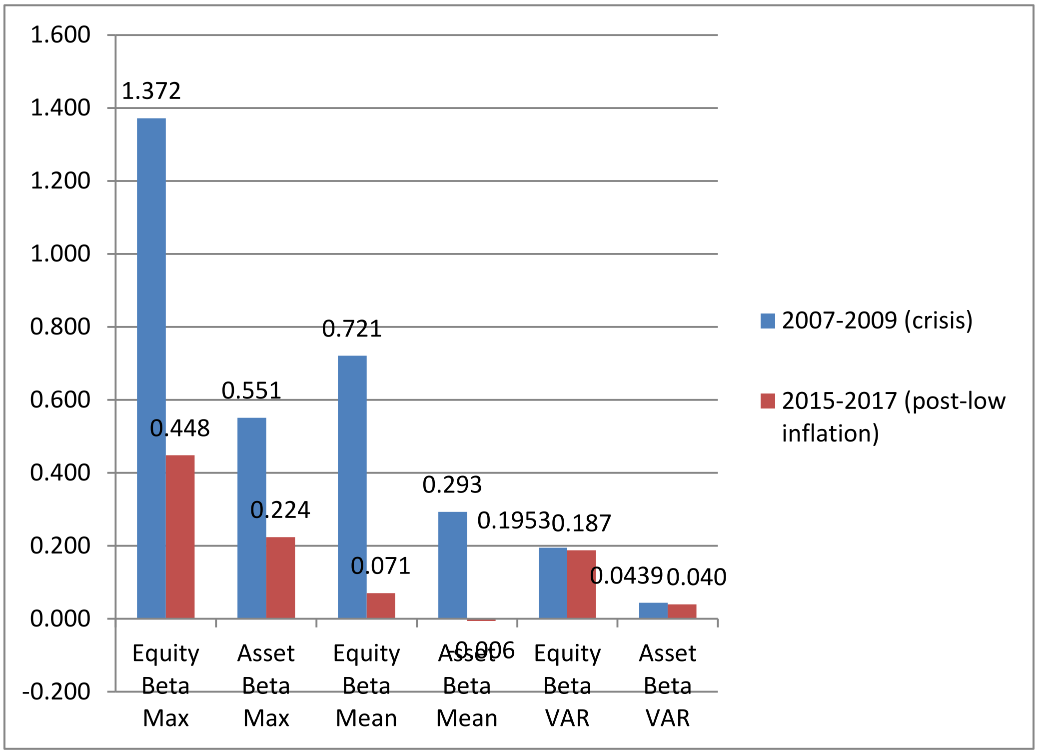
More clearly, Value of equity beta var and aset beta var in the post-low inflation 2015-2017 are smaller (>) than those in the crisis 2007-2009, also equity beta mean and asset beta mean are smaller (<) than those in the financial crisis 2007-2009. It means that the level of risk in the post – low inflation period 2015-17 is lower in general and in average, and the fluctuation in risk level measured by asset and equity beta var is lower during the post-low inflation time.

Chart 1: Statistics of Market risk (beta) in VN Commercial Electric industry in the post – low inflation period 2015-2017 compared to the financial crisis 2007-2009



IV. Discussion For Further Researches

We can continue to analyze risk factors behind the risk scene (risk fluctuation increasing, shown by equity beta var as above analysis) in order to recommend suitable policies and plans to control market risk better.

V. Conclusion And Policy Suggestion

In general, commercial electric company group in Vietnam has been contributing significantly to the economic development and GDP growth rate of more than 6-7% in recent years. The above analysis shows us that despite of market risk decreasing, risk volatility (equity beta var) is not much decreasing during the post-low inflation period. Commercial electric firms in Vietnam need to continue enhancing their corporate governance system, structure and mechanisms, as well as their competitive advantage to control risk better. Also, they need to reduce risk of quality of products and reputation risk of electric companies. Commercial electric companies need to identify demand from 4.0 technology era to enhance quality of laborers for a higher level of automation and offer better products for business

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management. Risk management in High qualified human resource and in technology investment are two of vital conditions for electric industry development.

This research paper provides evidence that the market risk potential might be lower in 2015-2017 post-low inflation period (looking again chart 1 – equity beta mean values), while the Exhibit 3 also suggests that the credit growth rate increased in 2016 and slightly decrease in later years (2017-2018). It means that the local economy is trying to control credit growth reasonably, however we need to analyze risk factors more carefully to reduce more market risk.

Looking at the above chart 1, the result rejects the hypothesis 3 mentioning that the mean of equity and asset beta values of these listed electric firms tend to impose a little high risk level, i.e., beta should higher than (>) 1. Because the equity beta mean is lower in the post-low (L) inflation period, it supports the hypothesis 1 saying that comparing two (2) periods, during the financial crisis impact, the beta or risk level of listed companies in electric industry will relatively higher than those in the post-low inflation environment. Additionally, the above result rejects the hypothesis 2 stating that because Viet Nam is an emerging and immature financial market and the stock market still in the recovering stage, there will be a large disperse distribution in beta values estimated in the electric industry.

Last but not least, as it generates the warning that the risk fluctuation might be just little lower in the post-low inflation period, the government and relevant bodies such as Ministry of Finance and State Bank of Vietnam need to consider proper policies (including a combination of fiscal, monetary, exchange rate and price control policies) aiming to reduce more the risk volatility and hence, help the electric company group as well as the whole economy become more stable in next development stage. The Ministry of Finance continue to increase the effectiveness of fiscal policies and tax policies which are needed to combine with other macro policies at the same time. The State Bank of Viet Nam continues to increase the effectiveness of capital providing channels for electric companies as we could note that in this study, debt leverage has impacts on reducing risk level.

Finally, this study opens some new directions for further researches in risk control policies in electric company system as well as in the whole economy. Commercial electric companies need to do a better pricing strategy and provide extra services to help Vietnam enterprises to build standardized processes.

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EXHIBIT

Exhibit 1 – Inflation, CPI over past 10 years (2007-2017) in Vietnam

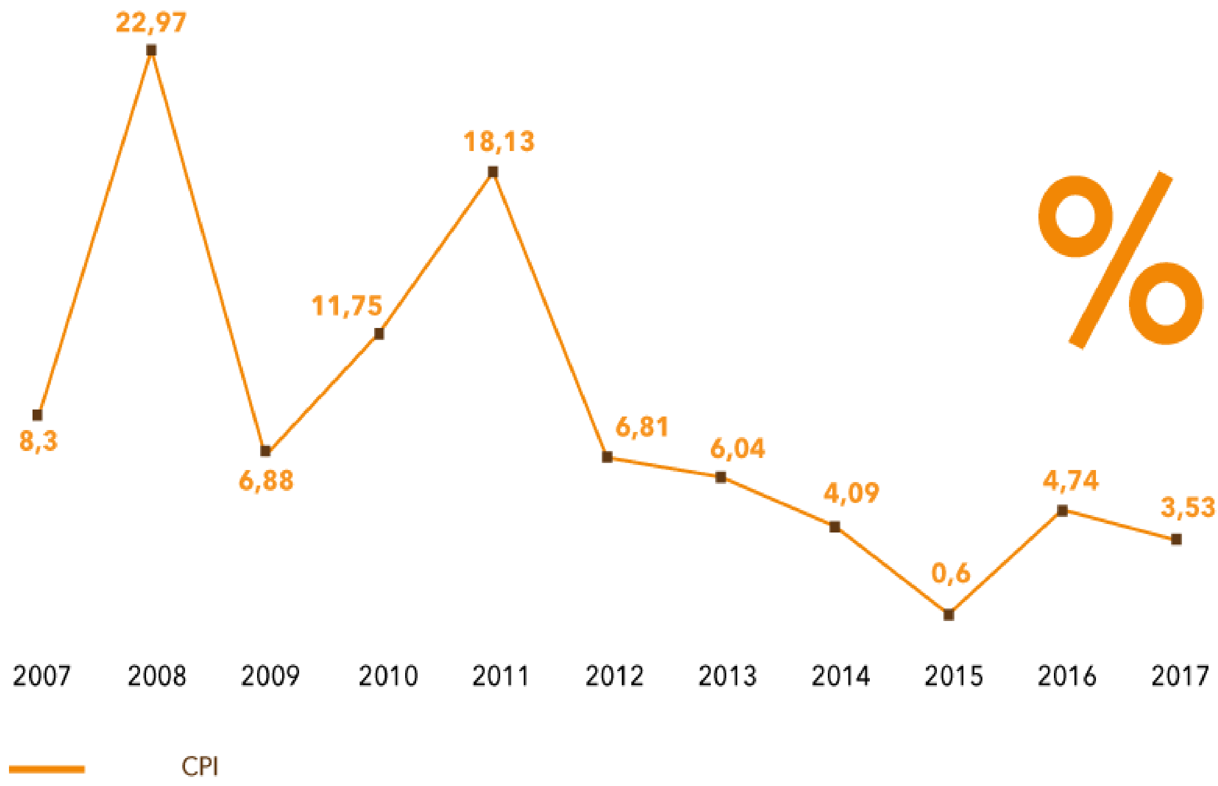

Exhibit 2 – GDP growth rate past 10 years (2007-2018) in Vietnam

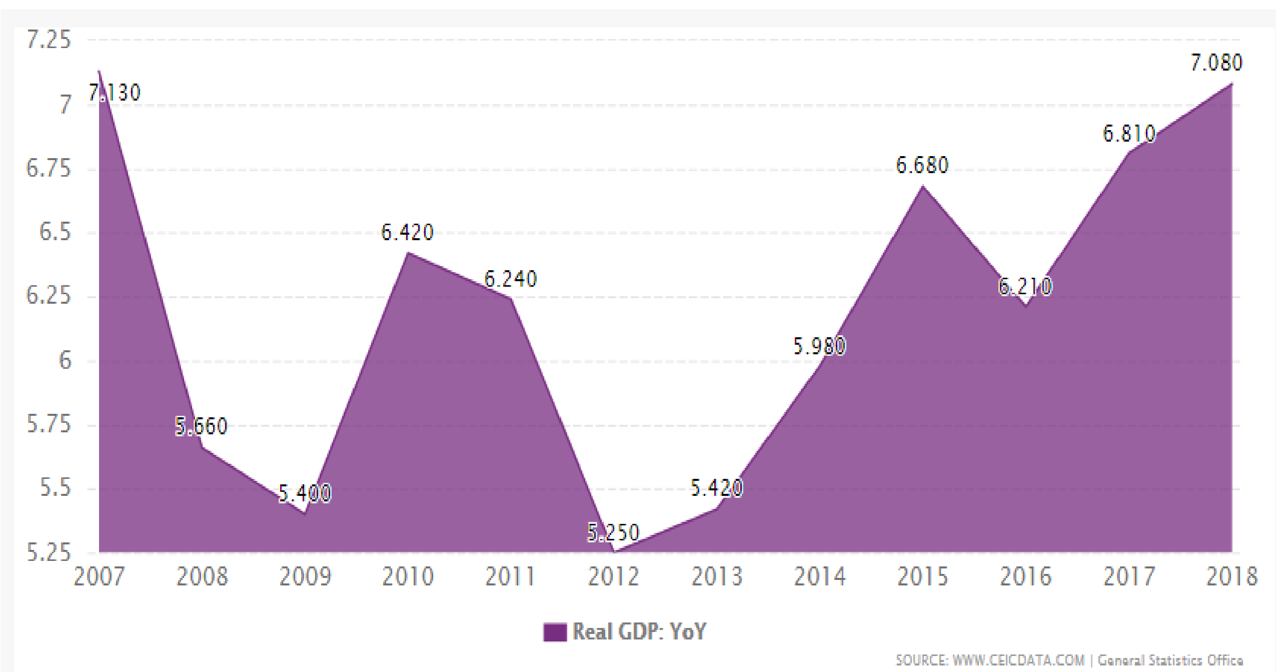

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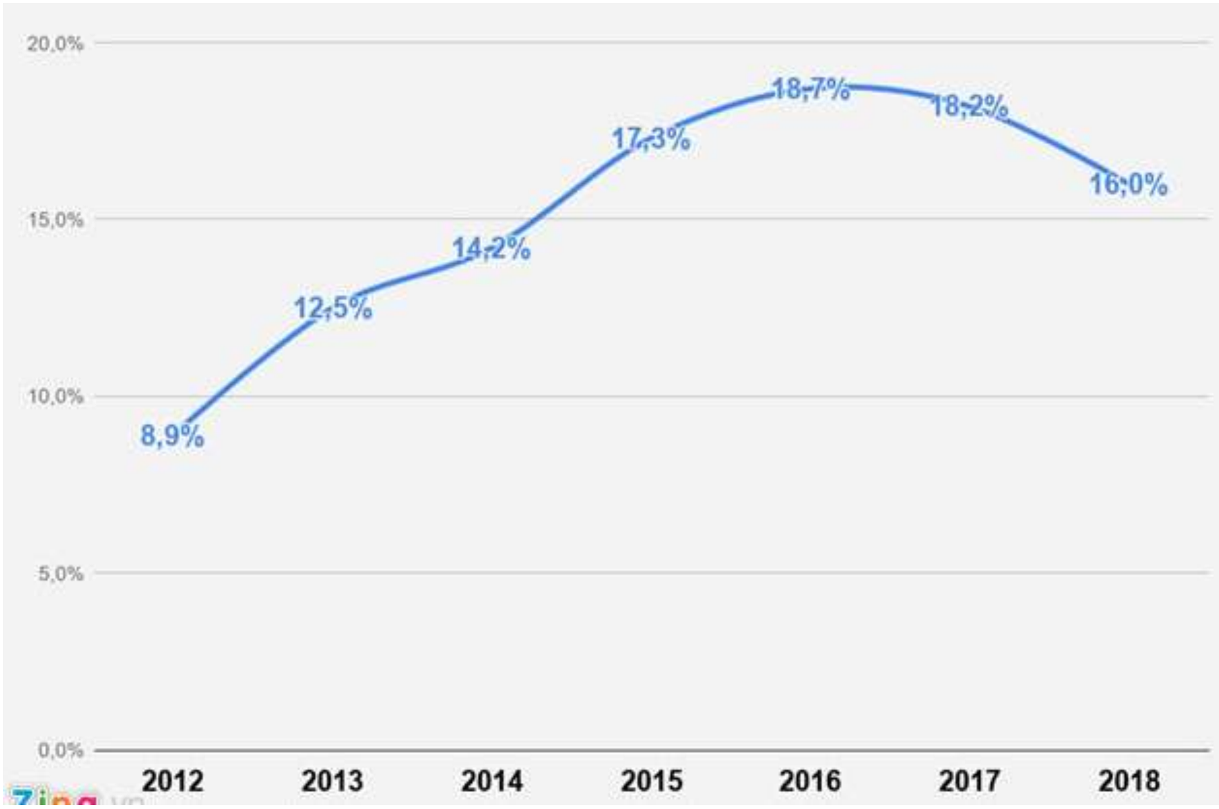
Exhibit 3 – Loan/Credit growth rate in the past years (2012-2018) in Vietnam



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