

Article Info

Received: 05 Jan 2020 | Revised Submission: 20 Feb 2020 | Accepted: 28 Feb 2020 | Available Online: 15 Mar 2020

Estimating the Volatility of Market Risk of Viet Nam Telecom and Education Industry after the Low Inflation Period 2015-2017

Dinh Tran Ngoc Huy*

ABSTRACT

The last decade has seen the emergence of Customer Relationship Management (CRM) as a technique to underpin organizational performance improvement in improving customer retention, customer satisfaction and customer value. However, despite many studies conducted on customer relationship management in various industries in the past 20 years, there is still significant disagreement about its definition and meaning, and the framework for the effective implementation and evaluation of customer relationship management practice. Moreover, there is a lack of systematic empirical evidence regarding the success factors for the CRM performance. Objective: To address these issues, this study examines the influence of top management and customer orientation on CRM performance. Results: In this quantitative study, a total of 133 Jordanian hotels participated in this study by voluntarily completing the survey questionnaire, constituting an overall 66% response rate. From the analysis undertaken, it was found that Top Management significantly influence CRM performance But. this research found insignificant relationship between customer orientation and CRM performance Conclusion: The results suggest that hotels should have processes to maintain, analyze, and integrate customer information. Theoretical and managerial implications of these findings are discussed.

Keywords: Risk management; Asset beta; Financial crisis; Telecom and education industry; Policy.

1.0 Introduction

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

telecom & education 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 in section 5.

2.0 Body of Manuscript

2.1 Research issues

Issue 1: Whether the risk level of telecom & education 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

* Banking University, Ho Chi Minh City Viet Nam, Graduate School of International Management, International University of Japan, Niigata, Japan (E-mail: dtnhuy2010@gmail.com)

different changing periods in the telecom & education 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 telecom & education 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 telecom & education industry.

Hypothesis 3: With the above reasons, the mean of equity and asset beta values of these listed telecom & education 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 al (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. Mohamadet al (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 al (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 al. (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.

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 telecom & education sector. Hence, central banks, commercial banks, telecom & education 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 telecom & education 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.

3.0 Main Results

3.1 General data analysis

We get some analytical results from the research sample with 18 listed firms in the telecom & education 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 18 listed telecom & education 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 figure 1.

Figure 1: Analyzing Market Risk Under Two (2) Scenarios: Post – low Inflation Period 2015-2017 Compared to the Financial Crisis 2007-2009

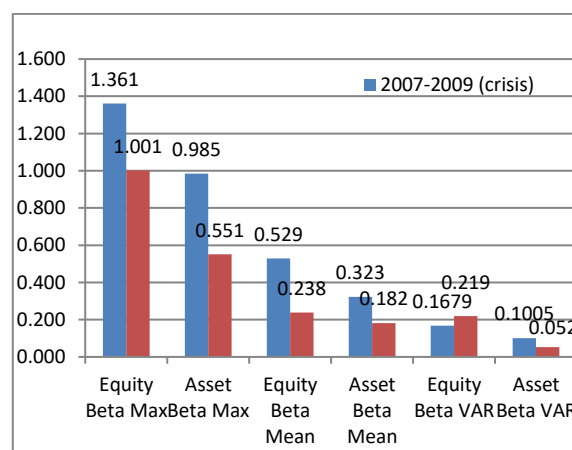


Table 1: Post – low Inflation Period and Financial Crisis Time

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

Table 2: Volatility of Market Risk (beta) of Telecom and Education 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	ECI	-0.007	-0.006	16.5%	assume debt beta = 0; debt ratio as in F.S 2015; FL calculated as total debt/total capital
2	INN				
3	PTP	-0.049	-0.037	25.9%	
4	DHI				
5	IHK				
6	HTP	0.927	0.861	7.2%	
7	TPH	-0.121	-0.072	41.0%	
8	IN4				
9	ADC	0.282	0.114	59.4%	
10	HST	0.148	0.095	35.3%	
11	SGD	-0.495	-0.376	24.0%	
12	DAE	0.029	0.021	27.6%	
13	HEV	-0.091	-0.073	19.7%	
14	ALT	-0.451	-0.390	13.4%	
15	EFI	-0.665	-0.659	0.8%	
16	EID	0.162	0.095	41.3%	
17	DAD	0.401	0.324	19.1%	
18	SED	0.576	0.375	34.9%	

Table 3: The Statistics of Volatility of Market Risk (beta) of Telecom and Education 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	0.927	0.861
MIN	-0.665	-0.659
MEAN	0.046	0.020
VAR	0.1820	0.1349
Note: Sample size : 18		

Table 4: The Comparison of Volatility of Market Risk (beta) of Telecom and Education Industry in the Post- low Inflation Period 2015-2017 and the Financial Crisis 2007-2009

2007-2009 (financial crisis)				2015-2017 (post - low inflation)		Note
Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Equity beta	Asset beta (assume debt beta = 0)	
1	ECI	0.471	0.351	-0.007	-0.006	assume debt beta = 0; debt ratio as in F.S 2015 and 2008
2	INN	0.467	0.25	0.000	0.000	
3	PTP	0.425	0.203	-0.049	-0.037	
4	DHI	0.894	0.66	0.000	0.000	
5	IHK	0.593	0.34	0.000	0.000	
6	HTP	1.035	0.802	0.927	0.861	
7	TPH	0.924	0.411	-0.121	-0.072	
8	IN4	0.315	0.189	0.000	0.000	
9	ADC	0.513	0.258	0.282	0.114	
10	HST	0.654	0.455	0.148	0.095	
11	SGD	1.180	0.63	-0.495	-0.376	
12	DAE	1.013	0.399	0.029	0.021	
13	HEV	0.869	0.596	-0.091	-0.073	
14	ALT	0.772	0.617	-0.451	-0.390	
15	EFI	0.447	0.422	-0.665	-0.659	
16	EID	0.599	0.433	0.162	0.095	
17	DAD	0.868	0.588	0.401	0.324	
18	SED	0.319	0.147	0.576	0.375	

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

Firstly, we see in the table 1 that more telecom and education firms (7 over 18firms) have equity beta values lower ($<$) than 1, which means risk level acceptable. There are 7 firms with negative equity beta (< 0). And table 2 provides evidence for us to see that equity beta mean of the sample is 0.046, just little lower than ($<$) 1. It is acceptable.

Then, looking at the table 3, we recognize that there are 7firms with equity beta values < 0 in the

post-low inflation period 2015-17 and no firm with negative equity beta valuesin the financial crisis 2007-2009. Also, there are 3 firms with equity beta > 1 in the crisis 2007-09 while no firm with equity beta > 1 in the post-L inflation time.

Table 5: The Difference between Volatility of Market Risk (beta) of Telecom and Education 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	ECI	-0.478	-0.357	values (2015-17) minus (-) 2007-09
2	INN	-0.467	-0.250	
3	PTP	-0.474	-0.240	
4	DHI	-0.894	-0.660	
5	IHK	-0.593	-0.340	
6	HTP	-0.108	0.059	
7	TPH	-1.045	-0.483	
8	IN4	-0.315	-0.189	
9	ADC	-0.231	-0.144	
10	HST	-0.506	-0.360	
11	SGD	-1.675	-1.006	
12	DAE	-0.984	-0.378	
13	HEV	-0.960	-0.669	
14	ALT	-1.223	-1.007	
15	EFI	-1.112	-1.081	
16	EID	-0.437	-0.338	
17	DAD	-0.467	-0.264	
18	SED	0.257	0.228	

Table 6: Statistics of Volatility of Market Risk (beta) of Telecom and Education 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	1.180	0.802	0.927	0.861	-0.253	0.059
MIN	0.315	0.147	-0.665	-0.659	-0.980	-0.806
MEAN	0.687	0.431	0.046	0.020	-0.640	-0.411
VAR	0.0697	0.0345	0.182	0.135	0.112	0.100

Next, table 5 shows that equity beta varin the post- low inflation period are higher ($>$) than those in the financial crisis 2007-2009.

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

More clearly, Value of equity beta var in the post-low inflation 2015-2017 is higher ($>$) than those in the crisis 2007-2009 while 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, although the fluctuation in risk level measured by equity beta var is much higher during the post-low inflation time.

Chart 1 – Statistics of Market risk (beta) in VN Telecom and education industry in the post – low inflation period 2015-2017 compared to the financial crisis 2007-2009.

Figure 2: Inflation, CPI Over Past 10 Years (2007-2017) in Vietnam

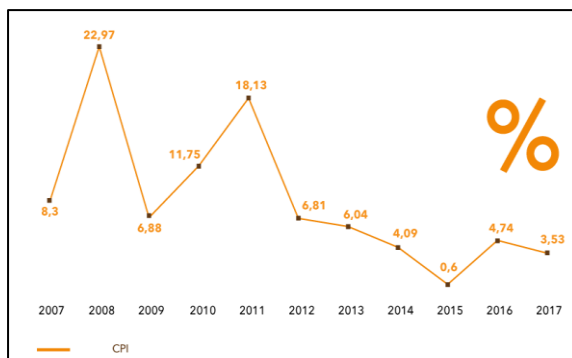
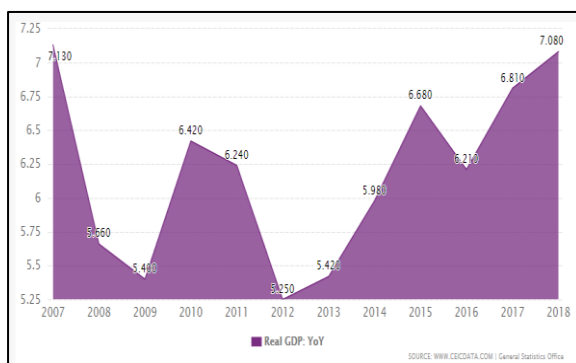


Figure 3: GDP Growth Rate Past 10 Years (2007-2018) in Vietnam



5.0 Conclusion and Policy Suggestion

In general, telecom and education 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 (aset and equity beta var) is increasing significantly during the post-low inflation period. Telecom and education 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 devices and reputation risk of telecom & education companies. Telecom & education 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 management.

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 telecom & education 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 telecom & education industry will relatively higher than those in the post-low inflation environment. Additionally, the above result supports 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 telecom & education industry.

Last but not least, as it generates the warning that the risk fluctuation might be much higher 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 the risk volatility and hence, help the telecom

& education 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 telecom & education 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 telecom & education company system as well as in the whole economy. Telecom & education companies need to do a better pricing strategy and provide extra services to help Vietnam enterprises to build standardized processes.

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

6.0 Acknowledgements

I would like to take this opportunity to express my warm thanks to Board of Editors of This Journal and Colleagues at Citibank –HCMC, SCB and BIDV-HCMC, Dr. Chen and Dr. Yu Hai-Chin at Chung Yuan Christian University for class lectures, also Dr Chet Borucki, Dr Jay and my ex-Corporate Governance sensei, Dr. Shingo Takahashi at International University of Japan. My sincere thanks are for the editorial office, for their work during my research. Also, my warm thanks are for Dr. Ngo Huong, Dr. Ho Dieu, Dr. Ly H. Anh, Dr Nguyen V. Phuc, Dr Le Si Dong and my lecturers at Banking University – HCMC, Viet Nam for their help.

Lastly, thank you very much for my family, colleagues, and brotherin assisting convenient conditions for my research paper. This is a gift to my grandmothers, Mrs Man and MrsUt, and my close fired, Ms Do Thi Sang.

References

- [1] F Allen, D Gale. Stock Price Manipulation, Review of Financial Studies, 1992.
- [2] D Basu, A Streme. CAPM and Time-Varying Beta: The Cross-Section of Expected Returns, SSRN Working paper series, 2007.
- [3] A Chatterjea, JA Jerian, RA Jarrow. Market Manipulation and Corporate Finance: A new Perspectives, 1994 Annual Meeting Review, SouthWestern Finance Association, Texas, USA, 2001.
- [4] RR Chen, NK Chidambaran MB Imerman, BJ Sopranzetti,]. Liquidity, Leverage, and Lehman: A Structural Analysis of Financial Institutions in Crisis, Fordham School of Business Research, 2279686, 2013.
- [5] LY Cheng, MC Wang, KC Chen. Institutional Investment Horizons and the Stock Performance of Private Equity Placements: Evidence from the Taiwanese Listed Firms, Review of Pacific Basin Financial Markets and Policies, 17(2), 2014.
- [6] RP DeGennaro, S Kim. The CAPM and Beta in an Imperfect Market, SSRN Working paper series, 2003.
- [7] V Dimitrov, PC Jain. The Value Relevance of Changes in Financial Leverage, SSRN Working Paper, 2006.
- [8] A Emilios. Bank Leverage Ratios and Financial Stability: A Micro- and Macroprudential Perspective, Working Paper No.849, Levy Economics Institute, 2015.
- [9] FF Eugene, KR French. The Capital Asset Pricing Model: Theory and Evidence, Journal of Economic Perspectives, 2004.
- [10] DUA Galagedera. An alternative perspective on the relationship between downside beta and CAPM beta, Emerging Markets Review, 2007.
- [11] V Gunarathna. How does Financial Leverage Affect Financial Risk? An Empirical Study in Sri Lanka, Amity Journal of Finance, 1(1), 2016, 57-66.

- [12] V Gunaratha. The Degree of Financial Leverage as a Determinant of Financial Risk: An Empirical Study of Colombo Stock Exchange in Sri Lanka, 2nd International Conference on Management and Economics Paper, 2013.
- [13] AI Khwaja, A Mian. Unchecked intermediaries: Price manipulation in an emerging stock market, *Journal of Financial Economics* 78, 2005, 243 – 241
- [14] L Li, C Pornchai. Income Structure, Competitiveness, Profitability, and Risk: Evidence from Asian Banks, *Review of Pacific Basin Financial Markets and Policies*, 17(3), 2014.
- [15] K Martin, VW Sweder. On Risk, leverage and banks: Do highly leveraged banks take on excessive risk?, Discussion Paper TI 12-022/2/DSF31, Tinbergen Institute, 2012.
- [16] JC Park, FD Ali, C Mbanga. Investor sentiment and aggregate stock returns: the role of investor attention, *Review of Quantitative Finance and Accounting*, 53(2), 2019, 397 - 428.
- [17] D Rahman. Are Banking Systems Increasingly Fragile? Investigating Financial Institutions' CDS Return Extreme Co-Movements, *Quantitative Finance*, 2013.
- [18] T Siller. Measuring Marginal Risk Contributions in Credit Portfolios, *Quantitative Finance*, 2013.
- [19] Umar. Profits, Financial Leverage and Corporate Governance, SSRN Working Paper, 2011.
- [20] A Ang, J Chen. CAPM Over the Long Run: 1926-2001, *Journal of Empirical Finance*, 2007.
- [21] ADB and Viet Nam Fact Sheet, 2010.
- [22] <http://www.ifc.org/ifcext/mekongpsdf.nsf/Content/PSDP22>
- [23] <http://www.construction-int.com/article/vietnam-construction-market.html>
- [24] <http://fia.mpi.gov.vn/Default.aspx?ctl=Article&MenuID=170&aID=185&PageSize=10&Page=0>
- [25] http://kientruc.vn/tin_trong_nuoc/nganh-bat-dong-san-rui-ro-va-co-hoi/4881.html
- [26] http://www.bbc.co.uk/vietnamese/vietnam/story/2008/12/081226_vietnam_gdp_down.shtml
- [27] <http://www.mofa.gov.vn/vi/>
- [28] <https://www.ceicdata.com/en/indicator/vietnam/real-gdp-growth>