ĐO LƯỜNG BIẾN ĐỘNG RỦI RO THỊ TRƯỜNG NGÀNH BÁN BUÔN VÀ BÁN LẺ VIỆT NAM THỜI KỲ HẬU LẠM PHÁT THẤP 2015 - 2017

Đinh Trần Ngọc Huy[1],
Nguyễn Thị Phương Thanh[2]

Tóm tắt

Nghiên cứu này nhằm mục đích tìm hiểu mức tăng hoặc giảm rủi ro thị trường của các công ty bán buôn và bán lẻ niêm yết ở Việt Nam sau giai đoạn lạm phát thấp 2015 - 2017. Đầu tiên, bằng cách sử dụng phương pháp định lượng kết hợp với phương pháp phân tích dữ liệu so sánh, chúng tôi tìm ra mức độ rủi ro được đo bằng giá trị trung bình beta trong ngành bán buôn và bán lẻ là chấp nhận được, tức là thấp hơn một chút so với một. Sau đó, một trong những phát hiện chính của bài báo là so sánh giữa mức độ rủi ro của ngành bán buôn và bán lẻ trong cuộc khủng hoảng tài chính 2007 - 2009 so với mức rủi ro trong thời kỳ hậu lạm phát thấp 2015 - 2017. Trên thực tế, kết quả nghiên cứu cho chúng ta thấy biến động rủi ro thị trường, được đo bằng beta vốn chủ sở hữu và tài sản, trong thời gian hậu lạm phát thấp đã tăng đáng kể. Cuối cùng, bài viết này cung cấp một số ý tưởng cho các công ty và chính phủ trong việc thiết lập các chính sách quản trị của họ. Đây là nhiệm vụ phức tạp nhưng kết quả nghiên cứu cảnh báo rằng biến động rủi ro thị trường có thể cao hơn trong giai đoạn hậu lạm phát thấp 2015 - 2017. Và phần kết luận của chúng tôi đã đề xuất một số chính sách và kế hoạch để đối phó với nó. Chẳng hạn, chính phủ và các cơ quan liên quan như Bộ Tài chính và Ngân hàng Nhà nước Việt Nam cần xem xét thực thi các chính sách phù hợp (bao gồm sự kết hợp của các chính sách tài khóa, tiền tệ, tỷ giá và kiểm soát giá) nhằm mục đích giảm biến động rủi ro và từ đó giúp hệ thống bán buôn và bán lẻ cũng như toàn bộ nền kinh tế trở nên ổn định hơn trong giai đoạn phát triển tiếp theo.
Từ khóa: *Quản trị rủi ro, beta tài sản, khủng hoảng tài chính, ngành bán buôn và bán lẻ, chính sách.*

MEASURING THE VOLATILITY OF MARKET RISK OF VIET NAM WHOLESALE AND RETAIL INDUSTRY AFTER THE LOW INFLATION PERIOD 2015 - 2017
Abstract

This research paper aims to figure out how much increase or decrease in the market risk of Vietnam wholesale and retail 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 wholesale and retail industry is acceptable, i.e. it is a little lower than one.Then, one of its major findings is the comparison between risk level of wholesale and retail 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 equity and asset beta var, during the post-low inflation time has increased considerably. 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. For instance, 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 wholesale and retail system as well as the whole economy become more stable in next development stage.
Keywords: *Risk management, asset beta, financial crisis, wholesale and retail industry, policy*
JEL classification numbers: G00, G390, C83

1 Introduction

Throughout many recent years, Viet Nam wholesale and retail market is evaluated as one of active markets, which has certain positive effect for the economy. In the retail industry, according to Vietnam's Report, in recent years, Vietnam's retail industry has experienced rapid growth. The compound growth rate (CAGR) in the period of 2013 - 2018 was 10.97%.

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 wholesale and retail industry. For instance, during the global crisis 2007-09, inflation was greater than 22% and lending rate was around 18% that put a high pressure on company operation and shorten profit margin of these firms.

This study will calculate and figure out whether the market risk level during the post-low inflation time (2015 - 2017) has increased or decreased, compared to those statistics in the financial crisis time (2007 - 2009). If it increases, we might suggest risk management policy to control and reduce these risks. Because Beta CAPM, a market index, is affected by whole macro economic factors, we can propose a solution pakage for companies to reduce risk.

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.

2. Body of manuscript
2.1. Research Issues

The scope of this study is only for wholesale and retail listed companies on Vietnam stock exchanges during 2015-2015. Below are research issues:

Issue 1: Whether the risk level of wholesale and retail 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 and?

Issue 2: Because Viet Nam is an emerging and immature financial market and the stock market is still in the starting stage, whether the

dispersed distribution of beta values become large in the different changing periods in the wholesale and retail 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 wholesale and retail 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 wholesale and retail industry.

Hypothesis 3: With the above reasons, the mean of equity and asset beta values of these listed wholesale and retail firms tend to impose a high risk level, i.e., beta should be higher than 1.

2.2. Literature review

Fama and French (2004) 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 (1964), Treynor (1961, 1962) and Lintner (1964).

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 medicine 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.

Up to now, no researches have been done to calculate and compare equity beta or Beta CAPM between 2 periods: Financial crisis and post-low inflation, in order to recommend risk management policies. This is the research gap which this paper tries to fill in.

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 risk increasing in medicine sector. Hence, central banks, commercial banks, wholesale and retail 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 wholesale and retail 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. Results and Discussion

We get some analytical results from the research sample with 9 listed wholesale and retail companies with the live date from the stock exchange. These are big listed companies controlling major market share in this industry in Vietnam market, so they can be chosen as research sample.

In the below section, data used are from total 9 listed wholesale and retail industry 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.

Table 1: The Volatility of Market Risk (beta) of Wholesale and Retail Industry in the post- low inflation period 2015 - 2017

No.	Company name	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Financial leverage	Note
1	……..	HHS	0.881	0.828	6.0%	
2		IMT				
3		TH1	-0.169	-0.032	81.2%	assume debt beta
4		BSC	-0.787	-0.581	26.1%	= 0; debt ratio as
5		PET				in F.S 2015; FL
6		BTT	0.076	0.058	23.5%	calculated as
7		CMV	0.299	0.081	72.8%	total debt/total
8		PIT	-0.045	-0.010	77.1%	capital
9		VT1	0.340	0.151	55.7%	

Source: VietNam stock exchange

The Vietnam economy experienced low inflation in 2015, during this post-low (L) inflation, we see from the above table that, there is no firm with beta greater than 1.

Table 2: The Statistics of Volatility of Market Risk (beta) of Wholesale and Retail Industry in the post- low inflation period 2015 - 2017

Statistic results	Equity beta	Asset beta (assume debt beta = 0)
MAX	0.881	0.828
MIN	-0.787	-0.581
MEAN	0.085	0.071
VAR	0.2644	0.1704

Note: Sample size : 9 (We just take a sample of 9 firms to make comparison)
The above statistics tell us that equity and asset beta mean is much lower than 1.

Table 3: The Comparison of Volatility of Market Risk (beta) of Wholesale and Retail Industry in the post- low inflation period 2015-2017 and the financial crisis 2007-2009

Order No.	Company stock code	2007-2009 (financial crisis)		2015-2017 (post - low inflation)		Note
		Equity beta	Asset beta (assume debt beta = 0)	Equity beta	Asset beta (assume debt beta = 0)	
1	HHS	0.818	0.538	0.881	0.828	
2	IMT	0.296	0.286	0.000	0.000	
3	TH1	0.501	0.196	-0.169	-0.032	assume debt
4	BSC	0.395	0.321	-0.787	-0.581	beta = 0; debt
5	PET	1.170	0.322	0.000	0.000	ratio as in F.S
6	BTT	0.722	0.557	0.076	0.058	2015 and
7	CMV	0.341	0.109	0.299	0.081	2008
8	PIT	0.881	0.447	-0.045	-0.010	
9	VT1	0.358	0.152	0.340	0.151	

Source: VietNam stock exchange

During the crisis 2007 - 2009 there is only 1 firm with equity beta value greater than 1 while there is no firm having beta greater than 1 during post-L inflation time.

Table 4: *The Difference between Volatility of Market Risk (beta) of Wholesale and Retail Industry in the post- low inflation period 2015-2017 and the financial crisis 2007-2009*

Order No.	Company stock code	GAP (+/-) 2015 - 2017 compared to 2007 - 2009		Note
		Equity beta	**Asset beta (assume debt beta = 0)**	
1	HHS	0.063	0.290	
2	IMT	-0.296	-0.286	
3	TH1	-0.670	-0.228	
4	BSC	-1.182	-0.902	values (2015-17) minus (-) 2007-09
5	PET	-1.170	-0.322	
6	BTT	-0.646	-0.499	
7	CMV	-0.042	-0.028	
8	PIT	-0.926	-0.457	
9	VT1	-0.018	-0.001	

Source: VietNam stock exchange

From the above table, there is only 1 firm with higher GAP during post-L inflation environment, compared to crisis time.

Table 5: *Statistics of Volatility of Market Risk (beta) of Wholesale and Retaii Industry in the post- low inflation period 2015-2017 compared to those in the financial crisis 2007-2009*

Statistic results	2007 - 2009 (crisis)		2015 - 2017 (post - low inflation)		GAP (+/-) 2015 - 17 compared to 2007 - 2009	
	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	1.170	0.557	0.881	0.828	-0.289	0.271
MIN	0.296	0.109	-0.787	-0.581	-1.083	-0.690
MEAN	0.609	0.325	0.085	0.071	-0.524	-0.255
VAR	0.0919	0.0261	0.264	0.170	0.172	0.144

Note: Sample size : 9

Source: VietNam stock exchange

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

Firstly, we see in the table 1 that more wholesale and retail firms (4 over 9 companies) have equity beta values lower than 1, which means risk level acceptable. There are no firms with equity beta greater than 1. And 2 firms with negative beta values.

And table 2 provides evidence for us to see that equity beta mean of the sample is 0.085, just little lower than 1. It is acceptable.

Then, looking at the table 3, we recognize that there is 1 firm with equity beta greater than 1 in the crisis, while there is no firm with beta greater than 1 during the post-low inflation period 2015 - 2017.

Next, table 5 shows that equity beta max and 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:

Values of asset and equity beta mean in the post-low inflation 2015 - 2017 are significantly lower than those in the crisis 2007 - 2009 while asset beta var and equity beta var are much higher than those in the financial crisis 2007-2009. It means that the level of risk in the post – low inflation period 2015 - 2017 is lower in general and in average. Although the fluctuation in risk level measured by asset beta var is higher during the post-low inflation time.
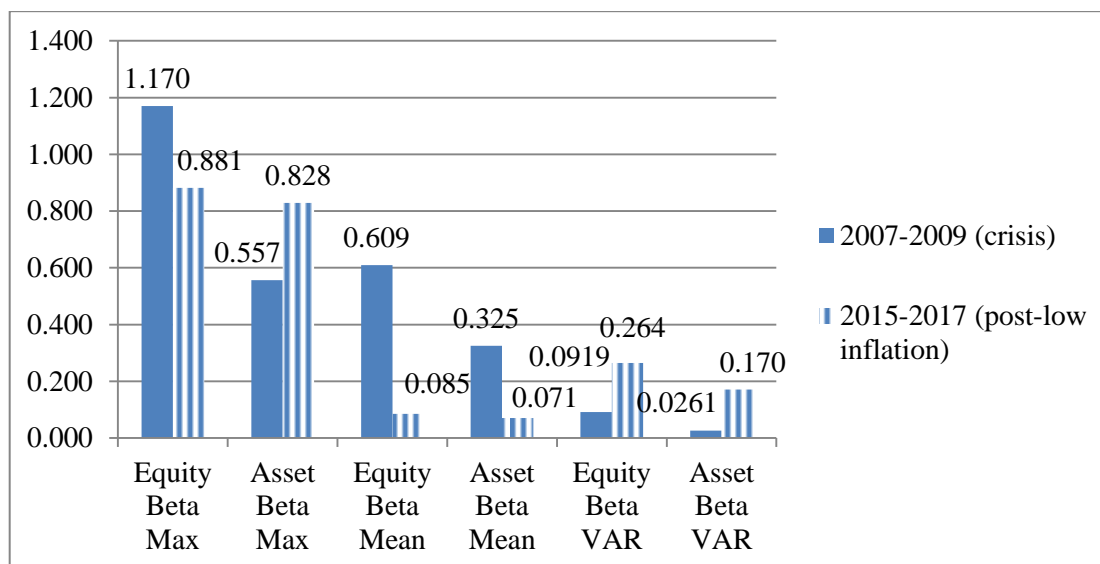
Chart 1. Statistics of Market risk (beta) in VN Wholesale and Retail industry in the post – low inflation period 2015 - 2017 compared to the financial crisis 2007 - 2009

4. Conclusion and Policy suggestion

In general, wholesale and retail system in Vietnam, a key sector in consumer good industry, has been contributing significantly to the economic development and GDP growth rate of more than 6-7% in recent years. The above analysis show us that despite of market risk decreasing, risk volatility (equity beta var) also decreasing during the post-low inflation period, asset beta max became higher, so wholesale and retail firms in Vietnam need to continue increase 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 wholesale and retail companies.

As equity beta or Beta CAPM is a kind of market risk index and has been affected by many macro economic factors, so we can suggest risk management solutions for the company as well as for the whole market.

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.

The result rejects the hypothesis 3 mentioning that the mean of equity and asset beta values of these listed wholesale and retail companies tend to impose a little high risk level, i.e., beta should be 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 wholesale and retail 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 wholesale and retail industry.

Last but not least, as it generates the warning that the risk fluctuation might be higher in the financial crisis and declines during post-low (L) inflation period, esp. under negative impacts from China-Trump commerce war at present, and asset beta max higher in the post-L inflation time, 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 wholesale and retail system 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 wholesale and retail companies as we could note that in this study, debt leverage has certain impacts on reducing risk level.

Finally, this study opens some new directions for further researches in risk control policies in wholesale and retail system as well as in the whole economy. We need to manage better human resources, better inventory as well as financial risk management. 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. For example, we can build a regression model to analyze impacts of macro economic factors on risk level of firms.

5. Acknowledgements

REFERENCES

[1]. Allen, F., and Gale, D. (1992). Stock Price Manipulation. *Review of Financial Studies.*

[2]. Basu, Devraj., and Streme, Alexander. (2007). CAPM and Time-Varying Beta: The Cross-Section of Expected Returns. *SSRN Working paper series*

[3]. Chatterjea, Arkadev., Jerian, Joseph A., and Jarrow, Robert A. (2001). Market Manipulation and Corporate Finance: A new Perspectives. *1994 Annual Meeting Review*, SouthWestern Finance Association, Texas, USA.

[4]. Chen RR, Chidambaran NK, Imerman MB, Sopranzetti BJ, Liquidity, Leverage, and Lehman. (2013). A Structural Analysis of Financial Institutions in Crisis. *Fordham School of Business Research Paper No.2279686,* 2013.

[5]. Cheng, L.Y., Wang, M.C., and Chen, K.C. (2014). 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).

[6]. DeGennaro, Ramon P., Kim, Sangphill. (2003). The CAPM and Beta in an Imperfect Market, *SSRN Working paper series*

[7]. Dimitrov V, Jain PC. (2006). The Value Relevance of Changes in Financial Leverage*, SSRN Working Paper*

[8]. Emilios, A. (2015). Bank Leverage Ratios and Financial Stability: A Micro- and Macroprudential Perspective. *Working Paper No.849,* Levy Economics Institute

[9]. Eugene FF, French KR. (2004). The Capital Asset Pricing Model: Theory and Evidence. *Journal of Economic Perspectives,* 18(3): 25-46.

[10]. Galagedera, D.U.A. (2007). An alternative perspective on the relationship between downside beta and CAPM beta. *Emerging Markets Review*

[11]. Gunarathna, V. (2016). How does Financial Leverage Affect Financial Risk? An Empirical Study in Sri Lanka, *Amity Journal of Finance*, 1(1), 57 - 66.

[12]. Gunaratha V. (2013). 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.*

Thông tin tác giả:

1. Đinh Trần Ngọc Huy
- Đơn vị công tác: Banking University; MBA, Graduate School of International Management, International University of Japan
- Địa chỉ email*: dtnhuy2010@gmail.com*

2. Nguyễn Thị Phương Thanh
- Đơn vị công tác: Trường ĐH Công nghệ Thông tin và Truyền Thông - ĐH Thái Nguyên
- Địa chỉ email*: Ntpthanh@ictu.edu.vn*