

# Selecting Various Industrial Competitors Affect the Risk Level of Vietnam Insurance Industry

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**Abstract-** Under a one factor model, this paperwork estimates the impacts of the size of firms' competitors in the insurance industry on the market risk level, measured by equity and asset beta, of 7 listed companies in this category. This study identified that the risk dispersion level in this sample study could be minimized in case the competitor size doubles (measured by equity beta var of 0,107). Beside, the empirical research findings show us that asset beta min value increases from 0,037 to 0,104 when the size of competitor doubles. Last but not least, most of beta values are acceptable except a few exceptional cases. Ultimately, this paper illustrates calculated results that might give proper recommendations to relevant governments and institutions in re-evaluating their policies during and after the financial crisis 2007-2011.

**Keywords-** Risk management, competitive firm size, market risk, asset and equity beta, insurance industry al.

## 1. INTRODUCTION

Together with financial system development and the economic growth, throughout many recent years, Viet Nam insurance industry is considered as one of active economic sectors, which has some positive effects for the economy. Additionally, financial risk and reactions has become an issue after the global crisis 2007-2009 which has some certain impacts on the whole Viet nam economy, and specifically, the Viet Nam insurance industry. Hence, this research paper analyzes market risk under a one factor model of these listed firms during this period. This paper is organized as follow. The research issues and literature review will be covered in next sessions 2 and 3, for a short summary. Then, methodology and conceptual theories are introduced in session 4 and 5. Session 6 describes the data in empirical analysis. Session 7 presents empirical results and findings. Next, session 8 covers the analytical results. Then, session 9 presents risk analysis and session 10 covers discussion. Session 11 will conclude with some policy suggestions. This paper also supports readers with references, exhibits and relevant web sources.

## 2. RESEARCH ISSUES

For the estimating of impacts of a one factor model: the size of competitor on beta for listed insurance industry

companies in Viet Nam stock exchange, research issues will be mentioned as following:

Issue 1: Whether the risk level of insurance industry firms under the different changing scenarios of the size of competitor increase or decrease so much.

Issue 2: Whether the disperse distribution of beta values become large in the different changing scenarios of the size of competitor in the insurance industry.

## 3. LITERATURE REVIEW

William Sharpe., (1963) pointed in a simplified model of portfolio theory that each stock is correlated with each other stock because all are correlated with "the market", and stock return depends on some factors such as a constant alpha and stock beta. And Harry Markowitz developed diversification and modern portfolio theory using beta as one of key factors. Beta is used in CAPM model, which is developed by Jack Treynor, John Lintner, Jan Mossin and William Sharpe. Black (1976) proposes the leverage effect to explain the negative correlation between equity returns and return volatilities. Diamond and Dybvig (1983) said banks can also help reduce liquidity risk and therefore enable long-term investment. 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. Next, Kim et al (2002) noted that the nature of competitive interaction in an industry is important in assessing the effect of corporate product strategies on shareholder value. Pagano and Mao (2007) stated that An intermediated market can therefore remain viable in the face of competition from a possibly faster, non-intermediated market as long as the specialist can generate revenue for the above services that covers his/her costs associated with asymmetric information, order processing, and inventory management. Daly and Hanh Phan (2013) investigated the competitive structure of the banking industries in five emerging asian countries including Viet Nam and showed that the global financial crisis affected dramatically the competition of banking system in emerging Asian countries. Last but not least, Ana and John (2013) Binomial Leverage – Volatility theorem provides a precise link between leverage and volatility.

**4. CONCEPTUAL THEORIES**

**4.1 Determinants of Equity and Asset Beta**

Generally speaking, beta can be estimated for an individual firm by using regression. Beta is used in CAPM model, and it is a risk measure of a listed firm compared to the overall market risk. For example, if beta of a single listed firm equals to 2,5 it means that the firm risk is 2,5 times riskier than the overall risk of the market. Therefore, when an investor wants to make an investment in a financial market, beta is an overall risk measure in investing in a stock exchange market. In a specific industry such as insurance industry, there are many firms offering the similar products and services and this helps customers select a variety of qualified goods that meet their demand. Competitors could affect price and customer service policies; hence, affect revenues and profits of a typical company. The competition could drive down profits that firms can earn. Sources of competition include, but not limit to, training. Increasing training can help competition raising productivity.

Two or more different firms offer various products or services to the same group of customer and the same need. This is called indirect competition.

**5. METHODOLOGY**

In this research, analytical research method is used, philosophical method is used and specially, scenario analysis method is used. Analytical data is from the situation of listed insurance industry firms in VN stock exchange and applied current tax rate is 25%. Finally, we use the results to suggest policy for both these enterprises, relevant organizations and government.

**6. GENERAL DATA ANALYSIS**

The research sample has total 7 listed firms in the insurance industry market with the live data from the stock exchange.

Firstly, we estimate equity and asset beta values of these firms, as well as the risk dispersion. Secondly, we change the competitor size from approxiamte size to doubling size and slightly smaller size to see the sensitivity of beta values. We figure out that in 3 cases, asset beta mean values are estimated at 0,264, 0,345 and 0,254 which are positively correlated with the size of competitors. Also in 3 scenarios, we find out equity beta mean values (0,552, 0,749 and 0,527) are also positively correlated. Various competitors selected definitely have certain effects on asset and equity beta values.

**7. EMPIRICAL RESEARCH FINDINGS AND DISCUSSION**

In the below section, data used are from total 7 listed insurance industry companies on VN stock exchange (HOSE and HNX mainly). In the three scenarios, current financial leverage degree is kept as in the 2011 financial statements which is used to calculate market risk (beta) whereas competitor size is kept as current, then changed from double size to slightly smaller size. In short, the below table 1 shows three scenarios used for analyzing the risk level of these listed firms.

Market risk (beta) under the impact of tax rate, includes: 1) equity beta; and 2) asset beta.

Table 2 – Analyzing market risk under three (3) scenarios  
*(Made by Author)*

	FL as current
Competitor size as current	Scenario 1
Competitor size slightly smaller	Scenario 2
Competitor size double	Scenario 3

7.1 Scenario 1: current financial leverage and competitor size kept as current

In this case, beta values of 7 listed firms on VN insurance industry market as:  
(refer to exhibit 2)  
There is no listed firms with both equity and asset beta values < 0 whereas there is 1 listed firms with equity beta values > 1, or 14% of firms.

7.2. Scenario 2: competitor size double  
Beta values of total 7 listed firms on VN insurance industry market as:  
(refer to exhibit 3).  
There is no listed firms with both equity and asset beta values < 0, whereas there is 1 listed firm with equity beta value > 1, or 14% of firms. Competitor size increase has no big impact on the number of firms with equity beta value > 1.

7.3. Scenario 3: Competitor size slightly smaller  
Beta values of total 7 listed firms on the insurance industry market in VN as:  
(refer to exhibit 4).  
There is no listed firms with both equity and asset beta values < 0 and there is 1 listed firms with beta values > 1 (or 14% of firms). However, competitor size decrease has no big influence on the number of firms with equity beta value > 1.  
All three above tables and data show that values of equity and asset beta in the three cases of changing competitor size have certain fluctuation.

**8. COMPARING STATISTICAL RESULTS IN 3 SCENARIOS OF CHANGING LEVERAGE**

Table 3 - Statistical results (FL in case 1) (source: VN stock exchange 2012)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,261	0,744	0,5167
MIN	0,114	0,037	0,0764
MEAN	0,552	0,264	0,2877
VAR	0,2353	0,0812	0,1541
Note: Sample size : 7			

Table 4 – Statistical results (FL in case 2) (source: VN stock exchange 2012)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,261	0,744	0,5167
MIN	0,288	0,104	0,1840

MEAN	0,749	0,345	0,4041
VAR	0,1071	0,0537	0,0534
Note: Sample size : 7			

Table 5- Statistical results (FL in case 3) (source: VN stock exchange 2012)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,261	0,744	0,5167
MIN	0,030	0,013	0,0164
MEAN	0,527	0,254	0,2728
VAR	0,2618	0,0865	0,1753
Note: Sample size : 7			

Based on the calculated results, we find out:

First of all, Equity beta mean values in all 3 scenarios are acceptable (< 0,8) and asset beta mean values are also small (< 0,4). In the case of reported leverage in 2011, equity beta max is 1,261 which is acceptable. If competitor size doubles, asset beta min expands from 0,037 to 0,104. Finally, when competitor size is slightly smaller, asset beta min reduces to the value of 0,013. The below chart 1 shows us : when competitive firm size decreases slightly, average equity beta value decrease more (0,527) compared to that at the initial selected competitor (0,552). Next, average asset beta decreases little (to 0,254). However, in case the competitor size doubles, the risk level of the selected firms increases little (0,345). Last but not least, the fluctuation of equity beta value (0,107) in the case of doubling size competitors is smaller than (>) the results in the rest 2 cases. And we could note that in the case competitor size slightly smaller, the risk is more dispersed (0,087).

Chart 1 – Comparing statistical results of equity beta and mean in three (3) scenarios of changing competitor size (source: VN stock exchange 2012)

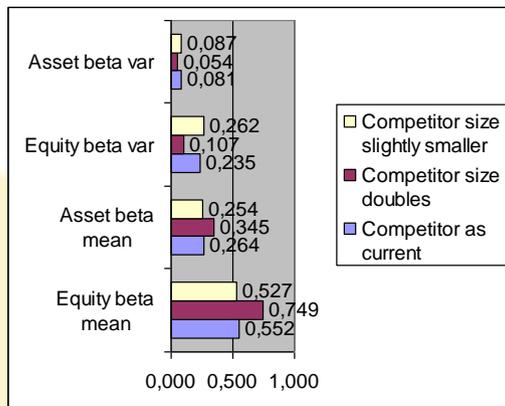
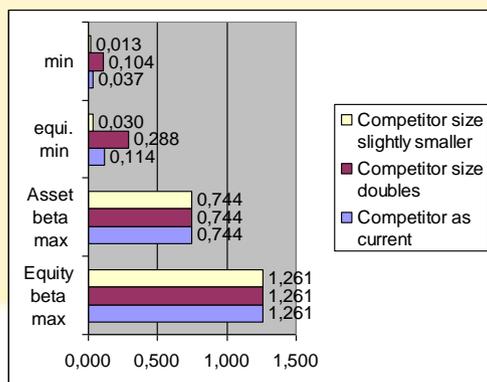


Chart 2 – Comparing statistical results of equity/asset beta max and min in three (3) scenarios of changing competitor size (source: VN stock exchange 2012)



### 9. RISK ANALYSIS

Generally speaking, during the financial crisis 2007-2011, esp. the period 2007-2009, the insurance industry can survive well and maintain the development and profits, although these firms have to face other kinds of risks: materials or water or electric prices increasing. These risks can affect the operating cash flow of these companies.

### 10. DISCUSSION

Table 1 shows us there are 86% of firms having acceptable beta values ( $0 < \text{equity beta} < 1$ ) in cases : current or doubling size competitors. If competitor size is smaller, this number maintains at 86%. Moreover, chart 2 tells us that asset beta min increases to 0,104 in case doubling size competitors. Looking at exhibit 5, it is noted that comparing to beta results of electronic and electrical industry in the period 2007-2011, asset beta mean of

insurance industry group during 2007-2011 is lower in current situation (0,264) and in case competitor size smaller. And the risk dispersion in insurance industry when competitor size is smaller during 2007-2011 (shown by asset beta var of 0,08) is also higher than that in electronic and electrical industries (0,06).

### 11. CONCLUSION AND SUGGESTION

In conclusion, the government has to consider the impacts on the mobility of capital in the markets when it changes the macro policies and the legal system and regulation for developing the insurance market. The Ministry of Finance continues 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 insurance companies as we could note that in this study when competitive firm size doubles, the risk level increases (asset beta mean value is estimated at: 0,345), and the equity beta var value (0,107) is little smaller than that in case competitor size as current (0,235). Furthermore, the entire efforts among many different government bodies need to be coordinated. Finally, this paper suggests implications for further research and policy suggestion for the Viet Nam government and relevant organizations, economists and investors from current market conditions.

### 12. ACKNOWLEDGEMENTS

I would like to take this opportunity to express my warm thanks to Board of Editors 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 and my lecturers at Banking University – HCMC, Viet Nam for their help. Lastly, thank you very much for my family, colleagues, and brother in assisting convenient conditions for my research paper.

### 13. REFERENCES

[1] Dexheimer, John., and Haugen, Carla, (2003), Sarbanes-Oxley: Its Impact on the Venture Capital

Community, *Minnesota Journal of Business Law and Entrepreneurship*, Vol.2 No.1

[2] Eugene, Fama F., and French, Kenneth R., (2004), The Capital Asset Pricing Model: Theory and Evidence, *Journal of Economic Perspectives*

[3] Fernandez, Pablo., (2008), Levered and Unlevered Beta, *SSRN Working paper series*

[4] Flifel, Kaouter., (2012), Financial Markets between Efficiency and Persistence : Empirical Evidence on Daily Data, *Asian Journal of Finance and Accounting*

[5] 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.*

[6] Gao, Huasheng., Harford, Jarrad., and Li, Kai., (2013), Determinants of Corporate Cash Policy: Insights from Private Firms, *Journal of Financial Economics*

[7] Huy, Dinh T.N., (2012), Estimating Beta of Viet Nam listed construction companies groups during the crisis, *Journal of Integration and Development*

[8] Kale, Jayant R., Meneghetti, Costanza., and Sharur, Husayn., (2013), Contracting With Non-Financial Stakeholders and Corporate Capital Structure: The Case of Product Warranties, *Journal of Financial and Quantitative Analysis*

[9] Litvak, Kate., (2008), Defensive Management: Does the Sarbanes-Oxley Act Discourage Corporate Risk-Taking?, *Law and Economics Research Paper*, No. 108

[10] Ling, Amy., (2013), Tax Issues Relating to Intangibles, *Asia-Pacific Tax Bulletin*

[11] Lu, Wenling., and Whidbee, David A., (2013), Bank Structure and Failure, *Journal of Financial Economic Policy*

[12] Mukerjee, Kaushik., (2013), Customer-Oriented Organizations: A Framework for Innovation, *Journal of Business Strategy*

[13] Pereiro, Luis E.,(2010), The Beta Dilemma in Emerging Markets, *Journal of Applied Corporate Finance*

[14] Shi, Mingtao., (2013), Capturing Strategic Competencies :Cloud Security as a Case Study, *Journal of Business Strategy*

[15] Young, L., (2011), Market Orientation Processes, *Australasian Marketing Journal*

**RESEARCH**

[16] Ang, A., Chen, J., (2007), CAPM Over the Long Run: 1926-2001, *Journal of Empirical Finance*

[17] Baker, Kent H., Singleton, Clay J., and Veit, Theodore E., (2011), Survey Research in Corporate Finance: Bridging The Gap Between Theory and Practice, *Oxford University Press*

[18] *ADB and Viet Nam Fact Sheet*, 2010

**OTHER WEB SOURCES**

[19] <http://www.mofa.gov.vn/vi/>

[20] <http://www.hsx.vn/hsx/>

[21] [www.tuoitre.com.vn;](http://www.tuoitre.com.vn;)

[22] [www.saigontimes.com.vn;](http://www.saigontimes.com.vn;)

[23] [www.mof.gov.vn ;](http://www.mof.gov.vn;)

**APPENDIX**

**Table 1 – The number of companies in research sample with different beta values and ratio**

	current size		double size		smaller size	
Equity Beta	No. of firms	Ratio	No. of firms	Ratio	No. of firms	Ratio
<0	0	0,0%	0	0,0%	0	0,0%
0<beta<1	6	85,7%	6	85,7%	6	85,7%
Beta > 1	1	14,3%	1	14,3%	1	14,3%
total	7	100,0%	7	100,0%	7	100,0%
	current size		double size		smaller size	
Asset Beta	No. of firms	Ratio	No. of firms	Ratio	No. of firms	Ratio
<0	0	0,0%	0	0,0%	0	0,0%
0<beta<1	7	100,0%	7	100,0%	7	100,0%
Beta > 1	0	0,0%	0	0,0%	0	0,0%
total	7	100,0%	7	100,0%	7	100,0%

**Exhibit 1 – Inflation, GDP growth and macroeconomics factors**  
(Source: Viet Nam commercial banks and economic statistical bureau)

Year	Inflation	GDP	USD/VND rate
2011	18%	5,89%	20.670
2010	11,75% (Estimated at Dec 2010)	6,5% (expected)	19.495
2009	6,88%	5,2%	17.000
2008	22%	6,23%	17.700
2007	12,63%	8,44%	16.132
2006	6,6%	8,17%	
2005	8,4%		
Note	approximately		

**Exhibit 2 – Market risk of listed companies on VN insurance industry market under one factor model (case 1)** (source: VN stock exchange 2012)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage (F.S reports)
1	BVH	0,966	0,252		73,9%
2	PVI	0,937	0,580		38,1%
3	ABI	0,288	0,104		63,8%
4	BIC	0,114	0,037	ABI as comparable	67,3%
5	BMI	1,261	0,744		41,0%
6	PGI	0,150	0,067	ABI as comparable	55,2%
7	PTI	0,145	0,063	ABI as comparable	56,7%
				Average	56,6%

**Exhibit 3 - Market risks of listed insurance industry firms under one factor model (case 2)** (source: VN stock exchange 2012)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note
1	BVH	0,966	0,252	
2	PVI	0,937	0,580	

3	ABI	0,288	0,104	
4	BIC	0,496	0,162	BMI as comparable
5	BMI	1,261	0,744	
6	PGI	0,656	0,294	BMI as comparable
7	PTI	0,636	0,275	BMI as comparable

**Exhibit 4** – Market risk of listed insurance industry firms under one factor model (case 3) (source: VN stock exchange 2012)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note
1	BVH	0,966	0,252	
2	PVI	0,937	0,580	
3	ABI	0,288	0,104	
4	BIC	0,057	0,019	PTI as comparable
5	BMI	1,261	0,744	
6	PGI	0,030	0,013	BIC as comparable
7	PTI	0,145	0,063	ABI as comparable

**Exhibit 5** – Comparing statistical results of equity beta var and mean in three (3) scenarios of changing competitor size in 18 listed commercial electric firms 2007-2011 (source: VN stock exchange 2012)

