The Risk Level of Viet Nam Insurance Industry under Impacts of a Four Factor Model during and After the Global Crisis

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Abstract

Over recent years, insurance industry in Viet Nam has reached a lot of achievements. Under the volatility of stock price, and changes in macro factors such as inflation and interest rates, the well-established insurance market in Viet Nam has many efforts to recover and grow from the crisis 2008. This study analyzes the impacts of 3 factors: competitor size, tax rate policy and leverage on market risk for the listed firms in the insurance industry as it becomes necessary.

First, by using quantitative and analytical methods to estimate asset and equity beta of total 20 listed companies in Viet Nam insurance industry with a proper traditional model, we found out that the beta values, in general, for many companies are acceptable.

Second, under 3 different scenarios of changing tax rates (20%, 25% and 28%), we recognized that there is not large disperse in equity beta values, although the risk dispersion reduces to 0,032 if tax rate down to 20% for current leverage situation.

Third, by changing tax rates in 3 scenarios (25%, 20% and 28%), we recognized both equity and asset beta mean values have positive relationship with the increasing level of tax rate.

Finally, this paper provides some outcomes that could provide companies and government more evidence in establishing their policies in governance.

JEL classification numbers: G010, G390

Keywords: risk management; asset beta; financial crisis; corporate tax; leverage

1   Introduction

Throughout many recent years, Viet Nam insurance market is evaluated as one of active markets, which has certain positive effect for the economy. There are many components which affect the risk level of these firms including, but not limit to, external factors (tax rates, interest rates, competitors…) and internal factors (management, leverage, technology, strategy,…). The scope of this paperwork covers the influence of 3 factors on the market risk of these listed companies, including: tax rates, financial leverage or external financing, and the competitive firm size.

The organization of paper contents is as following. As our previous series of paper, the research issues and literature review will be covered in next sessions 2.1 and 2.2, for a short summary. Then, methodology and conceptual theories are introduced in session 2.3 and 2.4. Session 3.1 describes the data in empirical analysis. Session 3.2 presents empirical results and findings. Then, session 4 will conclude with some policy suggestions. This paper also supports readers with references, exhibits and

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relevant web sources.

2   Preliminary Notes

2.1 Research Issues

Among the research areas of the paperwork are:
Issue 1: Whether the risk level of insurance firms under the different changing scenarios of tax rates increase or decrease so much?

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 scenarios of leverage estimated in the insurance industry.

Issue 3: Whether the risk level of insurance firms under the different changing scenarios of competitive firm size increase or decrease so much?

2.2 Literature review

John (1999) mentions a two-rate tax system where land is taxed at a higher rate than structures in his research on two-rate property tax effects on land development.

Smith (2004) mentions in Chicago, properties located in a designated TIF (tax increment financing) district will exhibit higher rates of appreciation after the area is designated a qualifying TIF district when compared to those properties selling outside TIF districts, and when compared to properties that sell within TIF district boundaries prior to designation.

Anderson (2009) recognized that the user cost tax elasticities are relatively small while the expected house price inflation elasticity is substantially larger and therefore plays a greater role in affecting housing market demand.

Spinassou (2013) showed that the impact of Basel III on the regulator's welfare depends on the regulator's strength, and the implementation of an identical leverage ratio across countries would decrease the welfare of regulators with strong powers. Next, Tasca et all (2013) identified a safe regime, in which excessive leverage does not result in an increase of systemic risk, and a risky regime, in which

excessive leverage cannot be mitigated leading to an increased systemic risk. And Gunaratha (2013) revealed that in different industries in Sri Lanka, the degree of financial leverage has a significant positive correlation with financial risk.

Beside, Raith (2001) found out the intensity of product market competition increases, principals unambiguously provide stronger incentives to their agents to reduce costs, and hence agents work harder. At the same time, more intense competition also leads to a higher volatility of both firm-level profits and managers' compensation. Next, Kim et all (2002) noted that the nature of competitive interaction in an industry is important in assessing the effect of corporate product strategies on shareholder value. Gropp et all (2007) constructed the market shares of insured competitor banks for any given bank, and analyze the impact of this variable on banks' margins and risk-taking behavior, using a large sample of banks from OECD countries. Their results suggest that government guarantees to some banks strongly increase the risk-taking of the competitor banks not protected by such guarantees. 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.

2.3 Conceptual theories

The impact of competition or the size of competitor, leverage and tax rates on the economy and business

The central bank and government or Ministry of Finance could use two tools: fiscal and monetary policies to perform macro economic goals. Tax rate is one of fiscal policies, either expansion or contraction, can affect quickly the aggregate demand and good market and industry growth.

Beside, on the one hand, using leverage with a decrease or increase in certain periods could affect tax obligations, revenues, profit after tax

and technology innovation and compensation and jobs of the industry. On the other hand, using financial leverage and changing capital structure offers firms better economic conditions. Firms can vary the capital structure with leverage and change the structure of fixed costs and variable costs. Although leverage can help a firm to increase return, the firm will prefer to increase debt up to a point to be not so nervous about risk because of too much debt financing. During the firm life, leverage can contribute to its performance and growth.

Furthermore, Porter's theory shows us the basic unit of analysis for understanding competition is the industry. And Porter stated that the industry is the arena in which the competitive advantage is won or lost. Beside, competition can help to raise the value of a company by eliminating or reducing monopoly. Sources of competition include, but not limit to, training. Increasing training can help competition raising productivity. For a nation, the more competitive advantages its industries own, the more success the nation achieves.

2.4 Methodology
We use the data from the stock exchange market in Viet Nam (HOSE and HNX) during the 2007-2011 period to estimate systemic risk results.

In this study, analytical research method and specially, tax rate scenario analysis method is used. Analytical data is from the situation of listed insurance firms in VN stock exchange and current tax rate is 25%.

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

3   Main Results

3.1 General Data Analysis

The research sample has 9 listed firms in the insurance market with the live date from the stock exchange.
Firstly, we estimate equity beta values of these firms and use financial leverage to estimate asset beta values of them. Secondly, we change the tax rate from 25% to 28% and 20% to see the sensitivity of beta values. In 3 cases (rate = 20%, 25%, and 28%), with current debt financing, asset beta mean is estimated at 0,249, 0,251 and 0,246. Also in 3 scenarios, we find out var of asset beta estimated at 0,009 (almost the same). Tax rate changes almost have no effect on asset beta var under financial leverage.

3.2 Empirical Research Findings and Discussion

In the below section, data used are from total 9 listed insurance industry companies on VN stock exchange (HOSE and HNX mainly). In the scenario 1, current tax rate is kept as 25% then changed from 20% to 30%. Then, three (3) FL scenarios are changed up to 30% and down to 20%, compared to the current FL degree. 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 1 – Analyzing market risk under three (3) scenarios (*Made by Author*)

	Tax rate as current (25%)	Tax rate up to 30%	Tax rate down to 20%
Leverage as current	Competitor size as current, double and slightly smaller	Competitor size as current, double and slightly smaller	Competitor size as current, double and slightly smaller
Leverage up 30%			
Leverage down 20%			

	Scenario 1	Scenario 2	Scenario 3

a. Scenario 1: current tax rate 25% and leverage kept as current, 20% down and 30% up, under the condition that competitor size kept as current

In this case, all beta values of 9 listed firms on VN insurance industry market as following:

Table 2 – Market risk of listed companies on VN wholesale and retail industry market under a 3 factors model (case 1)   *(source: VN stock exchange 2012)*

		Equity beta			Asset beta		
	Stock code	Competitor as current	Double	smaller	Competitor as current	Double	smaller
1	DXL (FI current)	0,295	0,213	0,313	0,243	0,267	0,170
	DXL (FL up)						
	DXI (FL down)						
2….	MTC	0,373	0,363	0,375	0,366	0,371	0,357
4	OCH	0,748	0,318	0,920	0,497	0,468	0,118
5	SGH	0,381	0,351	0,381	0,357	0,381	0,342
6	VIR	0,298	0,223	0,315	0,252	0,272	0,183
7	VNG	0,234	0,168	0,234	0,181	0,234	0,148

b. Scenario 2: tax rate increases up to 28% and leverage kept as current, 20% down and 30% up, under the condition that competitor size kept as current

All beta values of total 9 listed firms on VN insurance industry market as below:

Table 3 – Market risks of listed insurance industry firms under a 3 factors model (case 2) *(source: VN stock exchange 2012)*

		Equity beta			Asset beta		
	Stock code	Competitor as current	Double	smaller	Competitor as current	Double	smaller
1	DXL (FI current)	0,295	0,213	0,313	0,243	0,267	0,170
	DXL (FL up)						
	DXI (FL down)						
2….	MTC	0,373	0,363	0,375	0,366	0,371	0,357
4	OCH	0,748	0,318	0,920	0,497	0,468	0,118
5	SGH	0,381	0,351	0,381	0,357	0,381	0,342
6	VIR	0,298	0,223	0,315	0,252	0,272	0,183
7	VNG	0,234	0,168	0,234	0,181	0,234	0,148

c. Scenario 3: tax rate decreases down to 20% and leverage kept as current, 20% down and 30% up, under the condition that competitor size kept as current

All beta values of total 9 listed firms on VN insurance industry market as below:

Table 4 – Market risks of listed insurance industry firms under a 3 factors model (case 3) *(source: VN stock exchange 2012)*

Order No.	Company stock code	Leverage as current		Leverage down 20%		Leverage up 30%	
		Equity beta	Asset beta (assume debt beta = 0)	Equity beta	Asset beta (assume debt beta = 0)	Equity beta	Asset beta (assume debt beta = 0)
1	DLD	0,164	0,107	0,179	0,129	0,141	0,077
2	DXL	0,291	0,209	0,310	0,240	0,261	0,166
3	MTC	0,373	0,362	0,374	0,366	0,370	0,357
4	OCH	0,724	0,307	0,897	0,484	0,447	0,113
5	SGH	0,381	0,351	0,381	0,357	0,381	0,342
6	VIR	0,294	0,220	0,311	0,249	0,266	0,179
7	VNG	0,234	0,168	0,234	0,181	0,234	0,148

All three above tables and data show that there are just tiny changes in the values of equity beta and there are bigger fluctuations in the values of asset beta in the three (3) cases.

3.2. **Comparing statistical results in 3 scenarios of changing leverage:**

Table 5 - Statistical results (FL in case 1) *(source: VN stock exchange 2012)*

	Statistic results	Equity beta			Asset beta			Difference		
		Competitor as current	Double	smaller	Competitor as current	Double	smaller	Current	Double	smaller
1. Fl current	MAX	0,295	0,213	0,313				0,243	0,267	0,170
	MIN									
	MEAN									
	VAR									
2. Fl 30%	MAX									
	MIN									
	MEAN									
	VAR									
3. Fl 20%	MAX									
	MIN									
	MEAN									
	VAR									

Table 6 – Statistical results (FL in case 2) *(source: VN stock exchange 2012)*

		Equity beta			Asset beta			Difference		
	Statistic results	Competitor as current	Double	smaller	Competitor as current	Double	smaller	Current	Double	smaller
1. FI current	MAX	0,295	0,213	0,313				0,243	0,267	0,170
	MIN									
	MEAN									
	VAR									
2. FI 30%	MAX									
	MIN									
	MEAN									
	VAR									
3. FI 20%	MAX									
	MIN									
	MEAN									
	VAR									

Table 7- Statistical results (FL in case 3)   *(source: VN stock exchange 2012)*

		Equity beta			Asset beta			Difference		
	Statistic results	Competitor as current	Double	smaller	Competitor as current	Double	smaller	Current	Double	smaller
1. FI current	MAX	0,295	0,213	0,313				0,243	0,267	0,170
	MIN									
	MEAN									
	VAR									
2. FI 30%	MAX									
	MIN									
	MEAN									
	VAR									
3. FI 20%	MAX									
	MIN									
	MEAN									
	VAR									

The above calculated figures generate some following results:

First of all, Equity beta mean values in all 3 scenarios are acceptable (< 0,4) and asset beta mean values are also small (< 0,3). If leverage increases to 30%, asset beta max value decreases slightly to 0,357 when tax rate is up to 30%. Finally, when leverage decreases down to 20%, asset beta max value increases to 0,505 in case tax rate up.

The below chart 1 shows us : when leverage degree decreases down to 20%, if tax rate is up to 28%, average equity beta value increases slightly (0,392) compared to that at the decrease of tax rate of 20% (0,384). However, equity beta var is 0,037 (tax rate up), little smaller than 0,033 (tax rate down). Then, when leverage degree increases up to 30%, if tax rate is up to

28%, average equity beta decreases little more (to 0,308) compared to that at the decrease of tax rate of 20% (0,300). However, in case the tax rate up, the equity beta var is 0,012, little higher than 0,11 (tax rate down).

The below chart 2 shows us : when leverage degree decreases down to 20%, if tax rate is up to 28%, average asset beta value increases slightly (0,291) compared to that at the decrease of tax rate of 20% (0,287). However, asset beta var is 0,016 (tax rate up), little smaller than 0,015 (tax rate down). Then, when leverage degree increases up to 30%, if tax rate is up to 28%, average asset beta also increases little more (to 0,291) compared to that at the decrease of tax rate of 20% (0,287). However, in case the tax rate up, the asset beta var is 0,012, the same as that in case tax rate down.

Chart 1 – Comparing statistical results of equity beta var and mean in three (3) scenarios of changing FL and tax rate and competitor size *(source: VN stock exchange 2012)*
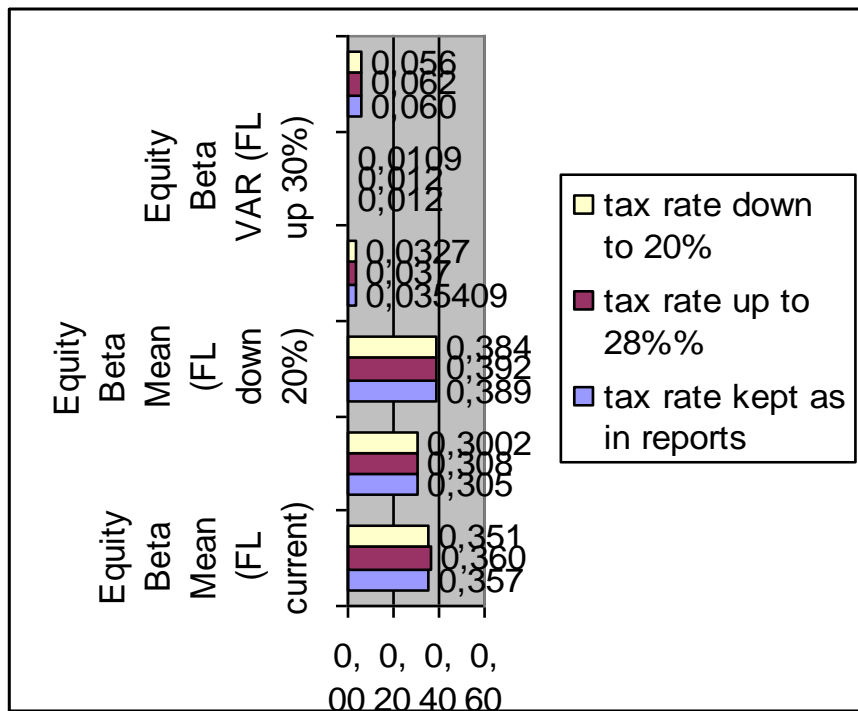
Chart 2 – Comparing statistical results of asset beta var and mean in three (3) scenarios of changing FL and tax rate and competitor size *(source: VN stock exchange 2012)*
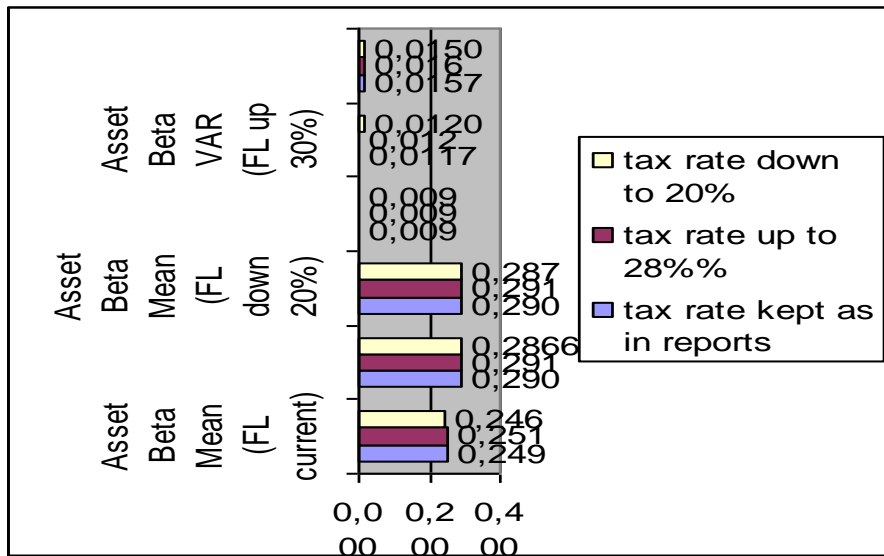
4. Conclusion and Policy suggestion

In summary, the government has to consider the impacts on the movement of market risk 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 firms as we might note that in this study when leverage is going to increase up to 30%, the risk level decreases to 0,287 (asset beta mean decreases if tax rate moves down to 20%).

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.

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Exhibit

Exhibit 1- VNI Index and other stock market index during crisis 2006-2010

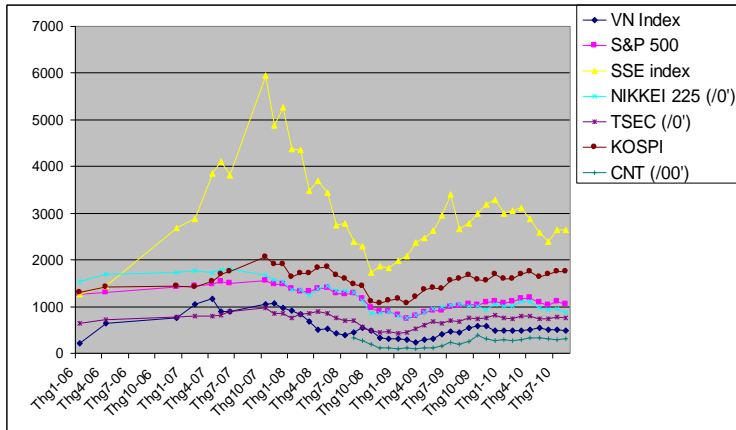*(source: global stock exchange 2012)*

Exhibit 2- Comparable firms and changing leverage for Viet Nam hotel firms

(source: Viet Nam stock exchange 2012)

Order No.	Company Stock code	Comparable firm	FL as current	FL up 30%	FL down 20%
1	DLD	VNG as comparable	35,0%	45,5%	28,0%
2	DXL	SGH as comparable	28,0%	36,4%	22,4%
3	MTC	SGH as comparable	2,8%	3,6%	2,2%
4	OCH	RIC as comparable	57,5%	74,8%	46,0%
5	SGH		7,9%	10,2%	6,3%
6	VIR	MTC as comparable	25,2%	32,7%	20,1%
7	VNG		28,4%	36,9%	22,7%
		Average	26,4%	34,3%	21,1%