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# The Risk Level of Viet Nam Wholesale and Retail Industry under Impacts of a Three Variable Model during and After the Global Crisis

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## Abstract

Over recent years, wholesale and retail 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 wholesale and retail 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 wholesale and retail industry as it becomes necessary.

First, by using quantitative and analytical methods to estimate asset and equity beta of total 9 listed companies in Viet Nam wholesale and retail 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 the largest dispersion in equity beta value (0,22), if tax rate is up to 28%, leverage up to 30% and doubling size competitors.

Third, by changing tax rates in 3 scenarios (25%, 20% and 28%), this study identified that the risk dispersion level in this sample study could be minimized in case the competitor size slightly smaller, tax rate up to 28% and financial leverage up to 30% (measured by asset beta var of 0,022).

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, competitive firm size

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## **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. 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,...), in the context of most global stock markets including Vietnam stock market experienced a downturn in the year 2009 (see exhibit 1). 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 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 wholesale and retail 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 wholesale and retail industry.

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

### **2.2 Literature review**

The Merton model (1980) mentions the market equity premium is a positive function of the market risk which can be measured by the variance of premium.

Regarding to researches on financial crisis, risk and cost of capital, Herring and Watchter (2003) found that many financial crises are results from bubbles in real estate industry. And Allen, Franklin., Babus, Ana., and Carletti, Elena., (2009) pointed during crisis the borrowing amount against various collateral types can vary significantly.

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.

Then, Antonio F.A, Pablo Jose C.D.C, and Jose R.H.O., (2009) implies the challenge is building a risk management strategy while market participants know all the assumptions behind market risk models and measures. Likewise, Felix S., Gene T., and Catalina M.G., (2012) said findings on market risk of real estate can be useful for practitioners achieving a more accurate portfolio risk management.

On the other hand, 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. Nicole, Martin and Enzo (2012) found that transaction taxes have no impact on house price growth. And their findings suggest that capital gain taxes on real estate are not suitable measures to prevent excessive house price growth.

Then, Sung, Mark and Laura (2013) also indicated that business property values are more responsive to changes in tax rates as compared to residential property.

Next, Levine (1991) said liquid markets can enable investment in long-term investment projects while at the same time allowing investors to have access to their savings at short-term notice. King and Levine (1993) stated financial institutions and markets allow cross-sectional diversification across projects, allowing risky innovative activity. Peter and Liuren (2007) mentions equity volatility increases proportionally with the level of financial leverage, the variation of which is dictated by managerial decisions on a company's capital structure based on economic conditions. And for a company with a fixed amount of debt, its financial leverage increases when the market price of its stock declines.

Reinhart and Rogoff (2009) pointed the history of finance is full of boom-and-bust cycles, bank failures, and systemic bank and currency crises. Adrian and Shin (2010) stated a company can also proactively vary its financial leverage based on variations on market conditions. Clifford, Andrea and Lasse (2012) stated that safer assets must offer higher risk-adjusted returns than riskier assets and that consuming the high risk-adjusted returns of safer assets require leverage, creating an opportunity for investors to apply leverage. Gulser, Chiu and Ilhan (2012) also mentioned using financial leverage increases the total risk of the firm by increasing the volatility of a corporation's net income and return on equity.

Last but not least, 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 al (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. Gropp et al (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.

In this paperwork, the total combined effect of three (3) factors: tax rates, financial leverage, and competitor size on market risk of listed whole sale and retail companies will be estimated.

### **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.

**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 wholesale and retail 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 wholesale and retail 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, and the results are estimated under effects of another variable: competitive firm size (changed from approximate size to doubling size and slightly smaller). 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 0,35, 0,34 and 0,32. Also in 3 scenarios, we find out var of asset beta estimated at 0,031, 0,032 and 0,032 (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 wholesale and retail 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	Competitor size	Competitor size as
Leverage up 30%	as current,	as current,	current, double and
Leverage down 20%	double and	double and	slightly smaller
	slightly smaller	slightly smaller	
	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 wholesale and retail 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)**

Order No.	Company stock code	Equity beta			Asset beta		
		Competitor as current	Double	Slightly smaller	Competitor as current	Double	Slightly smaller
1	HHS (current FL)	0,728	0,295	0,383	0,479	0,194	0,252
	HHS (Fl up)	0,632	0,256	0,309	0,351	0,142	0,171
	HHS (Fl down)	0,789	0,319	0,434	0,573	0,232	0,315
2	IMT	0,399	1,080	0,399	0,386	1,044	0,386
	IMT (FL up)	0,396	1,072	0,396	0,379	1,025	0,379
	IMT (FL down)	0,401	1,086	0,401	0,390	1,057	0,390
3	TH1	0,409	0,409	0,409	0,160	0,160	0,160
	TH1 (Fl up)	0,409	0,409	0,409	0,086	0,086	0,086
	TH1 (Fl down)	0,409	0,409	0,409	0,210	0,210	0,210
4	BSC	0,420	0,238	0,204	0,342	0,193	0,166
	BSC (Fl up)	0,291	0,140	0,193	0,220	0,106	0,146
	BSC (FL down)	0,319	0,303	0,211	0,271	0,257	0,180
5	PET	1,273	1,273	1,273	0,351	0,351	0,351
	PET (FL up)	1,273	1,273	1,273	0,074	0,074	0,074
	PET (FL down)	1,273	1,273	1,273	0,535	0,535	0,535
6	BTT	0,829	0,335	0,532	0,640	0,259	0,411
	BTT (FL up)	0,769	0,311	0,494	0,541	0,219	0,348
	BTT (FL down)	0,867	0,351	0,557	0,709	0,287	0,455

7	CMV	0,391	0,158	0,391	0,126	0,051	0,126
	CMV (FL up)	0,153	0,062	0,153	0,018	0,007	0,018
	CMV (FL down)	0,535	0,216	0,535	0,244	0,099	0,244
8	PIT	1,012	1,012	1,012	0,514	0,514	0,514
	PIT (FL up)	1,012	1,012	1,012	0,364	0,364	0,364
	PIT (FL down)	1,012	1,012	1,012	0,613	0,613	0,613
9	VT1	0,411	0,279	0,101	0,175	0,118	0,043
	VT1 (FL up)	0,239	0,174	0,060	0,060	0,044	0,015
	VT1 (FL down)	0,529	0,343	0,129	0,286	0,185	0,070

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 wholesale and retail industry market as below:

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

Order No.	Company stock code	Equity beta			Asset beta		
		Competitor as current	Double	Slightly smaller	Competitor as current	Double	Slightly smaller
1	HHS (current FL)	0,736	0,298	0,390	0,485	0,196	0,257
	HHS (Fl up)	0,642	0,260	0,316	0,357	0,144	0,176
	HHS (Fl down)	0,796	0,322	0,441	0,578	0,234	0,320
2	IMT	0,399	1,081	0,399	0,386	1,045	0,386
	IMT (FL up)	0,396	1,073	0,396	0,379	1,026	0,379
	IMT (FL down)	0,401	1,087	0,401	0,391	1,058	0,391
3	TH1	0,409	0,409	0,409	0,160	0,160	0,160
	TH1 (Fl up)	0,409	0,409	0,409	0,086	0,086	0,086
	TH1 (Fl down)	0,409	0,409	0,409	0,210	0,210	0,210
4	BSC	0,310	0,244	0,205	0,252	0,198	0,167
	BSC (Fl up)	0,293	0,146	0,194	0,222	0,110	0,147
	BSC (FL down)	0,321	0,309	0,212	0,273	0,263	0,181
5	PET	1,273	1,273	1,273	0,351	0,351	0,351
	PET (FL up)	1,273	1,273	1,273	0,074	0,074	0,074
	PET (FL down)	1,273	1,273	1,273	0,535	0,535	0,535
6	BTT	0,835	0,338	0,536	0,644	0,261	0,414
	BTT (FL up)	0,777	0,314	0,499	0,547	0,221	0,351

	BTT (FL down)	0,872	0,353	0,560	0,713	0,288	0,458
7	CMV	0,401	0,162	0,401	0,129	0,052	0,129
	CMV (FL up)	0,158	0,064	0,158	0,019	0,008	0,019
	CMV (FL down)	0,545	0,221	0,545	0,249	0,101	0,249
8	PIT	1,012	1,012	1,012	0,514	0,514	0,514
	PIT (FL up)	1,012	1,012	1,012	0,364	0,364	0,364
	PIT (FL down)	1,012	1,012	1,012	0,613	0,613	0,613
9	VT1	0,423	0,284	0,104	0,180	0,121	0,044
	VT1 (FL up)	0,248	0,179	0,062	0,063	0,045	0,016
	VT1 (FL down)	0,540	0,348	0,132	0,292	0,188	0,071

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 wholesale and retail industry market as below:

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

Order No.	Company stock code	Equity beta			Asset beta		
		Competitor as current	Double	Slightly smaller	Competitor as current	Double	Slightly smaller
1	HHS (current FL)	0,715	0,289	0,371	0,470	0,190	0,244
	HHS (Fl up)	0,617	0,250	0,296	0,343	0,139	0,165
	HHS (Fl down)	0,778	0,315	0,424	0,565	0,229	0,308
2	IMT	0,398	1,078	0,398	0,385	1,042	0,385
	IMT (FL up)	0,395	1,069	0,395	0,378	1,023	0,378
	IMT (FL down)	0,401	1,084	0,401	0,390	1,055	0,390
3	TH1	0,409	0,409	0,409	0,160	0,160	0,160
	TH1 (Fl up)	0,409	0,409	0,409	0,086	0,086	0,086
	TH1 (Fl down)	0,409	0,409	0,409	0,210	0,210	0,210
4	BSC	0,305	0,228	0,202	0,248	0,185	0,164
	BSC (Fl up)	0,287	0,133	0,190	0,217	0,100	0,144
	BSC (FL down)	0,317	0,293	0,210	0,269	0,249	0,178
5	PET	1,273	1,273	1,273	0,351	0,351	0,351
	PET (FL up)	1,273	1,273	1,273	0,074	0,074	0,074
	PET (FL down)	1,273	1,273	1,273	0,535	0,535	0,535

6	BTT	0,819	0,331	0,526	0,632	0,256	0,406
	BTT (FL up)	0,757	0,306	0,486	0,533	0,216	0,342
	BTT (FL down)	0,859	0,347	0,551	0,702	0,284	0,451
7	CMV	0,376	0,152	0,376	0,121	0,049	0,121
	CMV (FL up)	0,144	0,058	0,144	0,017	0,007	0,017
	CMV (FL down)	0,519	0,210	0,519	0,237	0,096	0,237
8	PIT	1,012	1,012	1,012	0,514	0,514	0,514
	PIT (FL up)	1,012	1,012	1,012	0,364	0,364	0,364
	PIT (FL down)	1,012	1,012	1,012	0,613	0,613	0,613
9	VT1	0,393	0,270	0,097	0,167	0,115	0,041
	VT1 (FL up)	0,225	0,167	0,056	0,057	0,042	0,014
	VT1 (FL down)	0,511	0,334	0,125	0,276	0,180	0,067

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)**

		Equity beta			Asset beta			Difference			
1. FL as current	Statistic results	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	
		MAX	1,273	1,273	1,273	0,640	1,044	0,514	0,633	0,229	0,760
		MIN	0,391	0,158	0,101	0,126	0,051	0,043	0,266	0,107	0,058
		MEAN	0,653	0,564	0,523	0,352	0,320	0,268	0,300	0,244	0,255
		VAR	0,1069	0,1839	0,1434	0,0307	0,0921	0,0243	0,076	0,092	0,119
2. FL up 30 %	Statistic results	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	
		MAX	1,273	1,273	1,273	0,541	1,025	0,379	0,732	0,248	0,895
		MIN	0,153	0,062	0,060	0,018	0,007	0,015	0,135	0,054	0,045
		MEAN	0,575	0,523	0,478	0,233	0,230	0,178	0,342	0,294	0,300
		VAR	0,1439	0,2141	0,1650	0,0338	0,1003	0,0220	0,110	0,114	0,143
3. FL	Statistic results	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	



down 20 %	current			current			size as current			
	MAX	1,273	1,273	1,273	0,709	1,057	0,613	0,564	0,216	0,660
	MIN	0,319	0,216	0,129	0,210	0,099	0,070	0,109	0,118	0,059
	MEAN	0,682	0,590	0,551	0,426	0,386	0,335	0,256	0,204	0,216
	VAR	0,1043	0,1672	0,1355	0,0342	0,0910	0,0317	0,070	0,076	0,104

Note: Sample size : 9 firms

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

1. FL as current	Equity beta			Asset beta			Difference			
	Statistic results	Competitor or size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller
	MAX	1,273	1,273	1,273	0,644	1,045	0,514	0,629	0,228	0,760
	MIN	0,310	0,162	0,104	0,129	0,052	0,044	0,181	0,110	0,060
	MEAN	0,644	0,567	0,526	0,344	0,322	0,269	0,300	0,245	0,257
VAR	0,1138	0,1824	0,1424	0,0320	0,0918	0,0242	0,082	0,091	0,118	
2. FL up 30 %	Statistic results	Competitor or size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller
	MAX	1,273	1,273	1,273	0,547	1,026	0,379	0,727	0,247	0,894
	MIN	0,158	0,064	0,062	0,019	0,008	0,016	0,139	0,056	0,046
	MEAN	0,579	0,526	0,480	0,234	0,231	0,179	0,344	0,295	0,301
	VAR	0,1429	0,2127	0,1639	0,0343	0,1003	0,0221	0,109	0,112	0,142
3. FL down 20 %	Statistic results	Competitor or size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller	Competitor size as current	Double	Slightly smaller
	MAX	1,273	1,273	1,273	0,713	1,058	0,613	0,560	0,216	0,660
	MIN	0,321	0,221	0,132	0,210	0,101	0,071	0,110	0,120	0,061
	MEAN	0,686	0,593	0,554	0,428	0,388	0,336	0,257	0,205	0,217
	VAR	0,1037	0,1658	0,1349	0,0342	0,0905	0,0316	0,070	0,075	0,103

Note: Sample size : 9 firms

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

1. FL	Statistic results	Equity beta			Asset beta			Difference		
		Competitor or size as	Double	Slightly smaller	Competitor size as	Double	Slightly smaller	Competitor size as	Double	Slightly smaller

as cur ren t	current			current			as current			
	MAX	1,273	1,273	1,273	0,632	1,042	0,514	0,641	0,231	0,760
	MIN	0,305	0,152	0,097	0,121	0,049	0,041	0,184	0,103	0,056
	MEAN	0,633	0,560	0,518	0,339	0,318	0,265	0,295	0,242	0,253
	VAR	0,1164	0,1864	0,1449	0,0317	0,0925	0,0245	0,085	0,094	0,120
2. FL up 30 %	Statistic results	Competit or size as current Double		Slightly smaller	Competitor size as Doubl e		Slightly smaller	Compet itor size as Doubl e		Slightly smaller
	MAX	1,273	1,273	1,273	0,533	1,023	0,378	0,740	0,251	0,896
	MIN	0,144	0,058	0,056	0,017	0,007	0,014	0,127	0,052	0,042
	MEAN	0,569	0,520	0,474	0,230	0,228	0,176	0,339	0,292	0,298
	VAR	0,1455	0,2163	0,1667	0,0331	0,1002	0,0219	0,112	0,116	0,145
3. FL down 20 %	Statistic results	Competit or size as current Double		Slightly smaller	Competitor size as Doubl e		Slightly smaller	Compet itor size as Doubl e		Slightly smaller
	MAX	1,273	1,273	1,273	0,702	1,055	0,613	0,571	0,218	0,660
	MIN	0,317	0,210	0,125	0,210	0,096	0,067	0,107	0,114	0,057
	MEAN	0,675	0,586	0,547	0,422	0,384	0,332	0,253	0,203	0,215
	VAR	0,1052	0,1694	0,1365	0,0342	0,0917	0,0320	0,071	0,078	0,104

Note: Sample size : 9 firms

The above calculated figures generate some following results:

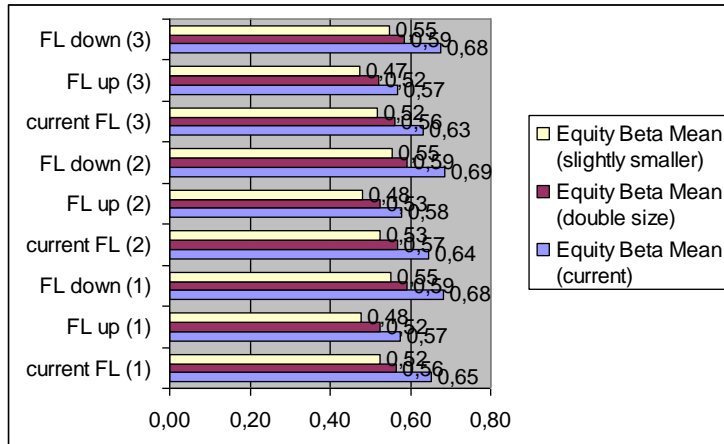
First of all, Equity beta mean values in all 3 scenarios are acceptable ( $< 0,7$ ) and asset beta mean values are also small ( $< 0,5$ ). If competitor size kept as current (approximate size) and Fl down 20%, asset beta max value increases slightly to 0,709 to 0,713 when tax rate is up to 28%. Finally, when leverage decreases down to 20% and competitor size kept as current, asset beta max value decreases to 0,702 in case tax rate down to 20%.

The below chart 1 and 2 show us: in scenario 1 (current tax rate), when leverage degree decreases down to 20%, with current approximate size competitors, average equity beta value increases maximum (0,68). However, equity beta var reaches 0,21 (maximum), in case doubling size competitors and leverage up 30%. Then, in scenario 2 (tax rate up to 28%), when leverage degree decreases down to 20%, with current approximate size competitors, average equity beta value increases maximum (0,69). Similarly, equity beta var reaches 0,21 (maximum), in case doubling size competitors and leverage up 30%. Finally, in scenario 3 (tax rate down 20%), equity beta mean reaches 0,47 (minimum) if leverage up 30% and smaller size competitors.

The below chart 3 and 4 show us : in scenario 1 (current tax rate), asset beta mean reaches 0,43 (maximum) if leverage down 20% and current approximate size competitors. And asset beta var reaches 0,092 (maximum) in case current leverage and doubling size competitors. Then, in scenario 2 (tax rate up to 28%), asset beta mean also reaches 0,43 (maximum) if leverage down 20% and current approximate size competitors. And asset beta var reaches 0,100 (maximum) in case leverage up 30% and doubling size

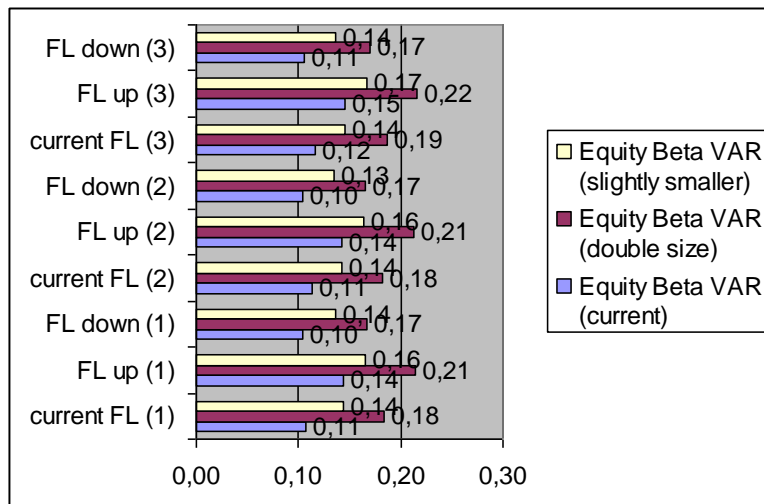
competitors. Finally, in scenario 3 (tax rate down 20%), asset beta mean reaches 0,18 (minimum) in case FL up 30% and slightly smaller size competitors, whereas asset beta var reaches 0,022 (minimum) in the same conditions.

**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)**

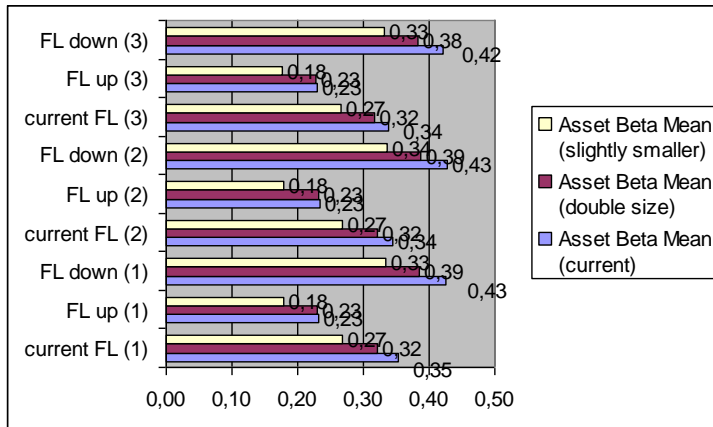


Note: (1) current tax rate; (2): tax rate up 28%; (3): tax rate down 20%

**Chart 2 – 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)**

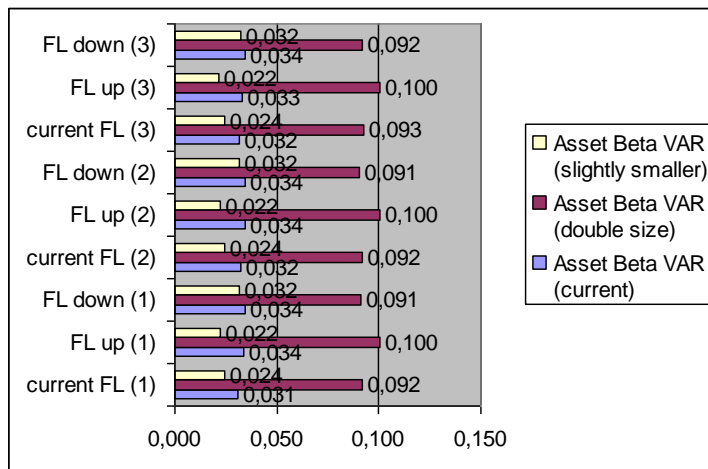


**Chart 3 – Comparing statistical results of asset beta var and mean in three (3) scenarios of changing FL and tax rate and competitor size (source: VN stock exchange 2012)**



Note: (1) current tax rate; (2): tax rate up 28%; (3): tax rate down 20%

**Chart 4 – 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 wholesale and retail 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 wholesale and retail firms as we might note that in this study when leverage is going to increase up to 30%, the risk level decreases to 0,18 if competitor size is slightly smaller (for all 3 cases of various tax rates). 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)

