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Full Length Research Paper

To What Extent Changing Tax Policy and External Financing Influence the Risk Level of Viet Nam Stock Investment Industry During and after the Global Crisis

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Over past few years, the global financial crisis shows certain influence on emerging financial markets including Viet nam. Therefore, this study chooses a analytical approach to give some systematic opinions on how much some certain determinants such as income tax and leverage, affect the level of market risk in listed stock investment organizations. First, it calculates equity and asset beta values in three (3) different scenarios of changing tax rates and changing the level of financial leverage. 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, estimated at 0,118 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. Last but not least, this paper covers some ideas and policy suggestions.

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

INTRODUCTION

After financial crisis and reactions in financial industry taking place recently, we find out that there are signals of impacts of tax rates and the level of financial leverage on the fluctuations of market risk, measured by both equity and asset beta values. This leads to a question on using external debt of management team in a hope that the business market value can be recovered. Despite of trying to select an easy-reading writing style, there is still

some academic words need to be explained in further.

The organization of paper contents is as following. As our previous series of paper, Research literature, issues, methodology and theories are covered in the first two sessions. Next, it followed by introduction of our empirical findings in session 3 (3rd). Continuously, session four (4) covers conclusion and policy suggestion. Before last, there are exhibit session which covers some calculated

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	Scenario 1	Scenario 2	Scenario 3
Leverage up 30%			
Leverage down 20%			

Table 2. Market risk of listed companies on VN stock investment industry market under a two factors model (case 1) (*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	ASIAGF	0,325548	0,212884	0,353	0,255	0,282	0,155
2	MAFPF1	0,454765	0,452769	0,455	0,453	0,455	0,452
3	PRUBF1	0,247041	0,246193	0,247	0,246	0,247	0,246
4	VFMVF1	0,712517	0,704033	0,713	0,706	0,713	0,701
5	VFMVF4	0,671426	0,668907	0,671	0,669	0,671	0,668
6	VFMVFA	0,449975	0,443678	0,451	0,446	0,449	0,440

Table 3. Market risks of listed stock investment industry firms under a two factors model (case 2) (*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	ASIAGF	0,329	0,215	0,356	0,258	0,286	0,157
2	MAFPF1	0,455	0,453	0,455	0,453	0,455	0,452
3	PRUBF1	0,247	0,246	0,247	0,246	0,247	0,246
4	VFMVF1	0,713	0,704	0,713	0,706	0,713	0,701
5	VFMVF4	0,671	0,669	0,671	0,669	0,671	0,668
6	VFMVFA	0,450	0,444	0,451	0,446	0,449	0,441

results of this paper's analysis and comparison.

Preliminary Notes Research Issues

This research aims to figure out two (2) issues:
Issue 1: What happen to asset beta if both FL and tax

rate change in 3 scenarios

Issue 2: What happen to equity beta if both FL and tax rate change in 3 scenarios

Literature review

Smith (2004) mentions in Chicago, properties located in a

Table 4. Market risks of listed stock investment industry firms under a two 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	ASIAGF	0,319	0,209	0,348	0,252	0,275	0,151
2	MAFPF1	0,455	0,453	0,455	0,453	0,455	0,452
3	PRUBF1	0,247	0,246	0,247	0,246	0,247	0,246
4	VFMVF1	0,713	0,704	0,713	0,706	0,713	0,701
5	VFMVF4	0,671	0,669	0,671	0,669	0,671	0,668
6	VFMVFA	0,450	0,443	0,451	0,446	0,448	0,440

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

Statistic results	Leverage as current			Leverage down 20%			Leverage up 30%		
	Equity beta	Asset beta (assume debt beta = 0)	Difference	Equity beta	Asset beta (assume debt beta = 0)	Difference	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	0,713	0,704	0,008	0,713	0,706	0,007	0,713	0,701	0,011
MIN	0,247	0,213	0,034	0,247	0,246	0,001	0,247	0,155	0,092
MEAN	0,477	0,455	0,022	0,482	0,463	0,019	0,469	0,463	0,007
VAR	0,0341	0,0420	-0,008	0,0325	0,0384	-0,006	0,0370	0,0479	-0,011

Note: Sample size : 6 firms

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.

McCarty (2012) stated there is evidence which suggests that for the most tax risky firms investors also apply a higher discount rate to estimations of future cash flows. Then, Vello and Martinez (2012) indicated there is a negative and significant relation between the market risk and the tax planning efficiency index of firms that have good governance practices.

Next, Madhou (2012) found out, for Australia firms over the period 2003-2008, those with low leverage appear to hold higher cash holdings than high leverage ones. Then, McCauley (2013) pointed that during calm periods, portfolio investment by real money and leveraged investors in advanced countries flow into emerging markets, leading to an asymmetric asset swap (risky emerging market assets against safe reserve currency assets) and leveraging up by emerging market central banks. 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. Last but not least, Gunarathna (2013) found out in different industries in Sri Lanka, firm size does not significantly affect the financial risk, but the degree of financial leverage has a significant positive correlation with financial risk.

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

Statistic results	Leverage as current			Leverage down 20%			Leverage up 30%		
	Equity beta	Asset beta (assume debt beta = 0)	Difference	Equity beta	Asset beta (assume debt beta = 0)	Difference	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	0,713	0,704	0,008	0,713	0,706	0,007	0,713	0,701	0,011
MIN	0,247	0,215	0,032	0,247	0,246	0,001	0,247	0,157	0,090
MEAN	0,478	0,455	0,022	0,482	0,463	0,019	0,470	0,463	0,007
VAR	0,0338	0,0418	-0,008	0,0323	0,0382	-0,006	0,0367	0,0476	-0,011
Note: Sample size : 6 firms									

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

Statistic results	Leverage as current			Leverage down 20%			Leverage up 30%		
	Equity beta	Asset beta (assume debt beta = 0)	Difference	Equity beta	Asset beta (assume debt beta = 0)	Difference	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	0,713	0,704	0,008	0,713	0,706	0,007	0,713	0,701	0,011
MIN	0,247	0,209	0,038	0,247	0,246	0,001	0,247	0,151	0,096
MEAN	0,476	0,454	0,022	0,481	0,462	0,019	0,468	0,462	0,006
VAR	0,0344	0,0424	-0,008	0,0328	0,0387	-0,006	0,0376	0,0483	-0,011
Note: Sample size : 6 firms									

Conceptual theories

The tax system not only responds to the globalization but also affects national income, investment levels and risks of doing business. Furthermore, tax system can affect the investment return and the ratio of re-investment and business growth.

The using of leverage also could create both negative and positive effects on business operational results. A firm will make decision on significant amount of debt when it hopes ROA will be higher than the lending interest. FL could help a firm to acquire more assets and impact on ROE.

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 banking industry firms in VN stock exchange and applied current tax rate is 25%.

MAIN RESULTS

Empirical Research Findings and Discussion

Data used are from total 6 listed stock investment industry companies on VN stock exchange (HOSE and HNX mainly). In the scenario 1, current tax rate is kept as 25% as in the 2011 financial statements which is used to calculate market risk (beta) while leverage degree is kept as current, then changed from 30% up to 20% down. Then, two (2) FL scenarios are changed up when tax rate is up to 30% and down to 20%. In summary, the below table 1 shows three (3) 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.

a. Scenario 1: current tax rate 25% and leverage kept as current, 20% down and 30% up

In this case, all beta values of 6 listed firms on VN stock investment industry market as following:

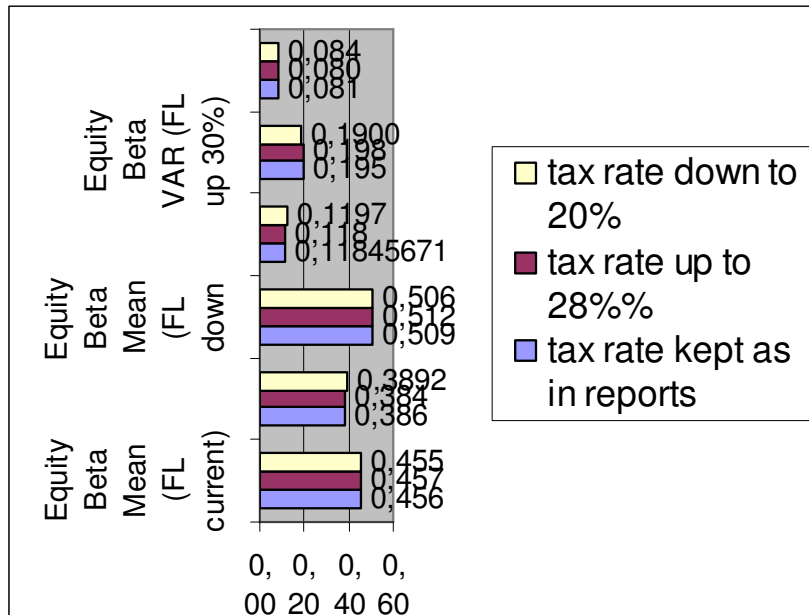


Chart 1. Comparing statistical results of equity beta var and mean in three (3) scenarios of changing FL and tax rate (source: VN stock exchange 2012)

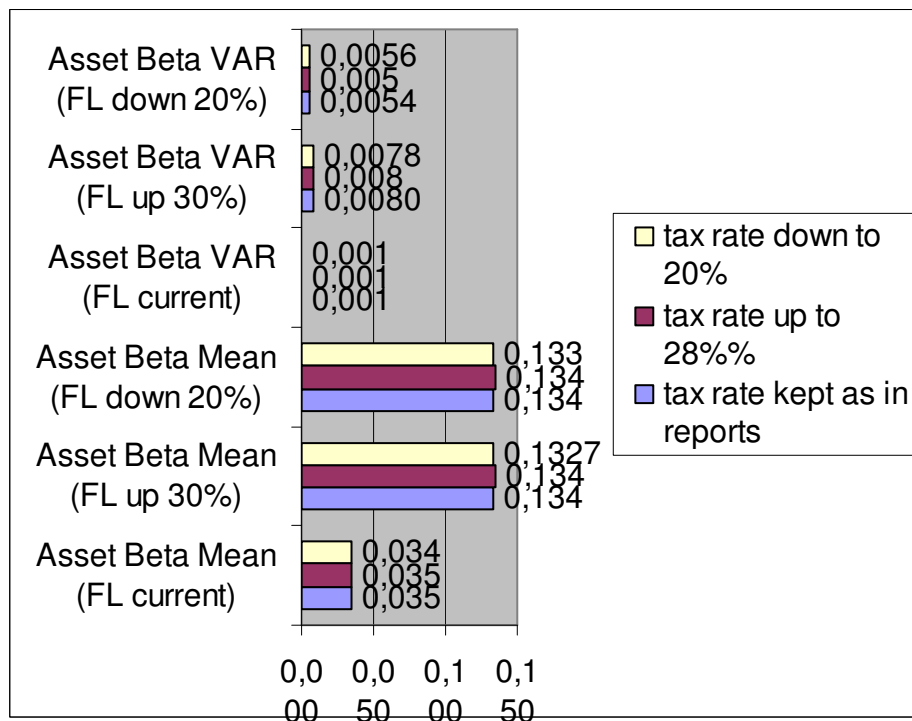


Chart 2. Comparing statistical results of asset beta var and mean in three (3) scenarios of changing FL and tax rate (source: VN stock exchange 2012)

b. Scenario 2: tax rate increases up to 28% and leverage kept as current, 20% down and 30% up
All beta values of total 6 listed firms on VN stock

investment industry market as below:
c. Scenario 3: tax rate decreases down to 20% and leverage kept as current, 20% down and 30% up

All beta values of total 6 listed firms on VN stock investment industry market as below:

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.

Comparing statistical results in 3 scenarios of changing leverage:

The above calculated figures generate some following results:

First of all, Equity beta mean values in all 3 scenarios are acceptable ($< 0,6$) and asset beta mean values are also small ($< 0,2$). If leverage increases to 30%, asset beta max value keeps the same value of 0,701 when tax rate is up to 28% or down to 20%. Finally, when leverage is up to 30%, asset beta min values increase to 0,157 in case tax rate up 28%.

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 (0,512) compared to that at the decrease of tax rate of 20% (0,506). However, equity beta var is 0,08 (tax rate up), little smaller than 0,084 (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 0,384) compared to that at the decrease of tax rate of 20% (0,389). However, in case the tax rate up, the equity beta var is 0,198, higher than 0,19 (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 (0,134) compared to that at the decrease of tax rate of 20% (0,133). However, asset beta var is 0,005 (tax rate up), the same as that in case 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 0,134) compared to that at the decrease of tax rate of 20% (0,133). However, in case the tax rate up, the asset beta var is 0,008, higher than 0,007 (tax rate down).

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 stock investment 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 stock investment firms as we might note that in this study when leverage is going to increase up to 30%, the risk level decreases (asset beta mean decreases to 0,133 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)

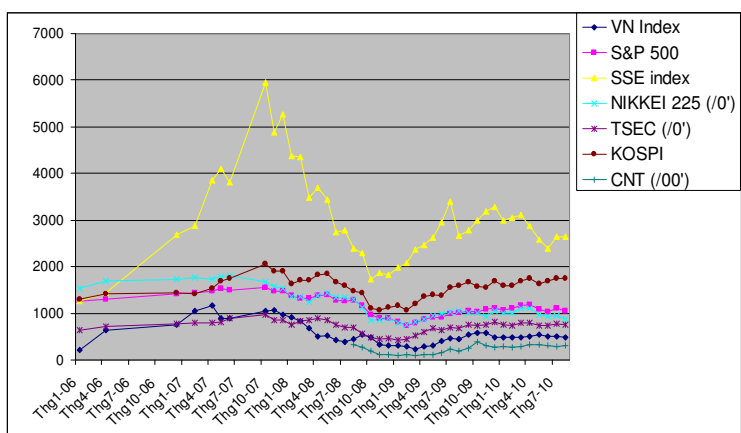


Exhibit 2- Comparable firms and changing leverage for Viet Nam stock investment firms

(source: Viet Nam stock exchange 2012)

Order No.	Company Stock code	Comparable firm	FL as current	FL up 30%	FL down 20%
1	ASIAGF	MAFPF1 as comparable	34,6%	45,0%	27,7%
2	MAFPF1		0,4%	0,6%	0,4%
3	PRUBF1		0,3%	0,4%	0,3%
4	VFMVF1		1,2%	1,5%	1,0%
5	VFMVF4		0,4%	0,5%	0,3%
6	VFMVFA	MAFPF1 as comparable	1,4%	1,8%	1,1%
		Average	6,4%	8,3%	5,1%