Selecting Different Industrial Competitors Influence The Risk Level of Viet Nam Hardware Companies

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Abstract: This research shows marketing factors such as business competitors could affect business market risk, from a quantitative point of view. Using a two (2) factors model, this research paper estimates the impacts of not only the size of firms' competitors, but also leverage in the hardware industry, on the market risk of 22 listed companies in this category. This paper founds out that the risk dispersion level in this sample study could be minimized in case the competitor size remaining as current (measured by equity beta var of 0,067) and leverage down to 20%. Beside, the empirical research findings show us that when financial leverage increases up to 30%, max asset beta value decreases from 1,069 to 1,033 in case the size of competitor doubles. Last but not least, 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, hardware industry

Jel Classification: *M00, G3, M3*

1. Introduction

In marketing and business, choosing competitors might affect business strategies, esp., during the crisis period 2007-2009 in which hardware firms experience many risks, although Viet Nam hardware industry is considered as one of active economic sectors, which has some positive effects for the economy.

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 analysis of industry. Lastly, session 10 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 the selection of different industrial competitors on the risk measured by beta for listed hardware companies in Viet Nam stock exchange, research issues will be mentioned as following:

Issue 1: Whether the selection of different competitors makes the risk level of hardware industry firms under the different changing scenarios of leverage increase or decrease so much.

Issue 2: Whether the selection of doubling size competitor makes the dispersion of beta values become large in the different changing scenarios of leverage in this industry.

3. Literature review

Goldsmith (1969), Mc Kinnon (1973) and Shaw (1973) pointed a large and active theoretical and empirical literature has related dfinancial development to the economic growth process.

Last but not least, Ana and John (2013) Binomial Leverage – Volatility theorem provides a precise link between leverage and volatility. Chen et all (2013) supports 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.

4. Conceptual theories

Industrial competitor theories

There are many competitive advantages which are owned by industrial competitors. These advantages can be attributes such as access to natural resources or highly trained personel human resources or capital or leverage. Using leverage can help firms to obtain new technologies which are another competitive advantage.

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 commercial electric industry firms in VN stock exchange and applied current tax rate is 25%. The below table 1 shows us three cases of choosing different competitors.

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

Table 1 – Analyzing market risk under three (3) scenarios of changing competitors (*Made by Author*)

Order No.	Company Stock code	Competitor size as current	Competitor size slightly smaller	Competitor size double
1	CMT			
2	SVT	TLC as comparable	TLC as comparable	VIE as comparable
3	VIE	UNI as comparable	ONE as comparable	LTC as comparable
4	HPT	TST as comparable	TST as comparable	ITD as comparable
5	NIS	VTC as comparable	VTC as comparable	ST8 as comparable
6	TST			
7	ST8			
8	TAG			
9	POT			
10	CKV			
11	ONE	UNI as comparable	UNI as comparable	TAG as comparable
12	PMT			
13	SMT	PMT as comparable	HTP as comparable	NIS as comparable
14	UNI			
15	TLC			
16	KST	TLC as comparable	VTC as comparable	VIE as comparable
17	VAT			
18	VTC			
19	ELC	ITD as comparable	ITD as comparable	CMG as comparable
20	SAM			
21	LTC			
22	ITD			

6. General Data Analysis

The research sample has total 22 listed firms in the hardware industry market with the live data 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 competitors from what reported in F.S 2011 to those with size doubling and reducing slightly to see the sensitivity of beta values. We found out that in both cases of smaller competitors and double size competitors, asset beta mean values are reduced to 0,334 from 0,343 if the leverage up to 30%. Also in 3 scenarios of different competitors, we find out equity beta mean values are moving in the opposite direction with the leverage.

Leverage degree changes definitely has certain effects on asset and equity beta values.

7. Empirical Research Findings and Discussion

In the below section, data used are from total 22 listed hardware industry companies on VN stock exchange (HOSE and HNX mainly). In the scenario 1, 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. Then, two (2) 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*)

	FL as current	FL up 30%	FL down 20%
Competitor size as current	Scenario 1	Scenario 2	Scenario 3
Competitor size slightly smaller			
Competitor size double			

7.1 Scenario 1: current financial leverage (FL) as in financial reports 2011 and competitor size kept as current, slightly smaller and double.

In this case, all beta values of 22 listed firms on VN hardware industry market as following:

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

Order No.	Company stock code	Competitor size as current		Competitor size slightly smaller		Competitor size double	
		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	CMT	0,665	0,326	0,665	0,326	0,665	0,326
2	SVT	0,860	0,651	0,860	0,651	0,212	0,161
3	VIE	0,283	0,054	0,131	0,025	0,263	0,050
4	HPT	0,238	0,063	0,238	0,063	0,113	0,030
5	NIS	0,347	0,165	0,347	0,165	0,487	0,231
6	TST	0,739	0,236	0,739	0,236	0,739	0,236
7	ST8	0,891	0,682	0,891	0,682	0,891	0,682
8	TAG	0,632	0,411	0,632	0,411	0,632	0,411
9	POT	1,046	0,533	1,046	0,533	1,046	0,533
10	CKV	0,604	0,221	0,604	0,221	0,604	0,221
11	ONE	0,551	0,217	0,551	0,217	0,294	0,116
12	PMT	1,234	1,056	1,191	1,019	1,191	1,019
13	SMT	0,934	0,654	0,826	0,578	0,369	0,258
14	UNI	1,186	0,732	1,186	0,732	1,186	0,732
15	TLC	1,066	0,770	1,066	0,770	1,066	0,770
16	KST	0,679	0,386	0,405	0,230	0,168	0,095
17	VAT	1,028	0,485	1,168	0,551	1,168	0,551
18	VTC	0,635	0,431	0,635	0,431	0,635	0,431
19	ELC	0,200	0,100	0,200	0,100	0,542	0,271
20	SAM	1,191	1,069	1,191	1,069	1,191	1,069
21	LTC	1,102	0,329	1,102	0,329	1,102	0,329
22	ITD	0,351	0,132	0,351	0,132	0,351	0,132

7.2. Scenario 2: financial leverage increases up to 30% and competitor size kept as current, slightly smaller and double

If leverage increases up to 30%, all beta values of total 22 listed firms on VN hardware industry market as below:

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

Order No.	Company stock code	Competitor size as current		Competitor size slightly smaller		Competitor size double	
		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	CMT	0,665	0,224	0,665	0,224	0,665	0,224
2	SVT	0,792	0,543	0,792	0,543	-0,059	-0,040
3	VIE	-0,085	0,004	-0,022	0,001	-0,079	0,004
4	HPT	0,041	0,002	0,041	0,002	0,019	0,001
5	NIS	0,243	0,077	0,243	0,077	0,341	0,108
6	TST	0,739	0,085	0,739	0,085	0,739	0,085
7	ST8	0,891	0,619	0,891	0,619	0,891	0,619
8	TAG	0,632	0,345	0,632	0,345	0,632	0,345
9	POT	1,046	0,379	1,046	0,379	1,046	0,379
10	CKV	0,604	0,106	0,604	0,106	0,604	0,106
11	ONE	0,314	0,067	0,314	0,067	0,167	0,036
12	PMT	1,234	1,003	1,191	0,967	1,191	0,967
13	SMT	0,835	0,509	0,738	0,450	0,230	0,141
14	UNI	1,186	0,596	1,186	0,596	1,186	0,596
15	TLC	1,066	0,681	1,066	0,681	1,066	0,681
16	KST	0,544	0,239	0,324	0,142	-0,040	-0,018
17	VAT	1,028	0,323	1,168	0,366	1,168	0,366
18	VTC	0,635	0,369	0,635	0,369	0,635	0,369
19	ELC	0,147	0,051	0,147	0,051	0,397	0,139
20	SAM	1,191	1,033	1,191	1,033	1,191	1,033
21	LTC	1,102	0,097	1,102	0,097	1,102	0,097
22	ITD	0,351	0,066	0,351	0,066	0,351	0,066

7.3. Scenario 3: leverage decreases down to 20% and competitor size kept as current, slightly smaller and double.

If leverage decreases down to 20%, all beta values of total 22 listed firms on the hardware industry market in VN as following:

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

Order No.	Company stock code	Competitor size as current		Competitor size slightly smaller		Competitor size double	
		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	CMT	0,665	0,394	0,665	0,394	0,665	0,394
2	SVT	0,903	0,728	0,903	0,728	0,392	0,316
3	VIE	0,498	0,176	0,292	0,103	0,463	0,163
4	HPT	0,356	0,146	0,356	0,146	0,169	0,069
5	NIS	0,411	0,238	0,411	0,238	0,577	0,335
6	TST	0,739	0,337	0,739	0,337	0,739	0,337
7	ST8	0,891	0,724	0,891	0,724	0,891	0,724
8	TAG	0,632	0,455	0,632	0,455	0,632	0,455
9	POT	1,046	0,636	1,046	0,636	1,046	0,636
10	CKV	0,604	0,297	0,604	0,297	0,604	0,297
11	ONE	0,695	0,358	0,695	0,358	0,371	0,191
12	PMT	1,234	1,092	1,191	1,054	1,191	1,054
13	SMT	0,998	0,759	0,882	0,671	0,467	0,355
14	UNI	1,186	0,823	1,186	0,823	1,186	0,823
15	TLC	1,066	0,829	1,066	0,829	1,066	0,829
16	KST	0,764	0,500	0,455	0,298	0,332	0,217
17	VAT	1,028	0,594	1,168	0,675	1,168	0,675
18	VTC	0,635	0,471	0,635	0,471	0,635	0,471
19	ELC	0,234	0,140	0,234	0,140	0,633	0,380
20	SAM	1,191	1,094	1,191	1,094	1,191	1,094
21	LTC	1,102	0,483	1,102	0,483	1,102	0,483
22	ITD	0,351	0,175	0,351	0,175	0,351	0,175

All three above tables and data show that values of equity and asset beta in the case of increasing leverage up to 30% or decreasing leverage degree down to 20% have certain fluctuation.

8. Comparing statistical results in 3 scenarios of changing leverage:

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

Statistic results	Competitor size as current			Competitor size slightly smaller			Competitor size double		
	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	1,234	1,069	0,165	1,191	1,069	0,122	1,191	1,069	0,122
MIN	0,200	0,054	0,147	0,131	0,025	0,106	0,113	0,030	0,083
MEAN	0,748	0,441	0,307	0,728	0,430	0,298	0,678	0,393	0,285
VAR	0,1085	0,0893	0,019	0,1226	0,0894	0,033	0,1392	0,0903	0,049
Note: Sample size : 22 firms									

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

Statistic results	Competitor size as current			Competitor size slightly smaller			Competitor size double		
	Equity beta	Asset beta (assume debt beta = 0)	Differ ence	Equity beta	Asset beta (assume debt beta = 0)	Differ ence	Equity beta	Asset beta (assume debt beta = 0)	Differ ence
MAX	1,234	1,033	0,201	1,191	1,033	0,158	1,191	1,033	0,158
MIN	-0,085	0,002	-0,087	-0,022	0,001	-0,024	-0,079	-0,040	-0,039
MEAN	0,691	0,337	0,354	0,684	0,330	0,353	0,611	0,287	0,325
VAR	0,1538	0,0945	0,059	0,1570	0,0929	0,064	0,2036	0,0985	0,105
Note: Sample size : 22 firms									

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

Statistic results	Competitor size as current			Competitor size slightly smaller			Competitor size double		
	Equity beta	Asset beta (assume debt beta = 0)	Differ ence	Equity beta	Asset beta (assume debt beta = 0)	Differ ence	Equity beta	Asset beta (assume debt beta = 0)	Differ ence
MAX	1,234	1,094	0,141	0,665	0,759	-0,093	1,191	1,094	0,097
MIN	0,234	0,140	0,094	0,234	0,103	0,131	0,234	0,103	0,131
MEAN	0,783	0,520	0,263	0,759	0,506	0,253	0,759	0,506	0,253
VAR	0,0908	0,0828	0,008	0,1036	0,0847	0,019	0,1036	0,0847	0,019
Note: Sample size : 22 firms									

Based on the calculated results, we find out:

First of all, if competitor size is kept as current, both max and min values of asset beta vary in 3 cases (max values decreasing to 1,033 and increasing to 1,094 when leverage up 30% and down 20%). Secondly, if competitor size is chosen with total asset doubling, max and min values of asset beta vary in all 3 scenarios. Thirdly, if competitor is chosen with total asset slightly smaller, there is tiny change in min values of equity and asset beta in the case of leverage down 20% (for example, min asset beta increasing to 0,103 from 0,030).

Additionally, the below chart 1 shows us : in the case of doubling competitor size, the risk is less dispersed in case Fl down 20%. Especially, if leverage down to 20%, equity beta var is at 0,084 (equity beta var is minimum in case Fl down 20% and approximate size competitors). On the contrary, in the case of doubling size competitors, if leverage up to 30%, equity beta var increases to 0,210.

Last but not least, from chart 2, we could note that in the case of slightly smaller size competitors, keeping the current leverage degree, asset beta mean value reduces to 0,436 from 0,448 (approximate size competitors). On the other hand, in the case of doubling size competitors, asset beta mean value goes down to 0,381.
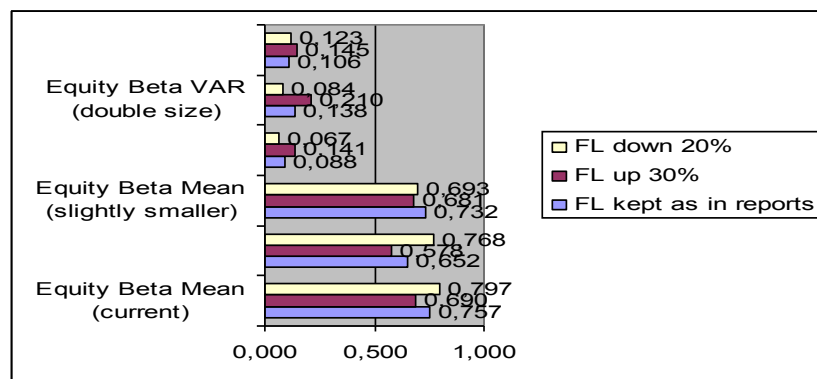

Chart 1 – Comparing statistical results of equity beta var and mean in three (3) scenarios of changing FL and competitor size *(source: VN stock exchange 2012)*
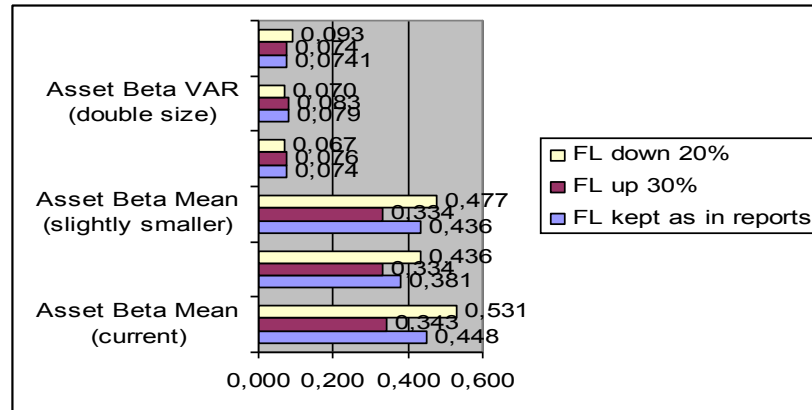
Chart 2 – Comparing statistical results of asset beta var and mean in three (3) scenarios of changing FL and competitor size *(source: VN stock exchange 2012)*

9. Conclusion and Policy suggestion

In general, 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 hardware 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 hardware companies. Furthermore, the entire efforts among many different government bodies need to be coordinated.

Last but not least, these companies might be aware of a minimum value of asset beta mean of 0,334 with either doubling size competitors or smaller competitors (leverage up 30%) and a maximum value of asset beta mean of 0,531 with approximate size competitors if leverage down 20%. In this case, the statement "the riskier the marketing strategy, the lower the market risk" is not totally correct.

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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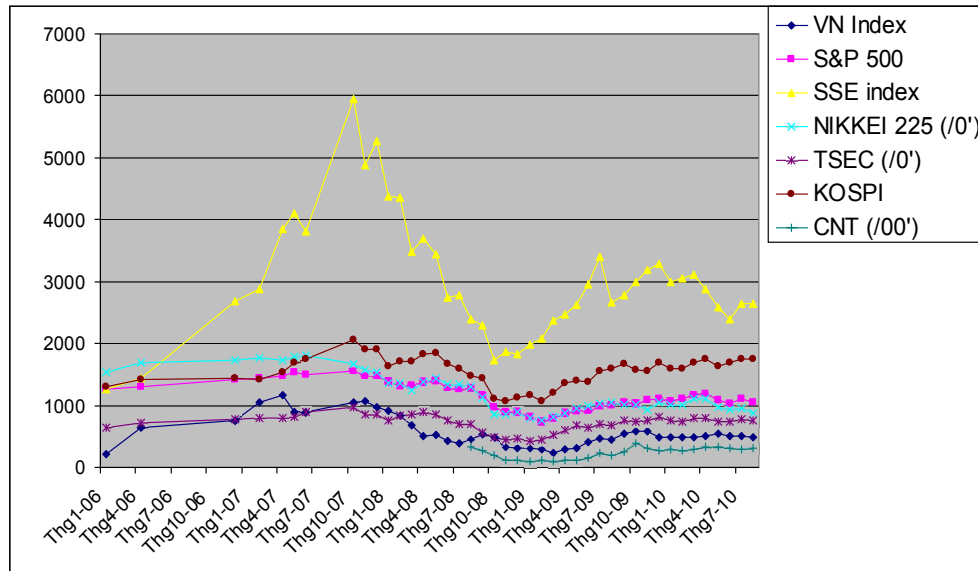
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Exhibit

Exhibit 1- VNI Index and other stock market index during crisis 2006-2010
(source: global stock exchange 2012)

Exhibit 2 – 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 3 – Financial leverage degree of listed hardware firms in three (3) scenarios with different competitors
(source: Viet Nam commercial banks and economic statistical bureau)

Order No.	Company Stock code	FL as current	FL up 30%	FL down 20%
1	CMT	51,1%	66,4%	40,9%
2	SVT	24,2%	31,5%	19,4%
3	VIE	81,0%	105,3%	64,8%
4	HPT	73,7%	95,8%	59,0%
5	NIS	52,5%	68,3%	42,0%
6	TST	68,1%	88,5%	54,5%
7	ST8	23,5%	30,5%	18,8%
8	TAG	35,0%	45,5%	28,0%
9	POT	49,0%	63,7%	39,2%
10	CKV	63,5%	82,5%	50,8%
11	ONE	60,6%	78,8%	48,5%
12	PMT	14,4%	18,8%	11,6%
13	SMT	30,0%	39,0%	24,0%
14	UNI	38,3%	49,7%	30,6%
15	TLC	27,8%	36,1%	22,2%
16	KST	43,1%	56,1%	34,5%
17	VAT	52,8%	68,6%	42,2%
18	VTC	32,2%	41,9%	25,8%
19	ELC	50,0%	65,0%	40,0%
20	SAM	10,2%	13,2%	8,2%
21	LTC	70,2%	91,2%	56,1%
22	ITD	62,5%	81,2%	50,0%
	Average	46,1%	59,3%	36,5%

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