SELECTING DIFFERENT INDUSTRIAL COMPETITORS INFLUENCE THE RISK LEVEL OF VIETNAM TELECOMMUNICATION AND EDUCATION 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 telecommunication and education industry, on the market risk of 18 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 is approximately the same (measured by equity beta var of 0,283) and leverage down to 20%.

Beside, the emprical research findings show us that when financial leverage increases up to 30%, max asset beta value decreases from 0,393 to 0,386 in case the size of competitor doubles or slightly smaller.

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, education and telecommunication 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 telecommunication and education firms experience many risks, although Viet Nam telecommunication and education 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

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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 telecommunication and education 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 telecommunication and education 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 financial development to the economic growth process.

Gosh and Morita (2007) pointed although collaboration between competitors reduces the distinctiveness between their products, it increases the distinctiveness between their products and the non-collaborators' product. Simkovic (2011) found out competition between mortgage securitizers led to a race to the bottom on mortgage underwriting standards that ended in the late 2000s financial crisis. Li and Netessin (2011) stated competition has become an important theme in the operations management literature and, according to recent theoretical and empirical work, the key finding is that firms tend to overstock or overproduce under competition.

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

A firm can face many kinds of risk: operational risk or financial risk. These risks lead to lower production output and create opportunities for competitors to enter and expand their market share.

Business risks are affected by some variables including: sales volume, unit price and input costs. And competiton can affect these variables; so, it has impacts on business risks.

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%. And the below table 1 shows us three different cases of selecting 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	ECI			
2	INN			
3	PTP			
4	DHI			
5	IHK	TPH as comparable	IN4 as comparable	SGD as comparable
6	HTP			
7	TPH			
8	IN4	ECI as comparable	ECI as comparable	DAD as comparable
9	ADC	DHI as comparable	HEV as comparable	DAE as comparable
10	HST			
11	SGD			
12	DAE			
13	HEV			
14	ALT			
15	EFI			
16	EID			
17	DAD			
18	SED			

6. General Data Analysis

The research sample has total 18 listed firms in the telecommunication and education 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 case leverage up 30%, asset beta mean values increase if competitor size doubles and decrease if competitor size is smaller (correlated with the competitor size). Also in 3 scenarios of different leverage and current competitors, we find out equity beta mean values (0,671, 0,655 and 0,682) 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 18 listed telecommunication and education 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 18 listed firms on VN telecommunication and education industry market as following:

Table 2 – Market risk of listed companies on VN telecommunication and education 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	ECI	0,708	0,527	0,708	0,527	0,708	0,527
2	INN	0,195	0,104	0,195	0,104	0,195	0,104
3	PTP	-0,524	-0,251	-0,524	-0,251	-0,524	-0,251
4	DHI	0,740	0,547	0,740	0,547	0,740	0,547
5	IHK	0,514	0,295	0,303	0,174	0,698	0,400
6	HTP	1,091	0,846	1,091	0,846	1,091	0,846
7	TPH	0,801	0,356	0,801	0,356	0,801	0,356
8	IN4	0,473	0,284	0,473	0,284	0,418	0,251
9	ADC	0,425	0,214	0,363	0,183	0,400	0,201
10	HST	-0,042	-0,029	-0,042	-0,029	-0,042	-0,029
11	SGD	1,089	0,581	1,089	0,581	1,089	0,581
12	DAE	0,696	0,275	0,696	0,275	0,696	0,275
13	HEV	0,633	0,434	0,633	0,434	0,633	0,434
14	ALT	0,759	0,607	0,759	0,607	0,759	0,607
15	EFI	2,056	1,941	2,056	1,941	2,056	1,941
16	EID	1,210	0,874	1,210	0,874	1,210	0,874
17	DAD	0,625	0,423	0,625	0,423	0,625	0,423
18	SED	0,634	0,292	0,634	0,292	0,634	0,292

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 18 listed firms on VN telecommunication and education industry market as below:

Table 3 – Market risks of listed telecommunication and education 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	ECI	0,708	0,473	0,708	0,473	0,708	0,473
2	INN	0,195	0,077	0,195	0,077	0,195	0,077
3	PTP	-0,524	-0,169	-0,524	-0,169	-0,524	-0,169

4	DHI	0,740	0,489	0,740	0,489	0,740	0,489
5	IHK	0,414	0,184	0,202	0,090	0,563	0,250
6	HTP	1,091	0,772	1,091	0,772	1,091	0,772
7	TPH	0,801	0,223	0,801	0,223	0,801	0,223
8	IN4	0,392	0,189	0,392	0,189	0,346	0,166
9	ADC	0,312	0,110	0,267	0,094	0,294	0,104
10	HST	-0,042	-0,025	-0,042	-0,025	-0,042	-0,025
11	SGD	1,089	0,429	1,089	0,429	1,089	0,429
12	DAE	0,696	0,148	0,696	0,148	0,696	0,148
13	HEV	0,633	0,374	0,633	0,374	0,633	0,374
14	ALT	0,759	0,561	0,759	0,561	0,759	0,561
15	EFI	2,056	1,906	2,056	1,906	2,056	1,906
16	EID	1,210	0,773	1,210	0,773	1,210	0,773
17	DAD	0,625	0,363	0,625	0,363	0,625	0,363
18	SED	0,634	0,189	0,634	0,189	0,634	0,189

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 18 listed firms on the telecommunication and education industry market in VN as following:

Table 4 – Market risk of listed telecommunication and education 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	ECI	0,708	0,564	0,708	0,564	0,708	0,564
2	INN	0,195	0,123	0,195	0,123	0,195	0,123
3	PTP	-0,524	-0,305	-0,524	-0,305	-0,524	-0,305
4	DHI	0,740	0,586	0,740	0,586	0,740	0,586
5	IHK	0,577	0,380	0,377	0,248	0,784	0,516
6	HTP	1,091	0,895	1,091	0,895	1,091	0,895
7	TPH	0,801	0,445	0,801	0,445	0,801	0,445
8	IN4	0,524	0,357	0,524	0,357	0,463	0,315
9	ADC	0,495	0,298	0,423	0,255	0,466	0,280
10	HST	-0,042	-0,032	-0,042	-0,032	-0,042	-0,032
11	SGD	1,089	0,683	1,089	0,683	1,089	0,683
12	DAE	0,696	0,359	0,696	0,359	0,696	0,359
13	HEV	0,633	0,474	0,633	0,474	0,633	0,474
14	ALT	0,759	0,637	0,759	0,637	0,759	0,637
15	EFI	2,056	1,964	2,056	1,964	2,056	1,964

16	EID	1,210	0,941	1,210	0,941	1,210	0,941
17	DAD	0,625	0,464	0,625	0,464	0,625	0,464
18	SED	0,634	0,360	0,634	0,360	0,634	0,360

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)

	Competitor size as current			Competitor size slightly smaller			Competitor size double		
Statistic results	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	2,056	1,941	0,115	2,056	1,941	0,115	2,056	1,941	0,115
MIN	-0,524	-0,251	-0,273	-0,524	-0,251	-0,273	-0,524	-0,251	-0,273
MEAN	0,671	0,462	0,209	0,656	0,454	0,202	0,677	0,466	0,212
VAR	0,2872	0,2133	0,074	0,2955	0,2174	0,078	0,2880	0,2130	0,075
Note: Sample size : 18 firms									

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

	Competitor size as current			Competitor size slightly smaller			Competitor size double		
Statistic results	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	2,056	1,906	0,149	2,056	1,906	0,149	2,056	1,906	0,149
MIN	-0,524	-0,169	-0,355	-0,524	-0,169	-0,355	-0,524	-0,169	-0,355
MEAN	0,655	0,393	0,262	0,641	0,386	0,254	0,660	0,386	0,273
VAR	0,2956	0,2065	0,089	0,3060	0,2099	0,096	0,2950	0,2059	0,089
Note: Sample size : 18 firms									

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

	Competitor size as current			Competitor size slightly smaller			Competitor size double		
Statistic results	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	2,056	1,964	0,092	2,056	2,056	0,000	2,056	1,964	0,092
MIN	-0,524	-0,305	-0,219	-0,524	-0,524	0,000	-0,524	-0,305	-0,219

MEAN	0,682	0,511	0,171	0,598	0,490	0,108	0,667	0,454	0,213
VAR	0,2834	0,2205	0,063	0,2945	0,2839	0,011	0,2898	0,2246	0,065
Note: Sample size : 18 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 of asset beta decreases to 1,906 and increases to 1,964 when leverage up 30% and down 20%). Secondly, if competitor size is chosen with total asset doubling, max values of asset beta vary in all 3 scenarios. Thirdly, if competitor is chosen with total asset slightly smaller, there is no changes in min values of equity whereas asset beta min values decreases to -0,524 if leverage down 20% and increases to -0,169 if leverage up 30%.

Furthermore, the below chart 1 shows us : in the case competitor size doubles, the risk is less dispersed if leverage up to 30%. Especially, equity beta var reduces to 0,295. On the contrary, in the case of slightly smaller size competitors, if leverage up to 30%, equity beta var increases to 0,641 and the risk is more dispersed.

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 0,454. On the other hand, in the case of doubling size competitors, asset beta mean value goes up to 0,466.

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)

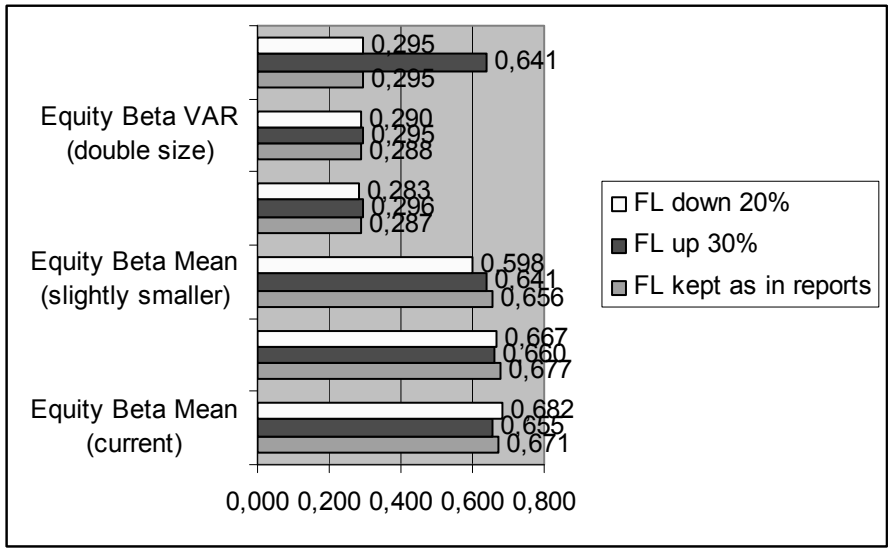
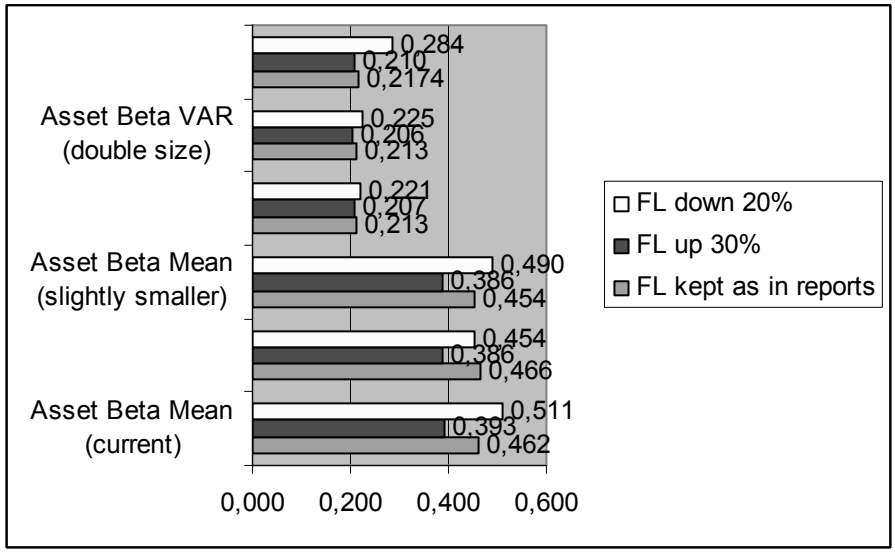


Chart 2 – Comparing statistical results of asset beta var and mean in three (3) scenarios of changing FL and competitor size (source: VN stock exchange 2012)



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 telecommunication and education 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 telecommunication and education 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 0,386 with either smaller or doubling size competitors (leverage up 30%) and a maximum value of asset beta mean of 0,511 with approximate size competitors and leverage down 20%. The riskier the marketing strategy, the lower the market risk.

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)

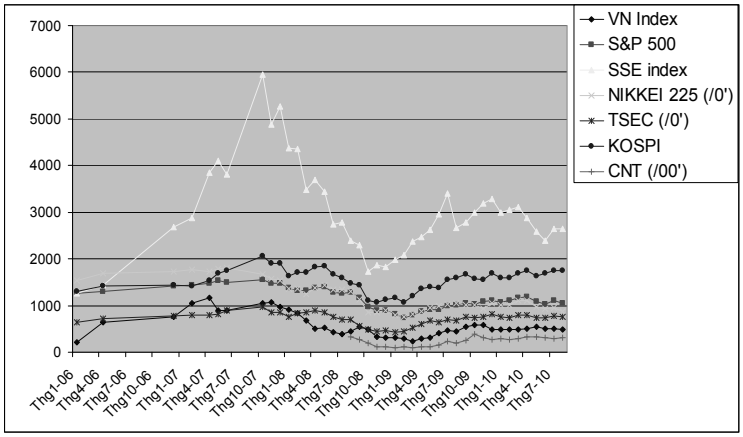

Exhibit 2 – Inflation, GDP growth and macroeconomics factors
(source: Viet Nam commercial banks and economic statistical bureau)

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 telecommunication and education 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	ECI	25,5%	33,2%	20,4%
2	INN	46,6%	60,5%	37,2%
3	PTP	52,1%	67,8%	41,7%
4	DHI	26,1%	33,9%	20,9%
5	IHK	42,7%	55,5%	34,2%
6	HTP	22,5%	29,2%	18,0%
7	TPH	55,5%	72,2%	44,4%
8	IN4	39,9%	51,9%	31,9%
9	ADC	49,7%	64,7%	39,8%
10	HST	30,4%	39,6%	24,4%
11	SGD	46,6%	60,6%	37,3%
12	DAE	60,6%	78,7%	48,5%
13	HEV	31,4%	40,9%	25,2%
14	ALT	20,1%	26,1%	16,1%
15	EFI	5,6%	7,3%	4,5%
16	EID	27,8%	36,2%	22,2%
17	DAD	32,3%	42,0%	25,9%
18	SED	53,9%	70,1%	43,1%
	Average	37,2%	48,4%	29,8%

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