Journal of Research in Economics and International Finance (JREIF) (ISSN: 2315-5671) Vol. 3(3) pp. 51-59, July, 2014
DOI: http:/dx.doi.org/10.14303/jrief.2014.019
Available online http://www.interesjournals.org/jreif

Full Length Research Paper

Risk Level of Viet Nam Airlines and Tourism Industry under Financial Leverage during and after the Global Crisis 2007-2009

Dinh Tran Ngoc Huy

Banking University HCMC Viet Nam – GSIM, International University of Japan, Japan
E-mail: dtnhuy2010@gmail.com

ABSTRACT

After the financial crisis 2007-2009, this paper evaluates the impacts of external financing on market risk for the listed firms in the Vietnam airlines and tourism industry. First, by using quantitative and analytical methods to estimate asset and equity beta of total 10 listed companies in Vietnam airlines and tourism industry with a proper traditional model, we found out that the beta values, in general, for many institutions are acceptable. Second, under 3 different scenarios of changing leverage (in 2011 financial reports, 30% up and 20% down), we recognized that the risk level, measured by equity and asset beta mean, decreases (asset beta mean of 0,306) when leverage increases to 30% and it increases (0,413) if leverage decreases down to 20%. Third, by changing leverage in 3 scenarios, we recognized the dispersion of risk level, measured by asset beta var, decreases if the leverage increases to 30%. And the asset beta var value is quite small, showing leverage efficiency. Finally, this paper provides some outcomes that could provide companies and government more evidence in establishing their policies in governance.

Keywords: Equity beta, Financial structure, Financial crisis, Risk, External financing, Tourism industry

JEL CLASSIFICATION : G010, G100**,** G390

INTRODUCTION

Financial system development has positive effect for the economic growth, throughout many recent years, and Vietnam airlines and tourism industry is considered as one of the active economic sectors in local financial markets, which has some positive effects for the economy.

In this research, we mention some issues on the estimating of impacts of external financing on beta for listed airlines and tourism industry companies in Vietnam stock exchange as following:

Issue 1: Whether the risk level of airlines and tourism industry firms under the different changing scenarios of leverage increase or decrease so much.

Issue 2: Whether the disperse distribution of beta values become large in the different changing scenarios of leverage estimated in the airlines and tourism industry.

Beside, we also propose some hypotheses for the above issues:

Hypothesis 1: because using leverage may strongly affect business returns, changing leverage scenarios could strongly affect firm risk.

Hypothesis 2: as external financing is vital for the business development, there will be large disperse in beta or risk values estimated.

This paper is organized as follows: The literature review will be covered in next sessions 2, for a short summary. Then, methodology and conceptual theories are introduced in session 3 and 4. Session 5 describes the data in empirical analysis. Session 6 presents empirical results and findings. Next, session 7 covers the analytical results. Then, session 8 presents analysis of risk. Lastly, session 9 and 10 will present discussion and

conclude with some policy suggestions. This paper also supports readers with references, exhibits and relevant web sources.

Literature Review

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.

Needham (2002) mentioned that although debt financing in other contexts usually minimizes the aggregate tax burden of the parties as a whole by conveying an interest deduction, it is often inefficient in the fund context for several reasons, including lack of tax capacity at the portfolio company level, the adverse tax treatment of contingent debt, and the special tax advantages of equity financing afforded some classes of fund investors.

Then, Maia (2010) stated the main determinants of firms' capital structures are related to firms' sensitivities to these systematic sources of risk and they affect asymmetrically low and high leverage firms. And temporary shocks are relatively more important for low leverage firms, and that financial distress risk seems to be captured by the sensitivity of firms' cash flow innovations to market discount rate news. Minnis (2011) found that audited firms, privately-held US firms, have a significantly lower cost of debt and that lenders place more weight on audited financial information in setting the interest rate.

Next, Umar (2011) found that firms which maintain good governance structures have leverage ratios that are higher (forty-seven percent) than those of firms with poor governance mechanisms per unit of profit. Huy (2012) found out there is not large dispersion in beta values in construction group companies. Chen et al., (2013) supported regulators' 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. The model reinforces the importance of the relationship between capital structure and risk management.

Flifel (2012) stated today, the assumption of efficient capital markets is very controversial, especially in these times of crisis, and is challenged by research showing that the pricing was distorted by detection of long memory. Gabrijelcic et al., (2013) find a significant negative effect of leverage on firm performance, and firms that had some foreign debt financing performed better than their counterparts.

Finally, financial leverage can be considered as one among many factors that affect business risk of airlines and tourism firms.

Conceptual Theories

The impact of financial leverage on the economy

Financial development and economic growth are positively interrelated. The interaction between these two (2) fields can be considered as a circle, in which good financial development causes economic growth and vice versa. A sound and effective financial system has positive effect on the development and growth of the economy. Financial institutions and markets can enable corporations to solve liquidity needs and enhance long-term investments. This system include many channels for a firm who wants to use financial leverage or FL, which refers to debt or to the borrowing of funds to finance a company’s assets.

In a specific industry such as airlines and tourism industry, 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. Financing decisions relate to the growth of investments, which create tax effects for companies.

During and after financial crises such as the 2007-2009 crisis, there raises concerns about the role of financial leverage of many countries, in both developed and developing markets. Financial leverage has been criticized as one factor contributing to financial crises. On the one hand, lending programs and packages might support the business sectors. On the other hand, it might create more risks for the business and economy.

METHODOLOGY

For calculating systemic risk results and leverage impacts, in this study, we use the live data during the crisis period 2007-2011 from the stock exchange market in Viet Nam (HOSE and HNX and UPCOM).

In this research, analytical research method is used, philosophical method is used and specially, leverage scenario analysis method is used. Three (3) different scenarios of financial leverage are 20% down, 30% up and current leverage as in 2011 reports. Analytical data is from the situation of listed airlines and tourism industry firms in VN stock exchange and curent tax rate is 25%.

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

Scenario 1: Current financial leverage (FL) as in financial reports 2011
In this case, all beta values of 10 listed firms on VN airlines and tourism industry market as following:
Table 1. Market risk of listed companies on VN airlines and tourism industry market

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage
1	CTC	0,203	0,065		68,1%
2	DLC	0,068	0,041	DLV as comparable	40,7%
3	DLV	0,103	0,038	VIR as comparable	63,3%
4	FDT	0,110	0,043	VIR as comparable	60,7%
5	HOT	0,097	0,081	FDT as comparable	15,6%
6	PDC	3,474	2,217		36,2%
7	PGT	0,224	0,209	VIR as comparable	7,1%
8	TCT	1,054	0,947		10,1%
9	TTR	0,026	0,022	MAS as comparable	16,3%
10	MAS	0,030	0,011	DLC as comparable	62,6%
				Average	38,07%

Scenario 2: Financial leverage increases up to 30%
If leverage increases up to 30%, all beta values of total 10 listed firms on VN airlines and tourism industry market as below:
Table 2. Market risks of listed airlines and tourism industry firms (case 2)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage (30% up)
1	CTC	0,203	0,023		88,5%
2	DLC	0,029	0,014	DLV as comparable	52,9%
3	DLV	0,053	0,009	PGT as comparable	82,3%
4	FDT	0,062	0,013	PGT as comparable	78,9%
5	HOT	0,052	0,042	PGT as comparable	20,3%
6	PDC	3,474	1,840		47,0%
7	PGT	0,221	0,200		9,2%
8	TCT	1,054	0,915		13,2%
9	TTR	0,006	0,004		21,2%
10	MAS	0,007	0,001		81,4%
				Average	49,5%

Scenario 3: Leverage decreases down to 20%
If leverage decreases down to 20%, all beta values of total 10 listed firms on the airlines and tourism industry market in VN as following:
Table 3. Market risk of listed airlines and tourism industry firms (case 3)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage (20% down)
1	CTC	0,203	0,093		54,5%
2	DLC	0,098	0,066	DLV as comparable	32,6%
3	DLV	0,134	0,066	PGT as comparable	50,6%
4	FDT	0,139	0,071	PGT as comparable	48,6%
5	HOT	0,125	0,110	PGT as comparable	12,5%
6	PDC	3,474	2,468		29,0%
7	PGT	0,227	0,214		5,6%
8	TCT	1,054	0,969		8,1%
9	TTR	0,050	0,044		13,0%
10	MAS	0,056	0,028		50,1%
				Average	30,5%

Table 4. Statistical results (FL in case 1)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	3,474	2,217	1,2572
MIN	0,026	0,011	0,0151
MEAN	0,539	0,367	0,1717
VAR	1,1559	0,5024	0,6535
Note: Sample size : 10			

Table 5. Statistical results (FL in case 2)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	3,474	1,840	1,6343
MIN	0,006	0,001	0,0043
MEAN	0,516	0,306	0,2099
VAR	1,1796	0,3697	0,8099
Note: Sample size : 10			

Table 6. Statistical results (FL in case 3)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	3,474	2,468	1,0057
MIN	0,050	0,028	0,0225
MEAN	0,556	0,413	0,1433
VAR	1,1385	0,6009	0,5376
Note: Sample size : 10			

General Data Analysis

The research sample has total 10 listed firms in the airlines and tourism 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 leverage from what reported in F.S 2011 to increasing 30% and reducing 20% to see the sensitivity of beta values. We found out that in 3 cases, asset beta mean values are estimated at 0,367, 0,306 and 0,413 which are negatively correlated with the leverage. Also in 3 scenarios, we find out equity beta mean values (0,539, 0,516 and 0,556) are also negatively correlated with the leverage. Leverage degree changes definitely has certain effects on asset and equity beta values.

EMPIRICAL RESEARCH FINDINGS AND DISCUSSION

In the below section, data used are from total 10 listed airlines and tourism 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). Then, two (2) FL scenarios are changed up to 30% and down to 20%, compared to the current FL degree.

Market risk (beta) under the impact of tax rate, includes: 1) equity beta; and 2) asset beta.

All three above tables (table1, 2, 3) 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.

Comparing statistical results in 3 scenarios of changing leverage

Based on the above results (table4, 5 and 6), we find out: Equity beta mean values in all 3 scenarios are low (< 0,6) and asset beta mean values are also small (< 0,5) and max equity beta values in just a few cases are higher than (>) 1. In the case of reported leverage in 2011, equity beta value fluctuates in an acceptable range from 0,026 (min) up to 3,474 (max) and asset beta fluctuates from 0,011 (min) up to 2,217 (max). If leverage increases to 30%, equity beta moves in a range from 0,006 to 3,474 (max unchanged) and asset beta moves from 0,001 (min) up to 1,84 (max). Hence, we note that there is a decrease in asset beta min value if leverage increases. When leverage decreases down to 20%, equity beta value moves in a range from 0,05 to 3,474 (max unchanged)

Chart 1. Comparing statistical results of three (3) scenarios of changing FL (2007-2009)

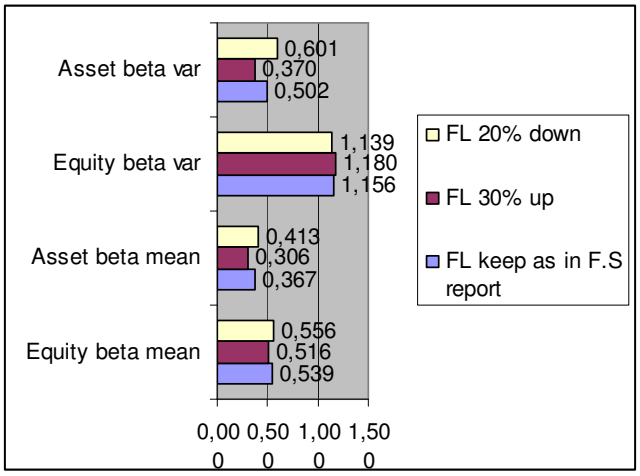


Chart 2. Comparing statistical results of three (3) scenarios of changing FL (2007-2011)

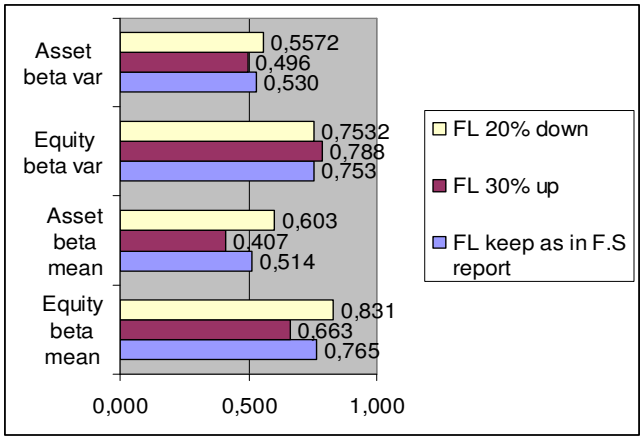
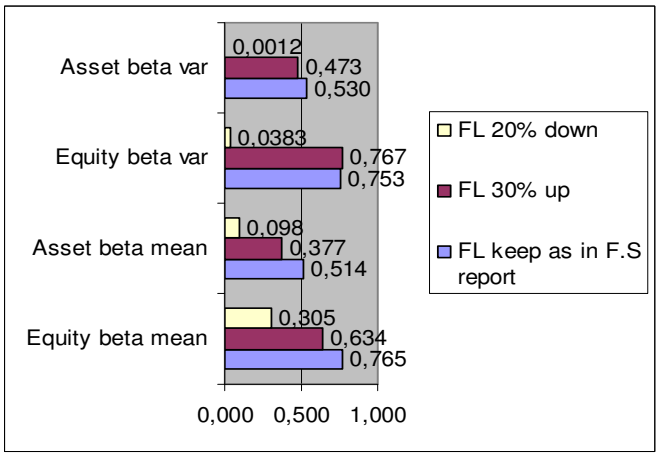


Chart 3. Comparing statistical results of three (3) scenarios of changing FL (2009-2011)



and asset beta changes from 0,028 (min) up to 2,468 (max). So, there is a small increase in asset beta min value when leverage decreases in scenario 3.

Beside, Exhibit 5 informs us that in the case 30% leverage up, average equity beta value of 10 listed firms' decreases down to -0,023 while average asset beta value

of these 10 firms decreases little to -0,061. Then, when leverage reduces to 20%, average equity beta value of 10 listed firms goes up to 0,017 and average asset beta value of 10 firms up to 0,046.

The above chart 1 shows us: when leverage degree decreases down to 20%, average equity and asset beta values increase slightly (0,556 and 0,413) compared to those at the initial reported leverage (0,539 and 0,367). Then, when leverage degree increases up to 30%, average equity beta decreases little more and average asset beta value also decreases more (0,516 and 0,306). However, the fluctuation of equity beta value (1,180) in the case of 30% leverage up is higher than (>) the results in the rest 2 cases.

During the period 2007-2009, there is smaller fluctuations in equity beta var values when financial leverage changes from 20% down to 30% up, whereas there is a bigger fluctuation in asset beta var values in case Fl 30% up (0,37 compared to 0,502).

Risk analysis

In short, the using of financial leverage could have both negatively or positively impacts on the financial results or return on equity of a company. The more debt the firm uses the more risk it takes. Besides, the increasing interest on loans might drive the earning per share (EPS) lower. And FL becomes a source of risk that need to be managed by finance managers.

On the other hand, in the case of increasing leverage, the company will expect to get more returns. The financial leverage becomes worthwhile if the cost of additional financial leverage is lower than the additional earnings before taxes and interests (EBIT). Considering risk vs. return, FL becomes a decisional variable for managers. And the maximum risk that a firm accepts will ask for the maximum financial leverage. Last but not least, FL becomes a vital factor in determining firms' capital structure.

Discussion

Looking at chart 2 above, it is noted that in case leverage up 30%, during 2007-2009 period, asset and equity beta mean (0,306 and 0,516) of airlines and tourism industry are lower than those in the period 2007-2011 (0,407 and 0,663). Looking at exhibit 7, we can see asset beta mean is higher and equity beta mean is lower than those of consumer goods industry (0,222 and 0,630). This relatively shows us that financial leverage does affect asset beta values.

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. Besides, it continues to increase the effectiveness of building the legal system and regulation supporting the plan of developing airlines and tourism 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 airlines and tourism industry as we could note that in this study when leverage is going to increase up to 30%, the risk level decreases much as well as the asset beta var, compared to the case it is going to decrease 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 Vietnam government and relevant organizations, economists and investors from current market conditions.

REFERENCES

Chen RR, Chidambaran NK, Imerman MB, Sopranzetti BJ (2013). Liquidity, Leverage, and Lehman: A Structural Analysis of Financial Institutions in Crisis, Fordham School of Business Research Paper No.2279686

Eugene Fama F, French Kenneth R (2004). The Capital Asset Pricing Model: Theory and Evidence, J. Econ. Perspectives. 18(3): 25-46

Flifel Kaouther (2012). Financial Markets between Efficiency and Persistence: Empirical Evidence on Daily Data, Asian J. Fin. Acc. 4(2):379-400.

Gabrijelcic M, Herman U, Lenarcic A (2013). Debt Financing and Firm Performance Before and During the Crisis: Micro-Financial Evidence from Slovenia, SSRN Working Paper

Huy Dinh TN (2012). Estimating Beta of Viet Nam listed construction companies groups during the crisis, J. Integration and Dev. Issue 7&8

Maria Ana POPA (2012). The Impact of Social Factors on Economic Growth: Empirical Evidence for Romania and European Union Countries, Rom. J. Fiscal Policy. 3(2):1-16

Minnis M, (2011). The Value of Verification in Debt Financing: Evidence from Private U.S. Firms, SSRN Working Paper

Needham AW, Farr W, Gallagher (2002). Special Problems with Debt Financing by Private Equity Funds, Tax Notes; 97(11)

Umar (2011). Profits, Financial Leverage and Corporate Governance, SSRN Working Paper.

Ang A, Chen J (2007). CAPM over the Long Run: 1926-2001, J. Empiri. Fin.

Baker Kent H, Singleton Clay J, Veit Theodore E (2011). Survey Research in Corporate Finance: Bridging The Gap Between Theory and Practice, Oxford University Press

ADB and Viet Nam Fact Sheet, 2010

Other web sources
http://www.ifc.org/ifcext/mekongpsdf.nsf/Content/PSDP22
http://www.mofa.gov.vn/vi/
http://www.hsx.vn/hsx/
www.tuoitre.com.vn;
www.saigontimes.com.vn;
www.mof.gov.vn ;
www.vneconomy.com.vn ;
www.sbv.gov.vn.

How to cite this article: Huy D.T.N. (2014). Risk Level of Viet Nam Airlines and Tourism Industry under Financial Leverage during and after the Global Crisis 2007-2009. J. Res. Econ. Int. Finance 3(3):51-59

Exhibit

Exhibit 1 – Interest rates in banking industry during crisis
(Source: Viet Nam commercial banks)

Year	Borrowing Interest rates	Deposit Rates	Note
2011	18%-22%	13%-14%	
2010	19%-20%	13%-14%	
2009	9%-12%	9%-10%	Approximately (2007: required reserves ratio at SBV is changed from 5% to 10%) (2009: special supporting interest rate is 4%)
2008	19%-21%	15%-16,5%	
2007	12%-15%	9%-11%	

Exhibit 2 – Basic interest rate changes in Viet Nam
(Source: State Bank of Viet Nam and Viet Nam economy)

Year	Basic rate	Note
2011	9%	
2010	8%	
2009	7%	
2008	8,75%-14%	Approximately, fluctuated
2007	8,25%	
2006	8,25%	
2005	7,8%	
2004	7,5%	
2003	7,5%	
2002	7,44%	
2001	7,2%-8,7%	Approximately, fluctuated
2000	9%	

Exhibit 3 – 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 4: GDP growth Việt Nam 2006-2010 (*source: Bureau Statistic*)

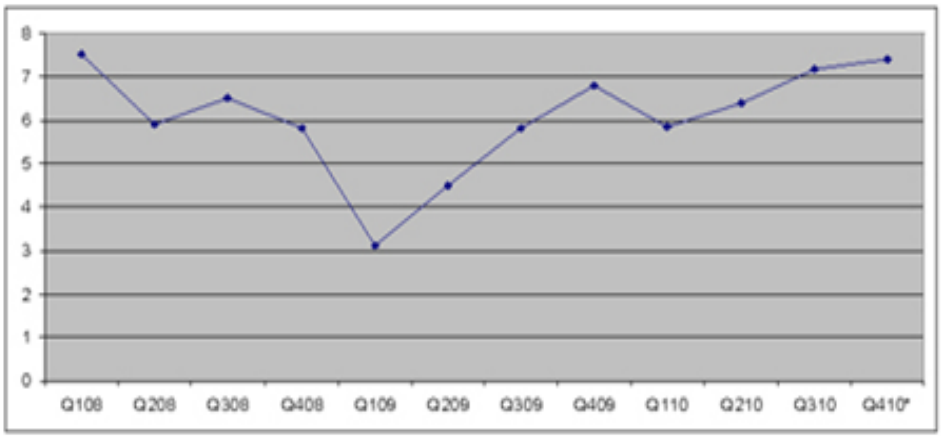


Exhibit 5 – Increase/decrease risk level of listed airlines and tourism industry firms under changing scenarios of leverage: in 2011 F.S reports, 30% up, 20% down in the period 2007 - 2009

Order No.	Company stock code	FL keep as in F.S report		FL 30% up		FL 20% down	
		Equity beta	Asset beta	Increase /Decrease (equity beta)	Increase /Decrease (asset beta)	Increase /Decrease (equity beta)	Increase /Decrease (asset beta)
1	CTC	0,203	0,065	0,000	-0,042	0,000	0,028
2	DLC	0,068	0,041	-0,040	-0,027	0,030	0,026
3	DLV	0,103	0,038	-0,051	-0,029	0,031	0,028
4	FDT	0,110	0,043	-0,048	-0,030	0,029	0,028
5	HOT	0,097	0,081	-0,044	-0,040	0,029	0,028
6	PDC	3,474	2,217	0,000	-0,377	0,000	0,251
7	PGT	0,224	0,209	-0,004	-0,008	0,003	0,006
8	TCT	1,054	0,947	0,000	-0,032	0,000	0,021
9	TTR	0,026	0,022	-0,021	-0,018	0,024	0,022
10	MAS	0,030	0,011	-0,024	-0,010	0,026	0,017
			Average	-0,023	-0,061	0,017	0,046

Exhibit 6- VNI Index and other stock market index during crisis 2006-2010

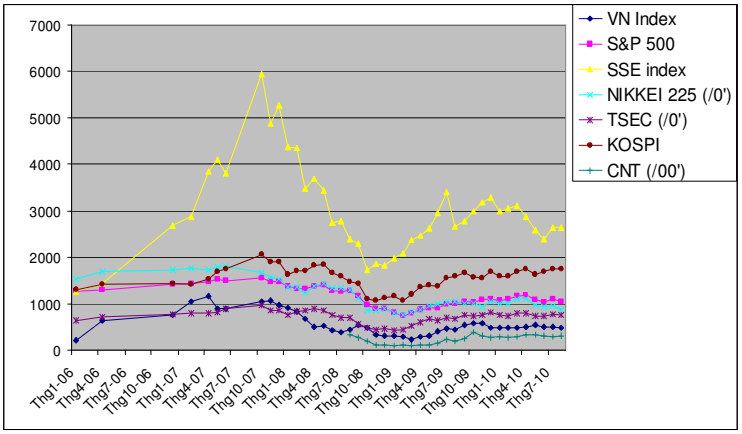


Exhibit 7 – Comparing statistical results of three (3) scenarios of changing FL of 121 listed firms in the consumer good industry