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The Risk Level of Viet Nam Stock Investment Industry after the Global Crisis 2009-2011

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Abstract

This paper evaluates the impacts of external financing on market risk for the listed firms in the Viet nam tourism industry, esp. after the financial crisis 2009-2011. First, by using quantitative and analytical methods to estimate asset and equity beta of total 10 listed companies in Viet Nam 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 when leverage increases to 30% and it increases if leverage decreases down to 20%.Third, by changing leverage in 3 scenarios, we recognized the dispersion of risk level, measured by equity beta var, increases if the leverage increases to 30%. But the dispersion measured by asste beta var decreases, 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

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1. Introduction

Financial development has positive effect for the economic growth, throughout many recent years, and Viet Nam tourism industry is considered as one of active economic sectors in local financial markets, which has some positive effects for the economy. The tourism industry is selected because until now there is no research published with the same scope.

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 empirical results and session 10 presents analysis of risk. Lastly, session 11 shows discussion and session 12 will conclude with some policy suggestions. This paper also supports readers with references, exhibits and relevant web sources.

2. Research Issues

We mention some issues on the estimating of impacts of external financing on beta for listed tourism industry companies in Viet Nam stock exchange as following:

Issue 1: Whether the risk level of 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 tourism industry.

3. 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.

Dimitrov (2006) documented a significantly negative association between changes in financial leverage and contemporaneous risk-adjusted stock returns. Aydemir et all (2006) identified in an economy with more realistic variation in interest rates and the price of risk, there is significant variation in stock return volatility at the market and firm level. In such an economy, financial leverage has little effect on the dynamics of stock return volatility at the market level. Financial leverage contributes more to the dynamics of stock return volatility for a small firm. 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.

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. Chen et all (2013) supported regulators' suspicions that over-reliance on short-term funding and insufficient collateral compounded the effects of dangerously high leverage and resulted in

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undercapitalization and excessive risk exposure for Lehman Brothers. The model reinforces the importance of the relationship between capital structure and risk management. Then, Alcock et all (2013) found evidence that leverage cannot be viewed as a long-term strategy to enhance performance, but in the short term, managers do seem to add significantly to fund excess returns by effectively timing leverage choices to the expected future market environment. And Gunaratha (2013) revealed that in different industries in Sri Lanka, the degree of financial leverage has a significant positive correlation with financial risk.

Finally, financial leverage can be considered as one among many factors that affect business risk of consumer good firms.

4. 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 consumer good 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.

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. 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.

5. 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. Analytical data is from the situation of listed tourism industry firms in VN stock exchange and curent tax rate is 25%.

Generally speaking, quantitative method is mainly used in this study whith a note that risk measure asset beta is mainly derive from equity beta and financial leverage.

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

6. General Data Analysis

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The research sample has total 10 listed firms in the 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 0,514, 0,407 and 0,603 which are negatively correlated with the leverage. Also in 3 scenarios, we find out equity beta mean values (0,765, 0,663 and 0,831) are also negatively correlated 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 10 listed 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.

7.1 Scenario 1: current financial leverage (FL) as in financial reports 2011

In this case, all beta values of 10 listed firms on VN tourism industry market as following:

Table 1 – Market risk of listed companies on VN tourism industry market

Order No.	**Company stock code**	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Note**	**Financial leverage (F.S reports)**
1	CTC	0,226	0,072		68,1%
2	DLC	0,475	0,281	DLV as comparable	40,7%
3	DLV	0,719	0,264	PGT as comparable	63,3%
4	FDT	0,764	0,300	PGT as comparable	60,7%
5	HOT	1,447	1,222	PGT as comparable	15,6%
6	PDC	2,035	1,298		36,2%
7	PGT	1,648	1,532		7,1%
8	TCT	1,016	0,913		10,1%
9	TTR	-1,060	-0,888		16,3%
10	MAS	0,382	0,143		62,6%
				Average	38,07%

(source: Viet Nam stock exchange 2012)

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7.2. Scenario 2: financial leverage increases up to 30%

If leverage increases up to 30%, all beta values of total 10 listed firms on VN tourism industry market as below:

Table 2 – Market risks of listed 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	0,226	0,026		88,5%
2	DLC	0,200	0,094	DLV as comparable	52,9%
3	DLV	0,368	0,065	PGT as comparable	82,3%
4	FDT	0,433	0,091	PGT as comparable	78,9%
5	HOT	1,384	1,104	PGT as comparable	20,3%
6	PDC	2,035	1,077		47,0%
7	PGT	1,648	1,497		9,2%
8	TCT	1,016	0,882		13,2%
9	TTR	-1,060	-0,836		21,2%
10	MAS	0,382	0,071		81,4%
				Average	49,5%

(Source: Viet Nam stock exchange 2012)

7.3. Scenario 3: leverage decreases down to 20%

If leverage decreases down to 20%, all beta values of total 10 listed firms on the tourism industry market in VN as following:

Table 3 – Market risk of listed 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	0,226	0,103		54,5%
2	DLC	0,684	0,461	DLV as comparable	32,6%
3	DLV	0,932	0,460	PGT as comparable	50,6%
4	FDT	0,965	0,496	PGT as comparable	48,6%

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5	HOT	1,489	1,303	PGT as comparable	12,5%
6	PDC	2,035	1,445		29,0%
7	PGT	1,648	1,555		5,6%
8	TCT	1,016	0,934		8,1%
9	TTR	-1,060	-0,922		13,0%
10	MAS	0,382	0,190		50,1%
				Average	30,5%

(Source: Viet Nam stock exchange 2012)

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 4 - Statistical results (FL in case 1)

Statistic results	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Difference**
MAX	2,035	1,532	0,5029
MIN	-1,060	-0,888	-0,1727
MEAN	0,765	0,514	0,2513
VAR	0,7530	0,5302	0,2228
Note: Sample size : 10			

(source: Viet Nam stock exchange 2012)

Table 5 – Statistical results (FL in case 2)

Statistic results	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Difference**
MAX	2,035	1,497	0,5378
MIN	-1,060	-0,836	-0,2245
MEAN	0,663	0,407	0,2559
VAR	0,7879	0,4962	0,2918
Note: Sample size : 10			

(source: Viet Nam stock exchange 2012)

Table 6- Statistical results (FL in case 3)

Statistic results	**Equity beta**	**Asset beta (assume debt beta = 0)**	**Difference**
MAX	2,035	1,555	0,4797
MIN	-1,060	-0,922	-0,1382
MEAN	0,831	0,603	0,2289
VAR	0,7532	0,5572	0,1960

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Note: Sample size : 10

(source: Viet Nam stock exchange 2012)

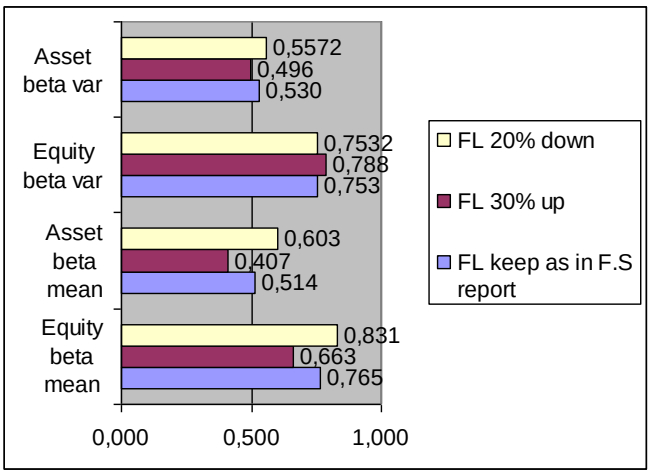
Based on the above results, we find out:

Equity beta mean values in all 3 scenarios are low (< 0,9) and asset beta mean values are also small (< 0,7) and max equity beta values are lower than (<) 1. In the case of reported leverage in 2011, equity beta value fluctuates in an acceptable range from -1,060 (min) up to 2,035 (max) and asset beta fluctuates from -0,888 (min) up to 1,532 (max). If leverage increases to 30%, equity beta moves in an unchanged range and asset beta moves from -0,836 (min) up to 1,497 (max). Hence, we note that there is an increase in asset beta min value if leverage increases. When leverage decreases down to 20%, equity beta value moves in an unchanged range and asset beta changes from -0,922 (min) up to 1,555 (max). So, there is a small increase in equity beta min value and small increase in asset beta min when leverage decreases in scenario 3.

Beside, Exhibit 4 informs us that in the case 30% leverage up, average equity beta value of 10 listed firms decreases down to 0,102 while average asset beta value of these 10 firms decreases little less to 0,107. Then, when leverage reduces to 20%, average equity beta value of 10 listed firms goes up to 0,066 and average asset beta value of 10 firms up to 0,089.

The below chart 1 shows us : when leverage degree decreases down to 20%, average equity and asset beta values increase slightly (0,831 and 0,603) compared to those at the initial reported leverage (0,765 and 0,514). Then, when leverage degree increases up to 30%, average equity beta decreases little more and average asset beta value also decreases more (to 0,663 and 0,407). However, the fluctuation of equity beta value (0,788) in the case of 30% leverage up is higher than (>) the results in the rest 2 leverage cases. And we could note that the using of leverage in the case of 30% leverage up causes a decrease in asset beta var down to 0,496.

Chart 1 – Comparing statistical results of three (3) scenarios of changing FL



(Source: Viet Nam stock exchange 2012)

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9. Empirical results

In scenario 1 (current FL), asset and equity beta mean reach medium values (0,514 and 0,765) whereas asset beta var reaches minimum (0,530), compared to the rest 2 cases.
In scenario 2 (FL 30%), asset and equity beta min reach minimum values (0,407 and 0,633) whereas equity beta var reaches maximum (0,788), compared to the rest 2 cases.
And finally, in scenario 3 (FL down 20%), asset and equity beta mean reach maximum values while asset beta var reaches medium value (0,557), compared to the rest 2 cases.

10. 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.
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.

11. Discussion

Looking at exhibit 6, it is noted that comparing to beta results of consumer good industry, asset and equity beta mean (0,407 and 0,663) of tourism industry are higher than those of consumer good industry (0,222 and 0,630). This relatively shows us that financial leverage might affect asset beta values in consumer good industry much more than that in tourism industry although it does has certain impacts.

12. 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 electric power 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 tourism companies 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 Viet Nam government and relevant organizations, economists and investors from current market conditions.

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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%	Approximately
2009	9%-12%	9%-10%	(2007: required reserves
2008	19%-21%	15%-16,5%	ratio at SBV is changed
2007	12%-15%	9%-11%	from 5% to 10%)
			(2009: special supporting interest rate is 4%)

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

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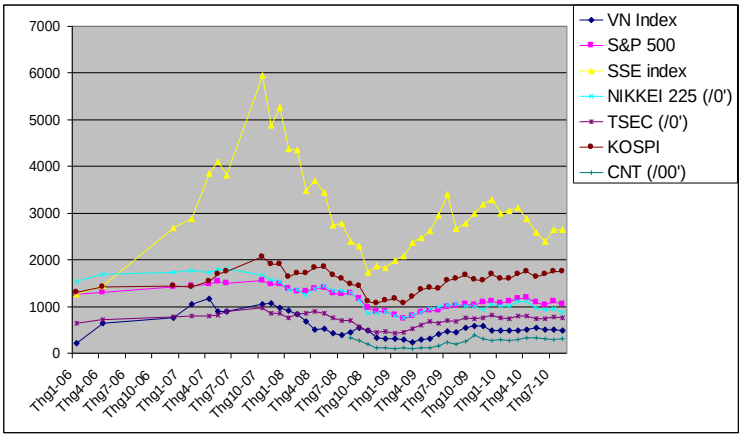
2009	6,88%	5,2%	17.000
2008	22%	6,23%	17.700
2007	12,63%	8,44%	16.132
2006	6,6%	8,17%	
2005	8,4%		
Note		approximately	

Exhibit 4 – Increase/decrease risk level of listed tourism industry firms under changing scenarios of leverage: in 2011 F.S reports, 30% up, 20% down in the period 2007 - 2011

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	0,226	0,072	0,000	-0,046	0,000	0,031
2	DLC	0,475	0,281	-0,275	-0,187	0,209	0,180
3	DLV	0,719	0,264	-0,351	-0,199	0,213	0,196
4	FDT	0,764	0,300	-0,331	-0,209	0,201	0,196
5	HOT	1,447	1,222	-0,063	-0,118	0,041	0,081
6	PDC	2,035	1,298	0,000	-0,221	0,000	0,147
7	PGT	1,648	1,532	0,000	-0,035	0,000	0,023
8	TCT	1,016	0,913	0,000	-0,031	0,000	0,021
9	TTR	-1,060	-0,888	0,000	0,052	0,000	-0,035
10	MAS	0,382	0,143	0,000	-0,072	0,000	0,048
			Average	-0,102	-0,107	0,066	0,089

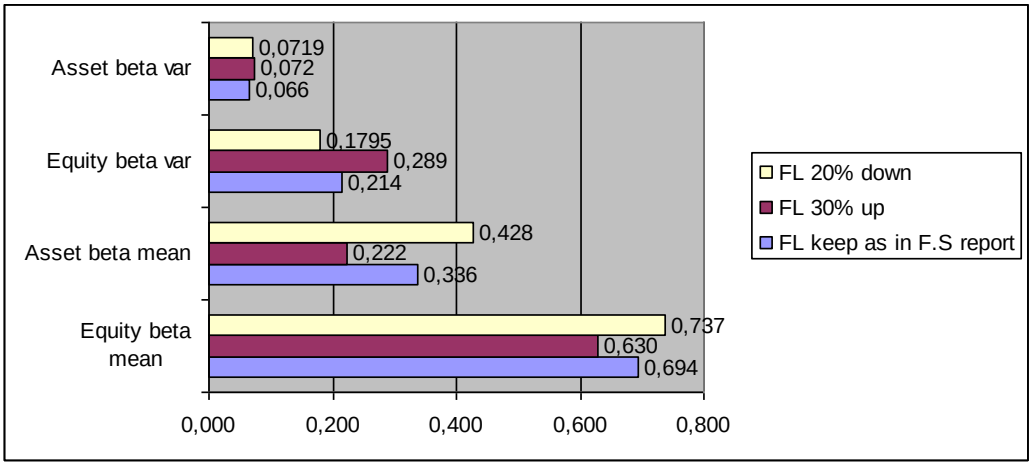
(source: Viet Nam stock exchange 2012)

Exhibit 5- VNI Index and other stock market index during crisis 2006-2010



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Exhibit 6 – Comparing statistical results of three (3) scenarios of changing FL of 121 listed firms in the consumer good industry



(source: Viet Nam stock exchange 2012)

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