Original Paper

Risk Management in Viet Nam Tourism Industry Under the Impact of a Two Factor Model During and After the Global Crisis

Dinh Tran Ngoc Huy[1*] & Du Quoc Dao[1]

[1] Faculty of Economics, Binh Duong University Vietnam, International University of Japan, Japan

[*] Dinh Tran Ngoc Huy, Faculty of Economics, Binh Duong University Vietnam, International University of Japan, Japan

Abstract

Over past few years, the global financial crisis shows certain influence on emerging financial markets including Viet nam. Therefore, this study chooses an 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 tourism companies.

First, it calculates equity and asset beta values in three 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 0,753 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

1. 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 covers conclusion and policy suggestion. Before last, there are exhibit session which covers some calculated results of this paper's analysis and comparison.

2. Preliminary Notes

2.1 Research Issues

This research aims to figure out two 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

2.2 Literature Review

John (1999) mentions a two-rate tax system where land is taxed at a higher rate than structures in his research on two-rate property tax effects on land development.

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.

Beside, Modigliani and Mill (1963) show that firm value is an increasing function of leverage due to the tax deductibility of interest payments at the corporate level. Carr and Wu (2011) stated that equity volatility increases proportionally with the level of financial leverage, the variation of which is dictated by managerial decisions on a company's capital structure based on economic conditions. And, irrespective of financial leverage, a positive shock to business risk increases the cost of capital and reduces the valuation of future cash flows, generating an instantaneous negative correlation between asset returns and asset volatility.

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. 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.

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2.3 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. Using leverage might affect both company performance and its risk.

2.4 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%.

3. Main Results

3.1 Empirical Research Findings and Discussion

Data used are from total 10 listed tourism 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 FL scenarios are changed up when tax rate is up to 30% and down to 20%. In summary, 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 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**	
Leverage up 30%			
Leverage down 20%			

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

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

Table 2. Market Risk of Listed Companies on VN Airline and Tourism Industry Market under a Two Factors Model (Case 1)

		Leverage as current			Leverage down 20%		Leverage up 30%	
Order No.	Company stock code	Equity beta	Asset beta (assume	beta debt	Equity beta	Asset beta	Equity beta	Asset beta (assume

			beta = 0)		(assume debt beta = 0)		debt beta = 0)
1	**CTC**	0,226	0,072	0,226	0,103	0,226	0,026
2	**DLC**	0,475	0,281	0,684	0,461	0,200	0,094
3	**DLV**	0,719	0,264	0,932	0,460	0,368	0,065
4	**FDT**	0,764	0,300	0,965	0,496	0,433	0,091
5	**HOT**	1,447	1,222	1,489	1,303	1,384	1,104
6	**PDC**	2,035	1,298	2,035	1,445	2,035	1,077
7	**PGT**	1,648	1,532	1,648	1,555	1,648	1,497
8	**TCT**	1,016	0,913	1,016	0,934	1,016	0,882
9	**TTR**	-1,060	-0,888	-1,060	-0,922	-1,060	-0,836
10	**MAS**	0,382	**0,143**	0,382	0,190	0,382	0,071

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 10 listed firms on VN airline and tourism industry market as below:

Table 3. Market Risks of Listed Airline and Tourism Industry Firms under a Two Factors Model (Case 2)

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	**CTC**	0,226	0,072	0,226	0,103	0,226	0,026
2	**DLC**	0,492	0,292	0,704	0,474	0,210	0,099
3	**DLV**	0,735	0,270	0,948	0,468	0,380	0,067
4	**FDT**	0,780	0,307	0,981	0,505	0,446	0,094
5	**HOT**	1,455	1,228	1,495	1,308	1,393	1,111
6	**PDC**	2,035	1,298	2,035	1,445	2,035	1,077
7	**PGT**	1,648	1,532	1,648	1,555	1,648	1,497
8	**TCT**	1,016	0,913	1,016	0,934	1,016	0,882
9	**TTR**	-1,060	-0,888	-1,060	-0,922	-1,060	-0,836
10	**MAS**	0,382	**0,143**	0,382	0,190	0,382	0,071

Source: VN stock exchange 2012.

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

All beta values of total 10 listed firms on VN airline and tourism industry market as below:

Table 4. Market Risks of Listed Airline and Tourism Industry Firms under a Two Factors Model (Case 3)

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	CTC	0,226	0,072	0,226	0,103	0,226	0,026
2	DLC	0,447	0,265	0,653	0,440	0,184	0,087
3	DLV	0,693	0,254	0,905	0,447	0,350	0,062
4	FDT	0,737	0,290	0,939	0,483	0,413	0,087
5	HOT	1,436	1,212	1,479	1,295	1,369	1,092
6	PDC	2,035	1,298	2,035	1,445	2,035	1,077
7	PGT	1,648	1,532	1,648	1,555	1,648	1,497
8	TCT	1,016	0,913	1,016	0,934	1,016	0,882
9	TTR	-1,060	-0,888	-1,060	-0,922	-1,060	-0,836
10	MAS	0,382	**0,143**	0,382	0,190	0,382	0,071

Source: VN stock exchange 2012.

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 cases.

3.2 Comparing Statistical Results in 3 Scenarios of Changing Leverage

Table 5. Statistical Results (FL in Case 1)

Statistic results	Leverage as current			Leverage down 20%			Leverage up 30%		
	Equity beta	Asset beta (assume debt beta	Difference	Equity beta	Asset beta (assume debt beta	Difference	Equity beta	Asset beta (assume	Difference

	= 0)			= 0)			debt beta = 0)		
MAX	2,035	1,532	0,503	2,035	1,555	0,480	2,035	1,497	0,538
MIN	-1,060	-0,888	-0,173	-1,060	-0,922	-0,138	-1,060	-0,836	-0,225
MEAN	0,765	0,514	0,251	0,831	0,603	0,229	0,663	0,603	0,060
VAR	0,7530	0,5302	0,223	0,7532	0,5572	0,196	0,7879	0,4962	0,292

Note: Sample size : 10 firms

Source: VN stock exchange 2012.

Table 6. Statistical Results (FL in Case 2)

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	2,035	1,532	0,503	2,035	1,555	0,480	2,035	1,497	0,538
MIN	-1,060	-0,888	-0,173	-1,060	-0,922	-0,138	-1,060	-0,836	-0,225
MEAN	0,771	0,517	0,254	0,837	0,606	0,231	0,667	0,606	0,061
VAR	0,7528	0,5299	0,223	0,7543	0,5571	0,197	0,7869	0,4966	0,290

Note. Sample size: 10 firms.

Source: VN Stock Exchange 2012.

Table 7. Statistical Results (FL in Case 3)

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	2,035	1,532	0,503	2,035	1,555	0,480	2,035	1,497	0,538
MIN	-1,060	-0,888	-0,173	-1,060	-0,922	-0,138	-1,060	-0,836	-0,225
MEAN	0,756	0,509	0,247	0,822	0,597	0,225	0,656	0,597	0,059

| VAR | 0,7534 | 0,5305 | 0,223 | 0,7516 | 0,5573 | 0,194 | 0,7895 | 0,4954 | 0,294 |

Note: Sample size : 10 firms

Source: VN stock exchange 2012.

The above calculated figures generate some following results:

First of all, Equity beta mean values in all 3 scenarios are acceptable ($< 0,9$) and asset beta mean values are also small ($< 0,7$). If leverage increases to 30%, asset beta max values keep the same value of 1,497 when tax rate is up to 28% or down to 20%. Finally, when leverage decreases down to 20%, asset beta max values keep the same value of 1,555 in both cases: tax rate up and down.

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 (0,837) compared to that at the decrease of tax rate of 20% (0,822). However, equity beta var is 0,754 (tax rate up), little higher than 0,752 (tax rate down). Then, when leverage degree increases up to 30%, if tax rate is up to 28%, average equity beta increases little (to 0,667) compared to that at the decrease of tax rate of 20% (0,656). However, in case the tax rate up, the equity beta var is 0,787, smaller than 0,790 (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 (0,606) compared to that at the decrease of tax rate of 20% (0,597). However, asset beta var is 0,557 (tax rate up), the same as that in the case of 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 0,606) compared to that at the decrease of tax rate of 20% (0,597). However, in case the tax rate up, the asset beta var is 0,497, higher than 0,495 (tax rate down).
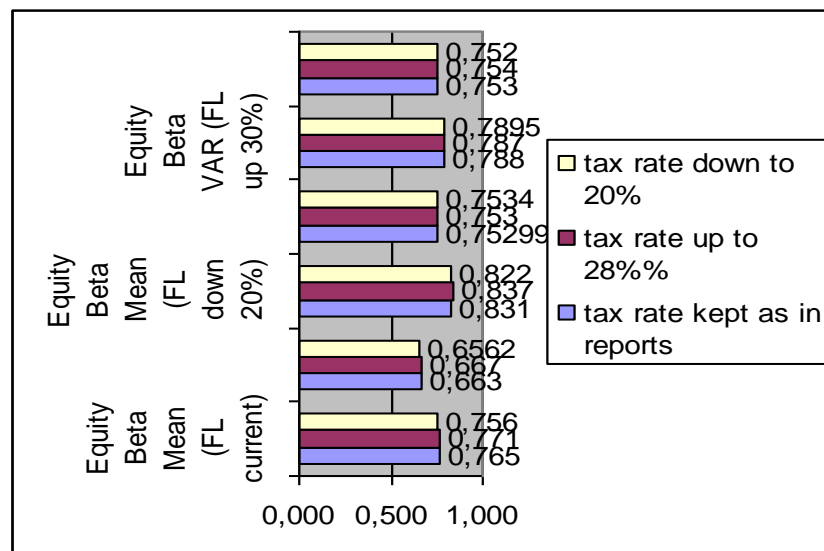

Figure 1. Comparing Statistical Results of Equity Beta var and Mean in Three Scenarios of Changing FL and Tax Rate
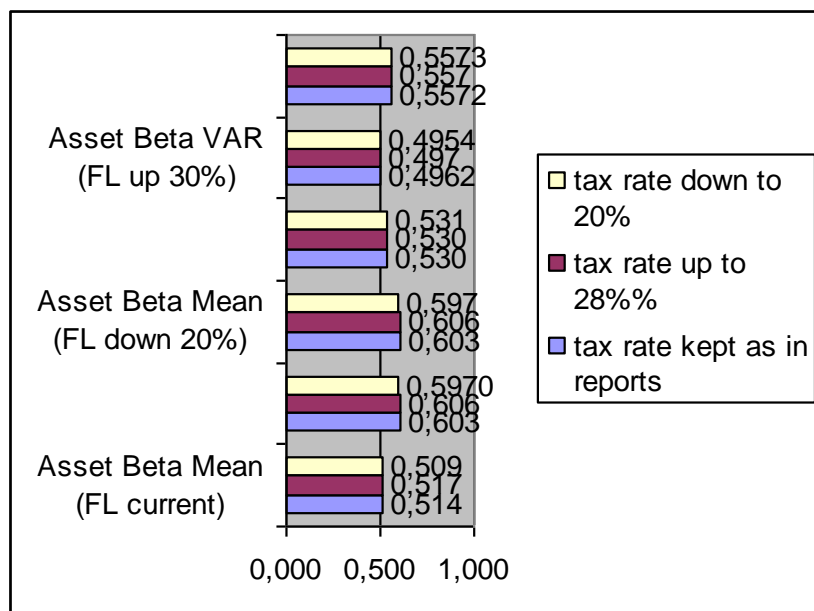
Source: VN stock exchange 2012.

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Figrue 2. Comparing Statistical Results of Asset Beta var and Mean in Three Scenarios of Changing FL and Tax Rate

Source: VN stock exchange 2012.

4. 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 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 tourism companies 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 0,597 if tax rate moves down to 20%).

Furthermore, the entire efforts among many different government bodies need to be coordinated. Tourism and hotel industry in Vietnam also need to establish risk warning system (for environment, human resource, financial, business, unexpected risk and technology risk). Vietnam tourism school also enhance training programs to meet the market demand while hotel industry has to improve quality of service and reduce risk in 4.0 technology era.

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
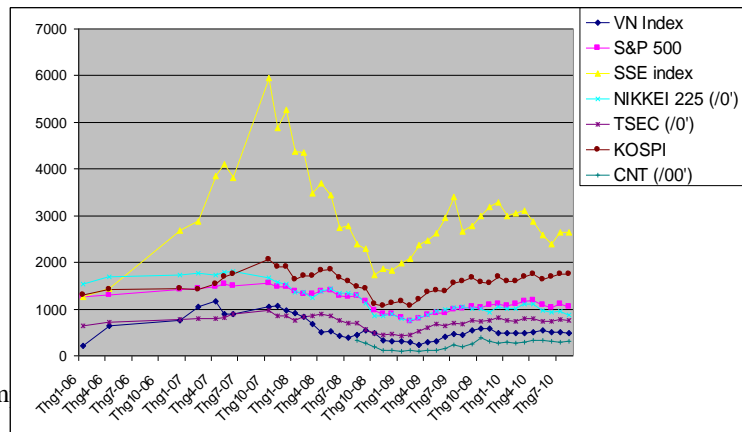
(source: global stock exchange 2012)

Exhibit 2- Com... ...firms

(source: Viet Nam stock exchange 2012)

Order No.	Company Stock code	Comparable firm	FL as current	FL up 30%	FL down 20%
1	**CTC**		68,1%	88,5%	54,5%
2	**DLC**	DLV as comparable	40,7%	52,9%	32,6%
3	**DLV**	PGT as comparable	63,3%	82,3%	50,6%
4	**FDT**	PGT as comparable	60,7%	78,9%	48,6%
5	**HOT**	PGT as comparable	15,6%	20,3%	12,5%
6	**PDC**		36,2%	47,0%	29,0%
7	**PGT**		7,1%	9,2%	5,6%
8	**TCT**		10,1%	13,2%	8,1%
9	**TTR**		16,3%	21,2%	13,0%
10	**MAS**		62,6%	81,4%	50,1%
		Average	38,1%	49,5%	30,5%