Risk Level of Viet Nam Real Estate Industry Under Financial Leverage During and After the Global Crisis 2007-2009

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Abstract

After the financial crisis 2007-2009, this paper evaluates the impacts of external financing on market risk for the listed firms in the Viet nam real estate industry. First, by using quantitative and analytical methods to estimate asset and equity beta of total 45 listed companies in Viet Nam real estate 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 (0,348) when leverage increases to 30% and it increases (0,385) 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%. 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, real estate industry
JEL CLASSIFICATION : *G010, G100, G390*

1. Introduction

Financial system development has positive effect for the economic growth, throughout many recent years, and Viet Nam real estate industry is considered as one of active economic sectors in local financial markets, 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 risk. Lastly, session 10 and 11 will present discussion and 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 real estate industry companies in Viet Nam stock exchange as following:
Issue 1: Whether the risk level of real estate 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 real estate 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.

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.

Black (1976) proposes the leverage effect to explain the negative correlation between equity returns and return volatilities. Diamond and Dybvig (1983) said banks can also help reduce liquidity risk and therefore enable long-term investment.

Next, Brennan et all (1984) pointed that a firm's capital structure is dynamic. Aghion et all (1999) stated debt instruments can reduce the amount of free cash available to firms and thus managerial slack.

Peter and Liuren (2007) mentions 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 for a company with a fixed amount of debt, its financial leverage increases when the market price of its stock declines. Then, Penman et all (2007) documented a negative association between leverage and future returns, after controlling for conventional risk proxies.

Reinhart and Rogoff (2009) pointed the history of finance is full of boom-and-bust cycles, bank failures,

and systemic bank and currency crises. Adrian and Shin (2010) stated a company can also proactively vary its financial leverage based on variations on market conditions. Marco (2012) found out in Euro region, asset risk, measured as the annualized volatility of the market enterprise value, is the best predictor of observed leverage ratios. Thomas and Fredrik (2012) pointed asset specificity has a negative impact on leverage, but a positive impact on debt maturity.

Then, 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.

Finally, financial leverage can be considered as one among many factors that affect business risk of real estate 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 hotel 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. FL On thehas 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.

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 real estate 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.

6. General Data Analysis
The research sample has total 45 listed firms in the real estate 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, 0,348 and 0,385 which are negatively correlated with the leverage. Also in 3 scenarios, we find out equity beta mean values (0,762, 0,718 and 0,802) 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 45 listed real estate 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 45 listed firms on VN real estate industry market as following:

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

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage
1	API	1,686	1,580	RCL as comparable	6,3%
2	ASM	0,495	0,173	HDC as comparable	65,0%
3	BCI	1,161	0,523		55,0%
4	CCI	0,476	0,145	UIC as comparable	69,4%
5	CLG	0,383	0,092	UIC as comparable	75,9%
6	D2D	1,446	0,533		63,2%
8	DLG	0,596	0,198	SC5 as comparable	66,9%
9	DTA	0,974	0,466	RCL as comparable	52,2%
10	DXG	0,145	0,046	LGL as comparable	68,4%
11	HAG	0,632	0,295		53,3%
12	HDC	1,185	0,425		64,2%
13	HDG	0,253	0,099	LHG as comparable	61,0%
14	IDJ	1,198	0,776	API as comparable	35,2%
15	IDV	0,428	0,082	RCL as comparable	80,7%
16	IJC	0,411	0,120	BCI as comparable	70,9%
17	ITA	1,121	0,749		33,2%
18	ITC	0,591	0,338	NBB as comparable	42,8%
19	KBC	0,945	0,371		60,7%
20	KDH	1,071	0,670	LCG as comparable	37,5%
21	LCG	1,552	0,923		40,5%
22	LGL	0,381	0,168	PPI as comparable	56,1%
23	LHG	0,548	0,215	DLG as comparable	60,8%
24	NBB	0,923	0,317		65,6%
25	NHA	1,399	1,034	RCL as comparable	26,1%
26	NTL	1,557	0,701		55,0%
27	NVN	0,167	0,061	CLG as comparable	63,3%
28	OGC	0,593	0,271	ITA as comparable	54,3%
29	PDR	0,194	0,078	IJC as comparable	59,9%
30	PPI	0,746	0,332	D2D as comparable	55,5%
31	PVL	0,110	0,078	DXG as comparable	29,6%
32	QCG	0,718	0,290	SJS as comparable	59,5%
33	RCL	1,770	0,991		44,0%
34	SC5	1,497	0,240		84,0%
35	SDU	0,128	0,053	VCR as comparable	58,5%
36	SJS	1,509	0,799		47,1%
37	SZL	0,425	0,258		39,3%
38	TDH	1,103	0,722		34,5%
39	TIX	0,202	0,082	SZL as comparable	59,6%
40	UDC	0,216	0,071	LHG as comparable	67,2%
41	UIC	1,286	0,357		72,2%
42	VCR	0,263	0,165	LGL as comparable	37,4%
43	VIC	0,755	0,186		75,4%
44	VPH	0,070	0,019	UDC as comparable	73,5%
45	VRC	0,203	0,073	CCI as comparable	64,1%
Note: Raw data, not adjusted				Average	55,6%

7.2. Scenario 2: financial leverage increases up to 30%
If leverage increases up to 30%, all beta values of total 45 listed firms on VN real estate industry market as below:

Table 2 – Market risks of listed real estate industry firms (case 2)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage
1	API	1,662	1,558	RCL as comparable	8,1%
2	ASM	0,421	0,147	HDC as comparable	84,5%
3	BCI	1,161	0,523		71,5%
4	CCI	0,400	0,122	UIC as comparable	90,3%
5	CLG	0,316	0,076	UIC as comparable	98,7%
6	D2D	1,446	0,533		82,1%
8	DLG	0,505	0,167	SC5 as comparable	86,9%
9	DTA	0,858	0,410	RCL as comparable	67,8%
10	DXG	0,093	0,029	LGL as comparable	89,0%
11	HAG	0,632	0,295		69,3%
12	HDC	1,185	0,425		83,4%
13	HDG	0,187	0,073	LHG as comparable	79,2%
14	IDJ	1,086	0,704	API as comparable	45,8%
15	IDV	0,348	0,067	RCL as comparable	104,9%
16	IJC	0,344	0,100	BCI as comparable	92,1%
17	ITA	1,121	0,749		43,2%
18	ITC	0,534	0,305	NBB as comparable	55,6%
19	KBC	0,945	0,371		78,9%
20	KDH	0,980	0,613	LCG as comparable	48,7%
21	LCG	1,552	0,923		52,7%
22	LGL	0,290	0,128	PPI as comparable	72,9%
23	LHG	0,472	0,185	DLG as comparable	79,0%
24	NBB	0,923	0,317		85,3%
25	NHA	1,316	0,972	RCL as comparable	34,0%
26	NTL	1,557	0,701		71,5%
27	NVN	0,118	0,043	CLG as comparable	82,3%
28	OGC	0,519	0,237	ITA as comparable	70,6%
29	PDR	0,140	0,056	IJC as comparable	77,9%
30	PPI	0,652	0,290	D2D as comparable	72,2%
31	PVL	0,066	0,047	DXG as comparable	38,5%
32	QCG	0,620	0,251	SJS as comparable	77,4%
33	RCL	1,770	0,991		57,2%
34	SC5	1,497	0,240		109,2%
35	SDU	0,077	0,032	VCR as comparable	76,1%
36	SJS	1,509	0,799		61,2%
37	SZL	0,425	0,258		51,1%
38	TDH	1,103	0,722		44,9%
39	TIX	0,174	0,070	SZL as comparable	77,5%
40	UDC	0,157	0,052	LHG as comparable	87,4%
41	UIC	1,286	0,357		93,9%
42	VCR	0,184	0,115	LGL as comparable	48,6%
43	VIC	0,755	0,186		98,0%
44	VPH	0,042	0,011	UDC as comparable	95,6%
45	VRC	0,146	0,052	CCI as comparable	83,4%
Note: Raw data, not adjusted				Average	72,2%

7.3. Scenario 3: leverage decreases down to 20%

If leverage decreases down to 20%, all beta values of total 45 listed firms on the real estate industry market in VN as following:

Table 3 – Market risk of listed real estate industry firms (case 3)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage
1	API	1,702	1,596	RCL as comparable	5,0%
2	ASM	0,560	0,196	HDC as comparable	52,0%
3	BCI	1,161	0,523		44,0%
4	CCI	0,544	0,166	UIC as comparable	55,6%
5	CLG	0,445	0,107	UIC as comparable	60,7%
6	D2D	1,446	0,533		50,5%
8	DLG	0,678	0,225	SC5 as comparable	53,5%
9	DTA	1,070	0,512	RCL as comparable	41,7%
10	DXG	0,203	0,064	LGL as comparable	54,8%
11	HAG	0,632	0,295		42,6%
12	HDC	1,185	0,425		51,3%
13	HDG	0,317	0,124	LHG as comparable	48,8%
14	IDJ	1,284	0,832	API as comparable	28,2%
15	IDV	0,504	0,097	RCL as comparable	64,6%
16	IJC	0,472	0,137	BCI as comparable	56,7%
17	ITA	1,121	0,749		26,6%
18	ITC	0,637	0,364	NBB as comparable	34,2%
19	KBC	0,945	0,371		48,6%
20	KDH	1,141	0,714	LCG as comparable	30,0%
21	LCG	1,552	0,923		32,4%
22	LGL	0,468	0,206	PPI as comparable	44,8%
23	LHG	0,614	0,241	DLG as comparable	48,6%
24	NBB	0,923	0,317		52,5%
25	NHA	1,460	1,079	RCL as comparable	20,9%
26	NTL	1,557	0,701		44,0%
27	NVN	0,219	0,080	CLG as comparable	50,7%
28	OGC	0,654	0,299	ITA as comparable	43,5%
29	PDR	0,249	0,100	IJC as comparable	47,9%
30	PPI	0,826	0,367	D2D as comparable	44,4%
31	PVL	0,162	0,114	DXG as comparable	23,7%
32	QCG	0,802	0,324	SJS as comparable	47,6%
33	RCL	1,770	0,991		35,2%
34	SC5	1,497	0,240		67,2%
35	SDU	0,187	0,077	VCR as comparable	46,8%
36	SJS	1,509	0,799		37,7%
37	SZL	0,425	0,258		31,5%
38	TDH	1,103	0,722		27,6%
39	TIX	0,226	0,091	SZL as comparable	47,7%
40	UDC	0,275	0,090	LHG as comparable	53,8%
41	UIC	1,286	0,357		57,8%
42	VCR	0,345	0,216	LGL as comparable	29,9%
43	VIC	0,755	0,186		60,3%
44	VPH	0,103	0,027	UDC as comparable	58,8%
45	VRC	0,262	0,094	CCI as comparable	51,3%
Note: Raw data, not adjusted				Average	44,5%

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	1,770	1,580	0,190
MIN	0,070	0,019	0,051
MEAN	0,762	0,367	0,394
VAR	0,2577	0,1149	0,143
Note: Sample size : 45			

Table 5 – Statistical results (FL in case 2)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,770	1,558	0,212
MIN	0,042	0,011	0,031
MEAN	0,718	0,348	0,370
VAR	0,2759	0,1152	0,161
Note: Sample size : 45			

Table 6- Statistical results (FL in case 3)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,770	1,596	0,175
MIN	0,103	0,027	0,076
MEAN	0,802	0,385	0,417
VAR	0,2402	0,1139	0,126
Note: Sample size : 45			

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 (< 0,4) 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 0,07 (min) up to 1,77 (max) and asset beta fluctuates from 0,019 (min) up to 1,58 (max). If leverage increases to 30%, equity beta moves in a range from 0,042 to 1,77 (max unchanged) and asset beta moves from 0,011 (min) up to 1,558 (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 0,103 to 1,77 (max unchanged) and asset beta changes from 0,027 (min) up to 1,596 (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 45 listed firms decreases down to -0,044 while average asset beta value of these 45 firms decreases little to -0,019. Then, when leverage reduces to 20%, average equity beta value of 45 listed firms goes up to 0,04 and average asset beta value of 45 firms up to 0,017.

The below chart 1 shows us : when leverage degree decreases down to 20%, average equity and asset beta values increase slightly (0,802 and 0,385) compared to those at the initial reported leverage (0,762 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 (0,718 and 0,348). However, the fluctuation of equity beta value (0,276) in the case of 30% leverage up is higher than (>) the results in the rest 2 cases.

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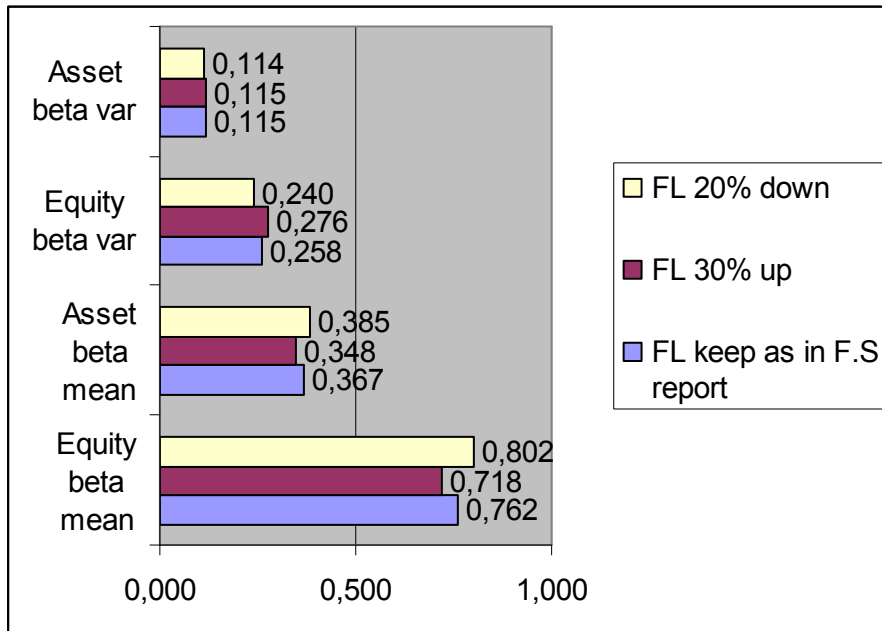

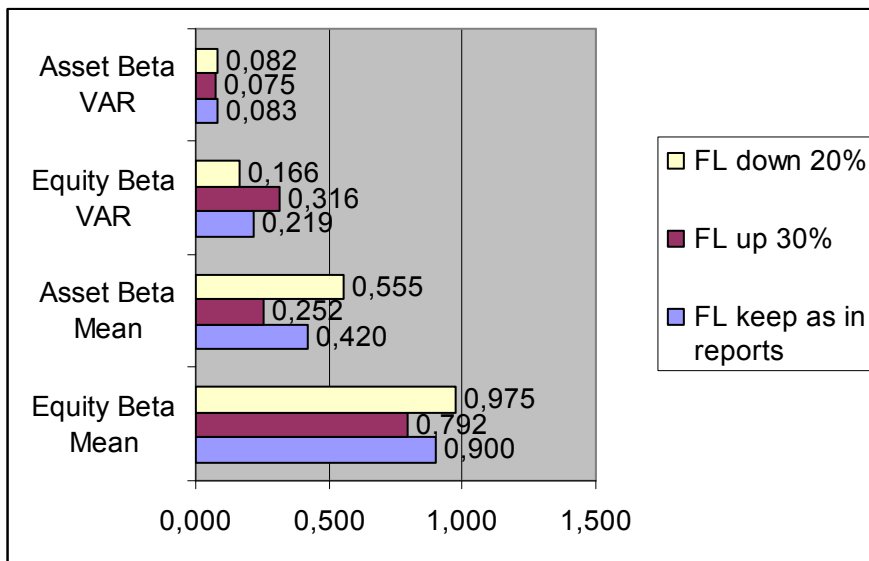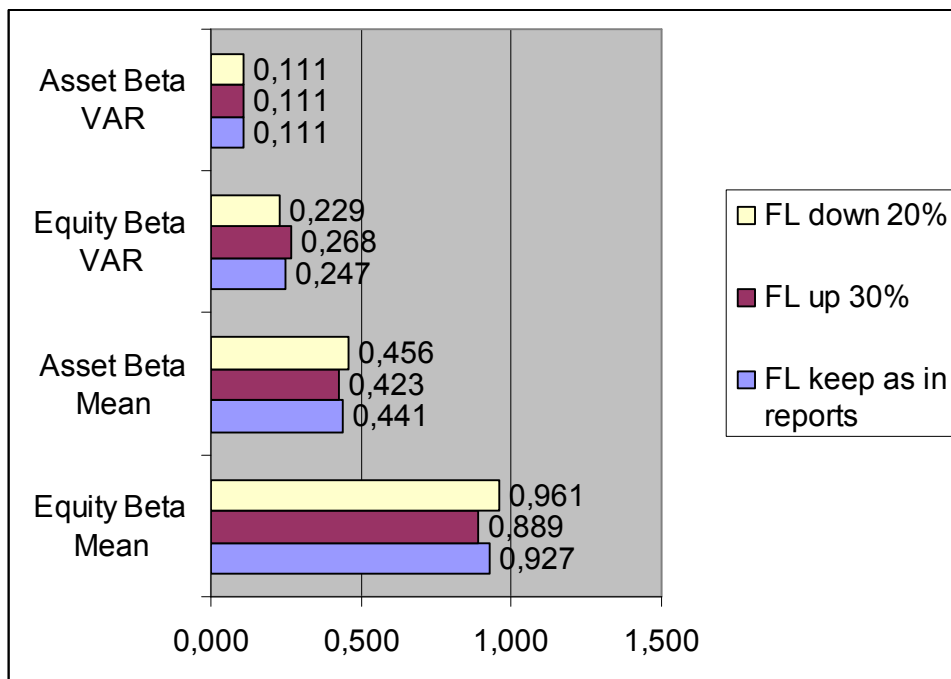Chart 2 – Comparing statistical results of three (3) scenarios of changing FL (period 2009-2011)

Chart 3 – Comparing statistical results of three (3) scenarios of changing FL (period 2007-2011)

(source: Viet Nam stock exchange 2012)

9. 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. Beside, 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.

10. Discussion

Looking at chart 2, it is noted that in case leverage up 30%, during 2007-2009 period, asset and equity beta mean (0,348 and 0,718) of real estate industry are lower than those in the period 2007-2011 (0,423 and 0,889). Looking at exhibit 7, we can see asset beta mean and equity beta mean are higher than those of consumer good industry (0,222 and 0,630). This relatively shows us that financial leverage does affect asset beta values.

11. 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. Beside, it continues to increase the effectiveness of building the legal system and regulation supporting the plan of developing real estate 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 real estate industry as we could note that in this study when leverage is going to increase up to 30%, the risk level decreases much despite of the little high 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
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*)
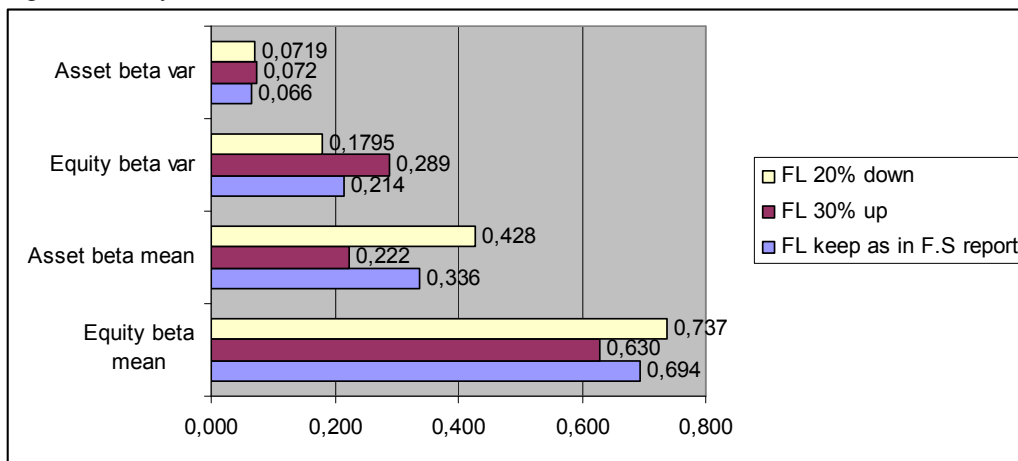
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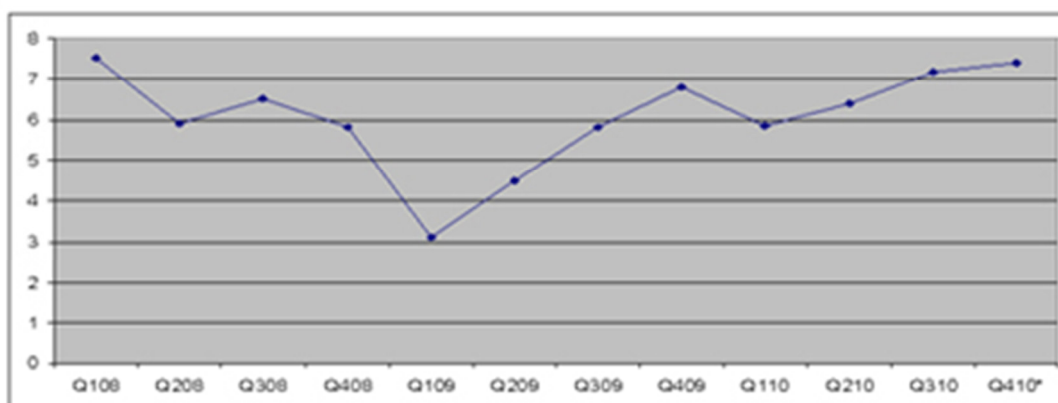
Exhibit 5 – Increase/decrease risk level of listed real estate industry firms under changing scenarios of leverage : in 2011 F.S reports, 30% up, 20% down in the period 2007 - 2009

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	API	1,686	1,580	-0,024	-0,022	0,016	0,015
2	ASM	0,495	0,173	-0,074	-0,026	0,065	0,023
3	BCI	1,161	0,523	0,000	0,000	0,000	0,000
4	CCI	0,476	0,145	-0,076	-0,023	0,069	0,021
5	CLG	0,383	0,092	-0,067	-0,016	0,063	0,015
6	D2D	1,446	0,533	0,000	0,000	0,000	0,000
8	DLG	0,596	0,198	-0,091	-0,030	0,082	0,027
9	DTA	0,974	0,466	-0,116	-0,055	0,096	0,046
10	DXG	0,145	0,046	-0,052	-0,016	0,058	0,018
11	HAG	0,632	0,295	0,000	0,000	0,000	0,000
12	HDC	1,185	0,425	0,000	0,000	0,000	0,000
13	HDG	0,253	0,099	-0,065	-0,026	0,065	0,025
14	IDJ	1,198	0,776	-0,111	-0,072	0,086	0,056
15	IDV	0,428	0,082	-0,079	-0,015	0,076	0,015
16	IJC	0,411	0,120	-0,067	-0,019	0,061	0,018
17	ITA	1,121	0,749	0,000	0,000	0,000	0,000
18	ITC	0,591	0,338	-0,058	-0,033	0,046	0,026
19	KBC	0,945	0,371	0,000	0,000	0,000	0,000
20	KDH	1,071	0,670	-0,091	-0,057	0,071	0,044
21	LCG	1,552	0,923	0,000	0,000	0,000	0,000
22	LGL	0,381	0,168	-0,091	-0,040	0,087	0,038
23	LHG	0,548	0,215	-0,076	-0,030	0,066	0,026
24	NBB	0,923	0,317	0,000	0,000	0,000	0,000
25	NHA	1,399	1,034	-0,083	-0,061	0,061	0,045
26	NTL	1,557	0,701	0,000	0,000	0,000	0,000
27	NVN	0,167	0,061	-0,049	-0,018	0,052	0,019
28	OGC	0,593	0,271	-0,073	-0,034	0,062	0,028
29	PDR	0,194	0,078	-0,054	-0,022	0,055	0,022
30	PPI	0,746	0,332	-0,095	-0,042	0,080	0,036
31	PVL	0,110	0,078	-0,044	-0,031	0,052	0,037
32	QCG	0,718	0,290	-0,098	-0,039	0,084	0,034
33	RCL	1,770	0,991	0,000	0,000	0,000	0,000
34	SC5	1,497	0,240	0,000	0,000	0,000	0,000
35	SDU	0,128	0,053	-0,051	-0,021	0,059	0,024
36	SJS	1,509	0,799	0,000	0,000	0,000	0,000
37	SZL	0,425	0,258	0,000	0,000	0,000	0,000
38	TDH	1,103	0,722	0,000	0,000	0,000	0,000
39	TIX	0,202	0,082	-0,027	-0,011	0,024	0,010
40	UDC	0,216	0,071	-0,059	-0,019	0,059	0,019
41	UIC	1,286	0,357	0,000	0,000	0,000	0,000
42	VCR	0,263	0,165	-0,080	-0,050	0,081	0,051
43	VIC	0,755	0,186	0,000	0,000	0,000	0,000
44	VPH	0,070	0,019	-0,028	-0,007	0,033	0,009
45	VRC	0,203	0,073	-0,057	-0,021	0,059	0,021
			Average	-0,044	-0,019	0,040	0,017

Exhibit 6- VNI Index and other stock market index during crisis 2006-2010
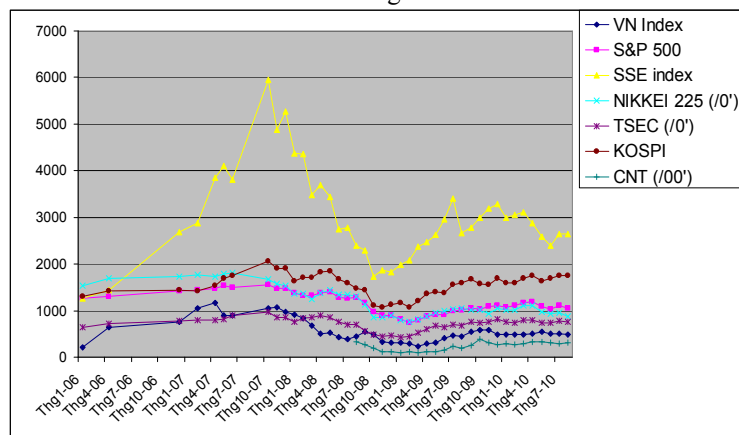
Exhibit 7 – Comparing statistical results of three (3) scenarios of changing FL of 121 listed firms in the consumer good industry