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Full Length Research Paper

The Risk Level of Viet Nam Real Estate Industry Under Financial Leverage During and After The Global Crisis 2009-2011

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ABSTRACT: This paperwork evaluates the impacts of external financing on market risk for the listed firms in the Viet nam real estate industry, esp. during and after the financial crisis 2009-2011. First of all, 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 when leverage increases to 30% but increases more 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 from 0,219 to 0,316 if the leverage increases to 30% whereas decreases to 0,166 if leverage decreases to 20%. But the dispersion measured by asset beta var decreases to 0,082 (leverage down 20%), showing leverage impact. Finally, this paper provides some outcomes that could provide companies and government more evidence in establishing their policies in governance.

keyword: equity beta, financial structure, financial crisis, risk, external financing, real estate industry

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INTRODUCTION

Financial leverage has certain effects on the risk level of listed companies on stock exchange. 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 all (2013) find a significant negative effect of leverage on firm performance. And firms that had some foreign debt financing performed better than their counterparts. Measuring beta is a popular method used in many models such as the famous CAPM model. The Viet Nam real estate industry is selected for the research because until now there is no research published with the same scope and because 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. The purpose of this study, therefore, to find out how much market risk for this industry in changing contexts of financial leverage.

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.

This paper is organized as follow. The research issues and literature review and methodology will be covered in next sessions 2 and 3, for a short summary. Next session presents empirical results and findings. The last session shows discussion and will conclude with some policy suggestions. This paper also supports readers with references, exhibits and relevant web sources.

THEORETICAL BACKGROUND

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 real estate 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.

Methodology

For calculating systemic risk results and leverage impacts, in this study, we use the live data during the crisis period 2009-2011 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 current tax rate is 25%. Generally speaking, quantitative method is mainly used in this study with a note that risk measure asset beta is mainly derived from equity beta and financial leverage. Finally, we use the results to suggest policy for both these enterprises, relevant organizations and government.

Previous Studies

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 al (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 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. Then, Alcock et al (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 real estate firms.

EMPIRICAL ANALYSIS

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 0,420, 0,252 and 0,555 which are sensitive and negatively correlated with the leverage. Also in 3 scenarios, we find out equity beta mean values (0,900, 0,792 and 0,975) are 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 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. B.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	1,165	1,092	RCL as comparable	6,3%
2	ASM	1,505	0,526		65,0%
3	BCI	1,203	0,542		55,0%
4	CCI	0,560	0,171	UIC as comparable	69,4%
5	CLG	0,451	0,109	UIC as comparable	75,9%
6	D2D	1,315	0,484		63,2%
8	DLG	0,511	0,169	SC5 as comparable	66,9%
9	DTA	0,673	0,322	RCL as comparable	52,2%
10	DXG	1,444	0,456		68,4%
11	HAG	0,863	0,403		53,3%
12	HDC	1,175	0,421		64,2%
13	HDG	1,626	0,635		61,0%
14	IDJ	0,828	0,536	API as comparable	35,2%
15	IDV	0,296	0,057	RCL as comparable	80,7%
16	IJC	0,426	0,124	BCI as comparable	70,9%
17	ITA	1,800	1,202		33,2%
18	ITC	0,412	0,236		42,8%
19	KBC	1,432	0,563		60,7%
20	KDH	1,167	0,730	LCG as comparable	37,5%
21	LCG	1,691	1,005		40,5%
22	LGL	0,738	0,324	DXG as comparable	56,1%
23	LHG	0,544	0,213	DLG as comparable	60,8%
24	NBB	1,040	0,357		65,6%
25	NHA	0,967	0,714	RCL as comparable	26,1%

26	NTL	1,247	0,561		55,0%
27	NVN	0,196	0,072	CLG as comparable	63,3%
28	OGC	0,951	0,435	ITA as comparable	54,3%
29	PDR	0,201	0,081	IJC as comparable	59,9%
30	PPI	0,381	0,169	LGL as comparable	55,5%
31	PVL	1,098	0,772	DXG as comparable	29,6%
32	QCG	0,566	0,229	SJS as comparable	59,5%
33	RCL	1,224	0,685		44,0%
34	SC5	1,284	0,205		84,0%
35	SDU	1,376	0,571		58,5%
36	SJS	1,190	0,630		47,1%
37	SZL	0,857	0,520		39,3%
38	TDH	1,225	0,802		34,5%
39	TIX	0,486	0,196		59,6%
40	UDC	0,214	0,070	LHG as comparable	67,2%
41	UIC	1,514	0,421		72,2%
42	VCR	0,510	0,319	LGL as comparable	37,4%
43	VIC	0,937	0,231		75,4%
44	VPH	0,069	0,018	UDC as comparable	73,5%
45	VRC	0,239	0,086	CCI as comparable	64,1%
<i>Note: Raw data, not adjusted</i>				Average	55,6%

(source: Viet Nam stock exchange 2012)

B.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 (30% up)
1	API	1,147	1,054	RCL as comparable	8,1%
2	ASM	1,505	0,233		84,5%
3	BCI	1,203	0,343		71,5%
4	CCI	0,190	0,019	UIC as comparable	90,3%
5	CLG	0,027	0,000	UIC as comparable	98,7%
6	D2D	1,315	0,235		82,1%
8	DLG	0,215	0,028	SC5 as comparable	86,9%
9	DTA	0,474	0,153	RCL as comparable	67,8%
10	DXG	1,444	0,159		89,0%
11	HAG	0,863	0,265		69,3%
12	HDC	1,175	0,195		83,4%
13	HDG	1,626	0,337		79,2%
14	IDJ	0,703	0,381	API as comparable	45,8%
15	IDV	-0,082	0,004	RCL as comparable	104,9%
16	IJC	0,123	0,010	BCI as comparable	92,1%
17	ITA	1,800	1,023		43,2%
18	ITC	0,412	0,183		55,6%
19	KBC	1,432	0,302		78,9%
20	KDH	0,988	0,507	LCG as comparable	48,7%
21	LCG	1,691	0,800		52,7%
22	LGL	0,479	0,130	DXG as comparable	72,9%
23	LHG	0,308	0,065	DLG as comparable	79,0%
24	NBB	1,040	0,152		85,3%
25	NHA	0,883	0,583	RCL as comparable	34,0%
26	NTL	1,247	0,356		71,5%
27	NVN	0,006	0,001	CLG as comparable	82,3%
28	OGC	0,642	0,189	ITA as comparable	70,6%

29	PDR	0,034	0,007	IJC as comparable	77,9%	
30	PPI	0,162	0,045	LGL as comparable	72,2%	
31	PVL	0,982	0,604	DXG as comparable	38,5%	
32	QCG	0,334	0,075	SJS as comparable	77,4%	
33	RCL	1,224	0,523		57,2%	
34	SC5	1,284	-0,118		109,2%	
35	SDU	1,376	0,329		76,1%	
36	SJS	1,190	0,462		61,2%	
37	SZL	0,857	0,419		51,1%	
38	TDH	1,225	0,675		44,9%	
39	TIX	0,486	0,109		77,5%	
40	UDC	0,050	0,006	LHG as comparable	87,4%	
41	UIC	1,514	0,093		93,9%	
42	VCR	0,280	0,144	LGL as comparable	48,6%	
43	VIC	0,937	0,019		98,0%	
44	VPH	0,003	0,000	UDC as comparable	95,6%	
45	VRC	0,040	0,007	CCI as comparable	83,4%	
<i>Note: Raw data, not adjusted</i>					Average	72,2%

(source: Viet Nam stock exchange 2012)

B.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 (20% down)
1	API	1,177	1,118	RCL as comparable	5,0%
2	ASM	1,505	0,722		52,0%
3	BCI	1,203	0,674		44,0%

4	CCI	0,782	0,347	UIC as comparable	55,6%
5	CLG	0,701	0,276	UIC as comparable	60,7%
6	D2D	1,315	0,650		50,5%
8	DLG	0,689	0,321	SC5 as comparable	53,5%
9	DTA	0,796	0,464	RCL as comparable	41,7%
10	DXG	1,444	0,653		54,8%
11	HAG	0,863	0,495		42,6%
12	HDC	1,175	0,572		51,3%
13	HDG	1,626	0,833		48,8%
14	IDJ	0,910	0,653	API as comparable	28,2%
15	IDV	0,517	0,183	RCL as comparable	64,6%
16	IJC	0,607	0,263	BCI as comparable	56,7%
17	ITA	1,800	1,322		26,6%
18	ITC	0,412	0,271		34,2%
19	KBC	1,432	0,737		48,6%
20	KDH	1,280	0,896	LCG as comparable	30,0%
21	LCG	1,691	1,142		32,4%
22	LGL	0,897	0,495	DXG as comparable	44,8%
23	LHG	0,688	0,353	DLG as comparable	48,6%
24	NBB	1,040	0,494		52,5%
25	NHA	1,021	0,808	RCL as comparable	20,9%
26	NTL	1,247	0,699		44,0%
27	NVN	0,396	0,195	CLG as comparable	50,7%
28	OGC	1,142	0,646	ITA as comparable	43,5%
29	PDR	0,359	0,187	IJC as comparable	47,9%
30	PPI	0,561	0,312	LGL as comparable	44,4%
31	PVL	1,171	0,894	DXG as	23,7%

				comparable	
32	QCG	0,707	0,371	SJS as comparable	47,6%
33	RCL	1,224	0,793		35,2%
34	SC5	1,284	0,421		67,2%
35	SDU	1,376	0,732		46,8%
36	SJS	1,190	0,742		37,7%
37	SZL	0,857	0,587		31,5%
38	TDH	1,225	0,886		27,6%
39	TIX	0,486	0,254		47,7%
40	UDC	0,367	0,170	LHG as comparable	53,8%
41	UIC	1,514	0,639		57,8%
42	VCR	0,680	0,477	LGL as comparable	29,9%
43	VIC	0,937	0,372		60,3%
44	VPH	0,177	0,073	UDC as comparable	58,8%
45	VRC	0,436	0,212	CCI as comparable	51,3%
<i>Note: Raw data, not adjusted</i>				Average	44,5%

(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.

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	1,800	1,202	0,598
MIN	0,069	0,018	0,051
MEAN	0,900	0,420	0,480
VAR	0,2190	0,0826	0,136
Note: Sample size : 45			

(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	1,800	1,054	0,746
MIN	-0,082	-0,118	0,036
MEAN	0,792	0,252	0,539
VAR	0,3160	0,0749	0,241
Note: Sample size : 45			

(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	1,800	1,322	0,478
MIN	0,177	0,073	0,104
MEAN	0,975	0,555	0,421
VAR	0,1656	0,0823	0,083
Note: Sample size : 45			

(source: Viet Nam stock exchange 2012)

Based on the above results, we find out:

Equity beta mean values in all 3 scenarios are low (< 1) and asset beta mean values are also small ($< 0,6$). In the case of reported leverage in 2011, equity beta value fluctuates in an acceptable range from 0,069 (min) up to 1,8 (max) and asset beta fluctuates from 0,018 (min) up to 1,202 (max). If leverage increases to 30%, equity beta moves in a range from -0,082 to 1,8 and asset beta moves from -0,118 (min) up to 1,054 (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 0,177 to 1,8 and asset beta

changes from 0,073 (min) up to 1,322 (max). So, there is an 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 45 listed firms decreases down to -0,108 while average asset beta value of these 45 firms decreases little more to -0,167. Then, when leverage reduces to 20%, average equity beta value of 45 listed firms goes up little to 0,075 and average asset beta value of 45 firms up to 0,135.

The below chart 1 shows us : when leverage degree decreases down to 20%, average equity and asset beta values increase to 0,975 and 0,555 compared to those at the initial reported leverage (0,900 and 0,420). Then, when leverage degree increases up to 30%, average equity beta decreases little less and average asset beta value also decreases less (to 0,792 and 0,252). However, the fluctuation of equity beta value (0,316) in the case of 30% leverage up is higher than (>) the results in the rest 2 leverage cases. And we could note that the decrease of leverage in the case of 20% leverage down causes an increase in asset beta var up to 0,082 (compared to 0,075 in case external financing up 30%).

Figure 1 – Comparing statistical results of three (3) scenarios of changing FL (period 2009-2011)

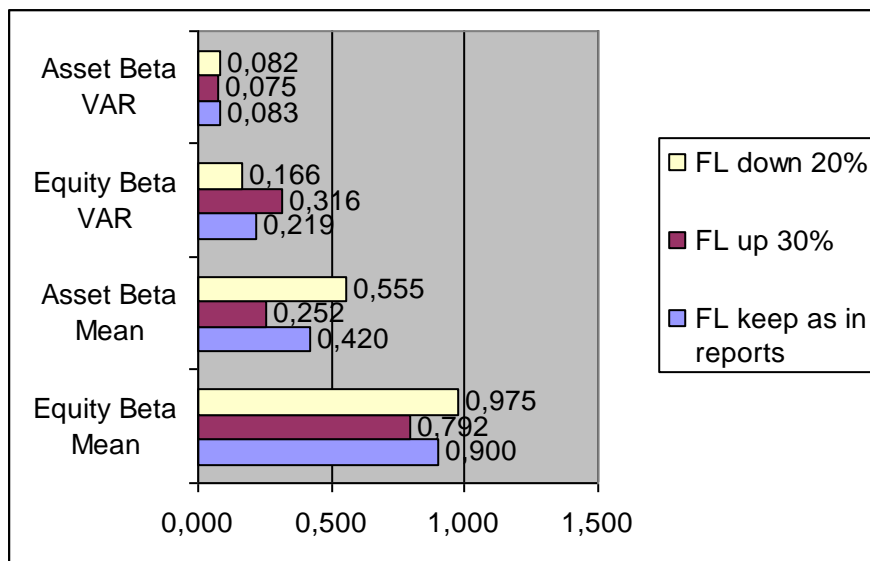
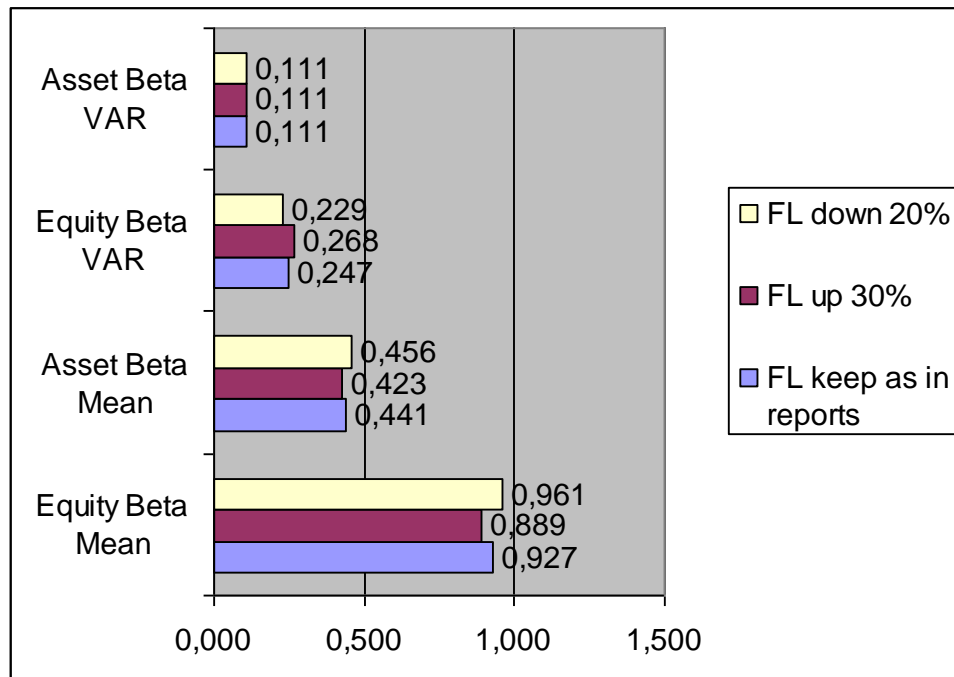


Figure 2 – Comparing statistical results of three (3) scenarios of

changing FL (period 2007-2011)



(source: Viet Nam stock exchange 2012)

Empirical results

In scenario 1 (current FL), asset and equity beta mean reach the medium values (0,420 and 0,900) whereas asset beta var also reaches maximum (0,083), compared to the rest 2 cases. In scenario 2 (FL 30%), asset and equity beta mean reach minimum values (0,252 and 0,792) whereas equity beta var reaches maximum (0,316), 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 (0,082), compared to the rest 2 cases.

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. 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.

Discussion

Looking at figure 2, it is noted that in case leverage up 30%, during 2009-2011 period, asset and equity beta mean (0,252 and 0,792) of construction material industry are lower than those in the period 2007-2011 (0,423 and 0,889). Looking at exhibit 6, we can see asset beta mean is higher and equity beta mean is higher than those of consumer good industry (0,222 and 0,630). This relatively shows us that financial leverage does affect asset beta values.

CONCLUSION

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 companies as we could note that in this study when leverage is going to increase up to 30%, the risk level decreases as well as the asset beta var, compared to the case it is going to decrease down to 20%. And for the corporations, figure 2

tells us that increasing leverage can reduce risk both in the period 2009-2011 and in the 2007-2011 period.

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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