



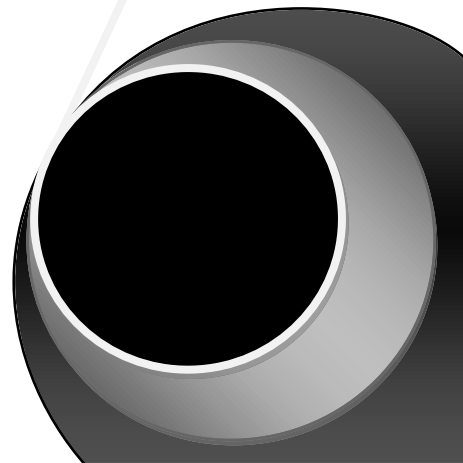
The **HELLENIC OPEN**
BUSSINES ADMINISTRATION
Journal

Volume 4 - 2018, No 1

*Edited by: **Dimitrios A. Giannias**, Professor*
HELLENIC OPEN UNIVERSITY

ISSN: 2407-9332

Athens2014
Publisher: D. Giannias





Volume 4 - 2018, No 1

THE VOLATILITY OF MARKET RISK IN VIETNAM LISTED CONSUMER GOOD COMPANY GROUPS DURING AND AFTER THE FINANCIAL CRISIS 2007-2009

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ABSTRACT

This study estimates market risk of total 228 listed companies in Viet Nam consumer good industry during the financial crisis period 2007-2009.

Firstly, we found out in the research sample that there are 86% of firms, of total listed firms, with beta values lower than ($<$) 1, meaning with lower risk, and the systemic risk is acceptable.

Secondly, there are 14% among total 228 listed firms, whose beta values higher than ($>$) 1, meaning having stock returns fluctuating more than the market benchmark.

Thirdly, among three (3) groups, the systemic risk in the material and consumer good industry is the smallest, shown by estimated values of equity and asset beta mean, and asset beta variance in the wholesale and retail industry is the smallest.

Finally, this paper generates some analytical outcomes that enable companies and government to have more evidence in establishing their policies in investments and in governance

Keywords: equity beta, financial structure, financial crisis, risk, asset beta, consumer good industry

JEL Classification: G010, G100, G390

Introduction

During the global crisis 2007-2009, Viet Nam stock market has difficulties and opportunities. In this study, we perform a market risk analysis based on asset and equity beta of 228 listed companies in the three (3) groups of material, consumer good, wholesale and retail firms. The three (3) above industries faced many difficulties in previous years such as how to increase the number of customers, service quality and revenues; now, they have to deal with some problems from the global crisis. From 2009-2011, the local government and central bank have performed some effective macro policies to help the economy to recover. After the previous published article on estimated beta for listed construction company groups, here, this paper emphasizes on analyzing un-diversifiable risk in the 3 above industries in one of emerging markets: Vietnam stock market during and after the financial crisis 2007-2009. There is no research, so far, done on the same topic.

Research issues

In this research, we mention several issues on the estimating of beta for listed material, consumer good, wholesale and retail companies in Viet Nam stock exchange as following:

Hypothesis/Issue 1: Among the three (3) companies groups, under the financial crisis impact and high inflation, the beta or risk level of listed companies in wholesale/retail industries will relatively higher than those in the rest two (2) industries.

Hypothesis/Issue 2: Because Viet Nam is an emerging and immature financial market and the stock market still in the recovering stage, there will be a large disperse distribution in beta values estimated in the consumer goods and wholesale/retail industries.

Hypothesis/Issue 3: With the above reasons, the mean of equity and asset beta values of these listed wholesale and retail companies tend to impose a high risk level, i.e., beta should higher than ($>$) 1.

Literature review

William Sharpe., (1963) pointed in a simplified model of portfolio theory that each stock is correlated with each other stock because all are correlated with “the market”, and stock return depends on some factors such as a constant alpha and stock beta.

And Harry Markowitz developed diversification and modern portfolio theory using beta as one of key factors. Beta is used in CAPM model, which is developed by Jack Treynor, John Lintner, Jan Mossin and William Sharpe. Black, *et al.* (1972) tested whether portfolios consisting of stocks with high betas generate higher returns. Myron Scholes, Michael Jensen, and Fischer Black (1972) conducted a study showing that returns and beta relationship are flat or negatively correlated. Banz (1981) found out that smaller NYSE capitalization firms tend to have higher CAPM beta risk-adjusted returns than larger firms. Next, Fama and French (1993) use CAPM beta, size and BE/ME or book to market ratio to build a three- factor model that capture the various dimensions of risk.

Last but not least, Jiri Nova (2007) concludes that some CAPM beta is very useful in predicting stock returns.

Conceptual theories

Determinants of Equity and Asset Beta

Generally speaking, beta can be estimated for an individual firm by using regression.

Beta is used in CAPM model, and it is a risk measure of a listed firm compared to the overall market risk. For example, if beta of a single listed firm equals to 2,5 it means that the firm risk is 2,5 times riskier than the overall risk of the market. Therefore, when an investor wants to make an investment in a financial market, beta is an overall risk measure in investing in a stock exchange market. Beta can be negative or equal to 0 in special cases. Beta < 0 implies that the stock return moves in an opposite direction to the market benchmark. And beta equals to 0 means the stock return is uncorrelated with the movement of the market index. Asset is finance by debt and equity; so, beta can have 2 forms: equity and asset beta. Low beta stocks are supposed to have less risk but lower returns and vice versa. In short, knowing beta, people know the risk. In Viet Nam stock market, hardly we find out beta value higher than ($>$) 3.

Methodology

For estimating beta results, we use the input data from the live stock exchange market in Viet Nam during the financial crisis period 2007-2009. We select this period to do this research because Viet Nam stock market has shown the declining trend and this is the time experiencing financial crisis impacts.

First, we use the market stock price of 228 listed companies in the material, consumer good, wholesale and retail industries in Viet Nam stock exchange market to calculate the variability in monthly stock price in the same period; second, we estimate the equity beta for these 3 listed groups of companies and make a comparative analysis. Third, from the equity beta values of these listed companies, we perform a comparative analysis between equity and asset beta values of these 3 companies groups in Viet Nam. Finally, we use the results to suggest policy for both these enterprises, financial institutions and relevant organizations.

The below table gives us the number of material, consumer good, wholesale and retail firms used in the research of estimating beta:

Market	Listed Material companies (1)	Listed Consumer Good companies (2)	Listed Wholesale and Retail companies (4)	Note (4)
Viet Nam	27	45	3	Estimating by traditional method
	72	75	6	Estimating by comparative method
Total	99	120	9	Total firms in group: 228

(Note: The above data is at the December 12th, 2010, from Viet Nam stock exchange)

General Data Analysis

This study uses data of total 228 companies in categories of industries: material, consumer good, wholesale and retail companies groups. Through the analysis, the equity beta and asset beta mean are about 0,511 and 0,271, accordingly. It shows us the good effect of using financial leverage to reduce the entire risk of the 3 industries. And these data, are acceptable values during the crisis and quite lower than those of construction industries in the same period.

Then, the difference of beta mean values (equity and asset) is just 0,2397, which is quite smaller than that of max beta values (about 0,5933). Next, the sample variance of asset beta is quite lower (0,0607), while that of equity beta varies higher (0,1527), with a difference of 0,0920. Both data means there is a high concentration level of entire risk in the 3 industry. This shows us, once again, that the effect of using financial leverage has decreased the systemic risk for the whole industry.

Additionally, max equity beta value is up to 1,662 that is a little bit high, compared to max asset beta value is just 1,068 with lower risk. The below table 2 shows us that a few companies (14% in total firms) still has larger risk exposure than most of the others.

Beside, values of equity beta varies in a range from 1,662 (max) to -0,608 (min) and that of asset beta varies in a safer range from 1,068 (max) to 0,0002 (min). There are only 1 listed company (or 0,4%) with asset beta lower than ($<$) 0 showing the stock return moving opposite to the market index (see table 2 below).

Furthermore, there is a smaller difference between equity and asset beta variance values which is just 0,0920, compared to the relatively higher gap between max equity and max asset beta values, which is about 0,5933, and the gap b.t mean equity and asset beta values about 0,2397. So, there is not quite big effect from financial leverage on the gap between company's beta variance values.

In short, there is 86% of listed firms in 3 above industries with acceptable beta values or risk lower than ($<$) 1 and higher than ($>$) 0 whereas there is just 14% of these listed firms having equity beta higher than ($>$) 1 and having more systemic risks. This number is fine. And 86% of firms with acceptable beta

values uses little more financial leverage than the 14% (51,93% compared to 47,25%).

Empirical Research Findings and Discussion

A-Material listed companies group

The market for these companies are still exists during the crisis period 2007-2009, but has been affected because good prices increase and difficulties in businesses.

Ninety nine (99) listed firms in this industry category have values of equity and asset beta mean are around 0,503 and 0,206, accordingly. (see the below tables 3 and 4)

These data are low and acceptable. In addition to, the asset beta is lower than the beta mean of total 228 firms (0,271).

Then, the variance of equity and asset beta of the sample group equals to **0,1578 (little higher than the entire equity beta var) and 0,0734 accordingly (with a gap of 0,0844)** that are also little higher than the entire sample asset beta var, indicating that the beta values are more dispersed. And the impact from using financial leverage makes these beta values fluctuate a little more from the sample asset beta mean.

Beside, we may note that asset beta mean of these 99 listed firms in this water category is the 2nd lowest and equity beta mean is the lowest among those of firms in the rest two (2) groups. This rejects our 1st hypothesis mentioned above that the beta or risk level of listed companies in wholesale and retail industries will relatively higher than those in the rest two (2) industries. And this is one feature of the material industry during the crisis period. Among three (3) industries, the market risk of material group companies is a bit higher than those of the rest two groups.

Table 1 – Estimating beta results for Three (3) Viet Nam Listed Consumer Good Companies Groups (as of Dec 2010) (source: Viet Nam stock exchange data)

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,662	1,068	0,5933
MIN	-0,608	0,0002	-0,6084
MEAN	0,511	0,271	0,2397
VAR	0,1527	0,0607	0,0920
Note: Sample size : 228			

Table 2 – The number of companies in research sample with different beta values and financial leverage

Equity Beta	No. of firms	Financial leverage (average)	Ratio
<0	2	122,03%	1%
0<beta<1	195	51,93%	86%
Beta > 1	31	47,25%	14%
total	228	51,9%	100%

Asset Beta	No. of firms	Financial leverage (average)	Ratio
<0	0	0,00%	0%
0<beta<1	227	52,03%	99,6%
Beta > 1	1	24,73%	0,4%
total	228	51,9%	100%

Table 3 – Estimating beta results for Viet Nam Listed Material Companies (as of Dec 2010) (source: Viet Nam stock exchange data)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage
1	COM	0,857	0,672	HRC as comparable	21,7%
2	AAA	0,333	0,153	VID as comparable	53,9%
3	ALV	0,785	0,545	MMC as comparable	30,6%
4	AMC	0,425	0,245	GER as comparable	42,3%
5	APP	0,100	0,060	NVC as comparable	40,7%
6	BGM	0,666	0,622	GTA as comparable	6,6%
7	BKC	1,238	0,858	KKC as comparable	30,7%
8	BMC	1,361	0,985		27,7%
9	BMJ	0,085	0,068	APP as comparable	19,6%
10	BRC	1,253	0,880	KKC as comparable	29,7%
11	BVG	0,280	0,075	COM as comparable	73,4%
12	BVN	0,505	0,155	BMC as comparable	69,4%
13	CAP	0,038	0,014	BMJ as comparable	62,1%
14	CMI	0,841	0,368	KKC as comparable	56,2%
15	CPC	0,031	0,024	CAP as comparable	22,6%
16	CTM	0,320	0,163	DTT as comparable	49,2%

17	<u>CZC</u>	0,475	0,149	BRC as comparable	68,6%
18	<u>DAG</u>	0,385	0,119	HRC as comparable	69,2%
19	<u>DHC</u>	0,179	0,071	DAG as comparable	60,6%
20	<u>DHM</u>	0,432	0,240	HGM as comparable	44,4%
21	<u>DLG</u>	0,131	0,034	DNY as comparable	74,1%
22	<u>DNS</u>	0,108	0,035	BVG as comparable	67,9%
23	<u>DNY</u>	0,414	0,122	TRC as comparable	70,4%
24	<u>DPM</u>	0,692	0,605		12,6%
25	<u>DPR</u>	1,003	0,777		22,5%
26	<u>DTL</u>	0,063	0,026	DLG as comparable	58,9%
27	<u>DTT</u>	0,553	0,472		14,5%
28	<u>GER</u>	0,658	0,369	MMC as comparable	43,9%
29	<u>GTA</u>	0,701	0,527		24,8%
30	<u>HAI</u>	0,830	0,460		44,6%
31	<u>HAP</u>	1,133	0,901		20,5%
32	<u>HGM</u>	0,691	0,535		22,5%
33	<u>HLA</u>	0,233	0,043	DPR as comparable	81,5%
34	<u>HLC</u>	0,060	0,007	DNY as comparable	88,7%
35	<u>HMC</u>	1,121	0,318		71,7%
36	<u>HPG</u>	0,977	0,428		56,2%
37	<u>HPP</u>	0,427	0,182	COM as comparable	57,3%
38	<u>HRC</u>	1,035	0,800		22,7%
39	<u>HSG</u>	0,092	0,030	TIS as comparable	67,7%

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40	<u>HSI</u>	0,702	0,144		79,5%
41	<u>HVC</u>	0,334	0,088	HRC as comparable	73,7%
42	<u>HVT</u>	0,360	0,159	GTA as comparable	55,8%
43	<u>KHB</u>	0,503	0,444	DTT as comparable	11,7%
44	<u>KKC</u>	1,650	0,826		49,9%
45	<u>KMT</u>	0,159	0,049	HPP as comparable	69,3%
46	<u>KSA</u>	0,108	0,067	KMT as comparable	38,3%
47	<u>KSB</u>	0,727	0,465	HRC as comparable	36,1%
48	<u>KSH</u>	0,504	0,332	GTA as comparable	34,2%
49	<u>KSS</u>	0,191	0,096	AAA as comparable	49,8%
50	<u>KTB</u>	0,688	0,519	COM as comparable	24,6%
51	<u>LAS</u>	0,459	0,178	DPR as comparable	61,2%
52	<u>LCM</u>	0,495	0,485	KHB as comparable	2,0%
53	<u>MAX</u>	0,345	0,230	CZC as comparable	33,4%
54	<u>MDC</u>	0,054	0,012	KSS as comparable	77,0%
55	<u>MDF</u>	0,095	0,081	DNS as comparable	15,3%
56	<u>MHL</u>	0,019	0,010	CPC as comparable	47,6%
57	<u>MIC</u>	1,222	0,778		36,4%
58	<u>MIH</u>	0,103	0,024	HVT as comparable	77,0%
59	<u>MIM</u>	0,053	0,025	APP as comparable	54,0%
60	<u>MMC</u>	1,044	0,874		16,4%
61	<u>NBC</u>	1,057	0,255		75,8%
62	<u>NKG</u>	0,017	0,004	DTL as comparable	78,5%

63	NSP	0,716	0,635	ALV as comparable	11,4%
64	NVC	0,152	0,022		85,8%
65	PHR	0,894	0,509	TTF as comparable	43,1%
66	PHT	0,229	0,119	DAG as comparable	47,7%
67	PLC	1,204	0,404		66,5%
68	POM	0,098	0,034	TIS as comparable	65,5%
69	PTK	0,391	0,282	KSH as comparable	27,9%
70	RDP	0,078	0,028	DHC as comparable	63,4%
71	SHA	0,231	0,090	KSH as comparable	61,2%
72	SHI	0,136	0,042	SQC as comparable	69,3%
73	SMC	0,997	0,233		76,7%
74	SPC	0,006	0,001	VCA as comparable	76,2%
75	SQC	0,366	0,311	DNY as comparable	14,9%
76	SSM	0,486	0,246	CMI as comparable	49,4%
77	TC6	0,563	0,105		81,3%
78	TCS	0,078	0,013	SQC as comparable	83,1%
79	TDN	0,152	0,033	TC6 as comparable	78,4%
80	TDS	0,100	0,037	PHT as comparable	63,2%
81	THT	0,021	0,007	MDC as comparable	68,3%
82	TIS	0,237	0,066	DPM as comparable	72,0%
83	TLH	0,082	0,039	TDN as comparable	52,7%
84	TNB	0,381	0,286	CZC as comparable	24,8%
85	TNC	0,934	0,833		10,9%

86	TNT	0,376	0,271	SSM as comparable	28,0%
87	TPC	0,463	0,232	TSC as comparable	50,0%
88	TPP	0,135	0,039	TNB as comparable	70,9%
89	TRC	1,153	0,892		22,6%
90	TSC	0,811	0,178		78,0%
91	TFP	1,402	0,349		75,1%
92	TVD	0,229	0,036	TRC as comparable	84,3%
93	VCA	0,020	0,004	RDP as comparable	79,4%
94	VDT	0,587	0,288	MMC as comparable	51,0%
95	VFG	0,660	0,342	HMC as comparable	48,2%
96	VGS	0,562	0,242	HMC as comparable	57,0%
97	VID	0,625	0,225		64,1%
98	VIS	1,074	0,417		61,2%
99	VKP	0,737	0,110		85,0%

Table 4 – Statistical results for Vietnam listed Material companies

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,650	0,985	0,6650
MIN	0,006	0,001	0,0045
MEAN	0,503	0,276	0,2272
VAR	0,1578	0,0734	0,0844
Note: Sample size : 99			

B- Consumer Good listed companies group

The local demand comes from all business sectors and from households definitely exists and potential because of the public need though it could be affected the financial crisis. But it has to face many challenges, including those coming from other international competitors such as China, Thailand and some other Asian countries since the country entered WTO.

This category has the largest number of listed firms (120 firms). The Table 5 below shows us the equity and asset beta mean of total 120 listed consumer good companies, with values of 0,1543 and 0,0532, accordingly. This shows us the risk is low and acceptable in this category. Additionally, the max equity beta and asset beta values are 01,662 and 1,068 which are numbers indicating acceptable risk in the industry. Next, the difference b.t 2 beta mean values is little higher than (<) that of the entire 228 firms (0,2468 > 0,2397).

Compared to the equity/asset beta mean values in the whole three industries (0,511 and 0,271), those of the consumer good industry are quite lower. Even though it does not reflect income or return, it reflects a lower level of systemic risk and maintains the investor confidence of business operation in this industry, and also indicates the positive effect from using financial leverage.

Besides, the variance of beta values among these 120 firms is quite small, from 0,1543 to 0,0532, for equity and, especially, asset beta, accordingly.

However, among 3 groups, this is the group whose values of equity/asset beta var are the highest.

Please refer to Exhibit 2 for more information.

Table 5 – Statistical results for Vietnam listed Consumer Good companies

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,662	1,068	0,5933
MIN	-0,608	0,0002	-0,6084
MEAN	0,510	0,263	0,2468
VAR	0,1543	0,0532	0,1011
Note: Sample size : 120			

C- Wholesale and Retail companies group

Among 3 groups, this is the group with the smallest number of listed firms (sample size = 9) and with the highest equity /asset beta mean of about 0,609 and 0,326 accordingly. We can see that the effect of leverage has influenced these listed firms' risk a bit more than the two previous industries when we compare the difference between equity/asset beta mean values in these 3 industries.

Moreover, all 9 listed wholesale and retail firms has the lowest equity/ asset beta var values, estimated at 0,0919 and 0,0261, which implies there is a less dispersion in market risk among firms in this industry category, compared to the others.

While equity and asset beta mean values are acceptable, around 0,609 and 0,326 accordingly, the max value of equity beta is low, about 1,170. Also, max asset beta is 0,557 is low.

The equity beta value are distributed in a shorter range, from 1,170 to 0,296, but in a longer range for asset beta, compared to consumer good group. Last but not least, the decrease in asset beta mean value (or the difference of 0,2835), together with the small gap of 0,0658 b.t equity/asset beta var indicate the effectiveness of using financial leverage.

Please refer to Exhibit 3 for more information.

Table 6 – Statistical results for Vietnam listed Wholesale and Retail companies

Statistic results	Equity beta	Asset beta (assume debt beta = 0)	Difference
MAX	1,170	0,557	0,6124
MIN	0,296	0,109	0,1869
MEAN	0,609	0,326	0,2835
VAR	0,0919	0,0261	0,0658
Note: Sample size : 9			

Comparison among 3 groups of material, consumer good, wholesale and retail companies

We can find out among the 3 groups, equity and asset beta mean values of the wholesale and retail group is the highest (0,61 and 0,33) while equity beta value of the material group is the lowest (0,50) and asset beta of the consumer good group is the lowest (0,26). Assuming debt beta is 0, financial leverage has helped many listed firms in these industries lower the un-diversifiable risk, esp., the firms within the wholesale and retail industries. (see below chart)

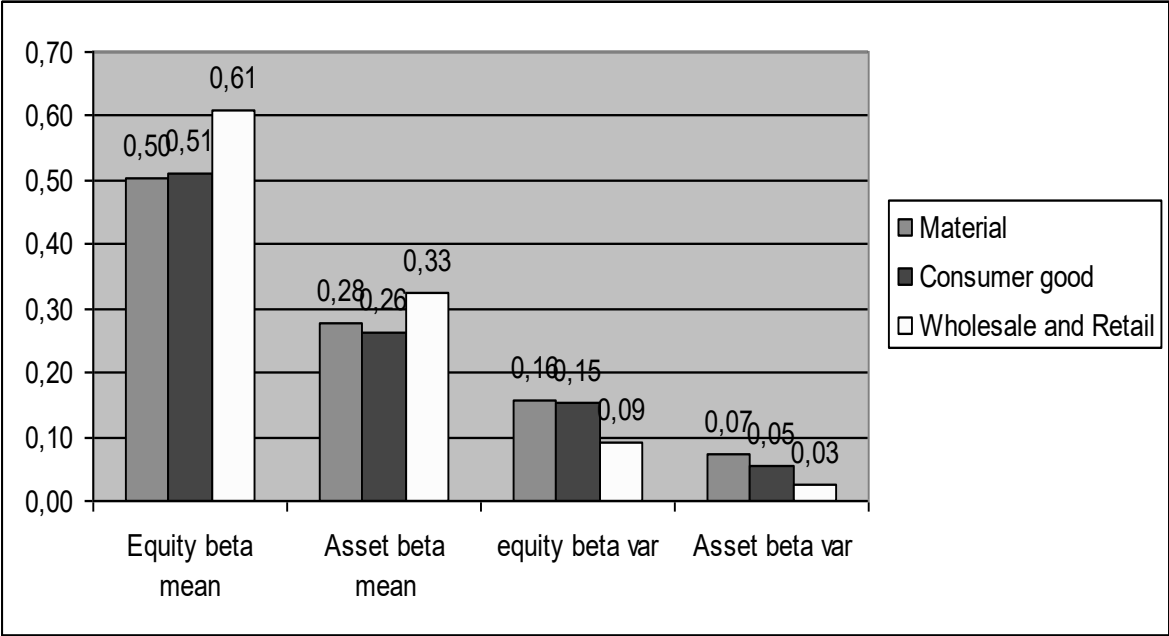
In addition to, we see the asset beta mean values of 2 groups : material and consumer good have not big difference and lower than or equal to (\leq) 0,51. As a result, it also rejects our 3rd hypothesis that the mean values of equity/asset beta of all 3 groups impose higher risks.

Last but not least, in number, equity beta var varies from 0,09 (wholesale and retail) to 0,16 (material) and asset beta var varies from 0,03 to 0,07 which are not so high under the effectiveness of leverage. This also rejects our 2nd hypothesis.

Then, if we compare beta values of three (3) above industries to those of construction, material and real estate group companies, we see the equity beta mean values in the 3 above industries are lower, and the asset beta mean value in these industries is also quite lower than those in the construction category (see exhibit 5). It indicates the business in these above industries could be more effective in using financial leverage to control market risk.

Finally, we could compare beta values of the above 3 industries to those of computer and electrical industries (see exhibit 4) and realize that equity/asset beta mean values in the electric power and gas & oil industries are still higher than those in the three industries. The reason might come from the market and the demand under the crisis which might have more impacts on the computer and electrical or construction industries than the material, consumer good, wholesale and retail industries in this research.

Chart 1 – Statistical results of three (3) groups of 228 listed VN consumer good firms during/after the crisis period 2007-2009



Risk analysis

The general macro economic factors are shown with high rates during the year 2008 including inflation and lending rates (see exhibit 1). The negative side of the crisis is that fluctuations in these factors can cause unexpected fluctuation in business factors (costs and selling price), then, cause a crisis in business brand or brand name. The crisis also puts hard jobs on risk management, human resource and public relations functions of an organization.

In general, during the crisis, risk management activity is not organized so well in most of these listed firms in order to help companies to protect market share and transfer risks into business opportunities.

Conclusions

Material industry

In our research sample on beta values, this is the industry which has the lowest equity beta mean (0,50) but has the highest equity and asset beta var (0,16 and 0,07 accordingly), compared to those of the other two (2) above industries. Therefore, it shows higher dispersion of market risk, with leverage, than, esp., consumer good, wholesale and retail firms.

During later years 2011-2013, financial services firms, the government and central banks have some certain efforts in policies to support businesses, corporate tax and investment environment, and stabilize inflation.

Consumer Good industry

In general, this is the industry which has the lowest value of asset beta mean which is just 0,26, and the acceptable asset beta var which is around 0,05, among 3 groups. The stability of market and the using of financial leverage can be reason to reduce market risk.

Wholesale and Retail industry

This is the industry which has the highest asset beta mean and the also the highest equity beta mean values (0,61 and 0,33 accordingly) and the lowest equity and asset beta var (see chart 1). During the crisis period, this industry has higher market risk and risk concentration and the leverage might have

certain effect on reducing the dispersion of asset beta value of firms in the group, compared to those in the 2 other industries.

In general, our empirical findings state that they are not in favor of our 1st, 2nd and 3rd hypotheses or research issues.

In summary, even though Viet Nam is an emerging market, the beta values estimated are at acceptable level with 86% and 99,6% companies, measured by equity and asset beta accordingly, in the research sample while just some companies' beta values are riskier (about 14% and 0,4% firms only).

Once again, the research indicates the effect of financial leverage, and the higher risk level in the wholesale and retail industry, compared to the 2 other. Moreover, if we compare these data and values to those of construction and real estate firms, and to those of computer and electrical companies in our previous research (see exhibit 4 and 5), we might see that in this research, the asset or equity beta mean of consumer groups can be lower while the financial crisis impacts on the entire market. The financial crisis might have less influence on the firms in the above groups.

Finally, as usual, this paper suggests implications for further research and policy suggestion for the Viet Nam government and relevant organizations, economists and investors from local and overseas.

Exhibits

Exhibit 1 – Interest rates, Inflation, GDP growth and macroeconomics factors

(source: Viet Nam commercial banks and economic statistical bureau)

Year	Basic rates	Lending rates	Deposit rates	Inflation	GDP	USD/VND rate
2012	n/a	12% - 15%	9%	6,81%	5,03%	20.828
2011	9%	18%-22%	13%-14%	18%	5,89%	20.670
2010	8%-9%	19%-20%	13%-14%	11,75% (Estimated at Dec 2010)	6,5% (expected)	19.495
2009	7%	9%-12%	9%-10%	6,88%	5,2%	17.000
2008	8,75%-14%	19%-21%	15%-16,5%	22%	6,23%	17.700
2007	8,25%	12%-15%	9%-11%	12,63%	8,44%	16.132
2006	8,25%			6,6%	8,17%	
2005	7,8%			8,4%		
Note	Approximately (2007: required reserves ratio at SBV is changed from 5% to 10%)					

(2009: special supporting interest rate is 4%)

Exhibit 2 – Estimating beta results for Viet Nam Listed Consumer Good Companies (as of Dec 2010) (source: Viet Nam stock exchange data)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage
1	AAM	0,402	0,352	CAN as comparable	12,5%
2	ABT	0,836	0,647	BLF as comparable	22,5%
3	ACL	1,084	0,373		65,6%
4	AGC	0,027	0,001	AAM as comparable	95,0%
5	AGD	0,232	0,086	CLC as comparable	63,1%
6	AGF	0,862	0,357		58,6%
7	AGM	0,432	0,144	ACL as comparable	66,8%
8	ANV	1,043	0,761		27,0%
9	ASA	0,598	0,347	NPS as comparable	42,0%
10	ATA	0,063	0,014	AGD as comparable	78,3%
11	AVF	0,250	0,059	AGF as comparable	76,5%
12	BAS	0,137	0,062	MEF as comparable	54,6%
13	BBC	1,123	0,813	ACL as comparable	27,6%
14	BHS	0,465	0,212	RAL as comparable	54,5%
15	BLF	0,809	0,159		80,4%
16	CAD	-0,010	0,000	CAN as comparable	101,7%
17	CAN	0,445	0,206		53,7%
18	CFC	0,903	0,513	CMC as comparable	43,2%

19	CLC	0,529	0,184		65,2%
20	CLP	0,204	0,065	CLC as comparable	68,0%
21	CMC	1,419	1,068		24,7%
22	CMX	0,089	0,014	AGM as comparable	83,7%
23	CSM	0,617	0,189	DRC as comparable	69,3%
24	DBC	0,547	0,204	SVC as comparable	62,6%
25	DBF	0,134	0,069	CLP as comparable, F.S 2010	48,4%
26	DCS	1,163	0,793		31,8%
27	DNF	0,344	0,082	DCS as comparable	76,1%
28	DQC	0,927	0,408		56,0%
29	DRC	1,662	0,996		40,1%
30	EVE	0,077	0,064	CMX as comparable	16,6%
31	FBA	0,463	0,333	ASA as comparable	28,0%
32	FBT	0,267	0,088		67,2%
33	FDG	0,113	0,022	BHS as comparable	80,6%
34	FMC	0,813	0,215		73,6%
35	GDT	0,213	0,158	FBT as comparable	25,6%
36	GFC	0,121	0,014	FMC as comparable	88,4%
37	GGG	0,080	0,019	FBT as comparable	75,8%
38	GIL	0,816	0,433		47,0%
39	GLT	0,111	0,078	KTS as comparable	29,7%
40	GMC	0,975	0,409		58,0%
41	HAD	0,115	0,092	BAS as comparable	20,3%

42	HAT	0,776	0,619	NPS as comparable	20,2%
43	HAX	1,043	0,384		63,2%
44	HDM	0,192	0,031	NSC as comparable	83,9%
45	HFX	-0,608	0,258	NPS as comparable	142,4%
46	HHC	0,816	0,488		40,2%
47	HLG	0,376	0,112	ANV as comparable	70,3%
48	HNM	0,746	0,464		37,8%
49	HTL	0,083	0,054	HAD as comparable	34,2%
50	HVG	0,446	0,161	MPC as comparable	64,0%
51	ICF	0,829	0,375		54,8%
52	IFS	0,304	0,128	CSM as comparable	57,8%
53	KDC	0,793	0,560	MPC as comparable	29,4%
54	KMR	0,621	0,439	FMC as comparable	29,3%
55	KSC	0,394	0,320	FBA as comparable	18,9%
56	KSD	0,100	0,040	GDT as comparable	59,9%
57	KTS	0,146	0,091	GDT as comparable	37,7%
58	LAF	1,155	0,517		55,3%
59	LIX	0,567	0,361	BLF as comparable	36,3%
60	LSS	1,202	0,831		30,9%
61	MCF	0,036	0,010	KSD as comparable	70,9%
62	MEF	0,261	0,115	SJ1 as comparable	56,0%
63	MPC	1,041	0,298		71,4%
64	MSN	0,236	0,132	VNM as comparable	44,0%

65	NET	0,200	0,138	FBT as comparable	31,0%
66	NGC	0,573	0,094		83,5%
67	NHS	0,353	0,176	KMR as comparable	50,2%
68	NPS	0,924	0,401		56,6%
69	NSC	0,944	0,599		36,5%
70	NST	0,844	0,251		70,2%
71	PID	0,297	0,207	KSC as comparable	30,3%
72	PNJ	0,262	0,107	DBC as comparable	59,2%
73	PSL	0,208	0,155	MEF as comparable	25,3%
74	PTB	0,113	0,030	NHS as comparable	73,9%
75	PTG	0,326	0,162	NGC as comparable	50,3%
76	RAL	0,883	0,306		65,3%
77	S33	0,262	0,067	ABT as comparable	74,5%
78	SAF	0,641	0,378		41,0%
79	SAV	0,698	0,346		50,4%
80	SBT	0,790	0,662		16,3%
81	SCD	0,687	0,507		26,1%
82	SEC	0,329	0,131	SAV as comparable	60,0%
83	SGC	0,606	0,456		24,8%
84	SHV	0,088	0,019	SEC as comparable	78,4%
85	SJ1	0,510	0,327		35,8%
86	SLS	0,100	0,043	NET as comparable	57,0%
87	SMB	0,080	0,027	NET as comparable	66,7%

88	SPD	0,078	0,015	SEC as comparable	81,2%
89	SRC	0,304	0,111	SAV as comparable	63,4%
90	SSC	0,975	0,739		24,2%
91	SSF	0,148	0,063	PID as comparable	57,4%
92	SVC	1,235	0,381		69,2%
93	TAC	1,013	0,370		63,5%
94	TCM	1,166	0,414		64,5%
95	TET	0,289	0,246	PTG as comparable	14,6%
96	THB	0,276	0,172	AAM as comparable	37,7%
97	THV	0,286	0,053	SVC as comparable	81,5%
98	TLG	0,594	0,307	TAC as comparable	48,4%
99	TMT	0,410	0,212	SAV as comparable	48,4%
100	TMW	0,235	0,092	SJ1 as comparable	60,8%
101	TNA	0,893	0,317		64,5%
102	TNG	0,920	0,251		72,7%
103	TRI	1,006	0,111		89,0%
104	TS4	1,384	0,534		61,4%
105	TTG	0,403	0,336	FBA as comparable	16,6%
106	VCF	0,808	0,681	TNG as comparable	15,7%
107	VDL	0,719	0,474		34,1%
108	VDN	0,027	0,002	TMW as comparable	91,0%
109	VHC	1,123	0,595		47,1%
110	VHF	0,257	0,099	LIX as comparable	61,6%

111	VIA	0,363	0,316	TTG as comparable	12,8%
112	VKC	0,119	0,046	S33 as comparable	61,4%
113	VKD	0,089	0,048	SSF as comparable	46,6%
114	VLF	0,098	0,030	S33 as comparable	69,1%
115	VNH	0,543	0,254	TRI as comparable	53,2%
116	VNM	0,376	0,292		22,4%
117	VTF	0,419	0,187	VCF as comparable	55,3%
118	VTI	0,038	0,004	VHF as comparable	88,6%
119	VTL	0,647	0,220		66,1%
120	WSB	0,209	0,160	VHF as comparable	23,6%

Exhibit 3 – Estimating beta results for Viet Nam Listed Wholesale and Retail Companies (as of Dec 2010)
 (source: Viet Nam stock exchange data)

Order No.	Company stock code	Equity beta	Asset beta (assume debt beta = 0)	Note	Financial leverage
1	HHS	0,818	0,538	PIT as comparable	34,2%
2	IMT	0,296	0,286	TH1 as comparable	3,4%
3	TH1	0,501	0,196		60,8%
4	BSC	0,395	0,321	FBA as comparable	18,7%
5	PET	1,170	0,322		72,4%
6	BTT	0,722	0,557	PIT as comparable	22,8%
7	CMV	0,341	0,109	PIT as comparable	67,9%
8	PIT	0,881	0,447		49,2%
9	VT1	0,358	0,152	BTT as comparable	57,5%

Exhibit 4 – Statistical results of four (4) groups of 64 listed VN computer and electrical firms during/after the crisis period 2007-2011

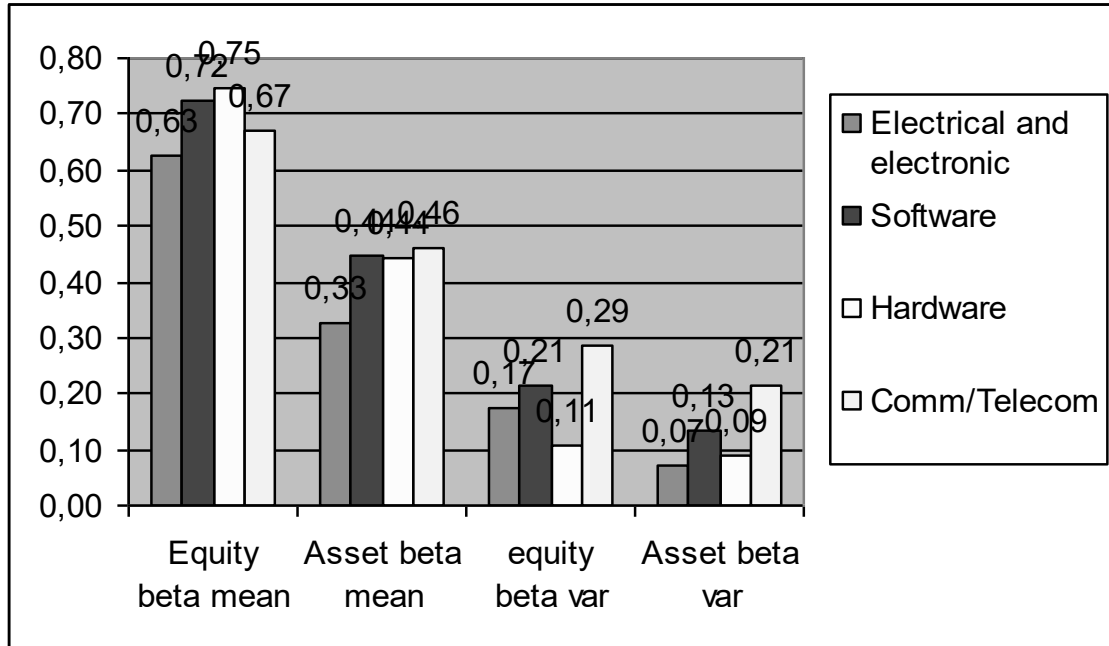


Exhibit 5 – Statistical results of three (3) groups of 103 listed construction firms during crisis period

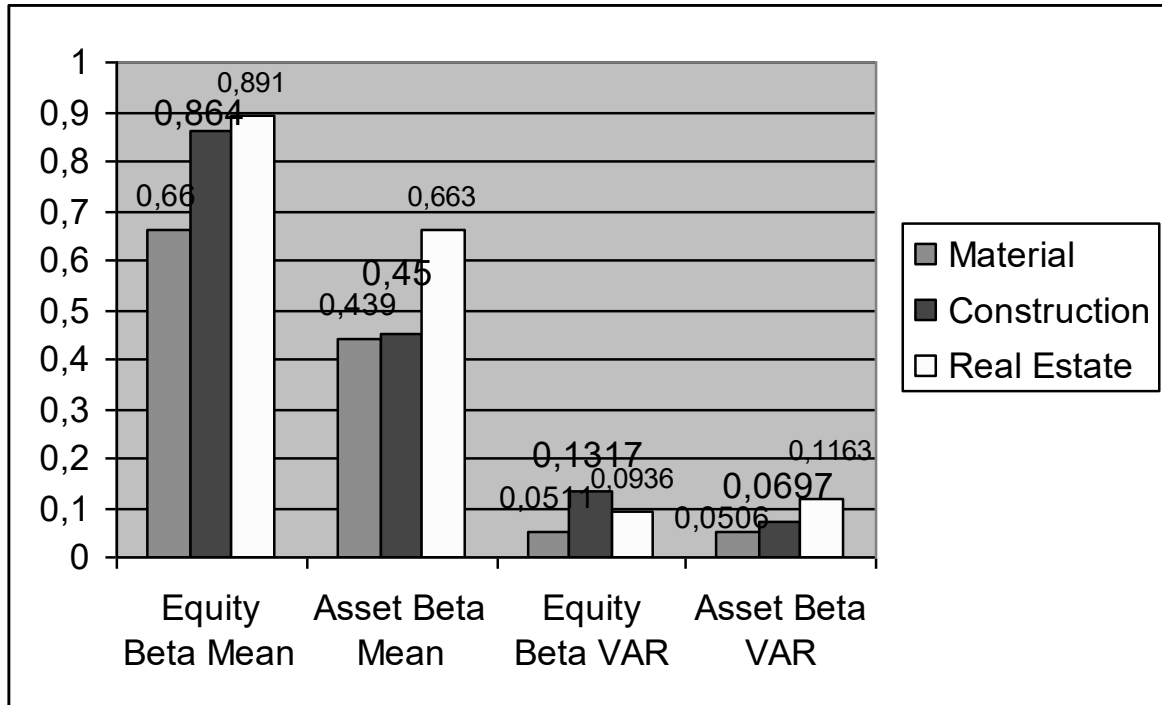


Exhibit 6 – Statistical results of three (3) groups of 22 listed VN tourism, hotel and entertainment firms during/after the crisis period 2007-2011

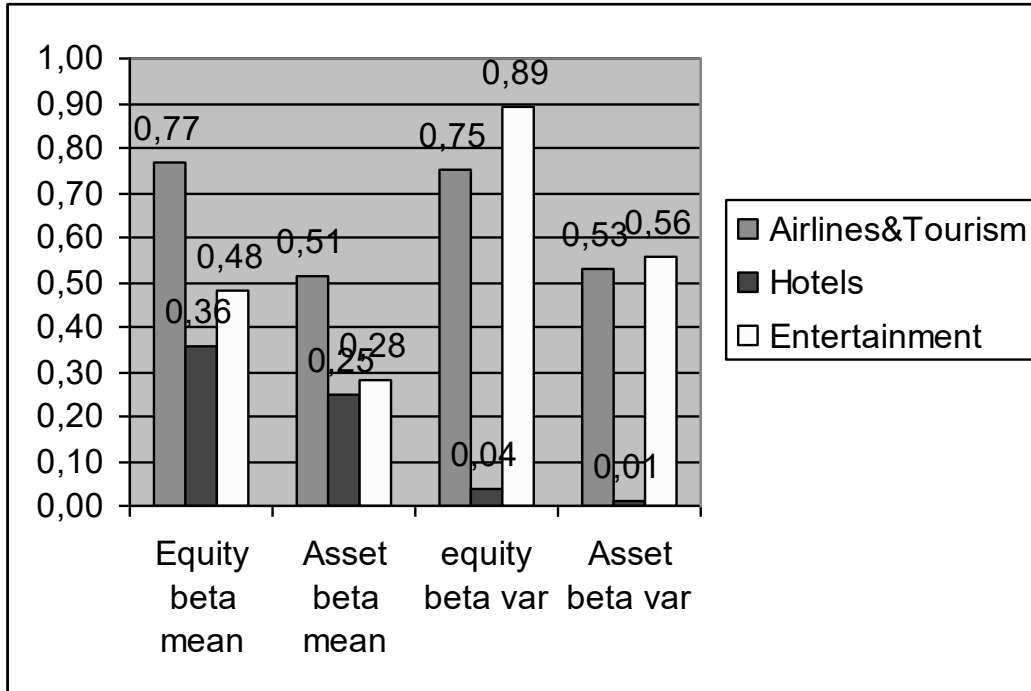
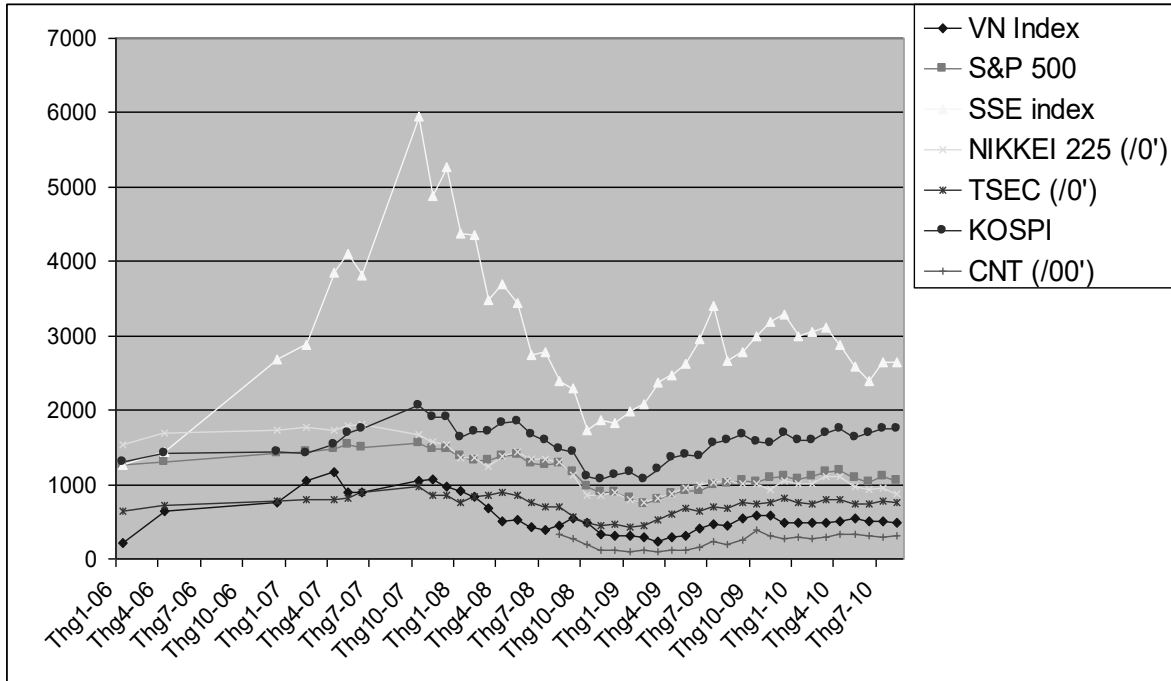


Exhibit 7- VNI Index and other stock market index during crisis 2006-2010



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