

Impact of Corporate Disclosure on Cost of Equity Capital in Vietnam

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Accepted: August 18, 2017

Online Published: September 14, 2017

doi:10.5430/ijfr.v8n4p64

URL: <https://doi.org/10.5430/ijfr.v8n4p64>

Abstract

The objective of the paper is to test the impact of corporate disclosure on the cost of equity capital for firms listed on Vietnam's stock market. We use the Botosan (1997) scoring methodology and the residual income valuation model to measure disclosure level and the implied cost of equity capital. Our findings suggest that, taking into account other determinants, disclosure has a significant reducing impact on the cost of equity capital.

Keywords: disclosure, cost of capital, equity financing, annual report score, residual income valuation

1. Introduction

Raising equity capital from financial markets plays a particularly important role in the development of a firm due to many advantages compared to other financing forms. However, high costs of equity capital will negatively affect firm value creation and performance. Therefore, searching for factors able to affect the cost of capital in order to lower it is always of interest to theorists as well as firm management.

Existing literature shows that higher information asymmetry between firms and capital markets increases risk to uninformed investors and, as a consequence, they require more premium, leading to higher cost of capital (Barry & Brown, 1985 and Amihud & Mendelson, 1986 among others). Therefore, by disclosing more information, firms can reduce this risk premium and benefit from a lower cost when raising equity capital (Botosan, 1997; Botosan & Plumlee, 2002; Botosan, Plumlee & Xie, 2004; Easley, Hvidkjaer & O'Hara, 2002; Easley & O'Hara, 2004). Furthermore, among factors able to influence the cost of capital, the attention paid for corporate disclosure is all the more important when the latter is at the discretion of firm management.

The objective of this paper is to test the impact of disclosing more information on the cost of equity capital for firms listed on Vietnam's stock market. The interest of such a study in Vietnam is twofold. Firstly, to our knowledge, no previous thorough research has been conducted on this topic in Vietnam. Secondly, it can be said that transparency is still an obstacle to the development of the Vietnamese financial markets. Although markets authority and policy makers have been aware of the importance of information environment since the preparation phase for the first stock exchange in Vietnam, the disclosure level and quality of listed firms are still quite limited (Ta, 2012). The deep reason is that firms only see negative aspects of information disclosure and are not aware of its positive side to motivate themselves. Studying the impact of information on the cost of capital is expected to help finding positive aspects of disclosure, thereby creating real motivation for firms to disclose more, contributing to increase transparency in Vietnamese financial markets.

We examine this impact by using the scoring methodology in Botosan (1997) to quantify the level of firm disclosure and the residual income valuation model to measure the implied cost of equity capital. Our findings suggest that, among analyzed factors, disclosure has a significant reducing impact on the cost of equity capital.

The remainder of the paper is organized as follows. Section 2 reviews related literature. Section 3 presents the methodology applied in this study, including measures of disclosure level and cost of equity capital. Section 4 discusses the sample and data. Section 5 analyzes obtained results and section 6 concludes.

2. Literature Review

Research related to the impact of corporate disclosure on the cost of capital is made up of 3 main streams. The first is based on analyzing adverse selection risk. The second uses the concept of estimation risk and the third is related to the public/private information structure.

Adverse selection: This stream of research is represented by Amihud and Mendelson (1986) and Diamond and

Verrecchia (1991). Amihud and Mendelson (1986) show that the cost of equity capital of firms with greater bid-ask spreads is higher because uninformed investors require more returns to compensate adverse selection risk they bear. Therefore, by disclosing more information, firms can contribute to reduce the adverse selection component and lower their cost of raising equity capital.

Estimation risk: Barry and Brown (1985) argue that increasing information disclosure can reduce the cost of equity capital through limiting estimation risk that is not diversifiable. Investors are assumed to estimate parameters of returns distribution based on past information or other information sources and to form expected distributions containing uncertainty about real parameters. The authors show that estimation risk cannot be eliminated by diversification and is not accounted for in standard asset pricing models such as CAPM.

Public/private information structure: According to this more recent stream of research, disclosure can have an indirect impact on the cost of capital through the process of producing private information. Investors tend to analyze public information they receive in order to draw additional signals, especially if initial information received is brief and vague. However, not all investors have the same ability to analyze and interpret information. Some agents, such as strategic shareholders, board members, institutional investors, securities companies, financial analysts... are assumed to have an advantage over other in their ability to receive and analyze information. These agents are able to assess quickly and efficiently public information to get more accurate estimates of shares value and firms' financial performance. This ability allows them to extract private information that uninformed investors do not have. The existence of such agents on financial markets with ability to produce private information may increase information asymmetry and uncertainty when information is publicly disclosed, which seems counter-intuitive.

Research related to the indirect effect of disclosure on the cost of equity capital through the process of producing private information can be divided into two strands. The first analyzes the public/private information relationship and the second examines the impact of private information on the cost of equity capital. Results of the first strand lead to relatively conflicting conclusions. Some studies show that public information and private information are substitutes, meaning that disclosure (public information) will reduce incentives to produce private information (Verrecchia, 1982; Diamond, 1985; Bushman, 1991; Kim & Verrecchia, 1994). This substitutivity is not merely a quantitative aspect. According to Kim and Verrecchia (1994), the fact that public information does not allow to have a clear idea about the value of assets creates opportunities for informed investors to produce private information and benefit from it. Consequently, there needs to increase both the quantity and the quality of public information in order to limit the production of private information. Other studies conclude that the relationship between public and private information is rather complementary. Lundholm (1991) shows that disclosure can increase the concentration of private information. Disclosure may reduce the proportion of informed investors but is able to make their advantage stronger than that of uninformed investors. Therefore, more public information will give informed investors more opportunities to transform it into private information. Using Barron, Kim, Lim and Stevens (1998)'s model, Barron, Byard and Kim (2002) examine changes in precision of public and private information around earnings announcements of US listed firms. The results show that private information becomes more precise after announcements, consistently with a complementary relationship between two types of information.

Studies of the second strand analyze the impact of private information on the cost of equity capital. Wang (1993) observes that the relationship between private information and the cost of equity is relatively complex. In his theoretical model, the author shows that the presence of informed investors has two opposite effects. With this presence, uninformed investors face more risk and therefore require higher returns. However, Wang (1993) also suggests that this risk may be offset by the fact that large transactions of informed investors make stock prices more informative. Therefore, the relationship between private information and the cost of equity capital (returns required by investors) may not have a clear direction. Conversely, Easley et al. (2002) show that the existence of private information may increase required returns. However, this increase will be reduced when private information becomes public. An important conclusion from Easley et al. (2002)'s model is that stocks with higher private information proportion will have higher required returns (cost of equity capital) than otherwise similar stocks. Easley and O'Hara (2004) propose a remarkable theoretical modeling of the impact of information structure, quantity and quality of each type of information on the cost of equity capital. They show that: i/ a private information dominated structure increases the cost of equity capital; ii/ more dispersed private information reduces the cost of equity capital; iii/ disclosing more precise information help to reduce the cost of equity capital.

3. Methodology

3.1 Measuring Disclosure Level

We measure the level of corporate disclosure based on Botosan (1997). The author develops a disclosure index on the basis of analyzing annual reports of listed companies. Although annual reports are only one of many business

information sources, research and practice show that this source is important for investors. For example, Knutson (1992) confirms that annual reports are most used by financial analysts when analyzing firms and any other type of financial statement is only a supplement. Lang and Lundholm (1993) find that the level of disclosure through annual reports strongly correlates with that by other means. Botosan (1997) selects different contents of annual reports to build her disclosure index based on the results of: i/ business information study conducted by the American Institute of Certified Public Accountants in 1994; ii/ survey of investor information needs by SRI International in 1987 and iii/ study of annual reports by the Canadian Institute of Chartered Accountants.

The disclosure index developed by Botosan (1997) uses the following five types of information contained in firms' annual reports: i/ background information; ii/ summary of historical results; iii/ key non-financial statistics; iv/ projected information and v/ management discussion and analysis (Note 1).

3.2 Estimating Cost of Equity Capital

There are a number of methods available for estimating the cost of equity capital. The easiest way is to average past stock returns. However, most empirical literature shows that average past returns are unrelated to risk proxies such as beta (eg. Fama & French, 1992). Lakonishok (1993) concludes that it takes at least 70 years of past data for average returns to significantly correlate with beta coefficients.

Another approach uses asset pricing models in which risk factors determine the cost of equity capital. However, using an asset pricing model to examine the relationship between disclosure and cost of capital in this study poses a problem. Indeed, if the model's factors contain no information risk, there's no reason to link expected returns estimated from this model to disclosure. On the other hand, if information risk appears among factors determining expected returns, the impact of disclosure on the cost of equity capital is not worth being tested.

The last method is to estimate the cost of equity capital implied by a valuation model. This approach is particularly appropriate for investigating the determinants of investors' expectation about future stock returns. Simple metrics such as price-earnings ratio or Gordon constant growth valuation model can be used to draw the implied value for the cost of equity capital. Nevertheless, oversimplified assumptions behind these techniques may distort results. In this study, the more sophisticated residual income valuation model is used to estimate the cost of equity capital. Botosan (1997) shows that implied values obtained from this model are correlated with beta coefficients. This model has the following form:

$$V_t = b_t + \sum_{i=1}^{\infty} \frac{x_{t+i}^a}{(1+k)^i} \quad (1)$$

Where:

V_t : share value at time t

b_t : book value per share at time t

x_{t+i}^a : expected residual income per share at time t+i

k: cost of equity capital

In order to estimate the implied cost of equity with this model in an imperfect information environment in Vietnam, we have to make two adjustments compared to what has usually been done by researchers in developed countries (see Botosan, 1997; Botosan & Plumlee, 2002; Botosan et al., 2004 among others). Firstly, we set a shorter forecast horizon of 2 years and assume that residual earnings are perpetual afterward. Secondly, as a systematic service of providing earnings forecasts by financial analysts is still unavailable in Vietnam, we forecast ourselves future earnings based on estimating a long-term growth rate which is determined by plowback ratio and return on equity.

We replace V_t by share price at time t (P_t) to solve for the implied cost of equity capital (ik)

$$P_t = b_t + \frac{x_{t+1}^a}{1+ik} + \frac{x_{t+2}^a}{ik(1+ik)} \quad (2)$$

The above is a quadratic equation with 2 roots of opposite signs. The negative root is eliminated and the implied cost of equity capital is the following positive one:

$$i_k = \frac{d_{t+1} - P_t + \sqrt{(P_t - d_{t+1})^2 + 4P_t x_{t+2}}}{2P_t} \quad (3)$$

Where:

d_{t+1} : expected dividend per share at time t+1

x_{t+2} : expected earnings per share at time t+2.

4. Sample and Data

The initial sample includes all non-financial firms listed on Hochiminh stock exchange as of December 31, 2015. As the disclosure policy of listed firms is quite stable over time, we use cross-section data to analyze the impact of disclosure on the cost of equity capital for the financial year of 2015. The following data necessary for testing the relationship is collected and estimated from the database FiinPro provided by StoxPlus - a leading financial information corporation in Vietnam:

- Annual reports of 2015 for computing disclosure scores (variable DSCORE)
- Data for at least two financial years of 2014 and 2015 necessary for estimating the cost of equity capital implied (variable IMPLIED) by the residual income model: book value per share, earnings per share, dividend per share and stock prices recorded 3 months after the corresponding financial year end.
- Data for estimating the following control variables (other determinants of expected returns):
 - o Beta coefficients (variable Beta) by regressing daily stock returns on daily returns of VN Index for the last 6 months of 2015
 - o As Fama and French (1992, 1993) suggest that in addition to beta, two other factors affecting expected returns are firm size and market-to-book ratio, we also use these factors as control variables. Size (variable MCAP) is measured by calculating the firm's market capitalization on the last trading day of 2015. Market-to-book ratio (variable PB) is determined by taking the market capitalization on the last trading day of 2015, divided by the book value of equity at the end of 2015.

Observations with incomplete data are eliminated. The final sample consists of 225 firms.

5. Results and Discussion

5.1 Descriptive Statistics and Correlation

Descriptive statistics and correlation are presented in Tables 1 and 2. Under the annual report scoring method adapted from Botosan (1997) and applied to this study, the total points to give to different information items are 105. The average disclosure score for firms in the sample is only 27 out of 105 possible points. On average, Vietnamese listed firms only disclose approximately 25% of their information. The company with the highest level of disclosure only reaches half of the maximum score (50/105). The lowest score firm discloses only 8.2% of its information (8.6/105). This figures shows a very low disclosure level of listed companies in Vietnam.

Table 1. Descriptive statistics

Variable	Observations	Mean	Standard Deviation	Min	Max
IMPLIED (%)	225	14.84	6.05	5.12	45.00
DSCORE	225	27.10	9.71	8.60	50.00
Beta	225	0.90	0.30	0.29	1.42
PB	225	2.24	1.34	0.41	8.40
MCAP (billion VND)	225	4,599	38,526	3.95	476,171

The implied cost of equity capital has a mean of 14.84% and is significantly correlated with disclosure level (negative) and firm size (positive). The statistically significant correlation between firm size and disclosure level indicates that larger companies tend to disclose more information. However, the modest value of this correlation

(20%) suggests a weak relationship. This is also shown by comparing coefficients of variation: while firm size has the largest coefficient of variation (8.37), disclosure level and beta are 2 variables having the lowest ones (0.36 and 0.34 respectively). It can be seen that disclosure level of Vietnamese listed firms is not proportional to their size.

Table 2. Correlation matrix

	IMPLIED	DSCORE	Beta	PB	LnMCAP
IMPLIED	1				
DSCORE	-0.2367***	1			
Beta	-0.0266	-0.0091	1		
PB	0.0420	0.0696	-0.126	1	
LnMCAP	0.1433**	0.2018***	0.0025	0.2538***	1

(***, **: Significant at 1 and 5% respectively)

5.2 Regression Analysis

In order to identify the impact of disclosure on the cost of equity capital, taking into account the influence of other factors, the following model is tested:

$$\text{IMPLIED}_i = \alpha + \beta_1 \text{DSCORE}_i + \beta_2 \text{BETA}_i + \beta_3 \text{PB}_i + \beta_4 \text{LnMCAP}_i + \varepsilon_i \quad (4)$$

Where:

IMPLIED_i: implied cost of equity capital of firm i, estimated 3 months after the 2015 financial year end.

DSCORE_i: score (following Botosan (1997) methodology) for the 2015 annual report of firm i

BETA_i: coefficient beta of firm i's stock, estimated by regressing firm i's stock returns on VN Index returns for the last 6 months of 2015

PB_i: market-to-book ratio of firm i calculated by taking the market capitalization on the last trading day of 2015, divided by the book value of equity at the end of 2015.

LnMCAP_i: natural logarithm of firm i's market capitalization on the last trading day of 2015

Variance inflation factor analysis shows no significant multicollinearity influence on the model. As Breusch-Pagan/Cook-Weisberg test reveals that homoscedasticity can be rejected at the 1% significance level, we apply White-Huber standard errors to deal with potential heteroscedasticity.

Table 3. Regression analysis

Variable	Coefficient	t-statistic (Robust Std.Err.)	p value
Intercept	0.0103	0.12	0.902
DSCORE	-0.0016***	-4.33	0.000
Beta	-0.0045	-0.42	0.672
PB	0.0024	0.90	0.368
LnMCAP	0.0067**	2.14	0.033

(***, **: Significant at 1 and 5% respectively)

The main estimation results are presented in Table 3. Among independent variables, only DSCORE and LnMCAP are statistically significant at acceptable levels (1% and 5% respectively). The negative sign of DSCORE means that disclosing more information contributes to reduce the cost of equity capital of listed firms in Vietnam. Beta and market-to-book are not significant, even at 10% level.

Contrary to most literature related to the role of firm size in asset pricing, the positive and statistically significant

coefficient of LnMCAP suggests that the cost of equity capital (expected stock returns) is an increasing function of firm size. One possible cause of this result may be related to the phenomenon of mispricing that is relatively common on Vietnam's stock market. Larger firm size can reduce risk, leading to lower expected returns. However, at some point of time, if large companies are undervalued to a greater extent than small ones, expected returns on stocks of large firms will be higher. If the undervaluation phenomenon is stronger than the risk reducing effect of firm size, there can be a positive relationship between firm size and cost of equity capital.

5.3 Robustness Checks

Firstly, we use stepwise regression analysis to choose the best model specification with a significance level of 10% for removal from (or addition to) the model. The result shows that the 2 selected variables are DSCORE and LnMCAP with coefficient signs and significance levels similar to previous results.

Table 4. Robustness check – rank regression

Variable	Coefficient	t-statistic	p value
Intercept	119.7626***	8.48	0.000
rankDSCORE	-0.2641***	-4.07	0.000
rankBeta	-0.0333	-0.52	0.604
rankPB	0.0738	1.06	0.289
rankMCAP	0.1638**	2.41	0.017

(***, **: Significant at 1 and 5% respectively)

Secondly, as both Jarque-Bera and Shapiro-Wilk tests suggest that the model's residuals are not normally distributed, we use rank regression to re-estimate the model. The results in Table 4 confirm the previous ones, showing that the cost of equity capital of listed firms in Vietnam is a decreasing function of information disclosure and increasing function of firm size.

6. Conclusion and Implications

This study provides two main results: i/ the level of information disclosure of firms listed on Vietnam's stock market is relatively low and the information policy of large companies is not proportional to their size; ii/ disclosing more information contributes to reduce firms' cost of equity capital.

Our findings have implications for Vietnamese stock market's authority and participants. Firstly, listed firms in particular and public companies in general are often not motivated to strengthen information disclosure because managers only see negative aspects of doing this. However, the results of this study suggest that, beside costs, reducing the cost of equity capital is a real benefit of disclosing more for firms themselves. Secondly, for investors, they need to take into account a premium for information risk when determining the required return for their investment, hence the need to quantify this risk and to consider it in an asset pricing model. Thirdly, our findings also suggest a very low level of disclosure by listed firms on Vietnam stock market. This involves emphasis on more effective incentive-based measures to be taken by the market authority to strengthen the transparency of Vietnamese financial markets.

Acknowledgements

This research is funded by Vietnam National Foundation for Science and Technology Development (NAFOSTED) under grant No II2.3-2013.24.

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Note

Note 1. See Botosan (1997) for more details.