Influence of Information Asymmetry on the Cost of Equity Capital in Companies Admitted to Tehran Stock Exchange

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Abstract
This study examines the impact of information asymmetry on the capital structure and capital costs of companies listed on the Tehran Stock Exchange. For this purpose, four different criteria of cost of capital were analyzed, including the weighted average cost of capital (WACC), the cost of capital accumulated from profits, the cost of debt, and the average cost of capital. The statistical population of this study consisted of 94 companies from 20 different industrial groups, which showed a significant relationship between information asymmetry and two criteria for the cost of capital stock and debt expenses over the period 2004-2014 using combined data. Between information asymmetry and the other two criteria, the accumulated profit cost and the rationale for the cost of capital are not significant. Therefore, it can be said that the operational definition of cost of capital affects the existence or non-existence of the mentioned relationship.

Keywords: Information Asymmetry, Cost of Equity Capital, Capital Cost of Accumulated Profits, Cost of Debt and Averaged Cost of Capital.

Introduction

Financing companies are one of the most challenging issues in the capital markets. Information asymmetry refers to a situation in which there is no clear information about the market situation, which leads to undesirable choices and moral hazard, and shows how an inconsistency in financial markets has occurred. And undesirably affects the overall economy. In the meantime, the investor groups acquire different information of varying quality, and the differences between the characteristics of each group and the amount of access to information make each group behave differently, or in other words, within each group, collective behavior (mass) arises.

The existence of massive behavior in markets affects financial systems and makes them fragile and imbalanced. What is important is trying to understand the financial crisis, the asymmetry of information, mass behavior, and the consequences that will follow.

One of the most important and key tools in many financial and managerial decisions is the cost of capital, which is affected by several factors. Financial leverage, profitability, shareholders' composition and composition of the board, type of company activity, liquidity, and size of the company are some of the most important factors [1]. Considering that the capability of attracting capital and financing of companies is one of the most important elements needed to remain in today's competitive market, the existence of a capital market and the active presence of investors in such markets are indispensable needs for national economic growth of countries.

Deciding whether to buy or sell shares after analyzing fresh in-

formation about the status of companies in the market is taking place. In the event of confidential and heterogeneous disclosure of information asymmetry information in the capital market, this indicates an incorrect analysis of the current market situation. In this case, small investors are reluctant to invest, and this leads to an increase in the cost of corporate capital, which should be borne by smaller investors.

Argue that information asymmetry affects prices and is an indicator of the cost of corporate capital. Information asymmetry between traders leads to the preservation of assets by those who have little information to compensate for the weakness of unequal information. This leads to a reduction in the price of securities of those whose levels of information asymmetry are high, as a result of their trading expense when buying or selling increases and liquidity decreases [2].

Investors demand a higher reward for paid overpaid expenses, and as a result, the cost of capital associated with these companies' increases. Now, if information symmetry increases, companies can reduce the cost of exchanging securities and capital costs.

Acknowledged that there is a meaningful relationship between the growth of net income, the ratio of fixed assets to total assets, and the ratio of debt to equity and capital costs. Showed a simple model that the difference in bid prices from stock trading was due to slight changes in stock prices, order costs, maintenance costs, inaccurate selection, and competitive conditions. After expansion of the model, it concluded that inventory costs are more important than the cost of the wrong choice [3].

Examined the relationship between information asymmetry, accuracy of information, and capital cost, and stated that the accuracy of information and information asymmetry have distinct and separate effects on capital costs. Tested the impact of information asymmetry between investors on capital cost. When the competitive capital market is complete, information asymmetry will not have a separate effect on the cost of capital.

This result will not dominate when the market is defective in a competitive state. Investigated the relationship between information asymmetry and the cost of capital stock in Australian listed companies. The results indicate a positive and significant relationship between information asymmetry and expected returns of investors. According to the above, the main objective of the research is to investigate the relationship between information asymmetry and the cost of capital of companies. In order to achieve the research goals and considering the research background, the following hypotheses are presented:

1. There is a significant relationship between information asymmetry and the cost of equity capital.
2. There is a significant relationship between information asymmetry and debt costs.
3. There is a significant relationship between information asymmetry and the cost of capital accumulated profits.
4. There is a significant relationship between information asymmetry and a weighted average of cost of capital.

Methodology

The statistical population of this research consists of companies listed on the Tehran Stock Exchange from 2004 to 2014. Companies were selected based on the following criteria: their financial year ends in March, they are not investment companies or banks, and their financial information is available for the entire period under review. A total of 94 companies met these criteria and were included in the sample. Data for this research were obtained from actual stock market figures and financial statements. The study employed a library research method and analyzed the data using panel data techniques, integrating spatial observations over several periods. Fiscal years ending in March - Exclusion of financial firms and banks - Availability of complete financial and market data for the period [4].

Variables

Independent Variable: Information asymmetry, derived from bid-ask spreads and trading volumes

Dependent Variables: Cost of equity, cost of debt, cost of retained earnings, and WACC

Control Variables: Financial leverage, firm size, and growth rate [5].

Statistical Approach

The study utilizes panel data regression models with fixed effects, chosen based on the results of the Chow and Hausman tests. For robustness, future studies are encouraged to incorporate variables such as corporate governance quality and disclosure indices (Botosan, 1997).

Findings

Table 1: Descriptive Statistics of Research Variables

Variable name	Number	Average	Standard deviation
Information asymmetry	658	0.0188	0.01288
Cost of ordinary stock capital	658	2523520	6318916
Accumulated interest expense	658	19658542	1.54E+08
Debt expense	658	0.0844	1.3240
Average cost of capital	658	2.06E+20	1.64 E+ 21
Financial Leverage	658	0.6184	0.1770
Size	658	1317780	6679741
Growth	658	0.073892	0.1974

Table 2: Results of Model Selection for Each of the Four Hypotheses

Hypothesis	Significance	Test statistic	Test	Selected model
The first hypothesis	0.0001	5.499	Chow test	Fixed model
	0.0001	32.32	Hausman test	
The second hypothesis	0.037	1.207	Chow test	Fixed model
	0.0002	22.412	Hausman test	
The third hypothesis	0.0001	3.805	Java test	Fixed model
	0.0001	349.508	Hausman test	
Fourth hypothesis	0.0085	1.428	Chow test	Fixed model
		42.65	Hausman test	

Table 3: Results of Testing the First Hypothesis Using the Fixed Model (Dependent Variable Cost of Equity Capital)

The first hypothesis	Variables	Coefficients	Standard error	Statistic t	Meaningful
Information asymmetry	$\beta1$	-39468321	17630013	-2.2387	-.025
Financial Leverage	$\beta2$	14980603	2200420	6.808	0.001
Size	$\beta3$	-0.026	0.094	-0.274	0.783
Growth	$\beta4$	-1527942	1112691	-1.373	0.170
Constant	c	-5851837	1409533	-4.151	0.0001
Weighting statistics	F statistics	Meaningful F	Camera-Watson	The coefficient of determination	Adjusted coefficient of determination
	5.371	0.0000	1.65	0.481	0.392

Table 4: The Results of Testing the Second Hypothesis Using the Fixed Model (Dependent Variable of Accumulated Profit Cost)

The first hypothesis	Variables	Coefficients	Standard error	Statistic t	Meaningful
Information asymmetry	$\beta1$	-6.20e+08	5.20e+08	-1.192	0.233
Financial Leverage	$\beta2$	93266183	64910741	1.43	0.15
Size	$\beta3$	14.90	2.79	5.34	0.0001
Growth	$\beta4$	-72129821	32823563	-2.197	0.028
Constant	c	-40675184	41580184	-0.978	0.328
Weighting statistics	F statistics	Meaningful F	Camera-Watson	The coefficient of determination	Adjusted coefficient of determination
	1.821	0.0000	1.608	0.239	0.108

Table 5: The Results of Testing the Third Hypothesis Using the Fixed Model (Dependent Variable of Debt Cost)

The first hypothesis	Variables	Coefficients	Standard error	Statistic t	Meaningful
Information asymmetry	$\beta1$	7.315	3.066	2.385	0.017
Financial Leverage	$\beta2$	-1.159	0.382	-3.030	0.002
Size	$\beta3$	3.75e+07	1.65e+08	22.817	0.0001
Growth	$\beta4$	-1.54	0.193	-7.98	0.0001
Constant	c	0.28	0.245	1.156	0.247

Weighting statistics	F statistics	Meaningful F	Camera-Watson	The coefficient of determination	Adjusted coefficient of determination
	10.39	0.0000	2.12	0.64	0.58

Table 6: Results of Testing the Fourth Hypothesis Using a Randomized Model (Dependent Variable of the Average Cost of Capital)

The first hypothesis	Variables	Coefficients	Standard error	Statistic t	Meaningful
Information asymmetry	β_1	-6.67e+21	3.92e+25	-1.56	0.11
Financial Leverage	β_2	3.76e+20	5.32e+20	0.707	0.479
Size	β_3	2.29e+13	1.859	1.859	0.063
Growth	β_4	8.82e+20	2.69e+20	3.076	0.0022
Constant	c	1.82e+19	3.41e+20	-0.0533	0.9575
Weighting statistics	F statistics	Meaningful F	Camera-Watson	The coefficient of determination	Adjusted coefficient of determination
	7.038	0.0001	1.678	0.549	0.47

Results

Table 1: provides descriptive statistics for the variables used in the study. The findings for each of the four hypotheses are presented in Tables 2 to 6. The results indicate that the fixed-effects model was selected for all four hypotheses based on the significance of the Chow and Hausman tests [6-8].

Table 2: for the four hypotheses the fixed effect model is selected. In clauses 3, 4, 5, and 6, the results of estimating the least squares regular regression model with fixed effects method are presented for four hypotheses, respectively.

Table 3: The first hypothesis, which examines the relationship between information asymmetry and the cost of equity capital, shows a significant negative relationship (coefficient = -39468321, p = 0.025). This suggests that higher information asymmetry leads to a lower cost of equity capital, information hoarding, or inefficient pricing behavior in the Iranian market, potentially due to reduced investor confidence.

Table 4: The second hypothesis, concerning the cost of retained earnings, shows no significant relationship with information asymmetry (p = 0.233). This could be due to the internal nature of this financing method, which may be less influenced by external information asymmetry [9, 10].

Table 5: The third hypothesis finds a significant positive relationship between information asymmetry and debt costs (coefficient = 7.315, p = 0.017). This indicates that higher information asymmetry increases debt costs, likely due to lenders demanding higher returns to compensate for the risk of insufficient information.

Table 6: The fourth hypothesis, examining the relationship between information asymmetry and WACC, finds no significant relationship (p = 0.11). This suggests that while information asymmetry impacts specific components of capital cost, its overall effect on WACC may be less pronounced [11-13].

Discussion

The findings validate the theoretical expectation that information asymmetry impacts capital costs, particularly for externally financed components. The inverse relationship with equity cost, however, challenges conventional wisdom and calls for further investigation [14].

Insights from Behavioral Finance may help explain such anomalies. In contexts where investor sentiment drives decisions, information asymmetry could lead to pricing inefficiencies rather than straightforward risk premiums. Additionally, herding behavior and speculative trading may temporarily depress capital costs despite underlying risk.

Cross-country comparisons with similar emerging markets like India, Turkey, and Brazil highlight common challenges: weak investor protections, lower transparency, and high bid-ask spreads. Understanding these parallels provides broader context for policy reform [15].

Conclusion

Information asymmetry could lead to a reduction in stock liquidity and an increase in transaction costs, and this raises the cost of capital for companies.

In this research, the information asymmetry as an independent variable, the cost of capital ordinary stock, the cost of debt, the cost of capital accumulated profits, and the rational capital cost of capital as dependent variables are analyzed. The results obtained from the first and third hypotheses of this study are based on the results. The lack of a meaningful relationship between information asymmetry and the cost of capital associated with accumulated profits can be attributed to the internal nature of

this financing method.

In other words, the cost of equity capital and the cost of debt of a company's debt are directly affected by the expectations of shareholders and creditors, but may have less effect on the cost of capital generated by the company's accumulated profits. The effects are more pronounced in the cost of equity and debt, whereas internal financing (retained earnings) and overall WACC are less sensitive.

For corporate managers, improving disclosure practices and enhancing transparency are effective ways to reduce financing costs. For regulators and policymakers, strengthening governance frameworks and aligning disclosure standards with international norms can foster investor confidence and market efficiency.

Particularly, aligning with the OECD Principles of Corporate Governance (2015) and World Bank recommendations on transparency in emerging markets can improve capital market performance and facilitate sustainable economic growth.

Conflicts of interest: The author declares no conflict of interest.

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