

# *The Role of Information Asymmetry in Financing Methods*

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There is no doubt that new investments are the cornerstone of progress and competition in today's world. Different financing instruments are employed to secure the funds for these investments. The most common financing methods in Iran are debt and equity financing. Some investors, including corporate insiders, have access to private information. The more private the information, the more will be the bid/ask spread between investors, thus reducing the returns of those with no access to such information. Therefore, information asymmetry is expected to affect the funding of investments. The purpose of this study was to examine the relationship between information asymmetry and financing methods (debt and equity financing). The population consists of all the firms listed on the Tehran Stock Exchange that have been operating during the period 2006–2010. Totally, 61 firms were selected as sample using targeted sampling. The results showed that there is no significant relationship between information asymmetry and debt financing; however, there was a significant positive relationship between information asymmetry and equity financing.

*Key Words:* information asymmetry; debt financing; equity financing

*JEL Classification:* D53; E44; C58

## **Introduction**

Economic entities need large investments to sustain their viability and develop their activities. These entities also highly depend on financial markets for financing their activities. Therefore, choosing the right financing methods is an important issue for financial managers. This study introduces different methods of financing and examines the role of information asymmetry on the financing of firms.

Industrial development in any country entails short-term, mid-term, and long-term planning and investment. The resources required for investment can be secured from retained earnings, bank loans, selling stocks, and/or a combination of these sources.

One of the goals of financial management is to maximize shareholder wealth. Thus, financial managers must find ways of securing the funds necessary for achieving these goals (Abzari, Dastgir and Gholipur 2008). This study investigates the financing approaches of firms to reveal the effect of information asymmetry on the choice of financing methods.

In financial reporting, the main purpose of financial statements is to provide information about the financial state, performance, and flexibility of a business unit, thus helping the users of these statements in decision-making. A part of the ownership of firms is in the hands of shareholders. This group mainly relies on publicly available information such as financial statements for monitoring the performance of managers. However, a portion of the shareholders has access to valuable information about the business strategies and long-term investments of the firms.

Well-informed shareholders are those with access to private information, such as managers, analysts, and institutions and individuals who provide such information. Less informed investors, also called retail investors, are common people whose only way of access to information is through the reports provided by the firms. Differences among investors arise from the signals that they receive about the value of future fundamentals. All investors receive a common public signal about the value of future fundamentals, but a proportion of these investors also receive a private signal about this value.

However, just a small portion of well-informed investors is enough to drive the market price of a share toward the real value. Obviously current profits do not reflect the result of all the economic activities of a firm. There are activities such as long-term sale contracts, investments, and R&D, which are of long-run value. Information about these activities is only provided to institutional investors, thus leading to information asymmetry between institutional investors and retail investors (Khoshtinat and Yusefi 2008).

Information asymmetry often arises from investment opportunities. It provides the opportunity for income smoothing and wealth transfer to managers through internal deals and bonuses. Higher growth opportunities increase expected future cash flows, thus increasing the information asymmetry between managers and shareholders. Thus, identification of

the right financing method is of utmost important in maximizing shareholder wealth.

One of the most important parts of any economic activity is its financing. Required funds can be secured from equity of debts. The debt equity mix (the left-hand side of a firm's balance sheet) indicates the capital structure of the firm. If debt is the source of financing, its use in the capital structure of firms increases return on equity. Increasing return using financial leverage increases the firms' ability to compete. Under these conditions, the decision to use debt in the capital structure is a critical one, for increased debt may increase the firm's risk if return on investment is lower than the amount borrowed. Decisions about the financial structure of a firm affect its value. As shareholders, managers must adjust the structure a firm to minimize the cost of capital and maximize shareholder wealth and firm value.

On the other hand, a major factor in decision-making is the information relevant to the matter at hand. If the necessary information is asymmetrically disclosed among the users, it can lead to different views on the same matter. Therefore, more important than information it is how the information is distributed (Ghaemi and Vatanparast 2005).

When information asymmetry on the stocks of a firm increases, the inherent value of the stocks will differ from the value given to the stocks by investors in the capital market. Therefore, the real value of stocks will be different from the value expected by shareholders. It must be noted that the majority of investors are common people who can only access important information through the reports provided by the firms. Those with better access to information, like information about the returns and investments of the firm, will be able to affect the process of supply and demand, leading to the so-called 'spread' in prices.

### **Review of the Literature**

Akerlof (1970) brought informational issues at the forefront of economic theory. He showed that information asymmetry could increase adverse selection in the market. Glosten and Harris (1988) found that adverse selection is positively associated with the degree of information asymmetry in the market. Subsequently, Stoll (1989) provided evidence that 43 percent of bid/ask spread is due to adverse information in the market. Gietzman and Ireland (2005) examined the relationship between disclosure and the cost of capital in the UK. They found a negative relationship between disclosure and the cost of capital, but this relationship exists only

for firms adopting aggressive accounting policies. Zhang and Ding (2006) also found a negative relationship between disclosure and the cost of capital.

Myers and Majluf (1984) argue that managers know more about the firm's value of assets and opportunities than potential investors do. They also assume that managers act in the interests of existing shareholders. Since managers act in the interests of existing shareholders, there is an incentive to sell new equity when it is overvalued. Thus, selling equity on average conveys negative information about the firm, and the stock price drops at the equity issue announcement.

Ambarish, John and Williams (1987) showed that announcement effect of new stock depends on the role of assets in place and investment opportunities. For instance, the announcement effect is negative for firms with private information primarily about assets in place and positive for firms with inside information mainly about opportunities to invest.

Some researchers have studied the leverage effect of financing activities. Modigliani and Miller (1963) argue that issuing new stocks reduces stock prices if debt levels are reduced. According to this theory, issuing new stocks reduces financial leverage. Due to losing tax advantage because of equity financing, leverage decreases with stock prices, and the decrease in stock prices is positively associated with the relative size of the issue.

Eberhart and Siddique (2002) studied long-run bond returns following securities offerings. Distinguishing between pure and partial wealth transfer, they showed that abnormal firm returns are negative following equity offerings, and much of the shareholder wealth loss represents a wealth transfer to bondholders, supporting the partial wealth transfer hypothesis.

The special role of banks as the financial intermediaries has received much attention in the literature. For instance, Diamond (1984) argued that the key advantage of banks for investors is their access to private information, reducing information asymmetry among different groups operating in the market.

Mikkelson and Partch (1986), James (1987), and Lummer and McConnell (1989) showed that bank loan announcement creates positive abnormal stock returns for the borrowing firms. James (1987) investigated the reaction of stock prices to bank loan announcements. He found that positive stock price response to the announcement of new bank credit agreements that is larger than the stock price response associated with

announcements of private placements or public straight debt offerings. He also found significantly negative returns for announcements of private placements and straight debt issues used to repay bank loans. Others followed up this study. Lummer and McConnell (1989), for instance, distinguished between new bank loans and loan renewals. They found that the positive response of stock prices only holds true for the latter, i. e. loan renewals.

Bharath, Pasquariello and Wu (2009) found a significant positive relationship between information asymmetry and the use of debt in the capital structure of firms. Yumei, Chunfeng and Zhenming (2007) studied the effect of information asymmetry on the financing of Chinese firms and found a significant positive relationship between information asymmetry and debt ratio (short-term, long-term, and total).

Van Buskirk (2012) studied the effect of frequency of disclosure on the level of information asymmetry among investors. Studying a sample of firms in the US retail sector, he found that more detailed (greater quantity) disclosure is associated with reduced information asymmetry.

Francis, Nanda and Olsson (2008) showed that the cost of equity is negatively related to the disclosure measure based on annual reports and 10-K filings, positively related to disclosure measures based on management forecasts and conference calls, and unrelated to press-release based disclosure measures.

Fama and French (2002) and George and Hwang (2010) found that leverage based on book value is associated with lower returns, while leverage based on market value is associated with higher returns.

A recent study by Fulghieri, Garcia and Hackbarth (2013) shows that equity can dominate debt if both the asset in place and the growth option are subject to the type of asymmetric information that is similar to what we examine here.

Fulghieri, Garcia and Hackbarth (2013) investigate the optimal security design problem under more general distributions of firm values, although information asymmetry in their model is not time varying. In contrast, we focus on the choice between debt and equity, study time-varying asymmetric information, and associated delays in investment.

Rouhi et al. (2010) found that information asymmetry is not significantly changed post seasonal profit announcement compared to pre seasonal profit announcement. This is observed in relation to announcement containing good news as well as bad news. Kashani Poor, Mehrani and Oashanejad (2010) showed that companies with more independent board

structure and more effective board approach have more market liquidity compared to other companies. In fact, companies with higher score in terms of corporate governance quality experience lower ask-bid spread and higher different share supplied and demanded.

### Methodology

The present research is an applied study that examines the relationship between information asymmetry and financing methods in Iranian firms. It is a non-experimental or correlational research with ex post facto design.

### HYPOTHESES

The present research investigates the relationship between bid/ask spread and the choice of debt or equity financing to find whether information asymmetry has any effect on the choice of financing method. To answer this question, the following hypotheses can be developed:

- H<sub>1</sub> *There is a significant relationship between information asymmetry and debt financing.*
- H<sub>2</sub> *There is a significant relationship between information asymmetry and equity financing.*

### POPULATION AND SAMPLE

The population of the present research consists of all the firms listed on Tehran Stock Exchange (TSE) during the period 2006–2010 that satisfy the following conditions:

- Firms' financial year must end on the final day of Iranian calendar;
- Firms must have been listed in TSE before 2006
- Firms with at least three months of trade interruption are excluded;
- Firms must have available data on bid/ask prices.

### DATA COLLECTION

The required data was extracted from the financial statements of the sample firms and was analyzed in Excel and Stata.

### VARIABLES

The independent variable is information asymmetry, which is calculated from the model developed by Venkatesh, and Chiang (1986) for measuring bid/ask spread:

$$SPREAD_{it} = \frac{AP - BP}{(AP + BP) \div 2} \times 100, \tag{1}$$

where SPREAD denoted bid-ask spread, AP is the ask price for firm *i* in the period *t*, and BP is the bid price for firm *i* in the period *t*.

To measure information asymmetry between investors, the model developed by Vankatsh and Chiang (1986) is used to determine bid-ask spread range. This model has been used in different studies. According to the model, the higher range of ask-bid spread the more information asymmetry (Rezazadeh and Azad 2008).

The dependent variables are debt financing and equity financing. Debt financing is obtained from the following equation:

$$D_t = d_t - d_{t-1}, \tag{2}$$

where  $D_t$  denotes debt financing in period *t*,  $d_t$  is debt financing in period *t*, and  $d_{t-1}$  is debt financing in the period *t* - 1.

Equity financing is obtained from the following equation:

$$S = C_1 - C_0 - A, \tag{3}$$

where *S* denotes equity financing,  $C_0$  is capital before capital gain,  $C_1$  is capital after capital gain, and *A* is the percentage of capital gain from shareholders' cash earnings.

#### DATA ANALYSIS

*F*-test is applied to choose between panel data and pooled data. In *F*-test, if the calculated *F* is lower than the table value of *F*, panel data is used and vice versa. If panel data is used, Hausman test must be applied. This test shows whether the intercept represents fixed or random effects. If the *p*-value in Hausman test is lower than 5%, the null hypothesis (random effects) is rejected and fixed effects method is used and vice versa.

Based on the results of *F*-test and Hausman test the proper regression method is selected and the hypotheses are analyzed accordingly. In panel data, the models may exhibit heterogeneity of variance. Fixed effects method automatically solves this problem. However, if random effects method is used, generalized least squares (GLS) regression must be applied for estimating the model. The following model is used for examining the relationship between the variables:

$$Y_{it} = \beta_0 + \beta_1 SPREAD_{it} + \varepsilon_{it}, \tag{4}$$

TABLE 1 The Results of  $F$ -test for the First Hypothesis

| Test      | Test Statistic | $p$ -value | Result      |
|-----------|----------------|------------|-------------|
| $F$ -test | 0.34           | 1.00       | Pooled data |

where  $Y_{it}$  is the dependent variable and  $\text{SPREAD}_{it}$  is the bid-ask spread for firm  $i$  in year  $t$  (as a measure of information asymmetry).

## Results

### HYPOTHESIS 1

According to the first hypothesis, there is a significant relationship between information asymmetry and debt financing. The statistical representation of this hypothesis is as:

$$\begin{cases} H_0: b_s = \hat{\beta}_s \\ H_1: b_s \neq \hat{\beta}_s \end{cases} \quad (5)$$

The results of  $F$ -test for the first hypothesis are shown in table 1.

As shown in table 1, the  $p$ -value for  $F$ -test is 1.00 ( $p > 0.05$ ). In other words, the calculated  $F$  is less than the table value of  $F$ . Therefore, this hypothesis is tested using the pooled method. The results obtained from analyzing the data in Stata software are summarized in table 2.

The results show that there is a positive relationship between information asymmetry and debt financing. However, this relationship is not statistically significant at the 95% confidence level. The value of  $F$  indicates the overall validity of the model. The data in table 2 shows that the calculated  $F$  is greater than the table value of  $F$  ( $p < 0.05$ ). Thus, we can argue that the model has a high validity. The coefficient of determination for this model is 11%, suggesting that 11% of the changes in the dependent variable can be explained by the independent variable.

### HYPOTHESIS 2

Based on the second hypothesis, there is a significant relationship between information asymmetry and equity financing. The statistical representation of the second hypothesis is as follows:

$$\begin{cases} H_0: b_s = \hat{\beta}_s \\ H_2: b_s \neq \hat{\beta}_s \end{cases} \quad (6)$$

Table 3 provides the results of  $F$ -test for the second hypothesis.

TABLE 2 The Results of Pooled Regression for the First Hypothesis

| Variable              | Coefficient | Std. Error | <i>t</i> -statistic | <i>p</i> -value |
|-----------------------|-------------|------------|---------------------|-----------------|
| Information Asymmetry | 0.175       | 0.123      | 1.44                | 0.118           |
| Constant              | 0.597       | 0.031      | 18.93               | 0.000           |

NOTES *F*-statistic (probability): 5.07 (0.0062); *R*<sup>2</sup>: 0.11.

TABLE 3 The Results of *F*-test for the First Hypothesis

| Test           | Test Statistic | <i>p</i> -value | Result      |
|----------------|----------------|-----------------|-------------|
| <i>F</i> -test | 0.90           | 0.7054          | Pooled data |

TABLE 4 The Results of Pooled Regression for the Second Hypothesis

| Variable              | Coefficient | Std. Error | <i>t</i> -statistic | <i>p</i> -value |
|-----------------------|-------------|------------|---------------------|-----------------|
| Information Asymmetry | 0.412       | 0.132      | 3.10                | 0.002           |
| Constant              | 0.606       | 0.029      | 20.97               | 0.000           |

NOTES *F*-statistic (probability): 9.63 (0.0021); *R*<sub>2</sub>: 0.12.

As shown in table 3, the *p*-value of *F*-test is 0.7054 ( $p > 0.05$ ). In other words, the calculated *F* is lower than the table value of *F*. Therefore, pooled method is again used for testing the second hypothesis. The results of analyzing the data in Stata are shown in table 4.

The data in table 4 shows that there is a positive relationship between information asymmetry and equity financing. This relationship is statistically significant at the 95% confidence level. This shows that a unit of change in equity financing leads to 0.412 increase in information asymmetry. As mentioned earlier, *F* shows that overall validity of the model. The data in table 4 shows that the calculated *F* is greater than the table value of *F* ( $p < 0.05$ ), indicating the high validity of the model. The coefficient of determination is 12%, suggesting that 12% of changes in the dependent variable can be explained by the independent variable.

### Conclusion

This study examined the relationship between information asymmetry and debt/equity financing within companies listed on the Tehran Stock Exchange. The results showed that information asymmetry is positively associated with debt financing, but the relationship was not significant. However, there was a significant positive relationship between information asymmetry and equity financing.

Previous studies have shown that less information asymmetry among

investors indicates a fair market where both institutional and retail investors have equal access to information. Sellers and buyers of shares enter such a market with greater information. This market enables fair distribution of profits among people, thus increasing justice in the society.

### Future Research Directions

- It is recommended that a similar study is conducted considering industries or firm sizes (small, average, large).
- It is recommended that a study be conducted to evaluate the relationship between ownership structure and information asymmetry.
- It is recommended that future researchers study the relationship between Number of buyers and sellers and information asymmetry.

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