A Study of information asymmetry using Bid-Ask spread on firm value: evidence from Tehran Stock Exchange

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ABSTRACT: The aim of this paper is to analyze and to test the influence of the information asymmetry on firm value. To test the research hypotheses, a sample of 47 companies listed in Tehran Stock Exchange over the period 2007-2012 based on pooled method was taken. In these models fixed effects test is estimated. Inference is based on significant level or p-value, thus likely that less than 0.05 is rejected at the 95 percent confidence level. The results show that the information asymmetry has no effects on firm value.

Keywords: Information Asymmetry, Firm value, Bid-Ask Spread, Tobins’ q

INTRODUCTION

One of the negative phenomena that occur in financial market is an information asymmetry. J.P. Morgan economists calculated that savings by corporations in rich countries increased by more than $1 trillion from 2000 to 2004. Compared to the last 40 years, companies never hoarded so much cash as they did during this recent time period. A natural question to ask is why companies accumulate such enormous amounts of liquidity. The standard textbook model suggests that cash holdings are irrelevant and cannot affect firm value. In perfect (frictionless) capital markets, external finance can always be obtained at fair terms. Looking at the corporate landscape, however, this cash irrelevancy is not supported. For example, the U.S. software giant Microsoft presented a cash position amounting to $60.6 billion in its 2004 annual report. After growing investor pressure, in July 2004 Microsoft announced to pay a one-time dividend of $32 billion and to buy back up to $30 billion of the company's stock over the next four years. Upon the arrival of that news, Microsoft's stock price rose by 5.7% in the after-trading, indicating that cash should by no means be regarded as irrelevant in investors' eyes.(Wolfgang Drobetz, et al, 2007)

The purpose of this paper is to review of the information asymmetry on firm value.

Theoretical background

With regard to economic aspects of information, financial reporting and accounting systems play a vital role in capital markets. The main objective of financial reporting is to provide investors information needs. Firm value is an economic measure reflecting the market value of a whole business. It is a sum of claims of all claimants: creditors (secured and unsecured) and equity holders (preferred and common).

Firm value is one of the fundamental metrics used in business valuation financial modeling, accounting, portfolio analysis, etc.

Information asymmetry is situation in which one party in a transaction has more or superior information compared.

Information differences across investors (or groups of investors) have been a long-standing concern to securities regulators and at the core of U.S. disclosure regulation (e.g., Loss, 1983; Loss & Seligman, 2001). Information asymmetry happens when some parties in business transactions access to some information advantage over others (Scott, 2003). Information asymmetry between managers and external information users help managers use their discretion in preparing and reporting accounting information for their own advantage.
Although opportunism is limited both by the accounting standards and by independent auditors, there is much recent evidence both in academic literature and the popular press recommending that managers implement their discretion over accounting numbers to achieve private gains. More specifically, this earnings management is an activity where managers implement their discretion to mislead stakeholders about the economic performance of the company or to impact contractual outcomes (Healy & Wahlen, 1999).

**Literature review**

Sudhakrishnaswami, Venkatsubramaniam (1999) empirically analyze the information hypothesis that the separation of a firm's divisions into independently traded units through a spin-off enhances value because it mitigates information asymmetry about the firm. Consistent with this hypothesis, they find that firms that engage in spin-offs have higher levels of information asymmetry compared to their industry and size matched counterparts and the information problems decrease significantly after the spin-off. The gains around spin-offs are positively related to the degree of information asymmetry, and this relation is more pronounced for firms with fewer negative synergies between divisions. Finally, firms with higher growth opportunities and firms in need of external capital show a higher propensity to engage in spin-offs. They also raise more capital following a spin-off, which is consistent with the view that these firms mitigate information asymmetry before approaching the capital market for funds.

Praveen R. Nyyar (1993) examined the performance effects of information asymmetry and economies of scope in diversified service firms. Tests using both accounting and stock market based measures of performance revealed that information asymmetry improved performance more than economies of scope. As hypothesized, the benefits of information asymmetry were greater for firms offering services whose quality cannot be determined until after their purchase (experience services), and the benefits of economies of scope were greater for firms offering services whose quality can be determined prior to purchase (search services). However, without considering the interactive effects of service characteristics, economies of scope were negatively associated with performance for diversified service firms overall.

Paul M. Healy, Krishna Gpalepu (2001) reviewed financial reporting and disclosure are potentially important means for management to communicate firm performance and governance to outside investors. They provide a framework for analyzing managers' reporting and disclosure decisions in a capital markets setting, and identify key research questions. They then review current empirical research on disclosure regulation, information intermediaries, and the determinants and economic consequences of corporate disclosure. Their survey concludes that current research has generated a number of useful insights. They identify many fundamental questions that remain unanswered, and changes in the economic environment that raise new questions for research.

C. Edward Fee & Shawn Thomas (1999) reviewed that there is no clear theoretical consensus about the overall effect of firm diversification on the magnitude of asymmetric information problems that firms face. They therefore compare stock market based measures of asymmetric information for diversified firms with those they could reasonably expect to exhibit if they were split along industry lines into separately traded entities. They find that approximately 74% of the diversified firms in their sample have less severe asymmetric information problems as conglomerates than they could expect to experience as separately traded pure-play firms. They also find evidence that diversified firms with low levels of information asymmetry trade at significant diversification premiums while diversified firms with high levels of information asymmetry trade at significant diversification discounts.

Marc Steffen Rapp (2010) while some of the modern performance measures used in managerial accounting rely on cash flow based figures others try to take advantage of the information content of accounting figures. However, whether the additional information content in the accrual components of earnings improves the internal performance measurement is an open empirical question. To shed light on this question, I examine the correlation between operating cash flows and earnings with firm's total shareholder returns. Using fixed firm effects regression methods for a large sample of German listed firms covering some 5,000 firm years, the analysis shows that generally operating cash flow and earnings are both positively correlated with total shareholder return. However, with increasing information asymmetry earnings become less correlated with the firm's stock market performance and operating cash flows dominate earnings in explaining total shareholder return (and vice versa). These results suggest that, the information content of accounting figures is only relevant in settings characterized by low information asymmetries and, thus, there is no one-size-fits-all performance measure for managerial accounting purposes.

Najahattig et al. (2004) reviewed that prior studies, such as Claessens, Djankov, Fan and Lang (2002), suggest that separation between ultimate control and ownership decreases firm value (due to the entrenchment effects of large shareholding). Using a sample of Canadian firms, they find that stocks with a greater deviation between ultimate control and ownership have a larger information asymmetry component of their bid-ask spread.
and a wider quoted bid-ask spread. Their results are consistent with the notion that the ultimate owners of these stocks may have a selfish agenda. To increase the probability of it being implemented, the firm may also have poor information disclosure, resulting in an illiquid stock.

**The proposed study**

Hypothesis: The information asymmetry using bid-ask has effect on firm value as follows:

\[
\begin{align*}
H_0 &: \quad \rho = 0 \\
H_1 &: \quad \rho \neq 0
\end{align*}
\]

Where \(H_0\) indicates that the information asymmetry has no effect on firm value and \(H_1\) indicates that has a significant effect on the firm value.

A common result in the theoretical microstructure literature (e.g., Glosten and Milgrom (1985)) is that the bid-ask spread is expected to be increasing in the degree of asymmetric information about a firm. A rational market maker will set the bid-ask spread wide enough to recoup expected losses to informed traders. However, the quoted spread itself may be a somewhat coarse measure of the relative degree of information problems. Price discreteness caused by minimum tick sizes limits market makers’ abilities to adjust quotes and sets a lower bound on the spread.

In this paper we use the bid-ask spread as a measure of information asymmetry. Bid-Ask is the mean monthly bid ask spread scaled by the average of the bid ask prices.

Also Tobin’s q as a measure of firm value is as follows:

Tobin’s q = \(\frac{\text{total debt} + (\text{stock price} \times \text{shares of outstanding})}{\text{book value of assets}}\)

In this paper three variables are control variables:

- **The size of firm (SIZE)** = It is essential to control the size of the firm sample that is supposed to act on the performance. We kept as variable of control the size of every firm measured by the logarithm of the total asset of the group.

- **The growth of the firm (GROWTH)** = The growth of the company is one of the explanatory factors the most important of the performance of firms. This variable is measured by the average variation of the turnover on the reporting period. That is:

\[
\text{GROWTH} = \frac{\text{Sales}_n - \text{Sales}_{n-1}}{\text{Sales}_{n-1}}
\]

- **The debt (DEBT)** = The variable of the debt is measured as the ratio of the total debts and the shareholders equity.

There are 47 firms bid-ask spread data available in the companies listed in Tehran Stock Exchange. The data used in the testing model is extracted from TSE that provide the closing bid-ask prices from 2007 to 2012. The pooled method is used in this paper.

**CONCLUSION**

This paper has examined the effect of information asymmetry using bid-ask spread on firm value. We also could examine the information asymmetry on capital structure, cash value, stock value and shareholders value. The results have shown that information asymmetry has no effect on firm value. The researcher can choose the greater number of companies and use the other method for evaluation of information asymmetry such as turnover or standard deviation of return.

**The results**

Table 1 demonstrates some the basic information on the study.
Table 1. Descriptive statistics of the variables in the sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Bid-Ask</th>
<th>Tobin's q</th>
<th>Size</th>
<th>Growth</th>
<th>Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>-124.7173</td>
<td>1.748277</td>
<td>5.906952</td>
<td>0.218063</td>
<td>2.911863</td>
</tr>
<tr>
<td>Median</td>
<td>-149.0000</td>
<td>1.404983</td>
<td>5.831568</td>
<td>0.140069</td>
<td>0.840000</td>
</tr>
<tr>
<td>Maximum</td>
<td>75768.00</td>
<td>10.18513</td>
<td>7.956776</td>
<td>3.020303</td>
<td>7.082424</td>
</tr>
<tr>
<td>Minimum</td>
<td>-69850.00</td>
<td>0.678396</td>
<td>4.254947</td>
<td>-0.774629</td>
<td>0.180000</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>83954.497</td>
<td>1.094204</td>
<td>0.697034</td>
<td>0.414651</td>
<td>0.335076</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.632069</td>
<td>3.366874</td>
<td>0.488505</td>
<td>2.722370</td>
<td>0.335076</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>11.29680</td>
<td>19.99081</td>
<td>3.377095</td>
<td>16.19394</td>
<td>1.191337</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>965.5447</td>
<td>4579.008</td>
<td>15.03461</td>
<td>2792.733</td>
<td>51.00000</td>
</tr>
<tr>
<td>Probability</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
<td>0.00000</td>
</tr>
<tr>
<td>Sum</td>
<td>-41032.00</td>
<td>575.1833</td>
<td>1943.387</td>
<td>71.74284</td>
<td>958.0029</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>8.82E+10</td>
<td>392.7083</td>
<td>159.3607</td>
<td>56.39471</td>
<td>2302.605</td>
</tr>
<tr>
<td>Observations</td>
<td>329</td>
<td>329</td>
<td>329</td>
<td>329</td>
<td>329</td>
</tr>
<tr>
<td>Cross sections</td>
<td>47</td>
<td>47</td>
<td>47</td>
<td>47</td>
<td>47</td>
</tr>
</tbody>
</table>

The basic assumption of the model is pooled. The results of pooled indicates that the information asymmetry has no effect on firm value. Table 2 shows the results.

Table 2. Pooled EGLS analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bid-Ask</td>
<td>1.16E-06</td>
<td>7.62E-07</td>
<td>1.523836</td>
<td>0.1287</td>
</tr>
<tr>
<td>Size</td>
<td>-0.169670</td>
<td>0.023512</td>
<td>-7.216330</td>
<td>0.0000</td>
</tr>
<tr>
<td>Growth</td>
<td>0.068195</td>
<td>0.039341</td>
<td>1.733420</td>
<td>0.0841</td>
</tr>
<tr>
<td>Debt</td>
<td>0.002146</td>
<td>0.007035</td>
<td>0.305105</td>
<td>0.7605</td>
</tr>
<tr>
<td>C</td>
<td>2.177829</td>
<td>0.157089</td>
<td>13.86364</td>
<td>0.0000</td>
</tr>
<tr>
<td>AR(1)</td>
<td>0.603202</td>
<td>0.030177</td>
<td>19.98887</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Weighted Statistics

R-squared 0.703023 Mean dependent var 3.623526
Adjusted R-squared 0.697643 S.D. dependent var 2.415643
S.E. of regression 0.705173 Durbin-Watson stat 1.864695
F-statistic 130.6731
Prob(F-statistic) 0.000000

Unweighted Statistics

R-squared 0.420928 Mean dependent var 1.638817
Sum squared resid 152.5814 Durbin-Watson stat 1.494295

For estimated the model and choose the best model and whether pooled method is acceptable or panel, we estimated redundant fixed effects and F-limmer is more than 0.05 and fixed effects model is acceptable and the pooled method is used. Also, in this estimated, the results shows that information asymmetry has no effect on firm value in this paper. The results is shown in table 3.

Table 3-results of effects test

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>0.818728</td>
<td>(46,230)</td>
<td>0.7891</td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
<td>Std. Error</td>
<td>t-Statistic</td>
</tr>
<tr>
<td>Bid-Ask</td>
<td>1.94E-06</td>
<td>1.24E-06</td>
<td>1.572723</td>
</tr>
<tr>
<td>Size</td>
<td>-0.228813</td>
<td>0.049378</td>
<td>-4.633905</td>
</tr>
<tr>
<td>Growth</td>
<td>0.032648</td>
<td>0.048351</td>
<td>0.675241</td>
</tr>
<tr>
<td>Debt</td>
<td>-0.029150</td>
<td>0.008517</td>
<td>-3.422539</td>
</tr>
<tr>
<td>C</td>
<td>2.817249</td>
<td>0.309088</td>
<td>9.114720</td>
</tr>
<tr>
<td>AR(1)</td>
<td>0.485524</td>
<td>0.036473</td>
<td>13.31200</td>
</tr>
</tbody>
</table>

Weighted Statistics

R-squared 0.554843 Mean dependent var 2.942542
Adjusted R-squared 0.546778 S.D. dependent var 2.027347
S.E. of regression 0.702814 Durbin-Watson stat 1.738804
F-statistic 68.80117
Prob(F-statistic) 0.000000

Unweighted Statistics

R-squared 0.404681 Mean dependent var 1.638817
Sum squared resid 156.8623 Durbin-Watson stat 1.403179
REFERENCES


