European Online Journal of Natural and Social Sciences 2015; www.european-science.com
Vol.4, No.1 Special Issue on New Dimensions in Economics, Accounting and Management
ISSN 1805-3602

The Effects of Accruals on Financial Constraints in Tehran Stock Exchange

Vahid Bekharadi Nasab[1], Hossein Shafii[2*]
Department of Accounting, Sirjan Science and Research Branch, Islamic Azad University, Sirjan, Iran & Department of Accounting, Sirjan Branch, Islamic Azad University, Sirjan, Iran
*E-mail: hossein.shafii@gmail.com

Abstract

Despite a large literature on discretionary accruals, how accruals impact corporate financial decisions is not well-understood. It is hypothesized that a financially constrained firm with valuable projects can use discretionary accruals to credibly signal positive prospects, enabling it to raise capital to make the investments. In today's world, there are many companies that, in spite of encountering financial constraints, have valuable projects. Considering this issue, they can mark their positive activities' aspects to the market using arbitrary choices and therefore, increase their capital stock price in short-term. This research aims to study the effects of discretionary accruals on companies' financial constraints. So, 113 companies were studied during 2006 to 2012. This research includes six dependent variables that in each hypothesis, one of them are estimated and overall, the results are similar. We have examined a large panel of firms during 2006 to 2012 and found that financially constrained firms with good investment opportunities had significantly higher discretionary accruals prior to investment compared to their unconstrained counterparts. Constrained high-accrual firms have higher earnings-announcement returns than constrained low-accrual firms, obtain more equity and debt financing, and invest in projects that appear to improve performance. These results provide supporting evidence that the use of discretionary accruals can help constrained firms with valuable projects ease those constraints and increase firm value.

Keywords: Financial constraints; discretionary accruals; non-discretionary accruals; investment; signaling; valuation; external financing

Introduction

In today's world, many companies facing financial constraints have valuable projects. Considering this issue, they can signal their positive activities' aspects to the market and therefore, they can increase their capital stock price in short-terms, and increase the required capital to finance these projects. Although signaling process is expensive for companies, if the projects of companies have necessary value, marking to them can significantly increase the effective investment in the firm. At this regard, it is said that strategic use of the discretionary accruals options can improve size and quality of information for investors and therefore, it can maximize stock value of the company. Management has significant authorizations to select different methods of counting financial events in terms of accepted principles of accounting. For example, about amortization, there are different accepted methods that a manager can select one of them; also management can schedule the financial activities such as delaying a sale or doing discretionary expenditures. Because of this flexibility, a manager can systematically affect the reported earning, annually, and smooth it.

Considering the mentioned cases, the discretionary accruals, non-discretionary accruals, and the financial limitations are important variables in research, and the main question in this research is that how the liability items affect the financial limitations.

Literature and Hypothesis Development

Research Hypotheses

A hypothesis is a test which exactly reveals expected relationship between two or more variables. This research aims to study arbitrary and non-discretionary accruals' abilities in crises and financing constraints in firms. To test this ability, two following hypotheses are proposed:

Hypothesis 1: Discretionary accruals have effects on the financial constraints.

Hypothesis 2: Non- discretionary accruals have effects on the financial constraints.

The purpose of the current research is of applicable type. In addition, the method of this research is a descriptive-correlational one; because, on one hand, it studies current position and on the other hand, it determines relationships between different variables using regression analysis. In this research, Panel Data were used and Limer and Hausman tests were performed to determine data type.

Also, to test hypotheses, f-fisher and t-stunt tests were applied. Time period in this research was 7 years, from 2006 to 2012, and statistical society included all accepted companies in Tehran Stock Exchange. In addition, statistical sampling was used and the studied companies were selected by omitting method based on the following criteria:

1) Their financial year terminates to 29th February .

2) At least every 3 months their stock is exchanged.

3) Their activities are productive.

4) Information related to the selected variables in this study is available.

Finally, considering conditions and above limitations, among all companies accepted in Tehran Stock Exchange, 113 companies were selected during 1997to 2012. Also, to analyze data and estimate research models, ordinary squares regression model of panel data in common effects method, permanent effects or random effects are used. In this regard, to analyze data and calculate research variables, excel software 2010, and perform statistical tests, and for final analyses, views software, version 7, were applied.

Related literature

Earning management, which named overture management, has been an important issue in many accounting research during last three decades. The adventure management is a purposeful intervention in external financial reporting process to gain earnings. The fundamental hypothesis is that accounting figures are information which has effects on capital market value.

In fact, earning management meant that management can use adjudication in the financial reporting and transactions structures to modify and change the financial reporting to mislead users of the financial statements on firms' economic performances and affect transactional results dependent on accounting figures such as earning. According to Beidelaman, authorizations in accounting and inclusion revenues and expenses provide some opportunities to smooth problems. The size and schedule for revenues and discretionary expenses have an important role in smoothing earning. Discretionary accruals are controlled by management and it can delay, remove these accruals or accelerate recording and identifying them. Eliminating and/or decreasing costs and expenditure related to many expenses during bad and failed years and increasing them during good and successful years are appropriate procedures for many discretionary expenses. In addition, retardation, and/or acceleration for special types of revenues are common in firms. Considering the mentioned cases, the discretionary accruals, non- discretionary accruals, and the financial constraints are important variables in research, and the main question in this research is that how accruals affect the financial constraints.

Rangan (1998), Teoh et al. (1998) and Dechow, Ge, Larson and Sloan (2011) propose evidence that companies management enjoy the discretionary accounting options to increase their capitals.

Mahmud Abadi and Mansuri (2011), in a research, have studied the role of discretionary and non-discretionary accruals in anticipating cash flows in future, and they have concluded that there is no significant relationship between discretionary and non-discretionary and future cash flows, and discretionary and non-discretionary cannot predict cash flows in future.

Gafarpoor (2012) compared predicting models of accruals to identify studied earning management and findings of this research, and indicated that in the accepted companies in Tehran Stock Exchange, Jones's modified model (1995) is stronger for identifying earning management.

Campello and Graham (2013), in their study, obtained this result that high stock price can affect firm's financial procedures via eradicating the financial constraints. Especially, these researchers state that high stock price is observed when technology bubble allows companies having financial constraints issue, capital stock, and use resources and revenues obtained from it for investment. In such situation, high stock price facilitates companies' financial constraints and it leads to facilitate investment and increase wealth in the companies.

Namazi and Gholami (2013), in a research, studied the effect of the earning management based on the accruals on the accepted companies' investment revenue in Tehran Stock Exchange. In this regard, 63 companies accepted in Tehran Stock Exchange have been studied during 2006 to2009. To evaluate earning management based on accruals, discretionary accruals measure, which is calculated by Kasznik's modified model (1999), was used. Research results indicate that there is a significant relationship between earning management based on accruals and firms' deficient investment.

Shibata and Nishihara (2015) in their research named as investment timing debt structure and financing constraints, obtained these results that, firstly, a firm is constrained when it increases its debt issue more likely, issuing bond in market from the point of banks' debt financing. Secondly, investment relates to debt issue limitations. Thirdly, debt issue limitations distort the relationship between the values of shareholders' salaries in a firm and investment strategies. Finally, constraint in issuing debt leads to naive debtors and low earning and risk.

Methodology

Our sample represents the intersection of the Compustat and CRSP databases from 2006 to 2009. For the CRSP data, we include only ordinary common shares. We drop financial firms because their capital structure and investment policies are significantly different from other industries. We require a firm to have sufficient Compustat data to compute quarterly discretionary accruals and annual measures of financial constraints, as described below. We follow the literature to calculate quarterly discretionary accruals using the modified Jones model, adjusting for past performance as recommended by Kothari, Leone, and Wasley (2005, hereafter KLW)[1].

Specifically, for each industry-year (two-digit SIC industry), we estimate the following regression for all Compustat firms:[2]

[1] Dechow, Sloan, and Sweeney (1995) suggest that modified-Jones model provides the most powerful test for detecting earnings management as compared to other discretionary accruals' models. For robustness, we also examine abnormal accruals constructed using Jones model instead of the modified-Jones model. This does not alter our results: we find that financially constrained firms with good investment opportunities have significant higher abnormal accruals than their unconstrained counterparts.

[2] Following the literature, we require an industry-year to have at least ten firms.

$$TA_i = \sum_{j=1}^{4} ajQj + \lambda_1(\Delta Sales_i - \Delta AR_i) + \lambda_2 PPE_i + \varepsilon_i$$

Where TA_i is total quarterly accrual of firm i, defined as the change in non-cash current assets (change in ACTQ minus change in CHEQ) minus the change in current liabilities (LCTQ) plus the change in debt in current liabilities (DLCQ) minus depreciation (DPQ). Qj is a binary variable that equals one for quarter j and zero otherwise. $\Delta Sales_i$ is the quarterly change in net sales (SALEQ) for firm i ΔAR_i, is the quarterly change in accounts receivable (RECTQ), and PPE_i is property, plant, and equipment (PPENTQ). The regression residual, , captures discretionary accruals. All variables, including the binary variables, are scaled by total assets at the beginning of the quarter (lagged ATQ). We winsorize all scaled variables at the 1st and 99th percentiles to control for outliers, as suggested by KLW. Following KLW, we adjust discretionary accruals for past accounting performance. Specifically, in each quarter we divide firms within a two-digit SIC industry into ROA quartiles measured four quarters prior to the accrual quarter. We then calculate abnormal accruals for each firm-quarter as the firm's discretionary accrual minus the average discretionary accrual of other firms in the benchmark quartile. We use these performance-adjusted abnormal accruals in all our tests.

Following the literature (e.g., Kaplan and Zingalas 1997; Campello and Graham 2013), we construct quarterly investment as quarterly capital expenditures (CAPXY) scaled by property, plant and equipment (PPENTQ) at the beginning of the quarter[3].

Definition of constrained firms

There is no universally accepted measure of financially constrained firms. Previous studies have proposed a number of constraint measures, but there has been little empirical research examining the reliability of these measures. In a recent paper, Hadlock and Pierce (2010) identify financially constrained firms based on hand-collected information from financial statements, and thoroughly test the reliability of the constraint measures proposed by the literature. They find that leverage, cash flows, and particularly firm size and firm age are useful predictors of financial constraints. They propose a measure of constraints, the SA Index, based solely on firm size and firm age. We rely on the existing literature, including Hadlock and Pierce (2010), and use four measures to identify financially constrained firms. However, for robustness, we also examine several other proxies that have been suggested in the literature. We construct the constraint measures at the annual level, consistent with the literature from which we extract them.

1) Index SA: Our first financial constraint measure is SA Index (Hadlock and Pierce 2010). We follow Hadlock and Pierce and calculate SA Index as –0.737×Size + 0.043×Size2 –0.040×Age, where size is the natural log of book assets (in million rials). [4]Firms in the bottom (top) 30 percent of SA Index are considered unconstrained (constrained).

2) lever Index: Our second measure is Net leverage (Kaplan and Zingales 1997; Hadlock and Pierce 2010), which we calculate as net debt, sum of long-term and short-term debt minus excess cash, scaled by the sum of net debt and shareholder's equity. Firms with negative net debt (39

[3] Because the Compustat quarterly capital expenditures variable (CAPXY) is a year-to-date value, we convert it to a quarterly value for the second to the fourth quarters of a year by subtracting its lagged value. We also conduct robustness tests using a company's investing cash flows instead of capital expenditures to measure investments and support our finding that financially constrained firms with good investment opportunities have significant higher abnormal accruals than their unconstrained counterparts.

[4] Age of a firm is the number of years from the first year that a firm has a non-missing stock price in Compustat.

percent of sample firms) are considered unconstrained. We consider the top 50 percent firms (31 percent of sample firms) within the remaining firms with positive net debt as constrained.

net debt,/ (net debt, + shareholders' salaries)

3) Free cash flows index: Our third measure is Free cash flow (Dechow et al. 1996; Hadlock and Pierce 2010), where firms in the top (bottom) 30 percent of free cash flow are considered unconstrained (constrained), and free cash flow is cash from operations minus average capital expenditure in the past three years, scaled by the sum of long-term and short-term debt. Negative free cash flow suggests that the firm's internal cash flow is insufficient to support investment[5].

(Cash flows- floating capital)/ debt

above three firm metrics and three other metrics including bond rating (Almeida et al. 2004; Campello and Graham 2013), dividend payout ratio (Almeida et al. 2004; Campello and Graham 2013), and operating cash flows (Fazzari et al. 1988; Hadlock and Pierce 2010). Specifically, we first follow the literature and use each of the six metrics to classify firmsFor dividend payout ratio, firms into constrained and unconstrained groups. For bond ratings, firms with (without) a bondcredit rating during our sample period are considered unconstrained (constrained).

4) operational cash flow index: operational cash flows in this state, are equal the earning (profit) obtained prior unexected items plus amortization, which will be evaluated based on property value summation, machinery and equipment summations. For operational cash flows, companies having indices higher than 30% are companies without limitations and those having indices less than 30% are companies with limitations.

Operational cash flow for a company = the obtained profit before unexpected item + equipment + machinery and property amortization.

5) Profit payment Rate Index: For dividend payout ratio, firms in the top (bottom) 30 percent are considered unconstrained (constrained), where the dividend payout ratio is the summation of common and preferred dividends scaled by net income. For operating cash flows, firms in the top (bottom) 30 percent are considered unconstrained (constrained), where operating cash flow is income before extraordinary items plus depreciation, scaled by lagged property, plant and equipment.

profit payment rate = dividend/ net profit.

6) Limitation score index: For each firm-year, we examine the six criteria and assign one point if the firm is constrained by the criterion and zero otherwise. We then calculate the "constraint score" as the total number of points for the firm-year based on the six criteria. Firm-years with constraint scores equal to at least three are classified as constrained (31 percent of sample firms), while firmyears with constraint scores less than or equal to one are classified as unconstrained. The details of the constraint measures are described in the Appendix.

For robustness, we also examine, but do not tabulate, results using financial constraints based on the bond rating, dividend payout ratio, and operating cash flows separately, as well as several other firm metrics including quick ratio, current ratio, and interest coverage ratio. We also construct composite constraint scores using two alternative methods: 1) one that includes only the three main constraint metrics of SA Index, net leverage, and free cash flow; and 2) one that includes the current six constraint score components plus quick ratio, current ratio, and interest coverage ratio. 16.We confirm that financially constrained firms with good investment opportunities have significant

[5] For robustness, we also repeat the tests using raw leverage instead of net leverage, where raw leverage is constructed using total debt instead of net debt. These results again suggest that financially constrained firms with good investment opportunities have significant higher abnormal accruals than their unconstrained counterparts.

higher abnormal accruals than their unconstrained counterparts using all these alternative measures with current ratio being the only exception.

Results and Discussion

Statistics related to 113 companies during 2006-2012 were gathered and dependent and independent variables were calculated and balanced and dependent variable using six measures, which in each hypothesis, one of them was estimated, was measured, and overall, the results were similar.

Studying the effects of discretionary and non- discretionary accruals on financing constraints, in this research, six financial constraints variables are applied. Considering that the financial constraint is a dependent variable, it is estimated in six models and its effect on liability items are studied. The result indicated that in all following models, dependent variable is financial constraint, and independent variables are discretionary and non- discretionary accruals.

Table 1. Results of discretionary and non- discretionary accruals

Independent variables	Coefficients	Standard deviation	T statistic	Significance level
C	-25605	4868.1	-5.26	0
discretionary accruals	-0.113	0.0044	-25.45	0
Non-discretionary accruals	-0.004	0.0137	-0.299	0.7652
R2:0.2790				
R2 modified:0.2787				
F statistic:899.56		Statistic Durbin-Watson:1.94		
Sig :0.000				

The first research hypothesis

*H*0:Discretionary accruals of the companies have a significant effect on financial constraints among the companies listed in Tehran Stock Exchange .According to Table (1), the amount of p value is less than a significant level of 0.05. Therefore, H0 is not rejected. These results also indicate that the discretionary accruals to financial constraints companies listed has a significant impact on Tehran Stock Exchange. Discretionary accruals variable rate equals to 0.1127 which indicates the relationship between accruals and financial constraints. .

Second hypothesis test results

*H*0:Non-discretionary accruals has a significant effect on financial constraints among the companies listed on the Tehran Stock Exchange .As the results in Table (1) show, the amount of p-value is higher than the level of significance. Therefore, we can conclude that H0 is rejected and non-discretionary accruals has not a significant effect on financial constraints among the companies listed on the Tehran Stock Exchange

Results

Today, accounting information plays an important role in decision-making and economy of countries. Many economic decisions are made based on information obtained from accounting. Therefore, accounting should provide related and reliable information for users of financial reports, to enable them in using this information in their decision-making models. Managers' authorization in using implementation and conformity principles and also, estimation and prediction are factors which influence accounting information quality, on one hand. It is expected that information are prepared so that it reflects corporate position on the other hand. It is possible that for some reasons such as preserving firm, receiving reward, intentionally or unintentionally, manager represents that

company is in a good position. Therefore, the quality of financing information of companies qualities are affected by reporting printing and managers' discretions.

Reference

Almeida, H. M. Campello, & M. Weisbach. (2004). The Cash Flow Sensitivity of Cash. Journal of Finance 59 (4): 1777–1804.

Baltagi, B.H. (2005). Econometric Analysis of Panael Data. Third edition . Great Britan. John Wily& Sons Ltd.

Beidleman,C.R.(1973). Income Smoothing: The Role of Management". The Accounting Review, vol. 48, No. 4, pp. 653-667.

Bozorg Asl, Moisa & Ghafarpour, Farshid (2013). Comparison of Prediction Model of Accruals to Identify Earning Management. Journal of Applicable Research in Financial Reporting, 1.

Campello, M. & J. Graham (2013). Do Stock Prices Influence Corporate Decisions? Evidence from the Technology Bubble. Journal of Financial Economics, 107 (1): 89-110.

Dechow, P. W. Ge, C. Larson, & R. Sloan. (1996). Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC.Contemporary Accounting Research, 13 (1): 1-36.

Dechow, P. W. Ge, C. Larson, & R. Sloan. (2011). Predicting Material Accounting Misstatement. Contemporary Accounting Research, 28 (1): 17–82.

Fazzari, S. G. Hubbard, B. Petersen, A. Blinder, & J. Poterba. (1988). Financing Constraints and Corporate Investment.. Brookings Papers on Economic Activity, 1: 141–206.

Hadlock, C. & J. Pierce. (2010). New Evidence on Measuring Financial Constraints: Moving beyond the KZ Index. Review of Financial Studies, 23 (5): 1909–1940.

Hausman J (1978). Specification Test in Econometrics, Econometrica, 46(6), 1251-1271.

James S. L., Jeffry, N., & Shu, T. (2010). Can Managers Use Discretionary Accruals to Ease Financial Constraints? Evidence from Discretionary Accruals Prior to Investment?, Cox School of Business, Southern Methodist University.

Jones, J. (1991). Earnings Management during Import Relief Investigations, Journal of Accounting Research, 29, 193-228.

Kaplan, S. & L. Zingales. (19970. Do Financing Constraints Explain Why Investment Is Correlated with Cash Flow?, The Quarterly Journal of Economics, 112 (1): 169–215.

Khajavi, Sh. & Nazemi, A. (2005). Study of the relationship between carning quality and share revenue on role of accruals in Tehran's the stock Exchange, Accounting & Audit Studies, 40.

Koch S. B. (1981). Income smoothing: An experiment, The Accounting Review, July.

Kothari, S., A. Leone, & C. Wasley. (2005). Performance matched discretionary accrual measures. Journal of Accounting and Economics, 39 (1): 163–197.

Mahmoud Abadi, H. & Mansouri, Sh. (2001). Role of discretionary and non-discretionary accruals in predicting future cash flows, Scientific Journal of Financial Accounting.

Momeni, A., Momeni, M., & Momeni, A. (2000). Statistics and its application in Management, second volume, fourth print, Tehran: SAMT publication.

Namazi, M. & Gholami, R. (2014). Effect of earning management from accruals on investment revenue for accepted firms in Tehran's the stock Exchange. Journal of Accounting Knowledge, 5(170.

Rangan, S. (19980. Earnings management and the performance of seasoned equity offerings". Journal of Financial Economics, 50 (1): 101–122.

Shibata, T., & Nishihara, M. (2015). Investment timing, debt structure, and financing constraints, European Journal of Operational Research. 241:20, 513–526 .