Earning quality, Venture capital and Firm value

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Abstract

In order to study the impact of earning quality and venture capital on firm value for small and medium-sized enterprises, the paper selects data of small and medium-sized enterprises from 2009 to 2012 in the Shenzhen stock exchange, which finds a positive correlation between earning quality and venture capital. For promotion of firm value and own reputation, the intervention of private equity investment strengthens positive correlation between accounting earning quality and venture capital. The research indicates that the less earnings management behavior exists, the higher earning quality and firm value is. In addition, the intervention of venture capital effectively inhibits earnings management behavior and improves firm value, strengthening positive correlation between earning quality and firm value. The conclusion enriches related literature and also has an important theoretical significance and reference value for controlling earnings management behavior, elevating earnings quality, optimizing the intervention of venture capital and perfecting the related systems.

Keywords: earning quality, Venture capital, firm value

1 Introduction

The relationship between accounting information quality and firm value is always a key research issue among the scholars in the economic field. For this, most researchers both at home and abroad discuss corporation governance, internal control and fund operation, studying mutual influence and effect on the promotion of firm value, but few study the impact of factors affecting the quality of accounting information such as earnings management behavior and earning quality on firm value. Therefore, based on previous academic research, this paper weighs the influence of earning quality on firm value, and introduces venture capital as explanatory variables as well, to analyze their internal relation and common effect on firm value, pushing for the inherent influence and mechanism.

From the “Yuanye” event in Shenzhen in 1990, due to the intervention of earnings management behavior and discretionary accruals, accounting information distortion emerges in an endless stream. Collecting the relevant circumstances about the accounting information quality rating in Shenzhen Stock Exchange, the author finds that although most companies can ensure the quality of accounting information up to the criteria, based on the enterprise "economic man" hypothesis, there is no lack of listed companies filling loopholes in order to pursue their own short-term interests so that accounting information quality can not achieve the criteria. As well, the earnings management and discretionary accruals can damage the authenticity of accounting information, furthermore may influence firm value and stock price. So there is important theoretical meaning and realistic value studying the impact law of earnings management behavior and discretionary accruals on firm value and putting forward feasible countermeasures to elevate earnings quality and firm value.

Since 1960s, a lot of venture capital regarded as a stream of fresh blood in the capital market has appeared in the United States, which greatly improves the corporate governance and elevate firm value. With continuous improvement of the capital market and legal environment in China, especially successful establishment of small and medium-sized (2004) and growth enterprise (2009), VC regarded as an integral investment and financing system has started to rapidly develop, even already the third major financing method behind bank credit and IPO. Venture capital whose main investment strategy is long-term rights capital can effectively alleviate the financing difficulties, supports and encourages management thought which for a long time management are absorbed in and create, furthermore, improves management efficiency, rapidly enhances competitiveness, elevates earning quality and firm value [1]. Magginson and Weiss (1991) put forward “Authentication Effect” Hypothesis, who thought venture capital as financial intermediary intervenes the investment projects which can reduce information asymmetry, elevate earning quality, reduce agency cost and promote enterprises value. Amit (1990) and Gompers (1996) put forward “Adverse Selection” and “Grandstanding”, who thought VC can expand earnings management behavior and lead to quality of accounting earnings of PE-owned enterprises and enterprise performance become continuously horrible. From the above analysis, academics have no unified conclusion about the impact of venture capital on quality of accounting earnings and firm value, which requires further empirical test. Therefore, it is necessary to regard venture capital as an explanatory factor based on system background in China, exploring its influences on earning quality and firm value and its mechanism.

The contribution of this paper is: first of all, it researches on the relationship between earning quality and firm value based on discretionary accruals as a surrogate variable, which finds that discretionary accruals is in inverse proportion to the firm value and verifies the positive correlation between earning quality and firm value.
Previous literature researched the relationship between earning quality and firm value from the perspective of corporate governance and internal control a lot, but from the dimension of earnings quality, the paper inspects the impact of accounting information quality on firm value, which can enrich literature about accounting information and firm value. Secondly, at the same time studying earning quality and firm value. The paper uses venture capital as an intermediate variable, which further finds that its firm value performs better with venture capital and improves firm value efficiently. Thirdly, this paper uses the cross-term of venture capital and discretionary accruals in order to research their internal relations and its influence on firm value, indicating that VC can reduce discretionary accruals and decrease negative correlation between discretionary accruals and firm value. Therefore, on the one hand, corporate can perfect accounting practices, constraint earnings management behavior to improve earning quality and further firm value. At the same time, enterprises should consider to introduct VC moderately, which can constraint earnings management behavior, decrease corporate discretionary accruals, elevate earning quality and strengthen the relationship of earning quality and firm value.

Other parts of this paper are arranged as following: The second part is literature review, theoretical analysis and research hypothesis. The third part is research design. The fourth part is empirical results and analysis. Finally summarizes the research conclusion.

2 Literature review, theoretical analysis and research hypothesis

Investor’s master the whole operate status and make appropriate decisions mainly through analysis of accounting information revealed to the outside. The theory of principal-agent and information asymmetry in the different degree reflect that management have rich internal information resources, who prefer to seek their own best interest to allocate corporate resources. In order to pursue their own economic interest, they may lead financial frauds to control earnings profit. Therefore, management probably make some financial frauds to get private economic profits, increase discretionary accruals and decrease corporate earnings quality.

The theory of Western Empirical Accounting thought that the higher enterprise accounting earnings quality is, the bigger reaction coefficient for investors to accounting earnings is under the Efficient Market Hypothesis (EMH). It is to say that the higher earnings is, the more specification of accounting information has, the more wise investors’ decisions are and better promote the enterprises’ development. At the same time, Biddle, Hilary and Verdi (2009) under the theory of information asymmetry conducted empirical study about the relationship between firm earnings quality and investment efficiency, which found that high quality of earnings information is good for reducing information cost, easing the problem of underinvestment and over-investment, elevating firm investment efficiency and firm value [3]. For this research in China, we often combine corporate governance with internal control. Liu Liguo and Du Ying (2003) used some financial frauds of the listed companies punished by Securities Supervision Committee as sample, which found the legal person share, the proportion of executive directors, insider control and supervisors’ size have a positive correlation to financial fraud. In order to solve the problem of listed companies’ discretionary accruals, we must perfect corporation governance at first, thus the firm value increases [4]. Through the data of A-Shares in Shanghai Stock, Huang Huiping and Song Xiaojing (2012) did empirical study and found that the company voluntarily discloses internal control and internal control audit reports, whose earnings quality, firm value and operating performance usually higher than that of undisclosed company and on 0.01 level is obvious. Only by enhancing internal control, can we elevate firm earnings quality and help investors correctly judge the value of listed companies [5]. Therefore, we think that the higher earnings quality is, the better investors can objectively grasp the whole of enterprise operating conditions, release earnings management behavior, and perform scientific and effective decision-making to improve firm value. Based on the above analysis, the paper put forward hypothesis 1.

Hypothesis 1: The higher earnings quality is, the better firm value is.

About the influence of venture capital on the invested enterprises, different scholars have different ideas. Most scholars think that venture capital can provide massive external financing for the invested enterprises, relieve shortage of operation capital. At the same time, the participation of the VC fund managers with long-term and actual combat experience, and higher professional quality than other managements, can avoid the original shareholders’ subjective influence. As for reputation effect of the fund managers, he cherishes his status more in the fund market compared than profit. So these fund managers can’t do some behaviors to damage enterprises’ long-term development. Wang Lei (2010) found that the requirement of information disclosure for VC is low, regulatory relatively is loose for information disclosure, so VC fund managers’ operation is usually flexible [6]. These fund managers can get rid of bound and help Small and Medium-sized Enterprises speed up on the market. Luo Yuan (2012) thought that VC own rich experience in investment and large social networks, but the company with VC may conduct some earnings management through the discretionary accruals [7]. Therefore, we should further validate whether VC really plays a positive role.

Based on social network theory, VC institutions can provide a series of important wealth such as new technology, management knowledge and fund managers with rich experience for Small and Medium-sized Enterprises through their large social networks. For example, Gupta S and Mela C F (2008) advanced that today oral spread and demonstration consumption is becoming more and more important, even if it can’t create direct value for companies, and also possibly create great contribution to company through social network effect [8]. Other scholars through the empirical analysis found that every enterprises is in the social network, whose social relationship can improve the ability to obtain resources. The social network relationship of VC can enhance Small and Medium-sized Enterprises’ utility of earning quality, which help these enterprises maximize the enterprise value through reputation and signal.
transduction. Therefore, we propose a hypothesis 2.

Hypothesis 2a: Venture capital will strengthen positive relationship between earning quality and firm value.

Some scholars proposed that capital market in our country is not perfect at present, compared with funds raised in public, moreover VC’s requirement about accounting information disclosure is not high, and fund managers have more power to dominate enterprise resources as well. But now for our capital market is not optimistic, there is a big gap with the developed countries, and VC is not surely good for economic interest. Yang Yu (2013) advanced that our VC supervising subject is Development and Reform Commission, Banking Regulatory Commission, Department of Commerce, the State Industrial & Commercial Bureau and other ministries and local government, and bull supervision is not conducive to effective control of VC and play its positive effect [9]. Again for hypothesis 2 as a result, this article puts forward a competing hypothesis.

Hypothesis 2b: Venture capital will weaken the positive relationship between earning quality and firm value.

3 Research and design

3.1 VARIABLE DEFINITION

3.1.1 Dependent variable: firm value

We adopt two indicators to measure the firm value: Tobin Q (Tobin Q): It equals the market value of the enterprise capital divided by assets replacement cost, which not only evaluates financial situation, but also reflects the management circumstance of listed companies. Among others, Tobin Q is a relatively objective and most commonly used indicators, so the paper chooses it as one of the important indicators of firm value. According to standardized calculation formula, we collect some relevant data such as market value, total assets value at the final time and so on from Wind and Guotaian database after eliminating abnormal data, which reflects the selected company’s firm value objectively.

3.1.2 Explanatory Variables

1) Earning quality (EQ).

Earning quality (EQ) is an important reflection of accounting information quality, whose degree is directly influenced by management earnings management behavior by management. Earning quality is a common phenomenon in the capital market, whose purpose is the intervention of external financial reports for personal interest (Schipper, 1989) [10]. The management uses experience judgment to change the financial reports in the process of compilation and disclosure, so these twist correct judgement of business performance for external information users. This article uses discretionary accruals that is most commonly-used in the research of western earning management for reference to measure earnings management behavior and earning quality. The lower discretionary accruals is, the higher earning quality is. There are many different ways to calculate discretionary accruals at present. Compared with different methods to adapt to the situation of China, this paper chooses the modified Jones model to calculate it in order to objectively reflect discretionary accruals. The specific practices are as follows:

The first step: \( TAC_{jt} = E_{jt} + CFO_{jt} \)

The second step:

\[
\frac{TAC_{jt}}{TA_{jt-1}} = \beta_0 + \beta_1 \left( \frac{1}{TA_{jt-1}} \right) + \beta_2 \left( \frac{\Delta SALES_{jt}}{TA_{jt-1}} \right) + \beta_3 \left( \frac{PPE_{jt-1}}{TA_{jt-1}} \right) + \xi_{jt} \]

The third step:

\[
NDTAC_{jt} = \beta_0 + \beta_1 \left( \frac{1}{TA_{jt-1}} \right) + \beta_2 \left( \frac{\Delta SALES_{jt}}{TA_{jt-1}} \right) - \Delta AR_{jt} + \beta_3 \left( \frac{PPE_{jt-1}}{TA_{jt-1}} \right) \]

The last step:

\[
DTAC_{jt} = \frac{TAC_{jt}}{TA_{jt-1}} - NDTAC_{jt} \]

2) VC’s share proportion (VCshare).

According to the theory of corporate governance, the size of shareholders’ shares determines their influence on enterprises in some extent. The share of VC stake also directly impacts on the degree of control the company and earnings management [11]. Therefore, through reading prospectuses of Small and Medium-sized Enterprises from 2009 to 2012 and related data from Guotaian database, whether the same VC multiple inputs or many VC investment together, we both regard the sum of all VC investment proportion as the proportion of VC stake, expressed by VCshare.

3) The cross-term of EQ\times VCshare.

In view of the impact of the VC stake on the degree of earnings management, we make the cross-term of EQ\times VCshare that combines VCshare with discretionary accruals as an explanatory variable, used to research not only the intrinsic relationships between VC stake and discretionary accruals, but also the joint influence degree to firm value.

3.1.3 Control variable

It includes: 1) Total assets scale (Lnasset): It mainly refers to total assets at the end of year, reflecting the size of the company, and in order to eliminate the influence of variable size, we change each data into logarithmic. 2) Asset-liability Ratio (Leverage): It equals total liabilities divided by total assets at the end of the year to reflect the company’s solvency. 3) We introduces the virtual industry variable (IND) and the annual virtual variable (YR) at the same time to conduct the industry and year control.

3.2 RESEARCH MODEL

In this paper, we establish these multiple regression model as follows according to the research hypothesis:

Hypothesis 1 model:

Tobin Q = \( \beta_0 + \beta_1 EQ + \beta_2 Lnasset + \beta_3 Leverage + \beta_4 IND + \beta_5 YR + \varepsilon_i \)

Hypothesis 2 model:
Tobin Q = β0 + β1EQ + β2PEshare + β3EQ×VCshare + β4Lnasset + β5Leverage + IND + YR + εi

### TABLE 1 Descriptive Statistics of Major Financial Variables

<table>
<thead>
<tr>
<th>variable</th>
<th>Tobin Q</th>
<th>EQ</th>
<th>VCshare</th>
<th>EQ×VCshare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.8551</td>
<td>.1019</td>
<td>.0120</td>
<td>.0012</td>
</tr>
<tr>
<td>Std.Deviation</td>
<td>1.20650</td>
<td>.18562</td>
<td>.03561</td>
<td>.00599</td>
</tr>
<tr>
<td>Minimum</td>
<td>.28</td>
<td>-1.53</td>
<td>.00</td>
<td>-.03</td>
</tr>
<tr>
<td>Maximum</td>
<td>10.85</td>
<td>4.34</td>
<td>.40</td>
<td>.10</td>
</tr>
</tbody>
</table>

### Panel B VC in samples(313)

<table>
<thead>
<tr>
<th>variable</th>
<th>Tobin Q</th>
<th>EQ</th>
<th>VCshare</th>
<th>EQ×VCshare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.4272</td>
<td>.0966</td>
<td>.0698</td>
<td>.0070</td>
</tr>
<tr>
<td>Std.Deviation</td>
<td>.84686</td>
<td>.14481</td>
<td>.05763</td>
<td>.01295</td>
</tr>
<tr>
<td>Minimum</td>
<td>.37</td>
<td>-.33</td>
<td>.00</td>
<td>-.03</td>
</tr>
<tr>
<td>Maximum</td>
<td>9.09</td>
<td>.97</td>
<td>.40</td>
<td>.10</td>
</tr>
</tbody>
</table>

### Panel C No VC in samples(1500)

<table>
<thead>
<tr>
<th>variable</th>
<th>Tobin Q</th>
<th>EQ</th>
<th>VCshare</th>
<th>EQ×VCshare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.9443</td>
<td>.1030</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Std.Deviation</td>
<td>1.25065</td>
<td>.19307</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Minimum</td>
<td>.28</td>
<td>-.153</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maximum</td>
<td>10.85</td>
<td>4.34</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The average of T inspection:

Panel B-C: -0.76 -0.31 -0.23 -0.052

### 3.3 Samples and the sources of the data

This paper selects Small and Medium-sized Enterprises of Shenzhen stock Exchange from 2009-2012 as sample, deleting some data from the financial and the companies with incomplete data. We use database searching, network data searching, manually reading prospectus to collect and sort out the data through the Wind, Guotaian, Shenzhen stock Exchange, RESSET with SAS and SPSS19.0 to carry on data statistics and regression analysis.

### 3.4 DESCRIPTIVE STATISTICS OF SAMPLE DATA

Descriptive statistics reflect Tobin Q average of the companies without VC is 1.9443, with VC Tobin Q average 2.4272. Discretionary accruals statistics shows that the average without VC is 0.1030, and with VC is 0.0966, showing that the degree of earnings management of the companies with VC is lower than without VC.

### 4 The empirical test and analysis

Table 2 is the multivariate regression results of Tobin Q selecting from the companies with or without VC. All VIF are not more than 2 showing that the multicollinearity between the two regressions doesn’t exist. (1) and (3) regression results show that the earning quality without VC has a positive correlation to venture capital. It illustrates that the higher the earning quality is, the better decision-making for outside investors and internal management is, further enhancing the firm value. At the same time, at the 1% level significantly negative correlation also verifies that the existence of the earnings management behavior for executives will lead to the discretionary accruals to be conducive to improve firm value. The regression results of (2) and (4) confirm hypothesis 1 again.

Further analysis of the influence of VC on earnings quality and firm value finds that the proportion of VC stock ownership and firm value has a significantly positive correlation at the 10% level. These show that with VC can provide management, fund and social network resources to improve firm value. The cross-term of EQ×VCshare and firm value has a significantly positive correlation at the 1% level and the degree of discretionary accruals is lower than without VC, showing that the involvement of venture capital controls discretionary accrual at a certain extent. Therefore, this verifies hypothesis 2a the paper puts forward, but the hypothesis 2b cannot be established. Assets (Lnasset) is significantly and negatively related to the firm value at the 1% level, showing that Small and Medium-sized listed companies should further enhance the efficiency of capital use, and VC’s participation will probably lift capital utilization. But this article does not find that the asset-liability ratio has a significant correlation with firm value.

### 5 Robustness test

In order to increase the reliability of the research conclusion, we carry on the following robustness test for the above research results:

1) For these continuous variables, we winsorize by 1% and 99% and conduct the regression for the above models, finding that results have no substantial difference.

2) For measurement of explanatory variable VCshare, with all the regression PE of this paper shorter than 4 years, we choose the data shorter than 2 years to regress again, finding that results have no substantial difference.

3) The earning quality may be related to the firm value and growth potential, and it also affect the VC’s decisions on whether to invest this company, an endogenous problem. For this endogenous problem, the scholars usually use the two-stage model Heckman put forward and tendency score matching method of Rosenbaum to solve. Because a major of literature use tendency score matching method at present, structural control groups used to solve problems above.

First of all, we mainly consider the influence of pre-ipo financial and characteristics on the choice of venture capital,
building the model as follows:

\[ \text{VC} = \beta_0 + \beta_1 BV + \beta_2 \text{Profit} + \beta_3 \text{Ratio} + \beta_4 \text{Cycle} + \beta_5 \text{Rat} + \beta_6 \text{EQ} + \beta_7 \text{Vio} + \beta_8 \text{Sales} + \beta_9 \text{Local} + YR + \text{IND} + e \]

3) Among them, VC says whether the companies have VC or not, a virtual variable. With VC, its value is 1, otherwise is 0. BV equals equity book value divided by total assets. Profit equals operating profit divided by operating assets. Ratio is quick ratio, expressed by quick asset divided by current liabilities. Cycle is assets turnover cycle, equaling to receivable turnover plus inventory turnover, then taking logarithm. Sales takes major business income as natural logarithms. Local is a virtual variable, and when the company registration site is located in Beijing, Shanghai, Tianjin, Chongqing, Guangzhou, Jiangsu and Zhejiang, take 1, otherwise 0. The definition of ther variables is the same as hypothesis 2. The above variables, in addition to the virtual variable like VC, the remaining variables take the average of listed companies 3 years before pre-IPO.

And we estimate propensity score of each company with VC, then we choose the companies whose data of propensity score are close to some enterprises with VC among them as sample. At last, we receives 302 observations, then carry on regression to model 2 again and find that the results are almost the same. When the firm value is measured by Tobin Q value, VC coefficient is positive at the 10% significantly level. Compared with the previous, this result is relatively lower, whose reason may be why the size of sample decreases, so it does not change the main conclusions of this paper. VC coefficient is significantly positive, which indicates that venture capital improves the invested enterprises’ firm value at a certain extent.

6 Research conclusion and enlightenment

This paper chooses the related data disclosed from Small and Medium-sized Enterprises from 2009 to 2012 to study the relationship between the earnings quality, venture capital and firm value. The empirical results show that earning quality has a positive correlation to firm value. These find that it is necessary for companies to attach great importance to earning quality, disclose truly key events, and reduce the profit manipulation and earning management behavior. At the same time, the conclusion further validates that VC involvement in a certain extent will control the occurrence of earnings management behavior, reduce profit manipulation and elevate the earning quality, then improve the positive correlation between the earning quality and firm value. Therefore, we are in control of earnings management behavior, and improve earning quality as well. In the meanwhile, it is necessary to face up to the ways VC influences invested enterprises. On the basis of the advanced experience of western cities, we should explore a VC mode that suits the VC development in our country.

The conclusion the paper comes to gives us enlightenment as follows: (1) Enterprises should improve the earnings quality. Enterprise itself should pay more attention to earnings quality, reduce earnings management behavior, control discretionary accruals, and ensure the quality and transparency of accounting information quality. At the same time, the companies should strengthen internal executives with modest stock incentive policies, which can reduce internal management control behavior and improve the earnings quality. In addition, companies may consider appropriate introduction of VC institutions, VC participating in the management, further improve equity structure and corporate governance of the small and medium-sized enterprise, which can effectively improve firm value.

(2) VC should learn foreign experience, accounting information quality of the invested enterprises needs to be paid more attention to. VC institutions in developed countries led by the United States have reserved a large number of relevant hands-on experience, but in view of the fact that VC in China started late and the capital market development and VC protection mechanism is not sound, whose uniqueness to ensure investment income when choosing requires our VC institutions be objectively and rationally analyse the total financial situations and market prospect, not blindly use the experience of the western existing data for reference.

(3) The government should further standardize accounting information submission and actively guide VC to participate in management. VC has become an indispensable investment and financing way. In order to better support the development of small and medium-sized enterprises in our country, market and the government as "stealth" and "visible" hand should tightly grip. It is not enough to just rely on fund manager’s self-discipline behavior for management, therefore the government should macro-management, perfect relevant legal policies, standardize VC operation mechanism. At the same time, government regulators should also improve the capital market, establish and perfect information disclosure system, intensify illegal punishment to build a good external environment for small and medium-sized enterprises in our country.

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