

Connected Transactions, Targeted Additional Shares Issuance and Operational Management Efficiency—Evidence from Listed Firms in Coastal Region of China

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ABSTRACT

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Using the sample data of listed firms in coastal region of China in 2010-2017, correlation analysis, paired test and the multiple regression analysis method, this paper studies the impact of connected transactions on asset injection of targeted additional shares issuance, and changes of connected transactions on changes of business management efficiency. The results show that: (1) Companies with more connected transactions are inclined to carry out asset injection by targeted additional shares issuance of new shares. (2) Connected transactions significantly decrease after the private placement. (3) Reduce of connected transactions can improve management efficiency after the targeted additional shares issuance.

ADDITIONAL INDEX WORDS: *Connected transaction, targeted additional shares issuance, management efficiency.*

INTRODUCTION

Connected transactions have always been the focus of attention of regulatory authorities. In China, there are stricter requirements for supervision and disclosure of related transactions in Accounting Standards for Enterprises, Management Measures for Information Disclosure of Listed Companies and relevant business rules promulgated by stock exchanges. However, supervision and disclosure mainly focus on the business level of related transactions of listed companies. It is difficult to curb the negative impact of related transactions fundamentally and solve it from the capital level. The connected transactions of listed companies have been paid more and more attention by the regulatory authorities. Since 2005, with the start and completion of the reform of non-tradable shares in China's capital market and the issuance and implementation of "Detailed Rules for the Implementation of Private Issuance of Stocks by Listed Companies" by the Securities Regulatory Commission in 2007, targeted additional shares issuance of listed companies has become the main form of refinancing in China's capital market (Zhang, 2008). As targeted additional shares issuance can introduce new strategic shareholders, inject new high-quality assets, reduce related transactions and competition with large shareholders, and improve the quality of listed companies, regulators and listed companies have a special preference for targeted additional shares issuance, while academia mainly studies the negative impact of targeted additional shares issuance of listed companies. The existing

research on targeted additional shares issuance mainly focuses on the following aspects: First is the pricing of targeted additional shares issuance. The results show that the major shareholders often use the discount of targeted additional shares issuance to realize profit transmission (Zhu, 2008; Zhang and Guo, 2009); and the second is about the market reaction and performance impact of targeted additional shares issuance. Due to the over optimism of investors (Marcukaityte *et al.*, 2005) and the reversal of earnings management (Chen *et al.*, 2010), the stock price of targeted additional shares issuance of listed companies will have a positive effect in the short term, while the long-term returns and long-term operating performance will show a downward trend; the third is about targeted additional shares issuance and earnings management. Different with previous studies, this paper focuses on the study of operating efficiency of China's listed firms in coastal region after private placement. China has very rich resources in the field of ocean with 18000 km of coastline, within its own territory with more than seven thousand bigger than five hundred square meters of the island (Li *et al.*, 2018). Coastal region have the advantages of seaside location and convenient economic links with foreign countries. They have become the most economically developed areas. With economic development and social evolution, the border and coastal economy has become an important driving force in international economic and trade exchanges (Chang, 2018). China's ocean economy performs well on the economic front (Ding *et al.*, 2018).

The author chooses the type of asset injection in targeted additional share issuance. Previous studies mostly show that the major shareholders of listed companies usually tunnels the listed companies through asset injection. This paper investigates the relationship between the changes of connected

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transactions before and after asset injection and the efficiency of enterprise operation and management, and then evaluates the effect of targeted additional share issuance of assets in listed companies.

LITERATURE REVIEW AND HYPOTHESES

1. Motivation of asset injection of targeted additional shares issuance: reducing related transactions, reducing information disclosure and supervision costs

The motives of targeted additional share issuance abroad are mainly explained as follows: 1) corporate governance hypothesis. The hypothesis holds that listed companies can introduce active investors with monitoring motivation and ability through targeted additional share issuance, thus improving corporate governance structure and reducing agency costs (Wruck, 1989); 2) information asymmetry hypothesis. The hypothesis holds that because of the "lemon effect" under the information asymmetry, the stock price is often underestimated in public offering, and the investors of private offering have the ability to know the true company value. Therefore, companies with good investment opportunities but undervalued will often choose the private offering method to issue new shares (Hertzel and Smith, 1993); 3) the negative investor choice hypothesis. The hypothesis holds that listed companies will choose to issue stocks to negative investors for the purpose of safeguarding the control rights of major shareholders and the interests of managers, so as to realize the goal of "capturing money" without affecting their own interests (Barclay *et al.*, 2007).

As there are fewer listed companies that issue new shares publicly, targeted additional shares issuance has become the main way of refinancing for listed companies in China's capital market (Zhang, 2010). As one of the important ways of targeted additional shares issuance, asset injection aims at reducing connected transactions, enhancing the independence of listed companies and improving the quality of assets. Because asset injection involves the quality and price of injected assets, it provides opportunity elements for the opportunistic behavior of large shareholders (Albrecht, 1995). According to Albrecht, the main factors leading to the fraud of enterprise managers are opportunity, pressure and excuse, none of which is indispensable. The split share structure reform links the interests of large shareholders with those of small and medium shareholders and "tunnels" through targeted additional shares issuance. Listed companies are no longer the main channel for large shareholders to make profits. It is obviously one-sided and limited to explain the motivation of directional additional asset injection by opportunistic behavior. With the strengthening of supervision on connected transactions, the connected transactions between listed companies and parent companies have generated additional information disclosure costs and supervision costs, which have brought a series of negative impacts on the production and operation of large shareholders and listed companies. Large shareholders have the motivation to further optimize the internal market structure between them and listed companies by means of asset injection, so as to built-in connected transactions to reduce transaction costs.

The authors believe that asset injection plays a major positive role. This paper comes to the following hypothesis:

Hypothesis 1a: The more connected transactions of listed companies, the greater possibility of choosing asset injection in the process of targeted additional shares issuance.

Hypothesis 1b: After the asset injection in targeted additional shares issuance, the connected transactions of listed companies will be significantly reduced.

2. The benefit of assets injection by targeted additional shares issuance: improving the efficiency of enterprise operation and management. Scholars at home and abroad often study the short-term market performance and long-term performance of the capital market in terms of the evaluation of the effect of targeted additional shares issuance, including the injection of directional additional assets. Wruck *et al.* (2009) found that the short-term announcement effect of targeted additional shares issuance is positive when the subscribers of targeted additional shares issuance play the role of company supervision and governance; Hertzel *et al.* (2002) found that targeted additional shares issuance is different from public issuance. In view of the phenomenon of "short positive and long negative" returns on targeted additional shares, scholars have put forward the over-optimistic hypothesis of investors (Marcinkaityte *et al.*, 2005), the opportunity window hypothesis (Hertzel *et al.*, 2002), and the reversal hypothesis of earnings management (Chen *et al.*, 2009). Domestic scholars have conducted useful research on the short-term and long-term response of directional additional asset injection into the capital market (Zhang, 2007; Geng, 2011). Under the efficient market hypothesis, the capital market can give a reasonable response to the injection of additional assets, and then adjust the stock price. However, on the one hand, the capital market's response to transactions or events is a comprehensive response, which includes the positive response to directional additional asset injection to improve the quality of corporate assets and reduce transaction costs, and also the response to the "tunneling" behavior of major shareholders in directional additional asset injection, which can not reasonably reflect the increment of injected assets and the original stock assets of listed companies. On the other hand, under the influence of information asymmetry and investors' effective rationality, the capital market may show "insufficient response" or "over-reaction" to the injection of directional additional assets in an incomplete efficient market. Since it is asset injection into listed companies, it is more pertinent to measure the effect of asset injection from the perspective of asset operation efficiency.

Major shareholders inject assets into listed companies and optimize the internal market structure of listed companies. Before asset injection, the more connected transactions between listed companies and related parties, the closer the relationship between listed companies' assets and injected assets. Through asset injection, the uncertainty of transactions can be reduced, transaction costs can be reduced, production and operation planning and control ability can be improved, and then the efficiency of enterprise operation and management can be improved. Wruck (1989) and Li (2009) also proposed that for the long-term development of the company,

asset injection can enhance the company’s operational efficiency.

According to above analysis, this paper derives the following assumptions:

Hypothesis2: Before and after the asset injection, the reduction ratio of connected transactions for listed companies is proportional to the improvement of the efficiency of enterprise operation and management.

RESEARCH DESIGN

Sample Selection and Data Sources

This paper use A-share listed firms in coastal region from 2010 to 2017 of China as the research objects. Referring to the classification of other scholars(Chen and Qian, 2019), the coastal region in China includes Tianjin, Hebei, Liaoning, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong and Hainan. The total number of samples is 857 targeted additional shares issuance events. The above data are from China Securities Markets and Accounting Research(CSMAR) database.

Model Design and Variable Definition

1. Model 1 and variable definition

In order to test hypothesis 1a, this paper intends to construct a multiple regression model to study the impact of connected transactions on the types of subscriptions for targeted additional share issuance before private placement.

The dependent variable WAY of the model is whether assets are injected or not. The independent variable RPT is the amount of related party transactions before targeted additional shares issuance, and the other is the control variable (see below). Variable subscripts i denote the company, t denotes the year, and the model is as follows:

$$WAY_{i,t} = \beta_0 + \beta_1 RPT_{i,t-1} + \beta_2 HZS_{i,t-1} + \beta_3 Firstshr_{i,t-1} + \beta_4 DummyF_{i,t-1} + \beta_5 State_{i,t-1} + \beta_6 BM_{i,t-1} + \beta_7 ROA_{i,t-1} + \beta_8 EPC_{i,t-1} + \xi_{i,t} \tag{Model 1}$$

(1) Dependent variable (WAY).

This paper regards the sample including asset subscription as asset injection type of WAY, including assets and cash, assets and creditor’s rights and all types of asset subscription. The asset subscription is set at 1, and the non-asset subscription is set at 0.

(2) Explanatory variables.

The amount of connected transactions(RPT) means the amount of connected transactions involved in each year. If there are many transactions in one year, the sum of amount is aggregated and divided by the current year’s business income to eliminate the sales effect.

2. Model 2 and definition of variables

In order to test hypothesis 2, this paper intends to construct a multiple regression model to study the impact of connected transactions changes on operational management efficiency changes before and after targeted additional shares issuance. Defficiency, the dependent variable of the model, is the change of operational management efficiency, which is measured by working capital turnover period (DWC). The independent variable Drpt is the change ratio of connected transactions

Table 1. Definition of variables.

Symbol	Definition and value
WAY	Asset subscription is set at 1 , otherwise it is 0.
RPT	The amount involved in each year's affiliated transactions.
HZS	The Herfindahl index is used to represent the sum of squares of the proportion of the first three tradable shareholders.
Firstshr	The proportion of controlling shareholders directly holding shares of listed companies.
DummyF	Major shareholders' participation in subscription is set at 1, while non-major shareholders' subscription is set at 0.
BM	End-of-term total assets/market value
EPC	Net Increase in Cash and Cash Equivalents/Total Stocks
ROA	Net Profit/Total Asset Balance
Defficiency	Operational Management Efficiency for the current year - Operational Management Efficiency for the last year
Drpt	Related Transactions for the current year - Related Transactions for the last year
Size	Natural logarithm of revenue
Lev	Asset-liability ratio
Growth	Expressed by the growth rate of business income. Growth= [current year's revenue/last year's revenue]-1
State	Virtual variables. When the enterprise is state-owned, the value of this variable is 1, otherwise it is 0.

before and after targeted additional shares issuance, and the other is the control variable (see below). Variable subscripts I denote the company, t denotes the year, and the model is as follows:

$$Defficiency_{i,t} = \beta_0 + \beta_1 Drpt_{i,t} + \beta_2 Size_{i,t} + \beta_3 Lev_{i,t} + \beta_4 Growth_{i,t} + \beta_5 State_{i,t} + \xi_{i,t} \tag{Model 2}$$

This paper uses the symbols and saliency of the coefficient of change of connected transactions in the model to judge the influence of the change of connected transactions before and after the targeted additional shares issuance on the change of operational management efficiency.

(1) Dependent variable: the efficiency of working capital management

How to measure the efficiency of the company’s operation and management can be found in the financial evaluation index system, such as accounts receivable turnover rate, inventory turnover rate, liquidity asset turnover rate, etc. But there are two main indicators that comprehensively reflect the efficiency of the company’s operation and management and are widely used in practice: one is the working capital turnover period; the other is the working capital productivity. In this paper, the working capital turnover period is used as a dependent variable, and the working capital productivity is used as a substitute in the robustness test.

$$Cash\ Cycle\ (DWC) = Accounts\ Receivable\ Turnover\ (DREV) + Inventory\ Turnover\ (DINV) - Accounts\ Payable\ Turnover\ (DREP)$$

(2) Explaining variables. RPT represents the amount involved in each year’s connected transactions. DRPT denotes changes in connected transactions.

Table 2. Descriptive statistics of major variables.

Variable	Sample size	Q1	Mean	Q3	Maximum	Standard deviation
WAY	787	0.000	0.364	1.000	1.000	0.482
RPT	787	0.139	1.422	0.938	39.960	4.662
HZS	787	0.000	0.044	0.041	0.393	0.084
Firstshr	787	0.263	0.383	0.491	0.768	0.151
DummyF	787	0.000	0.548	1.000	1.000	0.498
State	787	0.000	0.461	1.000	1.000	0.499
BM	787	0.437	0.649	0.864	1.186	0.272
EPC	787	-0.134	0.207	0.375	4.208	0.851
ROA	787	0.020	0.043	0.070	0.240	0.068
Defficiency	335	-0.206	-0.274	0.034	0.744	0.717
DRPT	335	-0.519	8.041	1.485	348.6	42.13
LEV	335	0.419	0.534	0.659	0.868	0.175
SIZE	335	20.94	21.8	22.51	25.25	1.352
Growth	335	-0.104	0.686	0.439	17.73	2.389
State	335	0	0.506	1	1	0.501

RESULTS

Table 2 reports descriptive statistics of major variables. It can be seen from the table that the average value of WAY is 0.364, that is, 36.4% of companies choose asset injection in targeted additional shares issuance. The average value of connected transactions is 1.422, the average proportion of the largest shareholders is 38.3%, 54.8% of the large shareholders participate in the targeted additional shares issuance, 46.1% of the companies are state-owned enterprises, the average cash flow per share is 0.207, and the average return on assets is 4.3%.

Before and after targeted additional shares issuance, the mean value of operation management efficiency change expressed by business cycle increased by 0.274, and the mean value of operation management efficiency change expressed by operation efficiency increased by 0.373. Before and after targeted additional shares issuance, the mean value of related transaction change was 8.041, the average value of assets and liabilities ratio was 53.4%, and the average value of company growth was 68.6%.

Table 3 reports the results of regression analysis between the amount of connected transactions and the way of directed issuance subscription. It can be seen that the amount of connected transactions before directed issuance is positively correlated with the choice of asset injection and is significant at the level of 1%. This shows that companies with more connected transactions before directed issuance prefer to

Table 3. Regression results in model1.

	Coefficient	T value
RPT _{t-1}	0.015***	4.52
HZS _{t-1}	-0.451**	-2.30
Firstshr _{t-1}	0.331***	2.92
DummyF _{t-1}	0.360***	11.14
State _{t-1}	0.022	0.67
BM _{t-1}	-0.273***	-4.28
EPC _{t-1}	-0.040**	-2.16
ROA _{t-1}	-0.853***	-3.77
cons	0.243***	4.35
Sample size		787
Adj R-Sq		0.1903
F value		24.09

Table 4. Regression results in model2.

		Prior to asset injection	After asset injection	Difference	P value
RPT	mean value	1.325	1.099	0.226***	<.0001
	Median	0.547	0.476	0.071***	0.0099
	Sample size	767	392		

choose the asset injection type of directed issuance. This also proves that hypothesis 1a of this paper is valid.

As for the control variables, the concentration of equity before targeted additional shares issuance is negatively correlated with the choice of asset injection and is significant at the level of 5%. This shows that companies with higher concentration of equity before targeted additional shares issuance will not choose asset injection. The higher the proportion of the first major shareholder, the more inclined to inject assets, indicating that if the proportion of the major shareholder is high, the major shareholders can share more of the stock price appreciation brought by the asset injection, so the large shareholders with high shareholding are more willing to inject high-quality assets into listed companies. Previous studies have also suggested that the lower the proportion of major shareholders, the more asset injection oriented issuance will be carried out for the purpose of improving control rights and hollowing out listed companies. Whether the target of targeted additional shares issuance is a fictitious variable of large shareholders' participation is positively correlated with the choice of asset injection, which indicates that the larger shareholders' participation in targeted additional shares issuance is, the more inclined they are to inject assets; whether the large shareholders are state-owned or not has no significant relationship with asset injection; and whether the market value book ratio is positively correlated with asset injection, which indicates that the higher the market value book ratio is, so the company is in market value. The higher the book ratio, the more likely the issuer is to inject assets to achieve asset securitization; the net cash flow per share of listed companies is negatively correlated with the choice of asset injection, which indicates that the higher the net cash flow per share, the less likely the company will choose asset injection; and the higher the earnings per share, the less likely it will choose asset injection.

Table 4 reports the results of the matching test of the changes in the amount of connected transactions before and after asset injection. There are significant differences in the amount of connected transactions before and after asset injection, regardless of the median and mean value. The amount after asset injection is significantly smaller than that before asset injection. That is to say, the hypothesis 1b is valid.

Table 5 reports the regression results of the changes of connected transactions and operational management efficiency. Before and after the targeted additional shares issuance, the changes of connected transactions and operational management efficiency are positively correlated at a 1% significant level (shown as negative correlation of business cycle). This shows that hypothesis 2 is valid, that is, asset injection targeted additional shares issuance will reduce the connected transactions and ultimately improve the enterprises. The efficiency of

Table 5. Relative result of changes in related transactions and operational management efficiency .

	Coefficient	T value
RPT	-0.077***	-3.24
LEV	-1.148	-1.52
SIZE	0.245**	2.48
Growth	-0.177***	-3.45
State	0.033	0.14
cons	-4.694**	-2.34
Sample size		335
Adj R-Sq		0.091
F value		7.68

operation and management. It shows that asset injection oriented issuance can promote efficiency.

Regarding the control variables of model 2, there is no significant positive correlation between asset-liability ratio and operational management efficiency. The positive correlation between company size and operational management efficiency is at a significant level of 5%, which indicates that the larger the company size, the faster the operational management efficiency. The positive correlation between the growth rate of the company and operational management efficiency is at a level of 1%, which indicates that the higher the growth rate of the company, the higher the operational management efficiency improves.

CONCLUSIONS

Based on the data of China's A-share listed firms in coastal region from 2010 to 2017, this paper investigates the impact of connected transactions on asset injection of targeted additional shares issuance of new shares, and the impact of changes in connected transactions before and after targeted additional shares issuance on operational management efficiency. Different from the main research ideas of previous scholars, this paper studies the economic consequences of targeted additional shares issuance from the perspective of connected transactions. The empirical results show that: (1) companies with large amount of connected transactions tend to carry out asset injection oriented issuance. (2) the amount of connected transactions decreases significantly after the targeted issuance. (3) Before and after targeted additional shares issuance, the reduction of connected transactions can improve the efficiency of operation and management.

This paper analyses the reasons for the above empirical results from various angles. Previous studies have shown that asset injection-oriented issuance will hollow out listed companies. This paper argues that asset injection-oriented issuance will promote efficiency from the perspective of transaction cost and supervision cost. Major shareholders inject assets into listed companies and optimize the internal market structure of listed companies. Before asset injection, the more connected transactions between listed companies and related parties, the closer the relationship between listed companies'

assets and injected assets. Through asset injection, the uncertainty of transactions can be reduced, transaction costs can be reduced, production and operation planning and control can be improved, and then the efficiency of enterprise operation and management can be improved. This paper extends the previous study on the tunneling effect of targeted additional shares issuance and enriches the study on the economic consequences of targeted additional shares issuance.

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