温州肯恩大学
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The Impact of the Listing Select Tier on the Determinants of Stock Returns

In Partial Fulfillment of the Requirements

for the Bachelor of Science in Finance

by

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1098678

May, 2022

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November 21, 2021

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Abstract

This study is mainly to find the impact of the select tier on the stock returns of the first batch of the companies. In July 2020, the select tier was successfully listed. However, the impact of listing select tier on investors has not yet been studied, which is the motivation of this research. I analyzed the stock returns of the 32 companies which are selected to be listed as the first batch. In the study, the stepwise regression model was used to screen the variables. This study found out that the listing of the select tier does not positively influence the stock returns but changes the determinants of stock returns. The results showed that after listing, average stock returns became lower and the influence of determinants has changed. The results did not pass the rubostness check using sub-samples of different industries but passed the robustness check using alternative regression. This research fills the current gaps in the research on the stock returns of the select tier of New Third Board and the findings could help investors make further investments as references.

JEL Classification: G11, G14

Keywords: Select tier, New Third Board, stock returns

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1. Introduction

In October 2019, the National Equities Exchange and Quotations (NEEQ) began to reform. NEEQ, also known as the New Third Board, is China's third nationwide securities trading venue. The establishment of the New Third Board is mainly aimed at small and medium-sized enterprises (SMEs), helping them to expand their scale and helping SMEs to carry out external financing. The financing difficulties of Chinese SMEs have always been a problem, and the establishment of the New Third Board can help some SMEs to solve the financing problems.

The New Third Board consists of three levels: the base tier, the innovation tier, and the select tier. Each level of investment threshold and transaction methods are different. Due to the 2020 epidemic, many NEEQ reform policies have not been implemented, including the listing of select tier. Before July, 2020, the NEEQ has only two levels: innovation tier and base tier. On July 27, 2020, the select tier of new stocks was listed for the first time, and a total of 32 new stocks were listed on that day. These 32 select tier companies are all from the innovation tier. The select tier is a level that many SMEs want to enter. This phenomenon is due to a policy of the Chinese government to reform the New Third Board. As long as companies meet specific requirements, listed companies entering the select tier have the opportunity to transfer to the Science and Technology Innovation Board and the ChiNext Board. This is an excellent opportunity for many Chinese SMEs to go public officially. However, does the emergence of the select tier mean more profit opportunities for investors?

The listing of some stocks converted to select tiers does not mean that these stocks will perform better. The NEEQ is not a traditional securities trading market. All SMEs listed on the New Third Board are companies-in-name. After some companies turned into the select tier, many uncertain factors affected the stock price. Therefore, after the select tier is listed, investors cannot

invest merely relying on past experience. There are some similar stock markets in China, such as the ChiNext and the Small and Medium-sized Enterprise Board (SMEB). According to the research done by Zou et al. (2020), the initial return of the initial public offering of the SME board after its listing in 2009 was obviously excessive. Research on the initial returns before and after the ChiNext reform al so shows that after the 2013 reform, the returns of most ChiNext IPOs reached the upper limit set by the government, 44% (Zhou et al., 2021). After the select tier went public in July 2020, no one has studied impact of the emergence of the select tier on the stock return of the selected company. Perhaps like the other two stock markets studied, this reform policy of the New Third Board will change the stock returns.

This thesis focuses on the stock return of 32 stocks that went public first and compare the performance of these 32 stocks before and after entering the select tier. This research has certain reference value for investors who want to invest in the New Third Board.

Compared the average of stock returns before and after the listing of select tier, the figures showed that the average stock returns became much lower which meaned that lising of select tier did not have positive impact on stock returns. Using stepwise regression, I found that the derterminants of stock returns changed a lot after the lising select tier. In order to test the robustness of the results, I used two robustness testing methods. First of all, I used the sub-samples classified according to the industry to do the robustness test. However, this result did not pass the robust test. Therefore, I used forward regression for variable screening which is also one of the methods for screening variables. The research results passed the robustness test.

This study fills a gap in the current literature that does not have research on the determinants of stock returns in the select tier of the New Third Board. At the same time, there are currently no research on the changes in the stock returns of the first batch of companies after the emergence of

the select tier. The study also compared the stock returns before and after the listing select tier and the changes in the stock return model so the study more significantly explained the impact of the selection layer on stock returns. This article used stepwise regression method, a more special method, to screen out the variables that are important to select stocks. The results of this research will help investors interested in the New Third Board or select tier to make future profitable investments.

In the following sections, the thesis analyzes the data and concludes the findings. In the section 2, there are some relevant articles about the factors influencing the stock returns and the impacts of the reforming other similar stock markets on the stock returns in China. The detailed data and methodology are introduced and analyzed in the section 3. In the section 4, some explanation about the processed data are illustrated. At the end, the main conclusion and the limitations of this thesis are presented in section 5.

2. Literature Review and Hypotheses Development

China's New Third Board market is China's over-the-counter market, and it is also China's third nationwide securities trading venue. Select tier is the latest listed tier of the New Third Board. In July 2020, the select tier was officially listed, and 32 SMEs entered the select tier. There are two other tiers in the New Third Board: the base tier and the innovative tier. In the recent ten years of research, many researchers have explored many factors that affect stock returns. Also, many researchers have conducted relevant research on China's stock market stock prices and stock returns.

The emergence of the New Third Board is undoubtedly an excellent help for SMEs to solve financing problems. Chinese SMEs are an important part of helping promote the country's economic growth and stable development. Therefore, promoting the vigorous development of SMEs is also a significant focus. How Chinese SMEs develop towards globalization is facing many problems, such as whether managers have a global mindset (He et al., 2020). Financing difficulties is also one of the biggest problems for SMEs. Huang et al. (2014) concluded that the information asymmetry between financial institutions has led to financing difficulties for SMEs. Regardless of the size of the bank, bank lending is not easy for SMEs (Du et al., 2017). At the same time, fierce banking competition has not always had a positive effect on financing. Only in the low market concentration the banking competition can alleviate the credit constraints of SMEs (Chong et al., 2013; Leon, 2015). Nevertheless, indirect financing is the primary source financed by SMEs, and direct financing does not have a small business area market (Jiang et al., 2014). Therefore, the emergence of the New Third Board can be said to have helped SMEs in external financing. However, according to Bilal's research on the development of SMEs in China, India, and Pakistan, external financing is not a factor that affects the development of Chinese SMEs (Bilal et al., 2016). They also concluded that financing channels have no direct relationship with the development of Chinese SMEs.

As the over-the-counter market in China, the NEEQ provides many start-up companies with financing opportunities and attracts many securities dealers and investors (Li et al., 2015). According to Li et al. (2015), the New Third Board can help some SMEs that need liquidity to fill the gaps in the venture capital cycle. Hua et al. (2016) agree on the positive impact of venture capital on SMEs. Venture capital not only helps SMEs obtain bank loans and reduces the cost of information forces, but it can also stimulate innovation in the Chinese market and have a positive

effect on the performance of SMEs (Wu and Xu, 2020). Also, the New Third Board can guide private investment and enrich the financing channels of SMEs (Song and Zhang, 2018). Therefore, the NEEQ can help SMEs with indirect financing and support their indirect financing. However, the NEEQ, as an over-the-counter market that has not yet been fully reformed, still has many problems. Liu et al. (2017), Xu et al. (2020), and Jiang et al. (2016) have all discovered the liquidity flaws in the NEEQ market. Due to information asymmetry and beneficial institutional restrictions, the neeqhas weak liquidity. At the same time, even though the cost of listing on the NEEQ for SMEs is relatively low, the literal figure amount still teaches, along with the substantial indirect costs brought about by enforcement actions on the NEEQ (Xu et al., 2020).

Some research finds that many factors affect the return of stocks. For investors, stock returns are one of the essential elements. Many researchers have conducted research on related influencing factors. From the research conducted by Chen et al. (2013), the imbalance of individual investor transactions will have a negative impact on future stock returns. The complexity of the stock code is also one of the reasons for the low returns of the company after listing (Fang and Zhu, 2019). Uncertain political environment and emergencies such as the global spread of the new crown pneumonia epidemic are also factors that have a negative impact on stock returns (Liu et al., 2017; Apergis and Apergis, 2020). Multi-factor volatility also positively affects the predictability of stock returns (He et al., 2015). In addition to these factors, issuance scale, company size, trading volume, price-to-earnings ratio, etc. are also factors that affect stock returns (Tian et al., 2011; Gao, 2020).

Similar to the NEEQ trading sector, the ChiNext had also undergone major reforms influencing stock returns. In China, some trading sectors are similar to the New Third Board, such as the ChiNext. When China's ChiNext was first listed, Anderson et al. (2015) found that the IPO

performance was not doing well, and the overall IPO showed an underpricing performance. Deng and Zhou (2016) also found that the ChiNext IPO had an overreaction to the initial return due to short-term and market factors. Anderson et al. (2015) took 281 ChiNext IPOs as an example and found that the initial average market-adjusted abnormal return was 33.5%. In 2013, the ChiNext carried out stock market reforms. The reform has controlled the upper and lower limits of stock returns. According to the research of Zhou et al. (2021), before the reform, the average initial return rate of 354 ChiNext IPOs was 34.5%, with high standard deviation. However, after the reform, almost all the IPOs' yields were at the highest limit set by the government, with an average yield of 43.96%. In addition to reforms, the attention of individual investors will also cause the growth of short-term stock yields on the ChiNext. The higher the attention of individual investors, the higher the short-term stock yield (Fang et al., 2014). This is similar to the research field of this article. The listing of the selected layers of the NEEQ is one of the reform policies. The listing of selecte tiers may have a significant impact on stock yields, just like the reform of the ChiNext.

Research on another sector of the Chinese stock market also shows that the initial return of IPOs and corporate efficiency will also be affected by many factors in the new financial market. In the SMEB, due to the IPO pricing policy, policy changes in the trading mechanism, and the sentiments and behaviors of irrational investors in the secondary market, the initial public offering of this sector has reached excess initial returns (Zou et al., 2020). This sector belongs to China's on-exchange trading market, but for the research object of this article, the New Third Board, has specific reference significance.

In the research of Zhou et al. (2021), they also studied the changes in the stock return model before and after the ChiNext reform. After the 2013 reform, the significance of the variables that affect stock returns had changed which means the overall stock return model was not applicable

to the post-reform stock return model. This shows that the reform has led to changes in the Growth Enterprise Market. In the overall model, offline oversubscription, price-to-earnings ratio at IPO, and industry price-to-earnings ratio are more significant influencing factors, but after the reform, market conditions and board size are the most significant (Zhou et al., 2021). A regime shift was triggered by the reform. The research of Song et al. (2021) also found that after the reform of the issuance system in the A-share market, significant factors affecting stock returns have changed. In the sample after the reform in 2009, the author found that turnover rate, subscription ratio and abnormal search volume are important factors that affect initial returns. However, in the sample before the 2009 reform, the significance of the turnover rate and the subscription ratio was not obvious (Song et al., 2011).

As an emerging trading market, the NEEQ has been studied by many people on its existence and role. Although many people have explored the return on stocks of other trading sectors, there is no research showing that the selection tier's influence on the return of specific stocks is one of the significances of this research.

Hypothesis: The emergence of the select tier has a positive effect on stock returns and it changes the determinants of stock returns.

3. Data and Methodology

3.1 Data

The study employs two data sources, which are the China Stock Market Accounting Research (CSMAR) database and Wind Financial Terminal (Wind).

From CSMAR, we obtain transaction price, transaction amount, turnover rate, transaction volume, daily stock price. The daily information is selected from July 27, 2019, to September 27,

2021, for all New Third Board stocks. The information sheet consists of the securities ID, opening price, closing price, yesterday's closing price, the transaction volume, transaction amount, and turnover rate, amplitude rate, and the market tier coding. All the information is daily data because we will use the daily stock returns to interpret and analyze the impact of the listing of select tier.

Other dataset from Wind are the number of circulating shares and company market value. The transaction table contains all information about the exact number of the outstanding shares and company market value on each day. The sample data is the daily information from July 27, 2019, to September 27, 2021, for the specific companies. This study would study and set the static price-to-earnings ratio, transaction amount, transaction volume, turnover rate, circulating shares market value, ratio of circulating shares, transaction amount of the previous day and turnover rate of the previous day as independent variables that influence the stock returns.

Table 1 reports the summary statistics of the stock returns for the whole sample, stock returns before the July 27, stock returns after the July 27, and the independent variables. There are 16888 observations for the whole sample. The average stock returns for the 25 months is 0.2%. The number of the sample before the July 27 is 7,712 and the average is 4% while the average after the July 27 is 2% with 9,176 observations. The average of static price-to-earnings ratio is 22.044. The average of the transaction amount per day is 4,562.070 thousands yuan while the average of the transaction volume is 276.717 thousand. The maximize of the turnover rate for the whole sample is 46.277% while the average is only 0.34%. The average of the circulating shares market value and circulating shares ratio is 20.046 and 0.466.

Table 2 summarizes the correlation between each variables. In the whole sample, the independent variables all have significant correlation with the dependent variable, stock returns, at 0.01 level. Except the p-value for the circulating shares ratio with the stock returns, which is

0.003, other p-values are all 0.00 which means for the whole sample, the independent variables have significant correlation with the dependent variable. Although each independent variables have significant correlation with other independent variables at 0.01 level as well but the the methodology we used is the Stepwise regression which will exclude the multi-corlinearity independent variables.

3.2 Methodology

First, we calculate the daily stock returns based on the daily pre-closing price and the closing price. We use the information reported on CSMAR to compute the daily stock returns.We will calculate the average, maximum, minimum, and standard deviation of the daily stock returns before July 27 and after July 27 to analyze the impact of the listing of select tier.

Secondly, we run a Stepwise regression analysis on our sample to analyze and explain impact of a potential explanatory variable on the stock returns (Zhou et al., 2021). We repeat the regressions (1) three times on the stock returns before the July 27, the stock returns after the July 27, and the whole sample:

$$\overrightarrow{SR} = \alpha + \overrightarrow{\overrightarrow{X}}\overrightarrow{\beta} + \overrightarrow{\varepsilon} \tag{1}$$

where SR is an $N \times 1$ vector to represent the stock returns for N stocks, α is a intercept of the regression, X is an $N \times M$ matrix to represent N stocks each with M explanatory variables. β is an $M \times 1$ vector to represent the regression coefficients associated with the stock returns explanatory variables. Refers to the research results of Zhou et al. (2021), Song et al. (2020), Tian et al. (2020), and Gao (2020), $\overrightarrow{\overrightarrow{X}}$ is static price-earnings ratio, transaction amount, transaction volume, turnover rate, circulating market value, ratio of circulating shares, transaction

amount of the previous day and turnover rate of the previous day. ε is an $N \times 1$ vector to represent the error terms.

The static price-to-earnings ratio is the ratio of the daily stock price to last year's earnings per share. We use PER to represent it. This represents the current degree of risk in stocks and is also a reflection of the value of stock investment. The daily transaction amount represents the transaction amount in the same period, which is a reflection of the current market activity, and also represents the current market size. We use AMT to represent it.

Transaction volume is the number of transactions amount per day. We use TV to represent it. Although it has a similar meaning to transaction amount, a stock with a large trading volume does not mean a larger trading volume. Therefore, a special set of independent variables is set. The turnover rate represents the liquidity of this stock and also represents the investment enthusiasm of stock investors in the same period. We use TVR to represent it.

The transaction amount of the previous period represents the trading volume of the previous day, which represents the impact of market activity or market size in the previous period on stock returns in the next period. We use $PAMT$ to represent it. The turnover rate of the previous period represents the number of the turnover rate of the previous day, which means the degree of influence of the investment enthusiasm of the previous period or the liquidity of the stock on the return of the stock in the next period. We use $PTVR$ to represent it.

According to the Song et al. (2020) and Zhou et al. (2021), we will use the circulating share market value and the circulating shares ratio as variables. We will use the logarithm of the product of the closing price and the number of circulating shares to represent the market value of the circulating shares. We use CV to represent it.

Then the ratio of circulating share could be obtained by the daily circulating shares market value and the daily company market value which is the ratio of circulating shares market value to the company market value. We use CR to represent it.

4. Results and Discussions

4.1 Main Results

Table 1 reports the descriptive statistcs of stock returns before and after the listing the select tier. From the figures, we notice that the average of the stock returns after the listing the select tier decreased. The reform does not have extremely positive impact on stock returns as the reform of ChiNext and SMEB. The maximum of the stock returns also dropped to 55.4% after the listing select tier while the minimum became larger.

Table 3 reports the regression results from a cross-sectional model to explain the stock returns over the whole sample and over the sub-samples. The same technique is also used to the sample without disturbance data. We run the Stepwise regression for three times. In the Panel A of Table 3, we use the whole sample to run the Stepwise regression and find the significant independent variables of the whole stock returns model. In the Panel B of Table 3, we use the sample before the July 27 to generate the stock returns model and in the Panel C of Table 3, the results explain the stock returns model after the July 27.

In the Panel A, from the standardized beta, we can conclude that the most important independent variable in the model is the transaction amount and then is the turnover rate. The independent variable, transaction amount, contributes 0.009 R^2 to the model while the turnover

rate is the second most influencing factors in the model with the standardized beta, 0.057. Its contribution towards the fitness of the whole model is 0.003, which is measured by R^2.

However, refers to the Panel B, the stock returns model before the July 27 does not fit the overall model. It is evident in the Panel B that the most influencing factor in this model is the turnover rate with the standardized beta of 0.007. Also, it contributes 0.004 to the adjusted R^2 of the fitness of the model. The second one becomes the static price-to-earnings ratio and its standardized beta is 0.037 with the contribution to the adjusted R^2 of 0.001. The transaction amount is less influencing in the stock returns model before the July 27.

Comparing the Panel C to the Panel A and Panel B of the Table 3, the stock returns model after the July 27 is fitter with whole model than the model before the July 27 is. The most influencing factor is also the transaction amount with the standardized beta of 0.13. It contributes the 0.029 R^2 to the adjusted R^2 to the model. The next one is the turnover rate with the 0.053 standardized beta while its contribution to the adjusted R^2 is 0.007.

Focusing on the Panel B and Panel C of Table 3, the non-standardized beta for some independent variables changes and its significance also changes. In the stock returns model before the July 27, the turnover rate is the most significant factor in the model while in the stock returns model after the July 27, it becomes the second influencing one. The results reveal that after the listing of the select tier, the investors' willingness to buy and the liquidity of stocks have a weaker impact on stock returns. The static price-to-earnings ratio is the second most influential factor but in the model after the July 27, it is no longer one of the explanatory variables of the model. Also, the independent variable, circulating shares ratio, which is a factor in the stock returns model before the July 27, is not the influencing factor in the model after the July 27.

Another change between the model before the July 27 and the model after the July 27 is the non-standardized beta of the transaction volume. In the stock returns model before the July 27, the non-standardized beta is negative which means there is a negative correlation between transaction volume and stock returns. However, after the listing of the select tier, the non-standardized beta of the transaction volume is positive, representing that it has the positive correlation with the stock returns. For the last independent variables in the model before the July 27 and after the July 27, they are the turnover amount at the previous period and the transaction amount at the previous period, respectively. It means that before the listing of select tier, the transaction amount before the day would influence the stock returns on the next day. Nevertheless, after the listing of select tier, the turnover rate on the last day would impact on stock returns on the next day.

The above is based on the analysis of regression data in the statistical sense, but in the economic sense, the degree of influence of each independent variable on the dependent variable, stock return, is not obvious. According to the non-standard coefficients, we can see that most of the coefficients are less than 0.05, which means that although more than 95% of the data conform to the model and coefficients, the correlation is not significant. This means that changes in the independent variables within the normal range will not cause significant changes in stock returns.

Overall, the results show that after the listing of the select tier, the stock returns of the New Third Board has been changed in some way.

4.2 Principle component analysis

In stepwise regression, we will bring many variables into the model for selection. Although stepwise regression can filter out variables with multiple linear relationships, for accuracy, we will conduct principal component analysis for further testing. The purpose of principal component analysis is to reduce the dimensionality of data results and determine whether some variables can be integrated into principal components. However, this analysis needs to satisfy two hypotheses and partial tests. The first assumption is that the observed variable is a continuous variable or an ordinal categorical variable. The data in this study meets this requirement. The second assumption is that there is a linear correlation between the variables. The second hypothesis needs to be judged on tabular data.

According to the Table 2, we can see that some of the correlation coefficients exceed 0.3. Including the previous day's transaction volume, the previous day's turnover rate and the same period's turnover rate, and the transaction volume. However, since the correlation between these four cannot be combined and discussed directly as the main component, we ignore the linear relationship between these four.

Next, enter the judgment of whether the data structure can be tested by principal component analysis. Table 4 shows the results of the Kaiser-Meyer-Olkin (KMO) test. According to the data results, we found that the most of KMO test coefficient and covariance is less than 0.6, which is also far less than 0.8. It means that it does not meet the generally recognized requirements for a reasonable data structure. Therefore, this data structure does not have a significant correlation and does not meet the second hypothesis.

4.3.1 Sub-sample regression results

We divide the sample into five categories depending on the industries. There are five main industries, which are manufacturing, technology industry, environmental protection industry, gas industry and construction industry. In the Table 5, the data shows the regression results.

We regressed these sub-samples, including their data before and after July 27. In Table 5, we can see that the regression results of most industries are partly similar to our previous total sample results. The whole sumple regression results are totally different in most of industries. The sample regression data of the gas industry after July 27 shows that the circulating shares ratio has become the main influencing factor, which is different from the previous regression results of the total sample. But the rest of the influencing factors of this sub-sample regression are roughly the same as the influencing factors of the total sample regression. What is different is the return of the environmental protection industry before July 27, which shows that only the static price-to-earnings ratio will be one of the factors affecting stock returns. This is inconsistent with the total sample result. The regression results of the construction industry show that transaction amount and turnover rate are no longer the main influencing factors. But these three industries account for only four of the 32 companies, and their proportion is very small. Moreover, there are almost only one or two companies in the three industries, and the regression results may not be more accurate due to the amount of data. In the sample, more than half of the companies are from the manufacturing industry. Nevertheless, the regression result of the manufacturing industry is missing some influencing factors compared with the regression result of the total sample. However, the significance degree is the same in the ranking. Therefore, the robustness test based on the sub-sample failed.

4.3.2 Alternative model checks

We will use forward regression instead of stepwise regression to screen variables. If the results are not very different, it can indicate no multiple linear relationships between the variables and the robustness of the regression results. We will use forward regression instead of stepwise regression to screen variables. If the results are not very different, it can indicate no multiple linear relationships between the variables and the robustness of the regression results. In Table 6, we performed a forward regression of whole sample and the sample data before and after July 27, 2020.

In Table 6, we can see that except for the slightly different adjusted R^2 of the Panel B, the rest of the data is the same. In adjusted R^2, the goodness of fit using forward regression is worse than that of stepwise regression, which shows that the goodness of fit of the model using stepwise regression is higher. In the robustness test of regression using other model methods, our regression results pass the test.

5. Conclusions

Select tier was listed on the New Third Board on July 27, 2020 and a total of 32 companies were selected for listing. We conducted regression analysis for these 32 companies. We have conducted research on the factors that may affect stock returns before and after the emergence of select tier.

According to descriptive statistics, the listing of select tier does not have extremely positive impact on stock returns. We selected the data from July 27, 2019 to September 27, 2021 for stepwise regression to filter variables. We mainly compared the difference between the stock

return model composed of different variables before and after July 27, 2020. We are concerned with the degree of influence of different determinants before and after the select tier. According to the regression, we find that transaction amount becomes an essential influencing factor after the emergence of select tier, and its influence exceeds the turnover rate. At the same time, the turnover rate of the previous period has become a predictive indicator. Before the emergence of select tier, the transaction amount of the last period has a particular impact on the stock return of the next period. Transaction volume has also changed from a negatively correlated effect on stock returns to a positively correlated effect.

In further study, there are still gaps that could be researched. First of all, in our research, there are still some independent variables that have not been considered. This may be one of the reasons that the goodness of fit of the stock return model is very low. Therefore, in subsequent studies, researchers can add more explanatory variables to explain the stock return model. Secondly, the data we use is daily data. The factors that affect daily stock returns are objective factors that can be measured by numbers and subjective factors about the company, such as company categories. Researchers can increase the frequency of data in subsequent studies and consider using numbers to represent some data that cannot be directly measured by numbers so as to find a more optimized stock return model.

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Table 1: Sample Statistics of the variables

The table reports the stock return, static price to earnings ratios from July 27, 2019 to September 27, 2021. The data of the stock price, earning per share, transaction amount, turnover rate, transaction volume is obtained from CSMAR. The data company market value and daily number of circulating shares which are for calculating the circulating shares market value and circulating shares ratio is obtained from Wind.

	Number of observations	Mean	Max	Min	StdDev	Skewness	Kurtosis
Stock Return	16,888	0.002	0.996	-0.500	0.040	2.440	155.820
Stock Return before the July 27	7,712	0.004	0.996	-0.500	0.043	8.557	173.847
Stock Return after the July 27	9,176	0.002	0.554	-0.251	0.286	1.856	30.100
Static P/E Ratio	16,888	22.044	154.630	1.104	11.806	1.857	8.247
Transaction amount (Million Yuan)	16,888	4.562	845.692	0.000	18.573	18.717	570.350
Turnover rate	16,888	0.340	46.277	0.000	1.263	15.297	372.821
Transaction volume (Million)	16,888	0.276	33.681	0.000	0.810	14.601	397.577
Circulation market value	16,888	20.046	23.913	16.518	1.015	0.442	1.678
Circulating shares ratio	16,888	0.466	1.090	0.025	0.215	0.644	-0.015
Turnover rate in previous period	16,888	0.340	46.277	0.000	1.263	15.297	372.821
Transaction amount in previous period (Million Yuan)	16,888	4.541	845.692	0.000	18.538	18.821	575.593

Table 2: Correlations

Transaction amount represents the transaction amount in the same period. The static price-to-earnings ratio is the ratio of the daily stock price to last year's earnings per share. The turnover rate represents the liquidity of this stock. Transaction volume is the number of transactions amount per day.The trading amount of the previous period represents the trading volume of the previous day. The turnover rate of the previous period represents the number of the turnover rate of the previous day. Circulating shares market value is the logarithm of the product of the closing price and the number of circulating shares. The circulating shares ratio is ratio of circulating shares market value to the company market value. The sample period is from from July 27, 2019 to September 27, 2021, daily frequency. *- stat. sign. at 10% level; **- stat. sign. at 5% level; ***- stat. sign. at 1% level. In this table, SR is the stock return, AMT is the transaction amount, TVR is the turnover rate, PER is the static P/E ratio, $PAMT$ is the transaction amount of the previous period, $PTVR$ is the turnover rate of the previous period , TV is the transaction volume, CV is the circulating shares market value, CR is the circulating shares ratio. The data shows the correlation of each independent variables.

Correlations									
	SR	AMT	TVR	PER	$PAMT$	$PTVR$	TV	CV	CR
SR	1								
AMT	0.097***	1							
	(0.000)								
TVR	0.078***	0.311***	1						
	(0.000)	(0.000)							
PER	0.046***	0.295***	0.052***	1					
	(0.000)	(0.000)	(0.000)						
$PAMT$	0.056***	0.691***	0.165***	0.315***	1				
	(0.000)	(0.000)	(0.000)	(0.000)					
$PTVR$	0.048***	0.164***	0.576***	0.024***	0.153***	1			
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)				
TV	0.077***	0.552***	0.570***	0.100***	0.407***	0.152***	1		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
CV	0.030***	0.349***	-0.024***	0.343***	0.303***	-.0136***	0.171***	1	
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)		
CR	0.023***	-0.056***	-0.121***	-0.163***	-0.045***	-0.059***	-0.049***	0.246***	1
	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	

Table 3: Main Stepwise Regression Results

The table shows results for the regression:

$\overrightarrow{SR} = \alpha + \overrightarrow{\overline{X}\beta} + \vec{\varepsilon}$,

where SR is an $N \times 1$ vector to represent the stock returns for N stocks, α is a intercept of the regression, X is an $N \times M$ matrix to represent N stocks each with M explanatory variables. β is an $M \times 1$ vector to represent the regression coefficients associated with the explanatory variables. The explanatory variables are static price-earnings ratio, transaction amount, transaction volume, turnover rate, circulating market value, ratio of circulating shares, transaction amount of the previous day and turnover rate of the previous day. ε is an $N \times 1$ vector to represent the error terms. In this table, AMT is the transaction amount, TVR is the turnover rate, PER is the static price-to-earnings ratio, $PAMT$ is the transaction amount of the previous period, $PTVR$ is the turnover rate of the previous period , TV is the transaction volume, CV is the circulating shares market value, CR is the circulating shares ratio. The data shows the correlation of each independent variables

Panel A (Whole sample from July 27, 2019 to September 27, 2021)						
Variable	Non-standardized		Standardized	t	Sig.	R^2 change
	Beta	S.E.	Beta			
(Constant)	0.014	0.006		2.161	0.031	
AMT	0.003	0.000	0.080	9.017	0.000	0.009
TVR	0.002	0.000	0.057	6.981	0.000	0.003
CR	0.008	0.001	0.049	5.678	0.000	0.001
PER	0.000	0.000	0.037	4.216	0.000	0.001
Adjusted R^2						0.014

Panel B (Sub-sample from July 27, 2019 to July 26, 2020)						
Variable	Non-standardized		Standardized	t	Sig.	R^2 change
	Beta	S.E.	Beta			
(Constant)	-0.001	0.002		-0.908	0.364	
TVR	0.008	0.001	0.077	5.360	0.000	0.004
PER	0.000	0.000	0.037	3.115	0.002	0.001
CR	0.005	0.002	0.029	2.432	0.015	0.001
TV	-0.004	0.000	-0.078	-4.400	0.000	0.001
AMT	0.003	0.000	0.084	4.405	0.000	0.002
$PAMT$	-0.002	0.000	-0.033	-2.254	0.024	0.001
Adjusted R^2						0.010

Panel C (Sub-sample from July 27, 2020 to September 27, 2021)						
Variable	Non-standardized		Standardized	t	Sig.	R^2 change
	Beta	S.E.	Beta			
(Constant)	-0.001	0.000		-1.702	0.089	
AMT	1.52E-07	0.000	0.130	10.724	0.000	0.029
TVR	0.001	0.000	0.053	3.649	0.000	0.007
TV	0.001	0.000	0.043	3.087	0.002	0.001
$PTVR$	0.001	0.000	0.030	2.410	0.016	0.001
Adjusted R^2						0.038

Table 4: Kaiser-Meyer-Olkin Test

The table shows the Kaiser-Meyer-Olkin (KMO) test. The result shows if the data set have significant correlation of each variables. We use the daily data from July 27 2019 to September 27 2021. The data is obtained from CSMAR and Wind. This test is to see if the dats set is suitable to do the principle component analysis relying on the KMO measure. If it fails to pass the test, it would not follow the principle component test. In this table, AMT is the transaction amount, TVR is the turnover rate, PER is the static P/E ratio, $PAMT$ is the transaction amount of the previous period, $PTVR$ is the turnover rate of the previous period , TV is the transaction volume, $CV$is the circulating shares market value, CR is the circulating shares ratio. The data shows the correlation of each independent variables.

Anti-image Matrices									
		AMT	TVR	PER	$PAMT$	$PTVR$	TV	CV	CR
Anti-image Covariance	AMT	0.369	-0.070	-0.047	-0.246	0.114	-0.157	-0.057	0.022
	TVR	-0.070	0.461	-0.030	0.104	-0.277	-0.208	0.055	0.006
	PER	-0.047	-0.030	0.742	-0.049	0.009	0.078	-0.254	0.227
	$PAMT$	-0.246	0.104	-0.049	0.430	-0.190	0.012	-0.055	0.018
	$PTVR$	0.114	-0.277	0.009	-0.190	0.566	0.006	0.017	0.029
	TV	-0.157	-0.208	0.078	0.012	0.006	0.508	-0.063	0.025
	CV	-0.057	0.055	-0.254	-0.055	0.017	-0.063	0.635	-0.297
	CR	0.022	0.006	0.227	0.018	0.029	0.025	-0.297	0.782
Anti-image Correlation	AMT	0.640	-0.170	-0.090	-0.618	0.250	-0.363	-0.117	0.041
	TVR	-0.170	0.581	-0.052	0.234	-0.542	-0.430	0.101	0.011
	PER	-0.090	-0.052	.576a	-0.087	0.014	0.127	-0.370	0.298
	$PAMT$	-0.618	0.234	-0.087	0.604	-0.385	0.025	-0.105	0.031
	$PTVR$	0.250	-0.542	0.014	-0.385	0.529	0.011	0.029	0.043
	TV	-0.363	-0.430	0.127	0.025	0.011	0.717	-0.111	0.040
	CV	-0.117	0.101	-0.370	-0.105	0.029	-0.111	0.577	-0.421
	CR	0.041	0.011	0.298	0.031	0.043	0.040	-0.421	0.386

Table 5: Sub-samples Regression Results Using Different Industries

The table show the sub-samples regression results. We divide the sample into five categories accoding to the industries. We use the daily data from July 27, 2019 to September 27, 2021 obtainted from CSMAR and Wind. In this table, AMT is the transaction amount, TVR is the turnover rate, PER is the static P/E ratio, $PAMT$ is the transaction amount of the previous period, $PTVR$ is the turnover rate of the previous period , TV is the transaction volume, CV is the circulating shares market value, CR is the circulating shares ratio. The data shows the correlation of each independent variables.

Panel A (Whole sample from July 27, 2019 to September 27, 2021)							
Industries	Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2 change
		Beta	S.E.	Beta			
Manufacturing	(Constant)	0.020	0.007		2.785	0.005	
	AMT	0.003	0.000	0.110	7.881	0.000	0.012
	TVR	0.002	0.000	0.081	8.147	0.000	0.006
	CR	0.009	0.002	0.059	5.443	0.000	0.001
	PER	0.000	0.000	0.043	3.800	0.000	0.001
	Adjusted R^2						0.021
Technological innovation	(Constant)	0.001	0.001		2.519	0.012	
	AMT	0.001	0.000	0.053	3.050	0.002	0.005
	$PTVR$	0.001	0.000	0.053	3.039	0.002	0.002
	Adjusted R^2						0.007
Gas	(Constant)	0.000	0.001		0.426	0.670	
	AMT	0.032	0.000	1.693	4.750	0.000	0.055
	$PAMT$	-0.002	0.000	-0.608	-8.102	0.000	0.031
	TV	-0.005	0.000	-0.978	-2.615	0.009	0.042
	$PTVR$	0.012	0.002	0.386	6.454	0.000	0.045
	TVR	-0.009	0.003	-0.297	-3.560	0.000	0.019
	Adjusted R^2						0.186
Environmental protection	(Constant)	-0.031	0.007		-4.231	0.000	
	PER	0.001	0.000	0.143	4.663	0.000	0.17
	AMT	0.001	0.000	0.126	3.371	0.001	0.04
	TVR	-0.009	0.003	-0.103	-2.761	0.006	0.06
	Adjusted R^2						0.270
Construction	(Constant)	-0.001	0.001		-1.284	0.200	
	TVR	-0.021	0.002	-1.115	-11.450	0.000	0.123
	AMT	0.020	0.000	1.432	14.249	0.000	0.048
	$PTVR$	-0.019	0.000	-0.957	-9.311	0.000	0.008
	$PAMT$	0.016	0.002	0.876	8.796	0.000	0.010
	Adjusted R^2						0.189

Panel B (Sub-samples from July 27, 2019 to July 26, 2020)							
Industries	Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2 change
		Beta	S.E.	Beta			
Manufacturing	(Constant)	0.004	0.001		6.809	0.000	0.007
	TVR	0.015	0.003	0.092	5.412	0.000	0.002
	TV	-0.000	0.000	-0.084	-4.303	0.000	0.002
	AMT	0.000	0.000	0.064	3.166	0.002	
	Adjusted R^2						0.011
Technological innovation	(Constant)	0.003	0.001		3.288	0.001	
	AMT	0.003	0.000	0.103	4.242	0.000	0.011
	Adjusted R^2	0.011					
Gas	(Constant)	-0.001	0.002		-0.445	0.657	
	TVR	0.036	0.008	0.741	4.403	0.000	0.085
	AMT	-0.004	0.000	-0.476	-2.827	0.005	0.026
	Adjusted R^2						0.111
Environmental protection	(Constant)	-0.034	0.014		-2.506	0.013	
	PER	0.002	0.001	0.136	3.003	0.003	0.16
	Adjusted R^2	0.16					
Construction	(Constant)	0.000	0.000		-0.300	0.764	
	$PAMT$	0.023	0.000	1.017	3.685	0.000	0.14
	$PTVR$	-0.016	0.007	-0.652	-2.365	0.019	0.017
	Adjusted R^2						0.157

Panel C (Sub-sample from July 27, 2020 to September 27, 2021)							
Industries	Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2 change
		Beta	S.E.	Beta			
Manufacturing	(Constant)	0.000	0.000		-0.865	0.387	
	AMT	0.003	0.000	0.151	11.657	0.000	0.033
	TVR	0.002	0.000	0.131	10.117	0.000	0.018
	Adjusted R^2						0.049
Technological innovation	(Constant)	-0.001	0.001		-1.143	0.253	
	AMT	0.005	0.000	0.163	5.663	0.000	0.018
	$PTVR$	0.002	0.000	0.142	5.387	0.000	0.003
	TVR	-0.002	0.001	-0.136	-4.163	0.000	0.008
	Adjusted R^2						0.029
Gas	(Constant)	-0.696	0.124		-5.602	0.000	
	CR	2.561	0.101	0.829	25.316	0.000	0.656
	TVR	-0.008	0.001	-0.351	-8.677	0.000	0.027
	$PTVR$	0.007	0.001	0.283	6.992	0.000	0.045
	CV	-0.014	0.007	-0.070	-2.158	0.032	0.004
	Adjusted R^2						0.735
Environmental protection	(Constant)	-0.017	0.007		-2.334	0.020	
	AMT	0.020	0.000	0.431	9.681	0.000	0.055
	TVR	-0.018	0.002	-0.518	-9.64	0.000	0.077
	$PTVR$	0.010	0.002	0.278	5.848	0.000	0.051
	PER	0.001	0.000	0.077	2.012	0.045	0.004
	Adjusted R^2						0.187
Construction	(Constant)	0.961	0.329		2.921	0.004	
	CR	0.514	0.081	0.472	6.347	0.000	0.218
	PER	0.001	0.000	0.191	3.184	0.002	0.038
	TVR	-0.011	0.003	-0.572	-4.23	0.000	0.009
	CV	-0.065	0.018	-0.298	-3.655	0.000	0.018
	AMT	-0.000	0.000	0.873	6.576	0.000	0.013
	Adjusted R^2						0.296

Table 6: Forward Regression Results

This table shows the results of forward regression, which is similar to the stepwise regression. We use the regression to see if the main results could pass the robustness checks. In this table, AMT is the transaction amount, TVR is the turnover rate, PER is the static P/E ratio, $PAMT$ is the transaction amount of the previous period, $PTVR$ is the turnover rate of the previous period , TV is the transaction volume, $CV$is the circulating shares market value, CR is the circulating shares ratio. The data shows the correlation of each independent variables.

Panel A (Whole sample from July 27, 2019 to September 27, 2021)

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2 change
	Beta	Std. Error	Beta			
(Constant)	0.014	0.006		2.159	0.031	
TVR	0.001	0.000	0.080	9.017	0.000	0.009
CR	0.002	0.000	0.057	6.984	0.000	0.003
PER	0.008	0.001	0.049	5.683	0.000	0.001
CV	0.000	0.000	0.037	4.217	0.000	0.001
Adjusted R^2						0.014

Panel B (Sub-sample from July 27, 2019 to July 26, 2020)

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2 change
	Beta	Std. Error	Beta			
(Constant)	-0.001	0.002		-0.908	0.364	
TVR	0.008	0.001	0.077	5.360	0.000	0.004
PER	0.000	0.000	0.037	3.115	0.002	0.001
CR	0.005	0.002	0.029	2.432	0.015	0.001
TV	0.003	0.000	-0.078	-4.400	0.000	0.000
AMT	0.002	0.000	0.084	4.405	0.000	0.002
$PAMT$	0.001	0.000	-0.033	-2.254	0.024	0.001
Adjusted R^2						0.009

Panel C (Sub-sample from July 27, 2020 to September 27, 2021)						
Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2 change
	Beta	Std. Error	Beta			
(Constant)	-0.001	0.000		-1.702	0.089	
AMT	0.002	0.000	0.130	10.724	0.000	0.029
TVR	0.001	0.000	0.053	3.649	0.000	0.007
TV	0.000	0.000	0.043	3.087	0.002	0.001
$PTVR$	0.001	0.000	0.030	2.410	0.016	0.001
Adjusted R^2						0.038