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**Comparison between the performance of Chinese state-owned companies and
private-owned companies in real estate field**

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by

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**COMPARISON BETWEEN THE PERFORMANCE OF CHINESE STATE-OWNED
COMPANIES AND PRIVATE-OWNED COMPANIES IN REAL ESTATE FIELD**

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Abstract

The research aims to determine whether there is a significant difference between state-owned companies and private companies in real estate area in terms of performance. Panel analysis were used in order to run regression analysis from the sample formed by 15 SOEs and 15 POEs during 2015 to 2018. It was found that there is a significant difference between SOEs and POEs in terms of ROA. The finding of this research may suggest in POEs are more efficient in company management.

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Introduction

Real estate is an essential component of Chinese economy. In 2016, about 15% of GDP was directly created by the real estate industry and about 42.9% of GDP are real estate related according to The Chinese Input-output Association. As one of the most important drivers of economic development, investment in real estate should be precisely researched. Especially for these years, a period which both China and the entire world suffer the pressure of the economic downturn, improving the efficiency of the major economic contributor is quite significant. Compared to the real estate companies in developed countries, interesting thing is that the ownerships of real estate company in China are various due to the socialist political system. Some of them are controlled by government (government owns more than 50% shares) while others are private-owned. Chinese government is actually thinking of change the ownership in a more privatized way for many current state-owned companies. For example, Supervision of state-owned assets under the State Council proposes an article which directly talks about the reformation of the ownership. It seems government has already believed the reformation of ownership will create the new energy to facilitate the performance of firm because the more efficient company governance.

Real estate industry indeed can be regarded as a microcosm when it comes to compare the performance among companies which have different types of ownership because real estate industry is a rare area in China which both private-

owned companies (POEs) and state-owned companies (SOEs) have huge influence. For instance, there are only five real estate enterprises ranked in Fortune Global 500 in 2018 and all of them are from China, including two SOEs and three POEs. Hence, real estate sector seems to be a suitable population. To be more specific, the border of governors in SOEs are most likely appointed by Chinese government, suggesting their ultimate goal is not profit but social optima. However, the goal of SOEs is undoubtedly making profit. The managers and border of governors should be responsible for their shareholders. This fundamental difference between POEs and SOEs may cause the difference of company performance. To detect if this potential difference is significant, researcher decide to test it. This paper may have two kinds of effects. The direct function of this paper is to help the real estate industry to identify the best ownership formation. Once the so-called better category of ownership is determined, some companies perhaps will transform the ownership by buying selling or buying stocks in order to be more efficient. Moreover, by analyzing the performance of companies with different ownership in real estate area, it may guide the direction of the reformation for the next stage. As a socialism country, PRC are facing lots of obstacles in privatization reformation including lack of decisive evidence and complex interest relationship. Researcher is hoping that this thesis can be a reference which proves the validity of economic reformation because rigid system may hamper the development of economic especially for an era when the fundamental is not as booming as before. Moreover, the privatization of some SOEs are actually in progress, if the superiority of POEs is perfectly proved, the process of

the privatization is most likely to be accelerated. Hence, his paper is designed to determine which kind of companies perform better, the state-owned ones or private owned ones in terms of finance.

The paper is formed as follows: literature review, methodology, data analysis, Limitation and contribution and reference.

Literatures Review

First of all, some key terms in the topic should be clearly defined. The terminology performance has actually multiple kinds of meanings in different text, including the level of total cost (Burki,2010), interest-rate risk level (Aydogan,1996), profitability (Bhatt, 2016), efficiency (Burki, 2010) and so on. The term state-owned company here refers to those companies which at least 51% share are owned by the government. In contrast to state-owned enterprises (SOEs), private companies (POE) in this research refer to the companies whose majority of the shares are not owned by the government rather than the companies which 100% controlled by private capital. The literatures listed below are generally about the topic of the comparison and contrast of the performance of SOE and POE in the last two decades. Most of the researchers come up with a general conclusion: POE performs better compared to the SOE.

Most researchers observe the performance of SOE and POE in a period of a reformation. The basis social environments of the researchers in are kind of similar to the circumstance in China. Governments recognize the inefficiency may be caused by ownership of the companies. They tend to reform the capital structure (Aydogan, 1996) and even introduce the foreign capital in the areas which are controlled by the native capital initially. (Burki, 2012) The regression analysis model is the basis model used by almost all the researchers. However, the specific model set up by different researchers are distinctive. For example, Bhatt focuses on the roles of ROE and ROA

from the annual reports. In other words, his research probably tends to narrow the term performance to profitability and leverage level (Bhatt, 2016). The author argues that the analysis of ROE and ROA is “relevant in developing country”. However, almost no literature really talks about whether ROE or ROA is more significant in the test. To distinguish SOE and POE, he defines a variable called “DUM” (dummy). (Bhatt, 2016) The hypothesis will also be tested by “DUM”. Nevertheless, another researcher Aydogan asserts that interest-rate risk level, a variable which is often overlooked, is important, especially when comparing the performance between different types of banks. (Aydogan, 1996) The author follows a homogenous way to clarify the difference between SOE and POE as what Bhatt does: two dummy variables are set up. When it comes to the control variable, there are obvious differences. Aydogan pays attention to “market power, capital adequacy and loan quality” because of empirical experiences. (Aydogan, 1996) In addition, his model also mentions the relationship between the branch networks and deposit interest due to the specialty of the area he researches. Instead of the direct calculation of the accounting terms such as ROE and ROA, the researcher specifies the relationship between profit margin and leverage level and comes up with another model. One group of researchers even consider the level of corruption as one of the major measurable variables for their research of the Vietnam case. (Nguyen, 2012) The author asserts that the corruption level between SOEs and POEs tends to significantly differs because of the political reasons. Hence, as a factor which dose influence the company governance and overall economic growth, corruption level should also be

considered in the model especially for the cases of developing countries. The biggest obstacle for putting corruption level into regression analysis model is the unavailability of the source of data. To avoid this kind of problem, Goldeng and his research team choose their samples from Norway, a developed country. (Goldeng, 2008) He suggests that the regulations in a developed country are stricter, helping to eliminate some variables which are hard to be controlled and defined such as internal corruption. In addition, Since the regression input is panel data, Housman tests are needed to identify whether the whether the fixed- effect or random-effect model should be used. Not all the researchers who are interested in the difference between SOE and POE use the regression analysis model as their methodology. For example, another kind of model called Data Envelopment Analysis (DEA) is also used in research. According to the author, it is a reliable nonparametric way to test efficiency by comparing the efficiency with the possible production frontiers (PPF) of decision-making units (DMUs)" (Burki, 2010). The author carefully depicts the "nonparametric best-practice frontier" and allocates the different points which represents the different efficiency levels of different types of companies. Again, this methodology requires the accurate internal information which maybe unavailable from annual reports.

Generally, most researchers quantify the profitability of the firms and use it as an important variable in the regression analysis model though the way they treat the data is different. Also, most of the researchers prefer selected samples from

developing countries because those researchers want to test if the reformation of the companies is effectively though some issues such as internal corruption and interest-rate risk may be ignored. Last but not least, it seems the reformation in the financial institution interests most of the researchers. Most of the samples are banks rather than other kinds of firms. It is likely that one metric is suitable for one area but not others.

Methodology

In this study, the following two hypotheses are preset in order to analyze the performance of SOEs and POEs.

H1: There is significant difference in performance between SOEs and POEs.

H0: There is no significant difference in performance between SOEs and POEs.

$$ROE = x_0 + x_1 DUM + x_2 (SALES/ASSET) + x_3 LEV + \epsilon$$

$$ROA = x_0 + x_1 DUM + x_2 (SALES/ASSET) + x_3 LEV + \epsilon$$

Where,

ROE: Returned on Equity

ROA: Returned on Asset

DUM: the dummy variable set up to represent the difference between SOEs and POEs

If SOEs, then DUM = 1

If POEs, then DUM = 0

LEV: total asset/shareholder's equity

As the formula above demonstrated, SALES/ASSET and LEV are regarded as controlled variables when running regression analysis according to literature reviewed. (Nguyen, 2012) ϵ refers to the possible individual and time period effects and possible errors.

Before starting running the regression, it is important to do Hausman Test first.

Hausman Test is specially designed for the panel data regression to identify whether the regression should fixed-effect or random-effect model should be used.

Sample description

As mentioned above, 15 SOEs and 15 POEs in real estate areas are selected. All the companies picked enjoy some kind of reputations in the industry. They are listed in distinctive stock exchange including Shanghai Stock Exchange, Shenzhen Stock Exchange and Hong Kong Exchanges and Clearing Limited. The detailed information can be found in the appendix. In addition, all the data drives from the annual reports from 2015 to 2018.

Dependent variable

According to literatures reviewed, ROE and ROA are selected because they are in common use and have decent data availability. ROE is defined as the ratio of profits deducted tax and interest to the shareholder's equity while ROA is defined as ratio of profits deducted tax and interest to the asset. All the variables used in the formula are book values because of the accessibility.

These accounting-base variables are important measurement for developing countries such as China. (Nguyen, 2012) As the widely accepted measurement, they can be considered as an epitome for the company performances.

Independent variable

Only one dummy variable is set in the model because this research will only focus on the distinction between ROE and ROA.

Controlled variable

Sales-asset ratio is the first controlled variable in the formula. Real estate is a sector which heavily relies on the fixed asset investment and sales. It is reasonable to assert that the higher the sales-asset ratio is, the better the performance of the company is.

LEV is another controlled variable. For all the companies in the real estate department, liability is a real vital source for fund to the purchase of land and construction of buildings. It is hard to clarify what exactly the optimal leverage is but solid to say the higher the leverage level, the higher the bankruptcy risk is. Hence, leverage can be considered as a monitor to firm by lenders.

Data Analysis

Descriptive Data

Variable	Obs	Mean	Std.Dev.	Min	Max
ROE	112	16.66309	8.706216	1.363778	41.86729
ROA	112	2.584951	1.491869	0.317267	8.133151
ATR	112	0.3111427	0.1890261	0.106914	0.882835
LEV	112	7.549808	3.53856	2.493518	22.13115
DUM	112	0.7857143	0.4121701	0	1

Source: Bloomberg Terminal

As mentioned, the data was analyzed by the multiple regression model. To be more specific, Hausman test was used to identify whether the fixed- effect or random-effect model should be used.

Run regression between ROE and all factors

Hausman Test

	Chi-Sq. Statistic	d.f.	Prob.	Conclude
Hausman Test	5.42	2	0.0667	Fixed

Calculated by Stata

Run regression between ROA and all factors

Hausman Test

	Chi-Sq. Statistic	d.f.	Prob.	Conclude
Hausman Test	12.92	2	0.0016	Fixed

Calculated by Stata

As what two graphs showed, the P-value were both less than 0.1. Hence, fixed- effect model should be used in both two regression test models.

correlation coefficient test

	ROE	ROA	ATR	LEV	DUM
ROE	1.000				
ROA	0.504***	1.000			
ATR	-0.119	-0.065	1.000		
LEV	0.375***	-0.441***	-0.153	1.000	
DUM	0.116	-0.367***	0.234**	0.369***	1.000

***and ** mean the significance level in 99% and 95% respectively.

Source: Computed from the model

fixed effects regression result

ROE	Coef.	Std.Err.	t	P> t	[95%Conf.Interval]	
DUM	0	(omitted)				
ATR	1.391664	12.75092	0.11	0.913	-23.97397	26.7573
LEV	1.781202	0.2794117	6.37	0	1.225363	2.337041
_cons	2.782351	5.067207	0.55	0.584	-7.297939	12.86264
R-squared	0.1382					
F	22.31					
Prob	0					

Source: Computed from the model

For the first model, DUM was eliminated automatically by the Stata (the coefficient is 0) according to the charts above because DUM failed to pass the significance test. It suggests that there is no significant relation between the DUM with ROE. In other words, the type of the ownership will not influence the ROEs of the companies, a result consistent with what Bhatt found. (Bhatt, 2016)

However, for the second model, a significant negative relationship was disclosed between the ownership of DUM and ROA. It means the state-owned companies may perform much worse in ROA.

The difference between ROE and ROA is leverage. It seems that ROE is a metric which gauge better how the capital of investor is generating income while ROA is an assessment which measure better about how the management is using asset to generate income. Since all of those real estate companies are in a high leveraged position, how the debt is using by the managers should be seriously considered. Debt is only considered by ROA but not ROE. ROA therefore may be more relevant in this study than ROE.

Results

As the regression analysis of ROA suggests, there is a significant negative correlation difference between the Dummy Variable (stated-owned company) and ROA. Hence, the It finally proves that there is a significant difference in performance between SOEs and POEs in terms of ROAs. The stated-owned formation is an obstacle for the growth of the ROAs of the Chinese real estate companies.

However, as what regression analysis of ROE suggests, there is no significant negative correlation difference between the Dummy Variable (stated-owned company) and ROE. Hence, this result suggests that there is no significant difference in performance between SOEs and POEs in terms of ROEs.

As mentioned above, it seems for those high-leveraged real estate companies, ROA may be a better metric. However, there is almost no external source to confirm this argument. Hence, the researcher decided to reserve both the results of ROE and ROA.

This reservation means that two different conclusions will be generated from the research.

Conclusion

In this paper, researcher investigated the whether the type of the ownership of the company will influence the performance of real estate companies. Due to the accessibility and reliability of data source, ROE and ROA were two metrics finally chosen to represent the performance of companies in terms of Finance.

Data are formed in panel and therefore Hausman Test was used in two regression models in order to determine whether the fixed- effect or random-effect model should be used in the test. After determining the exactly model, the multi-regressions were used to check the correlation between the type of the ownership and ROE and ROA respectively.

Researcher first found out that the ROE was eliminated automatically by Stata because of insignificance. It showed that no matter what kind of firm it was, ROE would not be influenced. However, the regression model for ROA was significant in 95% confidence level and proved that state-ownership may hamper the growth of ROAs.

These two contradictory results lead a new debate about the fundamental difference between ROE and ROA. For this case, all the real estate companies are in high-leveraged position. Other than considering equity only, ROA seems to consider debt,

too. It was still too arbitrary to assert that ROA was better than ROE in this case since almost no external literatures could confirm or deny this argument (Nguyen, 2012).

Hence, the two main conclusions as follows:

1 There is a significant difference in performance between SOEs and POEs in terms of ROAs.

2 There is no significant difference in performance between SOEs and POEs in terms of ROEs.

Though the question seems not to be perfectly solved, the SOEs could still consider the reformation of their ownership since they will at least enjoy the growth of ROA.

For their debt holder, this potential increase must be good news.

Limitation and contribution

There are several limitations in this paper because both the subjective and objective issues. First, the volume of samples is maybe not significant enough. As mentioned, 30 enterprises in total are chosen while there are actually more 1000 real estate companies in China. It may not excellently reflect the complete pictures by only choosing those industry leaders. Second, the result generated by the two regression models are not constant. For the model that using ROA as indicator, it proves the superiority of private ownership while for another model, the argument is not significant. No external literature was found to provide with the proof which metric, ROA and ROE, is more suitable in this case. In other words, there is no one unitive conclusion from the research. Also, there are real estate companies which are not listed. It is still a question if the test here is also true for them. Second, the researcher's model actually simply reduces a complex term, performance, into a finance-related term only. Indeed, according to the literatures reviewed, performance can also refer to multiple terms such as company governance level. Third, it is also not sure whether ROA and ROE are the best indicators among various accounting terms though a lot of literatures do support the validity. Fourth, for the controlled variables, researcher actually ignores some terms. For example, corruption level is neglected when running the regression because of the huge difficult in quantifying the variables. Company governance is also just reduced into dummy variables instead of listing independently. The SOEs in China nowadays do focus more on making profit just like any other normal firms because Chinese

government now set the profit as one of the major assessments for border of governors rather than nominate them randomly. In addition, only using one variable to represent all the individual and time period effects may not specific enough.

There are a large number of literatures talking about the reformation of ownership of Chinese companies. However, seldom do they focus on the real estate sectors. Same thing happens in the researches of other developing countries. It seems the most attractive area for scholars is banking areas while industries such as real estate are also underestimated. For those real-estate-related articles, they do not exactly use the such kind of accounting measurement to test. Hence, this paper will have a special meaning for the company in real estate areas especially when considering financial performance. This study can not only reflect the situation in China, but also benefit developing countries which are under similar circumstance like China.

For the possible future research, researchers first will try to increase the volume of the sample and adjust the selected companies. Only focusing on the top leaders in the industries may not perfectly reflect the complete picture of the situations of the real estate industries. Also, more independent variables should be put in the regression model such as the level of Corporation Social Responsibility (Zhong, 2012). Since the biggest ambiguity in this research in the role of ROA and ROE, perhaps other reliable indicators should be recognized as the new dependent variables. For example, the stock return seems to be a convincing and suitable indicator to put in

the regression model. Additionally, the privatization plans of some SOEs in China are actually in progress and have large possibility to be approved by Chinese government. It suggests that a new dummy variable can be set to distinguish the perform difference of firms in regression model. In this way, the advantage of privatization maybe better revealed.

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