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How to explain corporate investment heterogeneity in China's new normal: Structural models with state-owned property rights[☆]

Jinchuan Shi, Xiaoqian Zhang[*]

Center for Research of Private Economy and Academy of Financial Research, College of Economics, Zhejiang University, Hangzhou, China

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ABSTRACT

This paper studies corporate investment and its structural change by the view of state-owned property right. By constructing dynamic investment decision-making model, we find corporate investment heterogeneity in China due to their different dynamic shifts of objective functions, demonstrated by our simulations. Empirical tests imply that the expansion of investment improves financial performance, but does not play a positive role on solving social employment. POEs expanded investment much more than SOEs did, even in the transitional period, but both of them reduced their investment significantly in new normal. Mechanisms are explored by 3-stage structural models for non-matched control group and nearest neighbor PSM matched control group. Although investment inefficiency of SOEs are concerned, executive stock ownership and equity finance could be exotic methods to stimulate efficient investment. Investment efficiency of POEs has been recovered in new normal but POEs have shifted away from 'profit-driving' they used to be in the old normal.

1. Introduction

China's slowdown and its structural transformation have been attracting global attention since the end of 2015.[1] Over-debt and over-investment are regarded as the main causes. In normal economic times, Diego (2013) established that physical investment is the key to China's growth miracle which is exploited by the structural transformation during the period 1952–2006. Knight (2014) also considered high investment as the crucial factor of China's Developmental State,[2] which generated a virtuous circle of rapid growth -

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* Corresponding author.
E-mail address: develop21cn@zju.edu.cn (X. Zhang).

[1] The very first concern on China's slowdown was revealed by Yellen's speech on the last declining to raise interest rate of FOMC (Federal Open Market Committee) in September, 2015.

[2] "Enterprises that were owned or controlled by government has access to a ready supply of bank loans at low rates of interest, the non-state enterprises that were not linked to government were sufficiently profitable to be able to rely on their own retained profits." After analyzing the origins, evolution, incentives and successes of China's developmental state, he questioned on whether the developmental state itself can be maintained and revealed the adverse shock that threatening the solvency of the banking system and the demand for and supply of funds for investment might result in the consequent slowdown in economic growth. Research group on China's economic growth (2014) documented that China's structural slowdown resulted from the triple shocks on investment, employment and learning-by-doing.

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high confidence, high investment, high growth, high confidence- and kept it going. In order to exploit the key to China's sustainable growth, we examine the structural change of micro corporate investment behavior in this paper, focusing on the state-owned property rights as a resource of its heterogeneity for Chinese firms.

This current paper exploits China's corporate investment behavior by two dimensions, vertical and horizontal, respectively. In the vertical dimension, the structural changes are tested on the evolution over time. The question is whether there is structural transformation of the effects on firm's investment and its micro mechanism. If the answer is yes, what's the difference between China's old normal and new normal. On the other hand, the horizontal dimension is state-owned property right which is a special feature of China's companies. Song, Storesletten, and Zilibotti (2011) examined the difference on productivity and access to financial markets between SOEs (State-Owned Enterprises) and POEs (Private-Owned Enterprises). What is the difference of corporate investment behavior between them in the current China's slowdown background?

Several articles examined the effect from the financial crisis in 2008, which found a reduction in investment for US companies and European companies. Campello, Graham, and Harvey (2010), Campello, Giambona, Graham, and Harvey (2011), and Kahle and Stulz (2013) examined capital expenditures fall from credit constraints. There is no signs of investment reduction in China during financial crisis, because there was no bank lending supply shock as US and EU. On the contrary, Chinese state-owned enterprises was funded by a great amount of bank loans from China's economic stimulus package. Liu, Pan, and Tian (2018) found that bank lending became less responsive to firm profitability, the stimulus package and the associate increase in bank loan supply resulted in more resources being allocated to SOEs. Therefore, the credit constraint as US and EU companies faced hasn't appear for Chinese SOEs, but it may still exist for POEs. But SOEs have to take on social responsibilities and their managers may have more concerns on the impact of high risk investment on their job promotion. Our analysis is based on a dynamic model of corporate investment strategy considering different state-owned property rights. The reason why there is heterogeneity in China's corporate investment is that optimization objective function shifts differently between SOEs and POEs. POE's financial distress boundary coming from credit constraints shifts left after the recent global financial crisis. Some POEs abandon their original objectives of value maximization which results in investment expansion even if they are facing financial constraints and economic downturn. Other POEs reduced their investment due to the concerns on increasing risk. Their investment declines as the same trend as European and American companies did after the great recession. For SOEs, some of them reduced investment even if the central government has pushed them to expand investment over and over, including providing large amounts of fundings. Our theoretical model explains that although SOEs have to take on the social responsibility, their investment strategy also shifts since there are severe agency problem due to the decentralized information and incentive problems as Milton and Raviv (1996) suggested.

Using corporate panel data from 2004 to 2015, this current paper has the following three findings. First, we examine the structural change of corporate investment in China's new normal. Three-stage Difference-in-Difference analysis based on different time windows implies that the structural transformation is significant. Two shocks are considered, including financial crisis and turn points of transformation. The empirical results imply that the year, 2013, is the starting point of China's new normal, while 2011–2012 is the interim period. This provides evidence of the structural transformation of China, especially in micro corporate investment behavior.[3]

Second, the real effects of investment expansion considering structural transformation are further examined in this paper. In order to know whether investment expansion promoted sustainable economic growth, I also examined the social performance in addition to financial performance. The empirical tests imply that expansion of investment is able to improve financial performance which is about 3% on average, but no significant evidence on improving social performance. Deeply separating the wheat from the chaff, although SOEs are better at social performance than POEs are, there is no evidence that investment expansion improves employment problem in either SOEs or POEs. IMF (2016) recently highlighted global downside risks from 7 perspectives, the second of which is right the international ramifications of the economic transition in China. This paper shows the real structural transformation and its effect in China by considering China's special feature, state-owned property rights.

Third, the reason why there are heterogeneity of investment behavior not only in SOEs but also in POEs is that their profit vs. risk trade-off shifts differently. In transitional period, 43.3% of SOEs expanded their investment while the percentage is 51.1% for POEs. The ratio declined to 33.3% and 39.5% for SOEs and POEs in new normal economy, respectively. Using propensity score matching method, the heterogeneity from the impact from agency problem, external financing, and profit vs. risk trade-off implies that POEs have transformed from profit-incentive in old normal economy as Knight (2014) described into risk-averse in the new normal economy. Since the investment expansion is unsustainable and has no significant benefits to employment, China's formal developmental state policy, i.e., virtuous circle of high confidence, high investment and high growth, as Knight (2014) put forward, is going to be broken. Investment expansion, as the main effective factor of China's sustainable economic growth, is unsustainable in the new normal economy, thus China do have some concerns on economic sustainable growth.

In the current paper, we attempt to contribute to the literature on Coase's theory of firm. Grossman and Hart (1986) and Hart and Moore (1990) examined this topic using incomplete contracts. But it is hard to make progress because of the difficulty of formalizing *haggling costs* as Hart (2008) referred to. This topic is facing an emerging improvement currently, one of the important exploring on China's market. Z. K.~Huang, Li, Ma, and Xu (2017) added to the general literature of local information and firm decentralization. Chen and Wen (2017) interpreted China's housing boom as a rational bubble which can crowd out productive capital investment, and

[3] Stern and Green (2015) regarded growth rate as the measure of China's new normal. They defined new normal between 2012 and 2014 since China's growth rate is slowing to 7–8% over 2012–2014 while average is 10.5% over the old normal between 2000 and 2010. WorldBank (2015) also addressed that in China, structural reforms, a gradual withdrawal of fiscal stimulus, and continued prudential measures to slow credit expansion will result in slowing growth to 6.9% by 2017 from 7.4% in 2014.

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