Author's Accepted Manuscript

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PII: S1059-0560(17)30033-3
DOI: http://dx.doi.org/10.1016/j.iref.2017.01.014
Reference: REVECO1359

To appear in: *International Review of Economics and Finance*

Cite this article as: Fu Xin, Jie Zhang and Wenping Zheng, Does Credit Marke Impede Innovation? Based on the Banking Structure Analysis, *Internationa Review of Economics and Finance,* http://dx.doi.org/10.1016/j.iref.2017.01.014

Does Credit Market Impede Innovation? Based on the Banking Structure Analysis

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Abstract

This paper asks whether the credit market impede innovation. Using a province- and industry-level innovation dataset combined with regional loan structure in Chinese credit market during 1999-2007, we identify two measures to proxy Chinese banking structure, the long-term vs. short-term bank loans and the Big-Four vs. non-Big-Four banks, which affect technological innovation. We show that industries that are more dependent on external finance exhibit disproportionally higher level of innovation in provinces with a larger share of the long-term bank loan market. However, a larger share of the short-term bank loan market appears to discourage innovation in industries with more dependence on external finance. Moreover, the positive effect of the long-term bank loans on innovation is strengthened in provinces with a higher level of market share of the non-Big-Four banks, whereas the negative effect of the short-term bank loans on innovation is mitigated in those provinces. This study provides evidence on the positive effect of the credit market on innovation.

JEL classification
G21, E43, O32
Keywords: Bank-centered financial system, Loan term structure, Banking structure, Innovation, China

1. Introduction

Does the credit market impede innovation? This question is important given the critical role of innovation in promoting economic growth (Solow, 1957). Recent studies in the finance-innovation literature has suggested that the development of the credit market has a significantly negative impact on corporate innovation (Hsu, Tian, and Xu, 2014). However, China's patent explosion under the dominance of banking system indicates that China is a puzzling counterexample to the general finance-innovation literature.

China's banking system is much more important in terms of size relative to its equity market. As estimated by Allen, Qian, and Qian (2005), Chinese bank credit reached the amount as 1.11 times as China's GDP, while the capitalization of Chinese equity market is only as much as 32% of the GDP. This means the bank loan market is over three times larger than the equity market, which presents an obvious contrast against the LLSV-sample countries (La Porta et al. 1997; La Porta et al. 1998). Figure 1 serves as a comparison of the size between the long-term and short-term loan market and equity market during a period of 1999 and 2007, from which we reconfirm that Chinese credit market is much larger than its equity market. More importantly, from Figure 1 we find that the ratio of long-term loans to GDP is growing rapidly from 20.99% in 1999 to 47.68% in 2007 whereas the ratio of short-term loans is shrinking from 70.03% in 1999 to 38.09% in 2007, which indicates a structural change in the Chinese credit market. At the same time, the invention patents present a dramatic growth, which coexists with the growth of long-term loans. In contrast, Chinese equity market exhibits a more volatile pattern, reaching the first peak in 2000 and the second peak in 2007. The comparison between the credit market and equity market in China infers that banks have the dominant market power to provide sustainable funds for the innovative firms, which is inconsistent with the recent development of finance-innovation literature.