Fright or Fait Accompli:
Credit Guarantees and Zombie Firms among SME in Japan

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Abstract

In recent years and particularly since the global financial crisis, zombie firms—unprofitable businesses supported by financial relief—have generated widespread concern. Economic studies contend that zombie firms impede the normal flow of capital and human resources to healthy businesses, thereby defying creative destruction and hurting investment and employment growth. But what causes zombie firms to occur? Addressing this question from a political economy perspective, this project investigates a novel hypothesis about the role of credit guarantees in supporting weak firms, through a case study of small and medium enterprises (SME) using Japan's credit guarantee system in the 1990s and 2000s.

Introduction

Zombie firms have been widely characterized as harmful due to their purported interference in the process of creative destruction. In recent years, especially after the global financial crisis, zombie firms have become a major public policy concern among both governments (e.g. China, Europe, and the United States) and international organizations (e.g. the IMF and the OECD). In short, there is heightened interest in identifying both the existence and the causes of these firms, given these firms' alleged drag on economic growth and recovery.

Extant explanations for zombie firms fall into two categories. On the one hand, undercapitalized "zombie" banks are believed to support zombie firms in order to avoid the realization of nonperforming loans (Peek and Rosengren 2005; Acharya et al. 2017). On the other, inefficient bankruptcy regimes impede restructuring by distressed firms, sometimes driving them toward zombie status (Adalet McGowan, Andrews, and Millot 2017).

Aiming to contribute to this literature and the discussion around zombie firms, this project examines the potential role of credit guarantees in incentivizing banks to lend to precarious, zombie-prone firms. It also looks at politics behind the credit guarantee systems which may facilitate the existence of zombies among guarantee-using firms.

Methods and Materials

This project uses a case study on Japan's credit guarantee system for small and medium enterprises (SME). Previous works allude to the potential relationship between Japan's credit guarantee system and zombie SME (Imai 2016; Goto and Wilbur 2019), but were unable to directly assess it due to data limitations. This project builds on those works by looking specifically at Japanese SME taking credit guarantees in the Credit Risk Database (CRD), the only database which contains the credit guarantee amount.

In the project's current stage, particular attention is paid to the effect of guarantee loans issued through Special Credit Guarantee (SCG) program. Between October 1998 and termination in March 2001, the SCG was used in 1.7 million loans totaling ¥28.9 trillion ($270 billion) in guaranteed loans. The SGC had a negative list and was notably easy for SME to utilize.

The project considers SME that increase the guarantee amount from the previous year in 1999 and 2000—the period of the SCG—as firms receiving SCG. Only 587 firms correspond to this description, about 0.1% of the annual average number of sample companies in the CRD. It is possible that many SME in the CRD have comparatively high creditworthiness so there was little need to use the SCG, or that data loss occurred in the database.

Results

Tentative results for the project include:

- Firms which increased their guarantee obligations in 1999 and 2000 had a low probability of increasing their profits and employment five years later (2005)
- Firms which increased their guarantee obligations in 1999 and 2000 had lower profits and employment until at least 2006 compared with companies that did not
- Immediately after the SCG ended in 2001, the probability of becoming a zombie firm decreased, but the significance thereafter also declined—in other words, despite the SCG's large-scale support, the probability of becoming a zombie firm could not be reduced

Table 1. Operational Performance of SCG-User Firms in 2005 (Example Year)

	profit increase (5yrs)			employees increase (5yrs)		
	coef.	s.e.	p-value	coef.	s.e.	p-value
profit rate (current profit/sales)	0.0000	0.0002	0.8750	0.0029	0.0016	0.0810
credit guarantee increase in 1999, 2000	-0.1850	0.0935	0.0480	-0.3260	0.1141	0.0040
log of employees	0.0614	0.0032	0.0000	-0.1345	0.0038	0.0000
log of debt amount	0.0790	0.0025	0.0000	0.2331	0.0031	0.0000
age	0.0026	0.0002	0.0000	0.0114	0.0002	0.0000
const.	-7.4956	0.5178	0.0000	-27.1414	0.6059	0.0000
industry dummies	Yes			Yes		
log likelihood	-420875.7			-329180.7		
p-value, LR chi2	0.000			0.000		
pseudo R2	0.009			0.018		
# of obs.	669,479			669,479		

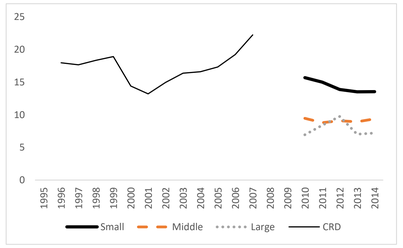
Table 2. Credit Guarantee Increase Dummy by Year

	profit increase		employment increase	
	coef.	p-value	coef.	p-value
1 year later (=2001)	-0.166	0.066	-0.086	0.445
2 year later (=2002)	-0.061	0.499	-0.215	0.057
3 year later (=2003)	-0.182	0.048	-0.290	0.01
4 year later (=2004)	-0.175	0.057	-0.267	0.017
5 year later (=2005)	-0.185	0.048	-0.326	0.004
6 year later (=2006)	-0.202	0.037	-0.272	0.017
7 year later (=2007)	-0.051	0.663	-0.200	0.161

Table 3. Probability of Becoming a Zombie Firm

	coef.	p-value
1 year later (=2001)	-0.585	0.000
3 year later (=2003)	-0.095	0.510
5 year later (=2005)	0.007	0.961
7 year later (=2007)	-0.086	0.670

Graph 1. Zombie Firms in the Credit Risk Database



Discussion

Previous research identifies many zombie firms among SME in Japan, but does not directly speak to the effect of the large-scale guarantee system.

Preliminary analysis in this project suggests a relationship between the SCG and operational performance, with the possibility that this program within Japan's credit guarantee system was behind inefficient SME. While the number of SCG-using firms currently appears small, the data suggests a connection between the program and zombie firm status.

Conclusions

This project attempts to examine a novel causal mechanism for zombie firms in the form of credit guarantees. Its preliminary findings suggest some relationship between credit guarantees and inefficient and zombie firms, especially among SME which used Japan's SCG program between 1998 and 2001. While the enlargement of Japan's credit guarantee system was first conceived as a crisis countermeasure, the persistence of the system's generous scale and high coverage ratios were puzzling from the perspective of Japan's positive macroeconomic environment during 2003-2007. However, key system stakeholders, including SME and regional financial institutions, opposed drastic change. Government officials' own uncertainty about the possible effects of reductions and constant informal pressure from politicians also impaired reforms that would have caused banks to accept greater risk and incentivized stricter lending practices toward loan applicants, some of which evidently took zombie status.

Future Directions

There are several possible future directions for the project including: long-term data analysis on the relationship between the SCG and zombie formation, propensity score matching (evaluating the difference between SCG-using and non-using firms), and survival analysis (evaluating whether SCG-using firms lived longer, particularly interesting for firms' survival after the 2008 Lehman shock).

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