

## Chapter 18

# Mutual Guarantee Systems of Small and Medium-Sized Enterprises in China: An Application of Self- Organization Theory

**Yi Yang**

*Beijing Union University, China*

**Hong-yan Yan**

*Beijing Union University, China*

**Ze-yun Yang**

*Beijing Union University, China*

### **ABSTRACT**

*Mutual guarantee systems (MGS) of small and medium enterprises (SMEs) are complex system mainly serving the SMEs, including the mutual guarantee institutions formed by SMEs, financial institutions, industry associations and credit re-guarantee institutions. From the perspective of system theory, this paper illuminates the self-organization mechanisms and the self-organization characteristics of openness, far-from-equilibrium, nonlinearity and fluctuation of mutual guarantee systems of SMEs. The implication of self-organization theory is that under some conditions, mutual guarantee systems have the internal tendencies of autopoietic, self-evolution and evolution from disorder to order and from low level to high level to solve SMEs' financing problems. Using self-organization theory, this paper proposes suggestions and measures to improve the operation efficiency of mutual guarantee systems in China.*

## **1. INTRODUCTION**

A large body of literature has shown that small firms experience difficulties in accessing the credit market due to informational asymmetries. Banks can overcome these asymmetries through relationship lending, or at least mitigate their effects by asking for collateral. Small firms, especially if they are young, have little collateral and short credit histories, and thus may find it difficult to raise funds from banks. Informational asymmetries between small firms and banks may be so pronounced that profitable investment opportunities are not financed (Petersen & Rajan, 1994; Berger, Udell, 1998; Coco, 2000; Berger & Udell, 2002; Berger & Udell, 2006). Small enterprises may mitigate this problem by posting collateral or building close relationships with lenders. Nevertheless, these solutions are of little help to firms which lack collateral or credit history.

In these cases, other contractual schemes may emerge to mitigate severe asymmetric information problems. In particular, borrowers may join together and share a joint responsibility for default. Mutual guarantee system (MGS) can be a viable solution to the problem of access to credit from banks for those small entrepreneurs who cannot offer sufficient collateral. In this case, instead of lending to each single borrower, banks lend to a group of borrowers linked by a joint responsibility for a single loan granted to all of them. Empirical analysis shows that small firms affiliated with MGS pay less for credit compared with similar firms which are not MGI members (Francesco, Leonardo & Paolo, 2009).

MGS are quite widespread in Europe: on the basis of the latest available data provided by the European Mutual Guarantee Association, there are more than 1.4 million small and medium-sized enterprises (SMEs) affiliated with an MGI in the European Union. MGS are particularly widespread in Germany, France, Spain and Italy. Italian MGS represent the largest component of the European mutual guarantee sector, accounting

for 37 per cent of the total outstanding volume of guarantees to SMEs.

Some researchers have taken a critical view on Chinese MGS. Mutual guarantee institutions have advantages of information gathering, monitoring and transaction costs, allowing the government to achieve optimal management of information asymmetry under the conditions of limited resources, comparing with other guarantee institutions (Ba, 2007). The friendly economical co-operations among SMEs provide convenient conditions for the co-operative credit guarantees that has become a well-applicable development pattern for the current financing system of SMEs, and it can be the main composing of diversified credit guarantee system of SMEs in the future in China (Peng, 2008).

In this paper we focus on Chinese MGS which can deal with banks on an equal level, helping SMEs gain access to credit that is normally unavailable. The characteristic of self-organizing system and present situation of mutual guarantee institutions in China are analyzed with the theory of self-organization.

## **2. THEORY OF SELF-ORGANIZATION**

In general, the organization refers to the order within the system structure or the formation of this ordered structure. German theoretical physicist Hermann Haken (1983) found that the evolution of form from the organization point of view, it can be divided into two categories: he organized and self-organization. If a system formed by the external command organization, is his organization; if there is no external instruction, the system in accordance with the tacit agreement of some kind of rules, fulfill their responsibilities and who coordinated automatically to the formation of ordered structure, is self-organization.

One of the earliest references to the term 'self-organization' in management literature (Ashby, 1947) defines it as processes in which systems

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