National culture, market condition and market share of foreign bank ☆

Minggao Xue *, Wen Cheng

School of Management, Huazhong University of Science and Technology, Wuhan 430074, China

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ABSTRACT

In the paper, based on Breuer and McDermott's (2011) definition for national culture, we develop a theoretical model that helps explain economical behaviors of foreign bank and show that national culture is as important as credit market conditions in determining market share of foreign banks. Our model yields two interesting results. One is that market share of foreign banks is always lower than domestic banks in emerging market. Another is that in enterprise and heterogeneous society, foreign banks are likely to extend their market shares during recession in transition economies, not during prosperous one. Our theoretical findings also provide an explanation for empirical observation from Chinese emerging market.

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1. Introduction

The objective of this paper is to provide a theoretical framework that helps explain economical behaviors of foreign bank and show that national culture is as important as credit market conditions in determining market share of foreign banks. The subject of whether foreign banking participation does influence the stability of domestic financial market has drawn considerable attention in the recent finance literatures since foreign banks are able to easily relocate funds to different markets with higher expected profits through their internal capital markets. For example, Morgan and Strahan (2004) argue that foreign bank might 'cut and run' at the first hint of economic instability and expedite capital flight during crisis. Kroszner et al. (2007) and Dell'Ariccia et al. (2008) show that foreign banks do not mitigate the adverse consequences of local banking crises. However, Dages et al. (2000) and Crystal et al. (2002) find that foreign banks even tend to expand their credit supply under adverse economic conditions from a subsample of Southern American countries. How can this behavior of foreign banks be explained theoretically? Foreign bank's market share could better characterize foreign bank's behaviors. For example, when the market share of foreign bank equal to zero, it is shown that foreign bank will not enter the emerging market. When the market share of

foreign bank is increasing or decreasing, it is shown that foreign bank extends or reduces his lending in emerging markets. This paper will provide a theoretical framework for such outcomes to analyze the influence of national culture on foreign bank's market share.

Most prior work in this area focuses on the effect of a single credit market conditions on market share of foreign bank (Buch, 2003; De Haas and van Lelyveld, 2004; Giannetti and Ongena, 2010; Hainz, 2003; Khanna and Palepu, 2000; Kraft, 2002; Mian, 2006; Sengupta, 2007). However, Chang et al. (1998) find that foreign banks are hindered by cultural barriers. Sociologists and anthropologists (like Richerson and Boyd (2005)) have accumulated a wealth of evidence on the impact of culture on economic behavior. Until recently, economists have been reluctant to rely on culture as a possible determinant of economic phenomena. Much of this reluctance stems from the very notion of culture: it is so broad and the channels through which it can enter economic discourse are so ubiquitous (and vague) that it is difficult to design testable, refutable hypotheses. Without testable hypotheses, however, there is no role for culture in economics except perhaps as a selection mechanism among multiple equilibriums (Greif, 1994, 2006). In recent years, however, economists have begun to apply their analytical frameworks and empirical tools to the issue of culture and economic outcomes. Better techniques and expanded data have made it possible to identify systematic differences in national cultures. As Luigi Guiso et al. (2006) documents, cultural hypotheses can be rigorously tested and are economically important for fundamental economic issues like national rates of saving. Using Hofstede's (2001) four cultural dimensions (uncertainty avoidance, collectivism, power distance, and masculinity) as proxies for culture, and using a sample of 117,723 firm-years from 40 countries over the 1991–2006 period, Zhang et al. (2012) find robust evidence that firms located in countries with high uncertainty avoidance, high collectivism, high power distance, and high masculinity tend to use more short-term

* Corresponding author. Tel.: +86 13554398877.
E-mail addresses: xmgwt@mail.hust.edu.cn, xuemg__1105@sina.com (M. Xue).

debt. They interpret their results as consistent with the view that national culture helps explain cross-country variations in the maturity structure of corporate debt. Fidrmuc and Jacob (2010) present a culturally rooted agency explanation for differences in dividend payout policies around the world. By linking dividends to cultural differences across 5797 firms in 41 countries, their analysis shows that high individualism, low power distance, and low uncertainty avoidance are significantly associated with higher dividend payouts. These above results suggest that importing cultural elements will make economic discourse richer, better able to capture the nuances of the real world, and ultimately more useful. However, theoretical research literature is very little despite having some empirical research works in this area in recent years.

To my knowledge, Breuer and McDermott (2011) firstly develop a theoretical model in this area. Our analysis of the role of national culture is motivated mainly by Breuer and McDermott (2011), who assume that individuals in a society are distributed by their loss aversion, according to a well-defined density function, and argue that the first two moments of the distribution within a country – the mean μ and the variance σ^2 – reflect fundamental facets of culture. They define cultural homogeneity and heterogeneity by the variance of the distribution of loss aversion. They assume that among cultures that are more diverse along ethnic or religious dimensions, attitudes toward losses will be widely shared than in more ethnically or religiously homogeneous cultures. For example, Japanese culture is considered to be very cautious (high μ) and homogeneous (low σ). US culture is thought to be the opposite — enterprise (low μ) and diverse or heterogeneous (high σ). While Breuer and McDermott's (2011) definition of national culture is not comprehensive, it focuses on fundamental facets of culture that can impact economic outcomes.

In this paper, we will include national culture in the model of foreign bank's entry into a new market. The national culture makes the theoretical explanation of the market share of foreign banks in the transition economies richer, better able to capture the nuances of the real world, and ultimately more useful. In the existing literature, there are several approaches to model a bank's into a new market. Usually, it is assumed that foreign banks are imperfectly informed about certain characteristics of borrowers. Dell' Ariccia et al. (1999) use a duopoly model with Bertrand competition to focus on the asymmetric information new entrant face when moving into a new market. One drawback of this type of model is that the equilibrium only exists if banks pursue mixed strategies, which is difficult to interpret in practice. Bouckaert and Degryse (2004) distinguish between soft information about borrowers' abilities and hard information about project outcomes. By introducing switching costs into a Bertrand competition setup, they show the existence of the equilibrium in pure strategies, and illustrate how banks may strategically disclose information about borrowers to new market entrants. Contrary to these duopoly models, Lehner and Schnitzer (2008) use a Hotelling model of spatial competition to analyze the spillover effect on domestic banks after the entry of foreign banks with a superior screening technology. Detragiache et al. (2008) analyze the effect on a competitive equilibrium if a foreign bank enters that has lower costs to monitor hard information, but higher costs to monitor soft information. By assuming that borrowers are loss aversion for switching costs, the model derived in following section is building on the basic structure of Breuer and McDermott (2011). We extend their framework to foreign bank's behavior analysis by including national culture in the model of foreign bank's entry into a new market.

The paper is structured as follows. In Section 2 we derive our model. In Section 3, we solve the model for the required equilibrium repayments of both banks (foreign bank and domestic bank), the equilibrium market share for foreign banks and the critical value of foreign bank that enters the new market. In Section 4, we provide a comparative statics analysis of how changes in cultural and economic factors affect the market share of foreign banks and the critical value of foreign banks enter the new market. In Section 5, we present

several illustrative cases. In Section 6, we offer some concluding comments.

2. The model

Assume that a credit market in two period economies, indexed by $t \in \{1,2\}$, has two representative banks (one is a domestic band, another is a foreign bank. For simplicity, A and B denote the domestic bank and foreign bank, respectively). The credit market in the first period is a closed market so that the domestic bank is a monopoly bank. The domestic bank during the first period plays no role in this model besides establishing a relationship with its entrepreneurs (borrowers) as done in the model of Rajan (1992). The credit market in the second period is opened to the foreign bank so that the foreign bank can decide to enter the credit market and compete with the domestic bank. The second period is central to my story. Competition throughout the subsequent analysis will be Bertrand type duopolistic competition. We interpret our assumption of having a closed market that is subsequently opened to foreign competition as consistent with empirical observations. For instance, the banking market in China is opened completely to the foreign bank after December 11, 2006.

Assumption 1. Assume that two representative banks are risk-neutral and have monotonic preferences over their profits.

The domestic bank has obtained information about the type of entrepreneurs through relationship lending in the first period. But the foreign bank cannot distinguish entrepreneur types since it has not been through past lending operations. However, the foreign bank has a screening technology available to learn about the quality of the investment projects but the domestic bank has not this screening technology. Since many foreign banks come from industrialized countries, these banks have a longer history and generally have more information about the financial intermediary business compared to their domestic competitors. Assumption on the screening technology is as follows:

Assumption 2. Assume that there are two qualities of investment projects (good project and poor project). The screening technology offers a noisy signal about the investment project quality to the foreign bank. With a probability of p the signal is correct and with a probability of $(1 - p)$ the signal is wrong.

Assume that there are two types of entrepreneurs: a fraction of good entrepreneurs with high abilities λ and a fraction of bad type ones $(1 - \lambda)$, with $0 \leq \lambda \leq 1$. Entrepreneurs demand loan that is normalized to 1 to undertake an investment project. Assumption on the probability of project success is as follows:

Assumption 3. Good entrepreneurs invest a project with the successful probability of q that yields a payoff of y at the end of the period, a poor project with a probability $(1 - q)$ that yields a payoff of zero $(y = 0)$, $0 < q \leq 1$. Bad entrepreneurs always invest poor projects $(y = 0)$. Even though bad type entrepreneurs are aware that they yield a payoff of zero, they still apply for a loan, since they obtain some private benefits from undertaking investment project. λ and q are common information to all market players.

Assumption 4. Assume that borrowers are loss aversion. The population of entrepreneurs is distributed according to personal loss aversion z uniformly on the closed interval $[a,b]$ as done in the model of Breuer and McDermott (2011):

$$z \sim U\left(\mu, \sigma^2\right) \tag{1}$$

where $\mu = (a + b)/2$, $\sigma^2 = (b - a)^2/12$. We define the first two moments of the distribution within a country – the mean μ and the variance σ^2 – as reflecting fundamental facets of national culture.