Entrepreneurship and the Barrier to Exit: How Does an Entrepreneur-Friendly Bankruptcy Law Affect Entrepreneurship Development at a Societal Level?

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by

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Entrepreneurship and the Barrier to Exit: How Does an Entrepreneur-Friendly Bankruptcy Law Affect Entrepreneurship Development at a Societal Level?

by Seung-Hyun Lee, Yasuhiro Yamakawa, and Mike W. Peng of the University of Texas at Dallas under contract no. SBAHQ-06-M-0536 to the Babson College Entrepreneurship Research Conference for the Award. 2008. [18] pages.

Introduction

This paper was originally presented in Madrid, Spain, at the Babson College Entrepreneurship Research Conference (BCERC) in June 2007. It was awarded the Office of Advocacy Best Paper Award at the 2008 BCERC meetings in Chapel Hill, North Carolina.

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Purpose

How a society's formal institutions, such as bankruptcy laws, govern bankrupt entrepreneurs and firms is an important component of the institutional framework within which entrepreneurs and firms operate. The legal procedures associated with bankruptcy vary significantly across countries. Some countries provide only limited protection for entrepreneurs and managers of bankrupt firms, while others have a more entrepreneur-friendly bankruptcy law. Overall, whether the institutional framework encourages or discourages entrepreneurship may determine a society's long-run economic performance.

The authors examine the relationship between bankruptcy law and the value-creating activities in a society associated with risk-taking behaviors by entrepreneurial firms. They argue that an entrepreneur-friendly bankruptcy law may increase the number of corporate bankruptcies, which may be indicative of a vibrant entrepreneurial economy.

This paper tests hypotheses relating to seven key aspects of bankruptcy laws using a longitudinal database covering 35 countries and spanning 10 years.

Overall Findings

The authors find that a lenient, entrepreneur-friendly bankruptcy law encourages entrepreneurs to take risks and thus lets entrepreneurship prosper. This risk-taking can generate variety in the economy by increasing the number of firms with high growth potential, which may lead to more entrepreneurship and economic development—in short, failure may be good for the economy. The study pushes for a more informed understanding of how formal institutions governing bankruptcy matter for entrepreneurial behavior and outcomes. It emphasizes that a society that is not willing to absorb the "pain" of having a large number of entrepreneurial failures, via an entrepreneur-friendly bankruptcy law, is not likely to reap the "gain" of vibrant entrepreneurship development and economic growth.

Highlights

The study analyzes seven components of an entrepreneur-friendly bankruptcy law and finds:

• The availability of reorganization procedures as a choice for bankrupt firms encourages bankruptcy filings.

• Less time and less cost associated with a bankruptcy proceeding encourages entrepreneurs to file for bankruptcy and is consistent with higher filing rates in a country.

• The more resources entrepreneurs recover from bankruptcy—which would mean a fresher start—the higher the filing rate in a country.

• An automatic stay on assets is likely to encourage entrepreneurs to file bankruptcy.

• The protection of creditors at the time of bankruptcy leads to a higher rate of bankruptcy filing.

• One result appears contradictory—that is, allowing incumbent managers to stay on the job does not lead to a higher rate of bankruptcy. Rather, management turnover leads to an increase in filing. More capable managers may have moved elsewhere.

Note

This paper was prepared for presentation at the Babson College Entrepreneurship Research Conference. The report references "space limitations" and "suppressed" control variables in the tables. The authors needed to comply with strict guidelines for submission to the BCERC, including a page limitation. The Office of Advocacy is releasing as a working paper the BCERC version of the paper, which adheres to these guidelines. This research was supported, in part, by a National Science Foundation (NSF) CAREER grant (SES 0552089) to Mike W. Peng. The views expressed are those of the authors and not necessarily those of the NSF or the SBA Office of Advocacy.

Scope and Methodology

The authors collected data for 35 countries during the 10 years 1990-1999 (inclusive). Data were drawn from commercial bankruptcy filings, legal rules, and other data from the World Bank, the World Health Organization (WHO), and the International Monetary Fund (IMF).

Analysis of reorganization procedures is based on bankruptcy data from government and private sources. Data on closing time, closing cost, and fresh start (measured by rate of recovery from a closing) were obtained from the World Bank. Data on legal rules covering protection of corporate shareholders and creditors, their origin, and the quality of their enforcement and on the regulation of entry are gathered from past studies.

The authors test hypotheses that predict how various components of bankruptcy law can curtail the downside risk of entrepreneurs and help encourage risk-taking behavior such as filing for bankruptcy. A log-linear model is used to model the changes in bankruptcy filings. The dependent variable is the bankruptcy rate—the ratio of the number of bankruptcies to the total number of firms—and is allowed to take both positive and negative values rather than being constrained to be positive. The model controls for four major factors: (1) the previous year's number of bankruptcies for each country, (2) regional effects, (3) possible time effects across all countries, and (4) one social dimension of bankruptcy law that reflects the level of social stigma concerning failure and is measured by the suicide rate.

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ENTREPRENEURSHIP AND THE BARRIER TO EXIT: HOW DOES AN ENTREPRENEUR-FRIENDLY BANKRUPTCY LAW AFFECT ENTREPRENEURSHIP DEVELOPMENT AT A SOCIETAL LEVEL? *

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ABSTRACT

Does an entrepreneur-friendly bankruptcy law encourage more entrepreneurship development at a societal level? How does bankruptcy law affect entrepreneurship development around the world? Drawing on a real options perspective, we argue that if bankrupt entrepreneurs are excessively punished for failure, they may pass potentially high-return but inherently high-risk opportunities. Amassing a longitudinal, cross-country data base from 35 countries spanning ten years, we find that a lenient, entrepreneur-friendly bankruptcy law encourages entrepreneurs to take risks and thus let entrepreneurship prosper. Components of an entrepreneur-friendly bankruptcy law are: (1) the availability of a reorganization bankruptcy option, (2) the time spent on bankruptcy procedure, (3) the cost of bankruptcy procedure, (4) the opportunity to have a fresh start in liquidation bankruptcy, (5) the opportunity to have an automatic stay of assets, (6) the opportunity for managers to remain on the job after filing for bankruptcy, and (7) the protection of creditors at the time of bankruptcy.

INTRODUCTION

Corporate bankruptcies are common. During the 1990s, the annual average number of corporate bankruptcies in Japan was 14,500; in Germany it was 21,000; and in Great Britain, it was 47,000 (Claessens & Klapper, 2005; *Industry Week*, 1998). In 2001, 38,540 businesses in the United States declared bankruptcy (American Bankruptcy Institute, 2003). While many large firms also declare bankruptcy, a majority of bankrupt firms are small, entrepreneurial firms (Warren & Westbrook, 1999; White, 1990). In other words, while every entrepreneur is interested in success, unfortunately, a majority of smaller, entrepreneurial firms may end up in bankruptcy (Knott & Posen, 2005).

How formal institutions of a society, such as bankruptcy law, govern bankrupt entrepreneurs and firms is an important component of the institutional framework within which entrepreneurs and firms operate (North, 1990; Peng, 2003). The legal procedures associated with bankruptcy vary significantly across countries (Alexopoulos & Domowitz, 1998; Claessens & Klapper, 2005). Some countries provide only limited protection for entrepreneurs and managers of bankrupt firms. Other countries have a more entrepreneur-friendly bankruptcy law. A well-known proposition in the literature is that institutions matter—more specifically, entrepreneurs and firms strategically respond to the institutional incentives and disincentives (Oliver, 1991; Peng et al., 2005). In the aggregate, how the institutional framework encourages or discourages entrepreneurship development at the societal level may determine the long-run economic performance of any society (North, 1990).

Given the "institutions matter" proposition, more work is needed to help us understand: *How* do institutions matter? Thus, two important but unexplored questions are: How does bankruptcy law affect entrepreneurship development around the world? Does an entrepreneur-friendly bankruptcy law encourage more entrepreneurship development at a societal level? Recently, Lee, Peng, and Barney (2007), using a real options logic, theoretically argue that an entrepreneur-friendly bankruptcy law may curtail downside losses of entrepreneurial failures and facilitate upside gains at the societal level. In other

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words, an entrepreneur-friendly bankruptcy law lowers *exit* barriers, by imposing relatively less painful bankruptcy procedures. It also reduces *entry* barriers, by reducing the cost of business failure and thus facilitating more entrepreneurial entries. In the aggregate, an entrepreneur-friendly bankruptcy law may enhance the variance and the value of the bundle of productive assets within an economy, which can be viewed as a bundle of real options from a societal level. While innovative, the conceptual nature of Lee et al. (2007) thus calls for further theoretical development and empirical exploration. In response, to partially fill the gap in this stream of research, we theoretically build on these arguments and empirically test whether a lenient, entrepreneur-friendly bankruptcy law indeed encourages entrepreneurial risk-taking.

Amassing a longitudinal, cross-country database covering 35 countries and spanning ten years (1990-99, inclusive), we examine the relationship between bankruptcy law and the value creating activities in a society associated with risk-taking behaviors by entrepreneurial firms. Here, we define entrepreneurs as individuals who combine resources in new and risky ways and have the potential to add value to society through these endeavors (Schumpeter, 1942). Lee et al. (2007: 268) argue that an entrepreneur-friendly bankruptcy law may paradoxically increase the number of corporate bankruptcies, which may be indicative of vibrant entrepreneurial activities in an economy. Therefore, we focus on whether differences in the bankruptcy law indeed are systematically related to the different levels of bankruptcy filing around the world. Following Lee et al. (2007), we argue that real options theory is well adapted to this endeavor since bankruptcy law determines the downside risk associated with risky behavior of entrepreneurs, while the upside potential of these risky behaviors is potentially unlimited. This is the ideal backdrop within which real options logic can be useful (Dixit & Pindyck, 1994).

BANKRUPTCY LAW AND ENTREPRENEURSHIP DEVELOPMENT

How can an entrepreneur-friendly bankruptcy law encourage entrepreneurship development? Developing the arguments on bankruptcy law and entrepreneurship development based on the real options perspective in Lee et al. (2007), we hypothesize that the following aspects of bankruptcy laws would encourage more risk-taking by facilitating a higher rate of bankruptcy filing: (1) the availability of a reorganization bankruptcy option, (2) the time spent on bankruptcy procedure, (3) the cost of bankruptcy procedure, (4) the opportunity to have a fresh start in liquidation bankruptcy, (5) the opportunity to have an automatic stay of assets, (6) the opportunity for managers to remain on the job after filing for bankruptcy, and (7) the protection of creditors at the time of bankruptcy.

Availability of a Reorganization Bankruptcy Option

For firms in financial difficulty, there are three possible ways to approach bankruptcy: out-of-court settlement, reorganization bankruptcy (which is called Chapter 11 in the United States), and liquidation bankruptcy (which is called Chapter 7 in the United States). Since it is significantly less expensive than in-court reorganization, out-of-court settlement is usually the first among firms (Franks & Torous, 1994). Between the latter two, however, U.S. firms often prefer Chapter 11. The reason is filing Chapter 11 offers one more chance to revive from financial distress (Lynn & Neyland, 1992). From a real options perspective, having a chance to file reorganization bankruptcy gives firms more options (Lee et al., 2007). This may increase the variance of types of firms in a society. During this term of bankruptcy protection, restructuring may enable some firms, which may be in temporary financial difficulty, to eventually get out of trouble and thrive. This is why filing reorganization bankruptcy is considered as one of the strategic options for many firms under financial difficulty (Flynn & Farid, 1991). Not all countries, however, have all three ways of resolving financial distress. For instance, many countries in Eastern Europe did not have adequate bankruptcy law when they decided to change their economic regime from planned to market. In a country where reorganization bankruptcy is not available, firms' options are reduced to either out-of-court settlement or liquidation bankruptcy. The possible future variety may be reduced at the

societal level if firms undergoing financial distress are forced to liquidate with no opportunity to restructure. From a real options perspective, providing opportunities to reorganize for bankrupt firms give more options for a society at large. This is why Miller (1977) argues that the reorganization bankruptcy option can be considered a "call option." Since it is uncertain if a firm has a positive future, providing an opportunity to prove it is an invaluable vehicle for creating options value at the societal level. Shareholders would benefit if reorganization succeeds and can walk away should reorganization fail. On the other hand, should the only form of bankruptcy is liquidation bankruptcy entrepreneurs have an incentive to *delay* bankruptcy filing as long as possible since that may mean it is the end of the game (White, 1994). Thus:

Hypothesis 1: The availability of reorganization bankruptcy as a choice for bankrupt firms will be associated with a higher rate of bankruptcy filing in a country.

Time Spent on Bankruptcy Procedure

The cost of bankruptcy is also positively related to the length of time spent on the bankruptcy procedure (Bebchuk, 2000). In a liquidation bankruptcy, a fast procedure would allow quick reallocation of assets of failed firms to better users. At the same time, a fast procedure can provide an entrepreneur a new opportunity to start over a business. By eliminating failing firms and reallocating resources to better uses, a fast bankruptcy procedure may increase variance in a bundle of firms at a societal level. If a firm files reorganization bankruptcy, a fast procedure may protect the value of the assets of the firm and improve its chance for a successful turnaround (Bebchuk, 2000). A lengthy process characterized by an uncertain outcome, however, may make business partners (such as buyers and sellers) reluctant to maintain their business relationships. This in turn may reduce earnings and the value of firm assets (LoPucki & Doherty, 2002). Managers are likely to become frustrated with the long procedure, which distracts them from focusing on more important operations. An inefficient, time-consuming procedure may end up forcing a firm to liquidate by increasing financial distress while a fast procedure could have saved the firm. For example, in Japan, even when financially insolvent firms decide to file for bankruptcy, courts will scrutinize the case and decide whether to allow certain firms to declare themselves bankrupt. In other words, some insolvent firms are *not* allowed to bankrupt. This procedure alone takes more than three months (Alexander, 1999). It is, therefore, not surprising that in Japan, half of all liquidations took more than three years and more than 75% of reorganizations exceeded five years from application to conclusion (Alexander, 1999). Overall, a more efficient bankruptcy procedure may encourage failing firms to file bankruptcy. Thus:

Hypothesis 2: Less time spent on the bankruptcy procedure will be associated with a higher rate of bankruptcy filing in a country.

Cost of Bankruptcy Procedure

It is not only lengthy time that would make entrepreneurs to procrastinate about filing bankruptcy, but also the actual cost involved in filing bankruptcy. One may think that the direct cost of bankruptcy is not very high. However, James (1991) finds that it is around 10 percent of the assets of the firms filing bankruptcy in banking industry in the United Sates. He further observes that if indirect cost of bankruptcy such as loss of the asset value, it mounts to 30 percent. However, when we look at the cost of bankruptcy internationally, 10 percent is not a high percentage. For example, as a percentage of the assets of the firm filing bankruptcy, it costs 22 percent of the assets when a firm files bankruptcy in Poland while it is only 7 percent in the U.S. (*Doing Business Report 2006*). This is why Mason (2005: 1523) argues that costly bankruptcy "can sluggish economic growth." In other words, high bankruptcy cost may provide incentives for the firms to delay filing bankruptcies even when it is more valuable to go bankrupt at the societal level. Thus, we argue;

Hypothesis 3: Less cost spent on the bankruptcy procedure will be associated with a higher rate of bankruptcy filing in a country.

Fresh Start in Liquidation Bankruptcy

Bankruptcy law can be either discharging the bankrupt individuals from a debt or allowing the pursuit of the bankrupt entrepreneurs for years (OECD, 1998). By simply discharging the bankrupt entrepreneurs, while creditors can claim residual assets, creditors cannot pursue for any remaining claims which have not been met as is the case in the United States. Since future earnings are exempt from the obligations to repay past debt from bankruptcy, this is named a "fresh start" (White, 2001). In the absence of a legally protected "fresh start," creditors can pursue any remaining claims. For instance, in Germany, the debtor remains liable for unpaid debt for up to 30 *years* and creditors can go beyond claiming residual assets (Ziechmann, 1997: 12-25). German managers at bankrupt firms can also be personally liable for criminal penalties (Fialski, 1994). From a real options perspective, it is not surprising that such differences in limiting downside losses can make a huge difference in the risk-taking propensity between American and German entrepreneurs. In addition, the 1997-98 Asian economic crisis revealed that little protection against creditors actually kept many firms from filing bankruptcy even when it would have made more sense to file a bankruptcy (*New York Times*, 1998). For executives of the firms in distress who know that the consequences would hurt them personally such as ruining their reputation and inviting possible criminal law suit following the bankruptcy filing, filing a bankruptcy is likely to be the last thing they would have in mind. This means that many firms that should not be alive continued to survive at a huge cost to the overall value of the bundle of firms in a country. Thus:

> *Hypothesis 4: Discharging bankrupt entrepreneurs more from debt to allow them to have a "fresh start" will be associated with a higher rate of bankruptcy filing in a country.*

Automatic Stay of Assets in Reorganization Bankruptcy

In some countries a bankruptcy law may come with an automatic stay of assets and discharge some portion of debt. An automatic stay upon the start of bankruptcy proceedings means that creditors must cease debt collection efforts and move claims to the court (Alexopoulos & Domowitz, 1998). The firm would be in operation while creditors and firms negotiate (Kaiser, 1996). Before deciding whether the firm should be liquidated or not, an automatic stay allows time for mangers to communicate with creditors (Franks et al., 1996). La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1998) find that nearly half of the 49 countries they study do not have an automatic stay on assets. For example, in the United States, bankruptcy law stipulates automatic stay in the case of reorganization bankruptcy. On the other hand, countries such as Germany, Great Britain, and Japan do not guarantee automatic stay of assets (Alexander, 1999; Hashi, 1997). In an economy where secured creditors are allowed to repossess their assets when a firm files reorganization bankruptcy, it can end up in premature liquidations. Given uncertainty over the future potential of the firm, even when the value of the ongoing concern is higher than liquidation value, creditors may have a greater interest in liquidating the firm (Wruck, 1990). In Germany, for example, automatic stay does not extend to secured creditors and these secured creditors have incentives to go with liquidation bankruptcy (Kaiser, 1996). Therefore, when automatic stay is not in place, many firms do not have the opportunity to file a reorganization bankruptcy even when this option is legally allowed. Thus:

> *Hypothesis 5: An automatic stay of assets specified by a bankruptcy law will be associated with a higher rate of bankruptcy filing in a country.*

The Fate of Managers

Managers make firm-specific investments during their tenure with a firm. This firm-specific knowledge would be most required when a firm is in financial distress. However, the opportunity to stay with the firm after filing for reorganization bankruptcy provides incentives for managers to make firm-specific

investments. In this sense, if managers are going to be driven out when a firm files reorganization bankruptcy, they may lack incentives to make firm-specific investments in the first place (Shleifer & Summers, 1988). If managers know *ex ante* that they will not be automatically replaced in the case of bankruptcy filing, however, the opportunity to stay with the firm thus works as a "bonding device" (Gaston, 1997). Therefore, when a firm files bankruptcy, providing an opportunity for managers to stay may provide managers a better chance to revive the firm. As firms can be heterogeneous, firm-specific investments by managers would increase variety and value in a bundle of firms (Barney, 1991). On the other hand, in a manager-replacement system such as a trustee-appointment system, appointing outsiders without firm-specific knowledge for reorganization may not lead to proper reorganization (Alexander, 1999; Franks et al., 1996; Hashi, 1997). For example, Chapter 11 in the United States allows managers of a firm filing bankruptcy to retain control of the firm and provides managers the exclusive right to propose reorganization plans. In contrast, in Great Britain and Germany, control rights are rendered to secured creditors (Franks et al., 1996). It is not surprising that the practice of allowing secured creditors to take over has been criticized for leading to premature liquidation (Kaiser, 1996). Overall:

Hypothesis 6: Allowing incumbent managers to stay on the job specified by a bankruptcy law rather than forcing out incumbent managers will be associated with a higher rate of bankruptcy filing in a country.

Protection of Creditors at the Time of Bankruptcy

In the absence of bankruptcy law pertaining to coordination among creditors, private debt collection efforts would end up in an ad hoc disposition of debts on a first-come first-served basis (Jackson, 1986; Longhofer & Peters, 2004). Should coordination among creditors not be specified *ex ante,* it is very likely that creditors would rush to collect the debt from the firms in distress. In other words, when coordination among creditors is not specified *ex ante*, "the first creditors to take action against the firm will be the first to obtain relief" and "later creditors will gain possession of whatever assets remain, if any. Once a firm becomes insolvent each creditor is on its own to collect what it is owed and will care little how its actions might affect the firm's other creditors" (Longhofer & Peters, 2004; 257). In this sense, specifying coordination among creditors *ex ante* provides creditors a way to impose a collective and compulsory action on firms, which would prevent dissipation of the asset value of a firm in financial distress (Jackson, 1986). Even if creditors can coordinate *ex post*, the cost of coordination of distributing remaining assets would be exceedingly high, which would dramatically decrease the salvage value of a firm when it files a bankruptcy (Jackson, 1986; Longhofer & Peters, 2004). This is why past research finds that bankruptcy law is designed to cope with the common pool problem arising when a firm with multiple creditors becomes insolvent, which increases the size of the pie to be distributed among creditors (Baird, 1987; Jackson, 1986; Picker, 1992; White; 1990). Given the reasons mentioned above, entrepreneurs would be taking little risk should coordination among creditors are not specified *ext ante*. In addition, even those firms that are already in business would consider filing bankruptcy as the last option (Claessens & Klapper, 2005). This is because, in the absence of due coordination among creditors, filing bankruptcy would be a signal of insolvency, which would provide incentives for the creditors to rush on collecting their debts. If this happens, even though it might increase the salvage value for the first creditor to claim the debt from the firms in distress, those firms otherwise would be viable may be forced to cease operation, which in turn would decrease the total value at the societal level.

Hypothesis 7: Protection of creditors at the time of bankruptcy will be associated with a higher rate of bankruptcy filing in a country.

Overall, informed by a real options perspective, an entrepreneur-friendly bankruptcy law may facilitate entrepreneurship development at the societal level by encouraging more risk-taking through curtailing downside risks for failed entrepreneurs and their firms and through more enthusiastic creation of new firms (Efrat, 2002).

METHODS

Independent Variables

We have collected data for 35 countries during the ten years 1990-1999 (inclusive). Our sources include past studies on commercial bankruptcy filings collected from government and private sources (Claessens & Klapper, 2005); on the legal rules covering protection of corporate shareholders and creditors, their origin, and the quality of their enforcement (La Porta et al., 1998); and on the regulation of entry (Djankov et al., 2002). We have also collected additional data from sources such as the World Bank, the World Health Organization (WHO), and the International Monetary Fund (IMF). Table 1 outlines the main differences across the 35 countries.

Reorganization procedure. We use bankruptcy data provided by Claessens and Klapper (2002, 2005) which are obtained from government and private sources (see Appendix 1). This variable equals to 1 if there is a legalized reorganization procedure; and 0 otherwise. The majority of the countries, but not all, have formal reorganization laws.

Closing time. As suggested by Claessens and Klapper (2005), the World Bank, the Asian Development Bank, and the Inter-American Development Bank document detailed features of bankruptcy systems in many countries. The data on closing time was obtained from the World Bank.[1] Closing time refers to the average time (in years) to complete a bankruptcy procedure within a country. Since we argue that taking shorter time for bankruptcy procedure is associated with higher filing rate, we reversed the signs of the lengths of time from positive to negative.

Closing cost. Similarly, we use data provided by the World Bank to measure the costs associated with bankruptcy filings. Closing cost represents the cost (% of estate) of the bankruptcy proceedings. Again, in order to align with our argument that lower cost of bankruptcy is associated with higher filing rate, we reversed the signs from positive to negative.

Fresh start. We use the rate of recovery from a closing to measure the degree of an entrepreneur's fresh start as provided and specified by the bankruptcy law. Since the likelihood of pursuits of remaining claims is associated with closing recovery, we use this variable to proxy for an entrepreneur's fresh start. Closing recovery exhibits the recovery rate, which calculates how many cents on the dollar claimants such as creditors, tax authorities, and employees recover from an insolvent firm. We assume that the greater the claimants recover from an insolvent firm, the less recovered by entrepreneurs themselves, thereby less likely they will have a fresher start. As above, in order to align with our argument that lower recovery by others is associated with higher filing rate, we calculated fresh start as one dollar (100 cents) minus the rate of recovery as cents per dollar by others such as creditors, tax authorities, and employees. Data for this variable are also obtained from the World Bank.

Automatic stay of assets. We use data originally collected by La Porta *et al.* (1998) and frequently used in subsequent research (e.g., Claessens & Klapper, 2005; Pistor, 2000). This variable represents one of the four dummy variables created in La Porta et al. (1998) to constitute an "index of creditor rights"—noted here as "automatic stay of assets." Accordingly, this variable equals to 1 if there is automatic stay of assets; and 0 otherwise (i.e., no moratorium on payments).

[1] *Doing Business Report 2006*, International Finance Corporation, The World Bank Group (http://www.ifc.org/)

Stay of incumbent management. This variable also refers to one of the dummy variables that constitute La Porta et al.'s (1998) index of creditor rights—what they label as, "management does not stay"—labeled here as "stay of incumbent management." Accordingly, the variable equals to 1 if incumbent management stays during a restructuring or bankruptcy; and 0 otherwise (i.e., when an official appointed by the court or by the creditors is responsible for the operation of the business during reorganization, or when the debtor does not keep the administration of its property pending the resolution of the process).

Protection of creditors at the time of bankruptcy. Similarly, we use the variable "secured creditors first" provided by La Porta et al. (1998) noted here as "protection of creditors." Accordingly, the variable equals to 1 if secured creditors have the highest priority in payment (i.e., distribution of the proceeds that result from the disposition of the assets of a bankrupt firm); and 0 otherwise. We use this variable to proxy for whether coordination among creditors is specified *ex ante*. In other words, when secured creditors have highest priority and the better the claims be satisfied and legally settled under the bankruptcy law, the less dissipation of assets would occur (Jackson, 1986; Longhofer & Peters, 2004).

Table 2 presents the descriptive statistics and correlations. In order to capture any possible multicollinearity problems associated with high correlation, we checked all variance-inflation factors (VIF), tolerance, and condition indexes. While individual VIFs greater than 10, the average VIF greater than 6, and the individual tolerance less than 0.1 are generally seen as indicative of severe multicollinearity, the maximum VIF was 5, the mean VIF being 3, and none of the tolerance were less than 0.1, respectively, suggesting little problem of multicollinearity.

Dependent Variable and Model Specification

In our hypotheses, we predict how various components of the bankruptcy law can curtail the downside risk of entrepreneurs and help encourage risk-taking behavior such as filing bankruptcy. The dependent variable in our model is thus the *bankruptcy rate*—the ratio of the number of bankruptcies to the total number of firms. We use Claessens and Klapper's (2005) data on the sum of all firms that file for bankruptcy—measuring the total use of the bankruptcy law and the judicial system to resolve corporate financial distress—normalized by the number of firms as provided by Djankov et al.'s (2002) and the official country statistical handbooks. We model the change rate of bankruptcy filings using the following power function:

$$BR_{i,\,t} = BR^{a}_{\;it\text{-}1} \exp\left(\gamma RP_{it\text{-}1} + \zeta CT_{it\text{-}1} + \eta CC_{it\text{-}1} + \theta RR_{it\text{-}1} + \iota SA_{it\text{-}1} + \kappa MS_{it\text{-}1} + \lambda PC_{it\text{-}1} + \beta C_{\;it\text{-}1}\right) \qquad \text{(I)}$$

Here, $BR_{it\text{-}1}$ is the bankruptcy rate in a given country i at a given year $t-1$; $RP_{it\text{-}1}$ refers to a dummy variable indicating whether reorganization procedure is legalized (1) or not (0) by the bankruptcy law in country i during year $t-1$; $CT_{it\text{-}1}$ refers to the average closing time (in years) to complete a bankruptcy procedure in country i during year $t-1$; $CC_{it\text{-}1}$ refers to the average closing cost (% of estate) of the bankruptcy proceedings in country i during year $t-1$; $RR_{it\text{-}1}$ refers to the recovery rate (cents on the dollar) of bankruptcy filings in country i during year $t-1$; $SA_{it\text{-}1}$ refers to a dummy variable indicating whether the reorganization procedure allows an automatic stay of assets (1) or otherwise (0) in country i during year $t-1$; $MS_{it\text{-}1}$ refers to a dummy variable indicating whether the incumbent management is allowed to stay (1) or otherwise (0) in country i during year $t-1$; $PC_{it\text{-}1}$ refers to a dummy variable indicating whether secured creditors are protected thus have the highest priority in payment (1) or otherwise in country i during year $t-1$; $C_{it\text{-}1}$ is a vector of control variables (described below) in country i during year $t-1$; and ε is a log normally distributed error term. By transforming equation (I) to its natural logarithm, we obtain the linear equation with a normally distributed error term, μ:

$$\text{Log}\,(BR_{i,\,t}) = \alpha \log\,(BR_{it\text{-}1}) + \gamma RP_{it\text{-}1} + \zeta CT_{it\text{-}1} + \eta CC_{it\text{-}1} + \theta RR_{it\text{-}1} + \iota SA_{it\text{-}1} + \kappa MS_{it\text{-}1} + \lambda PC_{it\text{-}1} + \mu \qquad \text{(II)}$$

We use a logarithm transformation to allow our dependent variable (percentage) to take both positive and negative values rather than constrained to be positive. This log-linear model is commonly used in econometric estimation for percentage changes, and is more consistent with the assumption of normally distributed error terms (Greene, 2000; Krishnan et al., 2004).

Control Variables

We control for four major factors. First, we control for the previous year's number of bankruptcies for each country. We also expect that economic performance of a country would affect its bankruptcy rate. For example, countries experiencing negative growth may have higher rates of bankruptcies. Therefore, we control for the country's general level of development and macroeconomic performance. For general development, we include lagged real GDP per capita in US dollars. For economic performance, we include the growth rate of real GDP lagged one year obtained from the IMF (Claessens & Klapper, 2005). In addition, we control for the number of banks within a country in a given year in order to capture the variance and stability of a country's banking infrastructure (Caprio & Honohan, 1999; Bandiera et al., 2000). Second, we create dummy variables for regional effects (i.e., South America and Europe) with North America as the reference category. Third, we control for possible time effects across all countries. Caprio and Klingebiel (2002) also suggest the need to control for time periods of systemic banking crisis. We include a variable measuring years elapsed from 1990 to capture any time trend effects associated with changes in the bankruptcy rate (Boeker, 1997; Rhee & Haunschild, 2006). Finally, we control for the social dimension of bankruptcy law. Not only the formal but also the informal aspect of the institutional environment, such as the level of social stigma concerning failure, may have significant impact. In other words, the same entrepreneur-friendly bankruptcy law may have different implications for entrepreneurs in different societal environments (Lee et al., 2007; Sutton & Callahan, 1987*;* Shepherd, 2003). For measuring the level of social stigma, we include the suicide rate (by year, per 100,000 populations) obtained from the WHO. For example, in Japan, where stigma of failure is very high, it is well known that filed entrepreneurs often commit suicide (*Time*, 1999).

Estimation

We estimate the parameters of equation (II) on unbalanced, pooled, cross-national, time-series data with yearly time periods. Since we do not have the same number of years for which we have observations on bankruptcy rates for each country, the number of observations varies among countries. Overall, we have an unbalanced panel of 276 country-year observations. We use generalized estimating equations (GEE)—using the XTGEE command in STATA—to analyze both inter- and intra- variation among observations (Liang & Zeger, 1986; Rhee & Haunschild, 2006). GEE specifies the relationship between the mean and variance of the dependent variable rather than the full distribution of population, as is required for the cluster-specific maximum likelihood estimators such as random effects or fixed effects models.

FINDINGS

Table 3 presents the GEE estimates on the changes in bankruptcy rates derived from Equation II. Model 1 is the base model, containing only the control variables. Model 2 represents the main effects of all our key variables. In Model 2, the effect of reorganization procedure is positive and significant, therefore supporting Hypothesis 1. The result indicates that the availability of reorganization procedure as a choice for bankrupt firms does encourage bankruptcy filings. Both closing time and closing cost exhibit positive and significant results, also supporting both Hypotheses 2 and 3. The less time and less costs associated with bankruptcy proceeding encourages entrepreneurs to file bankruptcy. Put differently, the

faster the rendering of judgment and the less time spent on the bankruptcy procedure, the greater it encourages entrepreneurs to file bankruptcy therefore the higher the filing rate in a country.

The significant and positive effect of fresh start provides support for Hypothesis 4. The result shows that the more entrepreneurs recover from bankruptcy—which would mean a fresher start—the higher the bankruptcy filing rate in a country. The positive and significant effect of stay of assets supports Hypothesis 5. The result indicates that an automatic stay on assets is likely to encourage entrepreneurs to file bankruptcy. On the other hand, the significant but a negative effect of stay of incumbent management offers contradicting result for Hypothesis 6. The result indicates that allowing incumbent managers to stay on the job does *not* lead to a higher rate of bankruptcy filing; rather, it works the other way around. It is the management turnover that actually leads to an increase in bankruptcy filing. Finally, Hypothesis 7 is supported by the positive and significant effect of protection of creditors. The result shows that the protection of creditors at the time of bankruptcy will lead to a higher rate of bankruptcy filing.

DISCUSSION

Overall, three contributions emerge. First, we theoretically extend Lee et al.'s (2007) argument that at a societal level, an entrepreneur-friendly bankruptcy law can encourage entrepreneurs to take more risks such as filing bankruptcy. When risk-taking is encouraged by a more entrepreneur-friendly bankruptcy law, it can generate variety by increasing the number of firms with high growth potential. This may lead to more entrepreneurship and economic development at a societal level. In short, we echo Knott and Posen (2005) that failure may be good—for the economy. Second, we empirically substantiate our argument through a longitudinal, cross-country database covering 35 countries and spanning ten years—to the best of our knowledge, a very first endeavor in the strategy literature. We find that the availability of reorganization bankruptcy as a choice for bankrupt firms does encourage more bankruptcy filings. Moreover, the less time and less cost associated with the bankruptcy procedure also encourages bankruptcy filings. Fresh start for entrepreneurs also increases bankruptcy filings in a country. An automatic stay of assets as specified by the bankruptcy law also facilitates bankruptcy filings while a stay of incumbent management does not. Finally, secured creditor protection at the time of bankruptcy leads to a higher bankruptcy rate. Finally, we strengthen our understanding of how institutional frameworks such as bankruptcy law affect strategic choices (Peng, 2003). The majority of past studies on bankruptcy law stems from finance and economics, and generally focuses on the efficiency of bankruptcy at the firm level. Our work thus joins Knott and Posen (2005) and Lee *et al.* (2007) in pushing for a more informed understanding of *how* institutions matter—more specifically, how formal institutions governing bankruptcy matter for entrepreneurial behavior and outcome.

In general, we find that the less the downside risk involved in filing bankruptcy, the more risk firms are taking, and the more bankruptcies they are filing. Curtailing downside losses does appear to be inevitably leading more failing entrepreneurs and managers to file bankruptcy. After the passage of the Bankruptcy Reform Act in the United States in 1979, the number of firms filing bankruptcy doubled, and many took advantage of the availability of Chapter 11 reorganization bankruptcy (Weiss, 1990; Wruck, 1990). There is no need to spill more ink on the entrepreneurial activities, wealth creation, and economic development in post-1979 United States relative to an earlier era. From a policy standpoint, we argue that more risk-taking behavior and thus more bankruptcies, especially in the long run, can encourage entrepreneurship development at the societal level for sustainable economic development. However, while Knott and Posen (2005: 637) suggest that "policies to subsidize entry may enhance social welfare," we advocate a different policy suggestion: make bankruptcy law more entrepreneur-friendly. Specific efforts should be directed to (1) make a reorganization bankruptcy option available, (2) reduce the time spent on bankruptcy procedure, (3) reduce its cost, (4) allow bankrupt entrepreneurs to have a fresh start,

(5) provide an opportunity to have automatic stay of assets, and (6) protect creditors. We are less certain about whether it is advisable to provide managers the opportunity to stay on the job. This stipulation may only promise managers to stay on the job while the firm goes through bankruptcy procedures, and they may still be fired after the firm successfully restructures. This may not give enough incentive for the managers, since saving the firm would not save them in the long run. One other scenario is that more capable managers may have moved elsewhere and only managers with little capabilities end up staying, which again makes it harder for them to stay with the firm when it recovers. Clearly, more research is needed before we are in a position to advise policy making on the fate of managers in bankrupt firms.

CONCLUSION

As a first step toward a better understanding of how institutions play a key role in determining the risk-taking behavior of entrepreneurs, we have barely scratched the surface of this intriguing entrepreneurial phenomenon at the societal level. Nevertheless, we have utilized the real options perspective to map out how an entrepreneur-friendly bankruptcy law can encourage risk-taking behaviors and stimulate entrepreneurship development around the world. In short, "no pain, no gain." A society that is not willing to absorb the "pain" of having a large number of entrepreneurial failures, via a entrepreneur-friendly bankruptcy law, is not likely to reap the "gain" of vibrant entrepreneurship development and economic growth at a societal level. Given the pervasiveness of corporate bankruptcies in the world economy, if strategy research on institutions and entrepreneurship is to keep up with practice, it seems imperative that our attention be devoted to this important, relevant, and challenging research agenda.

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TABLE 1
How Bankruptcy Law Differs Around the World

Country	Availability of Reorganization 1: Available 0: Unavailable	Time (Years) Spent on Bankruptcy	Cost (% of Estate) of Bankruptcy	Fresh Start (Recovery Rate: Cents/$)	Automatic Stay of Assets 1: Stay 0: No Stay	Stay of Incumbent Management 1: Stay 0: No Stay	Protection of Creditors 1: Protected 0:Unprotected
Argentina	1	2.8	14.0	65.1	1	1	1
Australia	1	1.0	8.0	20.0	1	1	1
Austria	1	1.1	18.0	26.6	0	1	1
Belgium	1	0.9	4.0	13.3	0	1	1
Canada	1	0.8	4.0	9.9	1	1	1
Chile	1	5.6	14.0	76.9	1	1	1
Colombia	1	3.0	1.0	44.8	1	1	0
CzechRepublic	1	9.2	14.0	82.1	N/A	N/A	N/A
Denmark	1	3.3	9.0	37.0	0	1	1
Finland	0	0.9	4.0	10.9	1	1	1
France	1	1.9	9.0	52.3	1	1	0
Germany	1	1.2	8.0	47.0	0	1	1
Greece	1	2.0	9.0	54.0	1	0	0
Hong Kong	1	1.1	9.0	18.8	0	0	1
Hungary	1	2.0	14.0	64.2	N/A	N/A	N/A
Ireland	1	0.4	9.0	12.0	1	1	1
Italy	1	1.2	22.0	60.0	1	1	1
Japan	1	0.6	4.0	7.3	1	0	1
Netherlands	1	1.7	1.0	13.3	1	1	1
New Zealand	0	2.0	4.0	29.0	0	0	0
Norway	1	0.9	1.0	8.9	1	1	1
Peru	1	3.1	7.0	68.6	1	1	0
Poland	1	1.4	22.0	36.0	N/A	N/A	N/A
Portugal	1	2.0	9.0	25.3	1	1	1
Russia	1	3.8	9.0	72.4	N/A	N/A	N/A
Singapore	1	0.8	1.0	8.6	0	0	1
South Africa	1	2.0	18.0	66.0	1	0	1
South Korea	1	1.5	4.0	18.3	0	0	1
Spain	1	1.0	14.0	22.1	0	1	1
Sweden	1	2.0	9.0	25.1	1	1	1
Switzerland	1	3.0	4.0	53.1	1	1	1
Thailand	1	2.7	36.0	56.0	0	0	1
Turkey	1	5.9	7.0	92.8	1	1	1
UnitedKingdom	1	1.0	6.0	14.7	0	0	1
United States	1	2.0	7.0	23.7	1	1	1
Source		Claessens and Klapper, 2002, 2005 Doing Business Report 2006 La Porta *et al*., 1998					

TABLE 2
Descriptive Statistics and Pearson Correlation Coefficients – 35 Countries, 1990-1999 (N = 211 Country-Years)

Variable	Mean	S.D.	Min.	Max.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Log (Lagged Bankruptcy Rate)	-.25	1.65	-4.61	2.45														
2. GDP/Cap (t-1)	15909.84	9842.22	1452.44	37202.48	.47***													
3. GDP Growth (t-1)	3.19	3.48	-10.51	12.82	-.20***	-.14**												
4. Number of Banks	697.31	2056.51	9	10500	.19***	.35***	-.05											
5. S. American Countries	.11	.31	0	1	-.38***	-.42***	.26***	-.10*										
6. European Countries	.57	.50	0	1	.16**	.23***	-.32***	-.14**	-.40***									
7. Years Since 1990	4.61	2.68	0	9	.02	.02	.06	.005	.12**	-.13**								
8. Suicide Rate	14.50	7.28	.50	41.50	.42***	.21***	-.45***	-.04	-.31***	.32***	.03							
9. Reorganization Procedure	.95	.23	0	1	-.24***	-.01	.08	.08	.08	-.02	.001	-.28***						
10. Closing Time	-1.99	1.54	-9.20	-.40	.15**	.41***	-.04	.04	-.42***	.11*	-.05	-.03	-.10*					
11. Closing Cost	-9.71	7.56	-36	-1	.32***	.50***	-.01	.09	-.02	.02	.08	.17**	-.18***	.21***				
12. Fresh Start	35.24	23.29	7.30	92.80	-.22***	-.59***	-.04	-.09	.47***	-.11*	.02	.04	.18***	-.76***	-.49***			
13. Stay of Assets	.63	.48	0	1	.16**	.05	-.11	.09	.28***	-.05	-.03	-.05	.02	-.19***	.17***	.22***		
14. Stay of Incumbent Management	.71	.45	0	1	.12*	.19***	-.14**	.18***	.23***	.47***	.01	.24***	.06	-.16***	.13**	.07	.36***	
15. Protection of Creditors	.87	.33	0	1	.09	.28***	.02	.10	-.30***	.07	-.02	.07	.21***	.17***	-.14**	-.30***	-.14**	.07

Note. t denotes current year.
*p < 0.10; **p < 0.05; ***p < 0.01

TABLE 3
GEE Estimates of Bankruptcy Rate – 35 Countries, 1990-1999 (N=179 Country-Years)

Variable	Model 1	Model 2	Hypothesis Testing
Log (Lagged Bankruptcy Rate)	**0.925*** **	**0.964*** **	
	(0.023)	(0.009)	
GDP/Cap (t-1)	0.0000008	**-0.00001*** **	
	(0.000)	(0.000)	
GDP Growth (t-1)	-0.010	-0.0002	
	(0.009)	(0.005)	
Number of Banks	-0.000004	**0.000007***	
	(0.000)	(0.000)	
South American Countries	-0.130	-0.121	
	(0.117)	(0.111)	
European Countries	-0.033	0.014	
	(0.061)	(0.034)	
Years Since 1990	**-0.015** **	-0.003	
	(0.007)	(0.007)	
Suicide Rate (t-1)	0.005	**0.015*** **	
	(0.004)	(0.004)	
Reorganization Procedure (H1)		**0.220*** **	Supported
		(0.074)	
Closing Time (H2)		**0.042** **	Supported
		(0.018)	
Closing Cost (H3)		**0.009*** **	Supported
		(0.002)	
Fresh Start (H4)		**0.003*** **	Supported
		(0.001)	
Stay of Assets (H5)		**0.057** **	Supported
		(0.027)	
Stay of Incumbent Management (H6)		**-0.100** **	Not supported
		(0.044)	
Protection of Creditors (H7)		**0.147*** **	Supported
		(0.052)	
Constant	0.098	-0.168	
	(0.112)	(0.118)	
Wald Chi-square	4352.68***	230195.35***	
D.f.	8	15	

Note. Semi-robust standard errors in parentheses; t denotes current year.
*p < 0.10; **p < 0.05; ***p < 0.01