

HOW DO BANKRUPTCY LAWS AFFECT ENTREPRENEURSHIP DEVELOPMENT

AROUND THE WORLD?

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Forthcoming, *Journal of Business Venturing*
May 2010

We thank Donald Siegel (Editor) and two reviewers for excellent guidance and Livia Markoczy for helpful comments. This work was supported in part by a National Science Foundation CAREER Grant (SES 0552089). Earlier versions of this article were presented at the Babson College Entrepreneurship Research Conference (IE Business School, Madrid, Spain, June 2007), Academy of Management (Philadelphia, August 2007), and Strategic Management Society (San Diego, October 2007). A previous version received a U.S. Small Business Administration Award for the best Babson Conference paper “exploring the importance of small businesses to the US economy or a public policy issue of importance to the entrepreneurial community,” presented at the 2008 Babson Conference (University of North Carolina, June 2008) with a press release posted at www.sba.gov/advo/press/08-14.html. We are grateful to the SBA and to the Best Babson Paper Award Committee (chaired by Andrew Zacharakis) for their encouragement. All views expressed are those of the authors and not necessarily those of the NSF or the SBA.

HOW DO BANKRUPTCY LAWS AFFECT ENTREPRENEURSHIP DEVELOPMENT AROUND THE WORLD?

1. Executive Summary

Corporate bankruptcies are common. While all entrepreneurs are interested in success, unfortunately a majority of their ventures fail and many end up in bankruptcy. A challenge confronting policymakers around the world is: How to facilitate more entrepreneurship development in the face of such odds against entrepreneurial success?

How formal institutions of a society, 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 more entrepreneur-friendly bankruptcy laws.

A well-known proposition in the literature is that institutions matter—more specifically, entrepreneurs and firms strategically respond to the institutional incentives and disincentives. Given the “institutions matter” proposition, more work is needed to help us understand: *How* do institutions matter? Thus, two important but unexplored questions we investigate in this study are: How do bankruptcy laws affect entrepreneurship development around the world? Do entrepreneur-friendly bankruptcy laws encourage more entrepreneurship development at a societal level?

Amassing a longitudinal, cross-country database covering 29 countries and spanning 19 years (1990-2008, inclusive), we focus on whether differences in bankruptcy laws are systematically related to the different levels of entrepreneurship development as measured by the

rate of new firm entry. Components of entrepreneur-friendly bankruptcy laws include: (1) the time spent on bankruptcy procedure, (2) the cost of bankruptcy procedure, (3) the opportunity to have a fresh start in liquidation bankruptcy, (4) the opportunity to have an automatic stay of assets, and (5) the opportunity for managers to remain on the job after filing for bankruptcy. By examining the relationship between bankruptcy laws and the value creating activities in a society associated with new firm formation, we predict that entrepreneur-friendly bankruptcy laws may increase the rate of new firm entry, which may be indicative of vibrant entrepreneurial activities in an economy.

Contributing to an institution-based view of entrepreneurship, our research has clear implications for policymakers interested in entrepreneurship development in an economy and for entrepreneurs assessing their risk when starting up new firms. For policymakers, we suggest that making bankruptcy laws more entrepreneur-friendly will positively affect entrepreneurship development by lowering exit barriers and entry barriers. For entrepreneurs starting up new firms, we suggest that they pay attention to the nuances of bankruptcy laws in their jurisdiction and that if possible they set up firms in a jurisdiction that has entrepreneur-friendly bankruptcy laws.

2. Introduction

Corporate bankruptcies are common. While all entrepreneurs are interested in success, unfortunately a majority of their ventures fail and many end up in bankruptcy. A challenge confronting policymakers around the world is: How to facilitate more entrepreneurship development in the face of such odds against entrepreneurial success?

Entrepreneurship is widely seen as one of the most important drivers of economic growth (Schumpeter, 1942). The level of entrepreneurship in a particular country is not independent of the broader institutional context that has evolved in that country (Baumol, 1996; North, 1990). Countries that are characterized by institutions that support entrepreneurial activity will, other things equal, have higher levels of entrepreneurship than countries characterized by institutions that do not support entrepreneurship (Acs and Laszlo, 2007; Busenitz, Gomez, and Spencer, 2000; Peng, Sun, Pinkham, and Chen, 2009; Peng, Wang, and Jiang, 2008).

Of course, the institutional context of entrepreneurship in a particular country can have many different elements—ranging from cultural values concerning risk to beliefs about the stigma associated with entrepreneurial failure (Shepherd, 2003; Yamakawa, 2009). Research has shown that many of these elements are, in fact, related to the rate of entrepreneurship in a country (Shane, 1996). Because many of these institutional elements reflect the evolution of values and beliefs in a country over long periods of time, they are both relatively stable (Hofstede, 2007) and difficult to alter with changes in public policy (North, 1990). However, there are some elements of the institutional context of entrepreneurship within a country that are somewhat more susceptible to policy manipulations. One of these may be a country's bankruptcy laws—a form of formal institutions (Gamboa-Cavazos and Schneider, 2007).

Indeed, Lee, Peng, and Barney (2007) have argued that a country's corporate bankruptcy laws (hereafter "bankruptcy laws") can have an important impact on the level of entrepreneurship in a country.¹ Lee et al. (2007) posit that bankruptcy laws that reduce the cost of entrepreneurial exit may increase the level of entrepreneurship in a country, while bankruptcy laws that increase the cost of such exit may reduce the level of entrepreneurship in a country. Peng, Yamakawa, and Lee (2010) show systematic differences in terms of bankruptcy laws' entrepreneur-friendliness around the world. It follows from this logic that countries seeking to increase the level of entrepreneurship can, among other things, adjust their bankruptcy laws to reduce the cost of bankruptcy (Armour and Cumming, 2008; Halliday and Carruthers, 2007).

Of course, a country's bankruptcy laws are not independent of other elements of its broader institutional framework, especially those elements of its culture that are relevant to entrepreneurial activity. Thus, for example, a country that has a culture that is risk adverse is more likely to have bankruptcy laws that raise the cost of entrepreneurial failure, while a country with a less risk adverse culture is likely to have bankruptcy laws that impose lower costs of such failures (Lee et al., 2007; Tezuka, 1999). If, as a matter of public policy, a country is to use changes in its bankruptcy laws to facilitate more entrepreneurship, the impact of those changes on the propensity of individuals to become entrepreneurs must be greater than those elements in the institutional context that continue to be anti-entrepreneurial in nature.

In a nutshell, we address two important yet underexplored questions: How do countries' bankruptcy laws affect the level of entrepreneurship development as measured by the rate of new firm entry? Do entrepreneur-friendly bankruptcy laws encourage more entrepreneurship development at a societal level? We endeavor to contribute to theory building and empirical

¹ Although a country's personal bankruptcy laws may also affect entrepreneurship development (Armour and Cumming, 2008; Efrat, 2002; Fan and White, 2003; Mankart and Rodano, 2007), we do not deal with personal bankruptcy laws in this article.

substantiation with a focus on diverse entrepreneurship phenomena around the world (Zahra, 2007). We begin by more fully developing the logic that links bankruptcy laws with the level of entrepreneurship in a country. Then we develop hypotheses linking the specific elements of these laws with entrepreneurial behavior and test them with a sample of 29 countries over a 19-year time period.

While our paper builds on the most relevant earlier work by Lee et al. (2007), Peng et al. (2010), and Armour and Cumming (2008), ours goes beyond these three papers in at least five significant ways. First, Lee et al. (2007) is a theory paper with no empirical data. Peng et al. (2010) shows qualitative data without empirical testing. Ours is the first paper to deepen and broaden their theoretical ideas, transform them into testable hypotheses, and empirically test them with worldwide data. While Lee et al. (2007) and Peng et al. (2010) emphasize the benefit side of bankruptcy and pay less attention to the important component of the cost of bankruptcy (Bris, Welch, and Zhu, 2006; Djankov, Hart, McLiesch, and Schleifer, 2008; White, 1984), we have added the estimation of the direct and overall cost of the bankruptcy proceedings (e.g., cost of petitioning for insolvency, court fees, fees of practitioners, independent assessors, lawyers, and accountants). The positive externality discussed in Lee et al. (2007) is also complemented by the negative externalities in our research. Second, Armour and Cummings (2008) is an empirical paper that shares the same basic thrust of our paper—with one important difference. Armour and Cummings (2008) deal with the impact of *personal* bankruptcy laws on entrepreneurship, and we focus on the impact of *corporate* bankruptcy laws. Third, Armour and Cummings (2008) cover 15 developed economies (two in North America and 13 in Western Europe). Our database covers 29 countries that not only include all the countries studied by Armour and Cummings (2008), but also 14 additional countries in Asia, Latin America, and Oceania—with substantial

representation of emerging economies. Fourth, Armour and Cummings (2008) mainly examine the aspect of bankruptcy procedures with the direct relationship with creditors using automatic discharge and exemptions from creditors. This is understandable since they only examine liquidation bankruptcy, while we examine both liquidation and reorganization bankruptcy. For this reason, we examine the effect of automatic stay of assets and managers' stay on the job, which are specifically related only to reorganization bankruptcy. Fifth and finally, we also examine the potential endogeneity problem in the relationship between bankruptcy law and entrepreneurship development. Following Klapper, Laeven, and Rajan (2006), we use instrumental variable approach and use legal origin as an instrument for fresh start.

3. Entrepreneurship at the societal level

Starting with Schumpeter (1942), there is ample literature on entrepreneurship at the societal level. For example, McGrath (1999) argues that uncertainty is not always a bad thing even when most entrepreneurs fail if a few successful entrepreneurs can generate more value to a society than when all entrepreneurs survive, but hardly add value. At a societal level, this logic suggests that since a society cannot anticipate, with certainty, which entrepreneurial activities will actually generate economic growth and prosperity, it should encourage the development of a wide variety of such activities (Birley, 1986; Lumpkin and Dess, 1996). From a societal standpoint, each of these entrepreneurial activities can be regarded as an experiment (McGrath, 1999). Many of these will turn out to be economically unsustainable, which may lead to numerous bankruptcies—for example, think of numerous e-commerce failures. However, some of them may turn out to be economically important—think of Google and Yahoo! Without the bundle of options created by numerous entrepreneurs, a society may not be able to discover those

entrepreneurial activities that actually create economic growth and prosperity (Lee et al., 2007; McGrath, 1999; Nickell, 1996; Peng et al., 2010).

At a societal level, the unlimited upside potential associated with entrepreneurial actions exists because of the potential economic value that these actions can create. Limiting the downside risks associated with these activities depends on the cost of failing as entrepreneurs in a society. Failure, although painful for bankrupt entrepreneurs, may be valuable for the society as a whole (Hoetker and Agarwal, 2007; Knott and Posen, 2005), because it reveals which entrepreneurial endeavors are not likely to be sources of economic growth.

4. Hypotheses

Following Lee et al. (2007), Peng et al. (2010), and Armour and Cumming (2008), a broad proposition emerges, suggesting that bankruptcy laws that reduce the cost of entrepreneurial bankruptcy may, other things equal, increase the rate of entrepreneurship—specifically, entry of new firms in a country. However, to generate testable hypotheses consistent with this broad proposition, specific dimensions of bankruptcy laws and how they vary across countries must be identified.

Extending Lee et al. (2007) and Peng et al. (2010), we identify five dimensions of bankruptcy laws and develop testable hypotheses. As shown in Figure 1, the five dimensions are: (1) the time spent on bankruptcy procedure, (2) the cost of bankruptcy procedure, (3) the opportunity to have a fresh start in liquidation bankruptcy, (4) the opportunity to have an automatic stay of assets, and (5) the opportunity for managers to remain on the job after filing for bankruptcy.

[Insert Figure 1 about here]

4.1. Time spent on bankruptcy procedure

The cost of bankruptcy is positively related to the length of time spent on the bankruptcy procedure (Bebchuk, 2000; Bris et al., 2006). In a liquidation bankruptcy, a fast procedure allows the quick reallocation of assets of failed firms to better uses. At the same time, a fast procedure can provide an entrepreneur a new opportunity to start a new 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 (such as Chapter 11 in the United States), a fast procedure may protect the value of the assets of the firm and improve its chances for an eventually 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 and Doherty, 2002). One study drawing on data from 88 countries finds that on average, it takes 2.64 years to resolve, and on average 48% of the firm value is lost during the highly inefficient bankruptcy process (Djankov et al., 2008). Not surprisingly, managers may 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.

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). Obviously, failed entrepreneurs stuck with existing firms going through a lengthy bankruptcy procedure are not in a position to start new firms. Overall, a more efficient bankruptcy procedure may encourage more entry of new firms—in Silicon Valley, this is known as the motto of “fail fast, fail cheap, and move on.” In Mexico, post-2000 bankruptcy reforms have shortened the average bankruptcy process from 7.8 to 2.3 years (Gamboa-Cavazos and Schneider, 2007). In summary:

Hypothesis 1. *Less time spent on the bankruptcy procedure will be positively associated with a higher rate of new entry of firms in a country.*

4.2. Cost of bankruptcy procedure

It is not only the lengthy time that make entrepreneurs procrastinate about filing bankruptcy, but also the actual cost involved in filing bankruptcy (Bris et al., 2006). One may think that the direct cost of bankruptcy is not very high. However, the World Bank’s *Doing Business Report 2008* finds that in the United States, the direct cost is approximately 7 percent of the assets of the firm. Bris et al. (2006) report a higher percentage for U.S. Chapter 11 bankruptcies: 17 percent. Internationally, Djankov et al. (2008) find bankruptcy cost amounts to 14 percent of the estate cost among 88 countries. It costs 22 percent when firms file bankruptcy in Italy and Poland, and 36 percent in Thailand (*Doing Business Report 2008*). This underscores Mason’s (2005: 1523) argument that costly bankruptcy “can cause sluggish economic growth.” In other words, high bankruptcy cost may discourage firms to file bankruptcies even when at the societal level, it may be more valuable for them to go bankrupt so that resources and employees can be channeled toward more productive use. Also, when the cost associated with bankruptcy is high, some entrepreneurs may be discouraged to start businesses in the first place. Thus:

Hypothesis 2. *Less cost spent on the bankruptcy procedure will be positively associated with a higher rate of new entry of firms in a country.*

4.3. Fresh start in liquidation bankruptcy

Bankruptcy laws can either discharge bankrupt individuals from debt or allow the pursuit of the bankrupt entrepreneurs for years (OECD, 1998). By discharging bankrupt entrepreneurs, while creditors can claim residual assets, they cannot pursue any remaining claims. Since an entrepreneur's future earnings are exempt from the obligations to repay past debt from bankruptcy, this type of bankruptcy laws are appropriately called "fresh start" laws (Ayotte, 2007; White, 2001). In the absence of a legally protected "fresh start," creditors can pursue any remaining claims, at least for some defined period of time. In Germany, until the recent bankruptcy law reforms (Armour and Cummings, 2008), the debtor would remain liable for unpaid debt for up to 30 years (Ziechmann, 1997) and managers at bankrupt firms can be personally liable for criminal penalties (Fialski, 1994). It is not surprising that German entrepreneurs would have to think twice before starting up new firms.

In addition, the 1997-1998 Asian economic crisis revealed that the lack of protection against creditors actually kept many firms from filing bankruptcy even when it would have made more sense to file (Chang, 2006; *New York Times*, 1998). For executives of firms in distress who know that the consequences of bankruptcy would hurt them personally, filing a bankruptcy is likely to be the last thing they have in mind. This means that many firms that should not be alive continue to survive—in essence, "dead men walking," a huge opportunity cost to the overall economy (Lim and Hahn, 2003). Once these economically unviable firms are given the chance to file bankruptcy more easily, some entrepreneurs would be able to start new businesses. Thus:

Hypothesis 3. *Discharging bankrupt entrepreneurs more from debt to allow them to have a “fresh start” will be associated with a higher rate of new entry of firms in a country.*

The first three dimensions we examined above are: (1) time spent on bankruptcy procedure, (2) cost of bankruptcy procedure, and (3) fresh start of in liquidation bankruptcy. We argue that these three dimensions positively affect the rate of new entry because firms would be affected by these dimensions regardless of the capabilities of the entrepreneurs. However, the two additional dimensions, (1) automatic stay of assets in reorganization bankruptcy and (2) the fate of managers, may have *different* implications depending on how entrepreneurs are salvaged by the two dimensions, respectively.

Automatic stay of assets is about providing another opportunity to an unfortunate entrepreneur who is capable, but is under financial trouble. For this reason, the automatic stay of assets may extend the economic viability of entrepreneurs and their current firms. If the economic viability of entrepreneurs and their current firms is extended, they may be less motivated to start new firms, thus resulting in a smaller number of new firm entry in the next stage. In other words, while nascent entrepreneurs may see automatic stay of assets as an incentive to start new firms, those who are already in business may not come back to restart businesses once they successfully revive their current firms in trouble. It is the same with the fate of managers. Should the managers stay and revive the firms in trouble, they may be less motivated to start new firms.

4.4. Automatic stay of assets in reorganization bankruptcy

In some countries, bankruptcy laws 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 and Domowitz, 1998). The firm continues to operate while creditors and firms negotiate (Kaiser, 1996). Before deciding whether the firm should be liquidated or not, an automatic stay allows time for managers to communicate with creditors (Franks, Nyborg, and Torous, 1996). La Porta et al. (1998) find that nearly half of the 49 countries they study do not have an automatic stay on assets. While automatic stay is allowed in the United States in the case of reorganization bankruptcy (such as Chapter 11), 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 (Broadie, Chernov, and Sundaresan, 2007). Given uncertainty over the future potential of the firm, even when the value of the ongoing concern is higher than liquidation value, some creditors may have a greater interest in liquidating the firm (Broadie et al., 2007; Wruck, 1990). In Germany, for example, automatic stay does not extend to secured creditors and these secured creditors have incentives to pursue 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, in turn, when entrepreneurs know that they would not be given a second chance when their firms are undergoing difficulty, some of them would be discouraged to start new businesses.

While we have not specifically examined the downside of lenient bankruptcy laws in the previous three hypotheses, these laws have costs as well (Lee et al., 2007: 266; see Bebchuk, 2002; Kahl, 2002). Banks may strictly screen potential entrepreneurs attempting to secure financing due to a more lenient bankruptcy laws. In other words, debt forgiveness of failed entrepreneurs may come back with an increased cost of financing to potential entrepreneurs,

which may become a source of discouragement. Less time and less cost in bankruptcy procedures can lower the burden of failed entrepreneurs, but at the same time can increase the cost to the banks.

This is not different for the case of fresh start. Fresh start mandates that failed entrepreneurs are exempt from repaying outstanding obligations (Ayotte, 2007). While residual assets can be claimed, banks cannot pursue for any remaining claims at a bankruptcy. Since entrepreneurs are exempt from the obligations to repay past debts from bankruptcy with future earnings, it can be very costly to the banks (White, 2001). However, in the absence of a legally protected “fresh start,” creditors can pursue any remaining claim (Broadie et al., 2007). Maybe this is why past research shows that other than the leniency of the bankruptcy laws, the level of easy financing is an important factor in new firm entry (Armour and Cumming, 2008). Not surprisingly Berkowitz and White (2004) find that in the United States, the rejection rate for financing is over 30 percent higher in states with unlimited bankruptcy exemptions compared to states with low exemptions. Thus:

Hypothesis 4a. *An automatic stay of assets specified by bankruptcy laws will be positively associated with a higher rate of new entry of firms in a country.*

On the other hand, if debt holders in a country have limited ability to secure repayment of their loans to bankrupt firms, they may be forced to increase the cost of financing. In a sense, the increased risk of receiving payment from a bankrupt firm for firms operating in countries with automatic stay of assets will be reflected in the cost of debt capital for these firms (Broadie et al., 2007). This is why past research shows that how easy to gain access to financing is an important factor in entrepreneurship development (Armour and Cumming, 2008; Mankart and Rodano, 2007). In other words,

the opportunity cost of securing loans is the interest rate that entrepreneurs have to bear (Choi and Phan, 2006; Shane, 1996). A high cost of financing, in turn, may reduce the number of entrepreneurial entrants in a country.

In addition, if these entrepreneurs are successful in their turnaround attempt, they would be staying with the current firms, which will not necessarily result in the founding of new firms. This is why entrepreneurs can often successfully turn around their firms in temporary financial trouble in countries where an automatic stay of assets is well protected. For example, in the United States, Harvard Industries' nick name is Chapter 44 because it filed reorganization bankruptcy *four* times (Economist, 2002). Thus, we suggest a competing hypothesis:

Hypothesis 4b. *An automatic stay of assets specified by bankruptcy laws will be positively associated with a lower rate of new entry of firms in a country.*

4.5. 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. The opportunity to stay with the firm after filing for reorganization bankruptcy provides incentives for managers to make firm-specific investments. 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 and Summers, 1988). If managers know *ex ante* that they will not be automatically replaced in the case of bankruptcy, however, the opportunity to stay with the firm may work as a “bonding device” (Gaston, 1997). Thus, when a firm files bankruptcy, providing an opportunity for managers to stay may provide managers a better chance to revive the firm.

Since firms are 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 end up with improper reorganization (Alexander, 1999; Hashi, 1997). For example, Chapter 11 in the United States allows managers to retain control of the firm and provides them 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 the reason of premature liquidation (Kaiser, 1996). Thus, in turn, when entrepreneurs know that they would not be given a second chance to revive their firms under difficulty, some of them may be discouraged to start new businesses in the first place. On the other hand, when entrepreneurs are given opportunities to stay on the job and work on the revival of the troubled firms, they may be more willing to take risk and start businesses. Overall:

Hypothesis 5a. *Allowing incumbent managers to stay on the job specified by bankruptcy laws rather than forcing out incumbent managers will be associated with a higher rate of new entry of firms in a country.*

However, just as making it difficult for creditors to secure repayment on their debt can increase the cost of financing and potentially reduce the level of new firm entry in a country, so too can limitations of the ability of outside stakeholders to replace management increase the cost of capital and other critical resources for entrepreneurial firms. Potentially one rationale for allowing managers to stay with the failing firm may be based on an assumption that the factors leading to the financial trouble of the firm are largely exogenous (Daily, 1994; Moulton and Thomas, 1993). However, after all, it is

under the care of the incumbent managers that the firm has gone bankrupt. An argument can be made that letting the failed managers stay with the firm that is already in trouble may only give them another opportunity to destroy value. Because managers can take advantage of this special treatment of letting them stay during times of difficulty, some scholars call this type of move as a “strategic bankruptcy (Moulton and Thomas, 1993). Thus, letting failed managers stay in their positions when a firm is in financial distress may increase the cost of capital. This, in turn, can also have a negative impact on the rate at which entrepreneurship emerges in a country.

In addition, as argued above, if entrepreneurs are more likely to turn around their firms, they would stay with the firm rather than starting new businesses. For this reason, it is quite possible that letting managers stay with the firm at the time of reorganization bankruptcy may dampen the new entry of firms. Specifically:

Hypothesis 5b. *Allowing incumbent managers to stay on the job specified by bankruptcy laws rather than forcing out incumbent managers will be associated with a lower rate of new entry of firms in a country.*

In summary, Hypotheses 1, 2, and 3 suggest an unambiguous relationship between entrepreneur-friendly bankruptcy laws and the rate of entrepreneurship in a country as measured by the entry of new firms. These hypotheses focus directly on the cost of filing for bankruptcy—minimizing such cost is economically efficient for all of a firm’s stakeholders (Lee et al., 2007; Peng et al., 2010). Hypotheses 4 and 5 suggest contradictory relationships between bankruptcy laws and the entry of new firms into a country. This is because these two sets of hypotheses focus on how the problems that would lead a firm to declare bankruptcy are resolved. If the process by which these

problems are resolved favors managers (as in Hypotheses 4a and 5a), then that may give individuals more incentives to become entrepreneurs. On the other hand, those incentives may be counter-balanced by the increased costs that entrepreneurs would have to bear to compensate other stakeholders for the increased risks they would have to bear, in the face of bankruptcy (Bebchuk, 2002; Broadie et al., 2007; Kahl, 2002). These increased costs may reduce the level of new firm entry in a country.

The net effect of Hypotheses 4a versus 4b and of Hypotheses 5a versus 5b, on the entry of new firms into a country's economy, is ultimately an empirical question (Bebchuk, 2002: 457). However, if the size of these contradictory effects is approximately equal, these relationships may cancel each other and result in non-significant findings.

5. Methods

5.1. Data

We have collected data for 29 countries during a 19-year period (1990-2008, inclusive). Our sources include past studies on commercial bankruptcy filings collected from government and private sources (Claessens and Klapper, 2005),² 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,³ the Organization for Economic Co-operation and Development (OECD), the World Health Organization (WHO), and the International Monetary Fund (IMF). Table 1 outlines our data across the 29 countries.

² We thank Stijin Claessens and Leora Klapper for sharing part of their data for our research.

³ *Doing Business Report*, International Finance Corporation, The World Bank Group (<http://www.ifc.org>).

[*Insert Table 1 about here*]

It is natural for the bankruptcy variables to correlate each other. But, according to the correlation table, there are some exceptions. For example, the correlation between the closing time and automatic stay of assets and closing time and stay of incumbent management are not significant. This is probably because while closing cost and closing time are part of the overall administrative costs decided at the court and related to liquidation bankruptcy, automatic stay of assets and stay of incumbent management are decided by the legislature and associated with liquidation bankruptcy. We also observe that not all the bankruptcy variables are positively correlated. This suggests that many countries may have developed bankruptcy laws in a piecemeal manner (DeSoto, 2003).

5.2. *Dependent variable*

In our hypotheses, we predict how various components of the bankruptcy laws can curtail the downside risk of entrepreneurs and help encourage risk-taking behavior such as new firm entry. The dependent variable in our model is thus the *rate of new firm entry* (Kawai and Urata, 2002; Klapper et al., 2006; Yamawaki, 1991). We use OECD data on the ratio of the number of new firms to the total number of firms (previous year) in a country.⁴

5.3. *Independent variables*

Closing time. The data are obtained from the World Bank (Djankov et al., 2008). Closing time refers to the average time (in years) to complete a bankruptcy procedure within a country. Since we argue that a shorter time for bankruptcy procedure is associated with a higher rate of bankruptcy filing, we reverse the signs of the lengths of time from positive to negative.

⁴ For certain instances, the OECD did not provide the rate of new firm entry but provided data on the number of firms in total in a particular year end (T_t) and the number of firms that filed bankruptcy in a particular year end (D_t). In these cases, we calculated the number of entries (B_t) by $T_t = B_t + T_{t-1} - D_t$ so that $B_t = T_t - (T_{t-1} - D_t)$, whereas the rate of new firm entry $BR_t = B_t / T_{t-1}$.

Closing cost. Similarly, we use data provided by the World Bank to measure the cost associated with bankruptcy filings (Djankov et al., 2008). Closing cost represents the cost of the bankruptcy proceedings (% of estate). Again, to align with our argument that a lower cost of bankruptcy is associated with a 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 specified by the bankruptcy laws. 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 is recovered by entrepreneurs themselves, thereby the less likely they will have a fresh start. 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 (Claessens and Klapper, 2005; Peng et al., 2010; Pistor, 2000). This variable represents one of the dummy variables created in La Porta et al. (1998), whether or not the reorganization procedure imposes an automatic stay on the assets thereby preventing secured creditors from getting possession of loan collateral. Whereas La Porta et al. (1998) define it "no automatic stay on secured assets," here, we label it reversely as "automatic stay of assets." Accordingly, this variable equals to 1 if there is automatic stay of assets; and 0 otherwise that such a restriction does not exist in the law.

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. La Porta et al. (1998) label this as "management does not stay," which we label here reversely 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).

5.4. Control variables

We control for six sets of factors. First, we expect that economic performance of a country would affect its rate of new firm entry (Shane, 1996). Countries experiencing positive growth may have higher rates of new firm entry (Kawai and Urata, 2002). Thus, we control for countries' general level of development and macroeconomic performance. For general development, we include lagged real GDP per capita in US dollars. For macroeconomic performance, we include the growth rate of real GDP lagged one year obtained from the IMF (Claessens and Klapper, 2005). In addition, we control for the interest rate as well as the number of banks per capita within a country in a given year in order to capture the variance and stability of a country's financing infrastructure (Bandiera et al., 2000; Caprio and Honohan, 1999; Goderis and Ioannidou, 2008).

Second, in our attempt to control for unobserved regional effects, we create dummy variables for regions (e.g., Europe, Asia) with North America as the reference category. Differences in national institutions can bring about different levels of entrepreneurial activity across countries (Baumol, 1996; Busenitz et al., 2000; North, 1990). We control for regions to account for these differences explained by a broader set of institutions that guide and constrain

entrepreneurial behavior. We also control for general institutional quality that may influence new firm entry rates in other forms than bankruptcy, such as efficiency of law. We account for this by controlling for the “rule of law”—an assessment of the law and order tradition within a country (Claessens and Klapper, 2005; La Porta et al., 1997, 1998).

Third, we control for time effects across all countries (Caprio and Klingebiel, 2002). We include a variable measuring years elapsed from 1990 to capture any time trend effects associated with changes in the bankruptcy rate (Rhee and Haunschild, 2006).

Fourth, we control for differences in the informal aspects of the institutional environment, such as “uncertainty avoidance,” obtained from Hofstede (2001). In other words, the same entrepreneur-friendly bankruptcy laws may have different implications for entrepreneurs in different institutional environments (Lee et al., 2007; Sutton and Callahan, 1987).

Fifth, we control for the official cost of all procedures required to register a firm expressed as percentage of gross national income [GNI] per capita, using World Bank data. Finally, since the rate of exit (previous year) and the rate of new entry (the following year) may be positively correlated, we control for bankruptcy rate (previous year).

5.6. Model specification

We model the rate of *new firm entry* using the following power function:

$$ER_{i,t} = BR_{it-1}^a \exp(\gamma CT_{it-1} + \zeta CC_{it-1} + \eta RR_{it-1} + \theta SA_{it-1} + \iota MS_{it-1} + \beta C_{it-1}) \varepsilon \quad (I)$$

where $ER_{i,t}$ = the rate of new firm entry in a given country i at a given year t

BR_{it-1} = the bankruptcy rate in a given country i at a given year $t - 1$

CT_{it-1} = the average closing time (in years) to complete a bankruptcy procedure in country i during year $t - 1$

CC_{it-1} = the average closing cost (% of estate) of the bankruptcy proceedings in

country i during year $t - 1$

RR_{it-1} = the recovery rate (cents on the dollar) of bankruptcy filings in country i during year $t - 1$

SA_{it-1} = 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-1} = a dummy variable indicating whether the incumbent management is allowed to stay (1) or otherwise (0) in country i during year $t - 1$

C_{it-1} = a vector of control variables (described below) in country i during year $t - 1$

ε = 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 :

$$\begin{aligned} & \text{Log} (ER_{i,t}) \\ & = \alpha \log (BR_{it-1}) + \gamma CT_{it-1} + \zeta CC_{it-1} + \eta RR_{it-1} + \theta SA_{it-1} + \iota MS_{it-1} + \beta C_{it-1} + \mu \quad (\text{II}) \end{aligned}$$

We use a logarithm transformation to allow our dependent variable (percentage) to take both positive and negative values rather than being 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).

5.7. 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. Due to missing data, we have a total of 229 country-year observations.⁵

⁵ For example, STATA dropped observations due to missing number of banks. The main cause, however, was due to the lack of data availability on the rate of new firm entry among country-year observations (i.e., we start

In order to take into account both inter- and intra-variations among country observations, we use the generalized estimating equations (GEE) to test our hypotheses (Liang and Zeger, 1986; Rhee and Haunschild, 2006). Since our dataset contains multiple and unbalanced observations for each country, we use this estimation technique as a superior approach than a standard Ordinary Least Squares (OLS)-based regression models. Because observations for countries are organized into a pooled cross-sectional time series dataset, there will be potential for non-independence and cross-sectional heteroskedasticity. Thus, OLS-based estimates could produce correlated error terms, under-stated standard errors, and inflated t -statistics (Holcomb, Holmes, and Connelly, 2009). Specifically, we use the identity link, the Gaussian distribution, and the exchangeable option of the correlation matrix in order to correct for the correlation from repeated observations made for each country (Rhee and Haunschild, 2006). Furthermore, we also use the cluster command in STATA to obtain a robust variance estimate that accounts for (and adjusts for) within-country correlation and within-group dependence (Barkema and Shvyrkov, 2007; Williams, 2000).

5.8. Marginal effects

In order to assess the economic significance, we examine the marginal effects of independent variables on the dependent variable. Economic significance of marginal effects depends on the magnitude of change in the independent variables. However, since coefficient estimates are difficult to interpret (Greene, 2000), we use the mfx command in STATA to obtain the elasticities of the form dy/dx at the desired values of independent variables to calculate the marginal effects of independent variables (Nickerson and Silverman, 2003).

with 551 possible observations from a 19-year-and-29-country panel, and end up with 229 observation for valid analysis).

6. Findings

Table 2 presents descriptive statistics. In order to capture any possible multicollinearity problems associated with high correlation, we first check all variance-inflation factors (VIFs), 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 of our data is 5.32, the mean VIF is 2.40, and none of the tolerance is less than 0.1, suggesting little problem of multicollinearity.

[Insert Table 2 about here]

Table 3 presents the GEE estimates on the changes in the rate of new firm entry derived from Equation II. Model 1 is the base model containing only the control variables. Models 2 to 6 represent the main effect of each of our independent variables. Model 7 is our final model containing all key variables.

[Insert Table 3 about here]

The effect of closing time and closing cost exhibit positive and significant ($p < .01$) results, therefore supporting both Hypotheses 1 and 2. In other words, the less time and less costs associated with bankruptcy proceeding are associated with a higher rate of new firm entry in the next year (there is a one-year lag in all models). The significant ($p < .05$) and positive effect of fresh start also provides support for Hypothesis 3. The result shows that the more entrepreneurs recover from bankruptcy (which would mean a fresher start), the higher the rate of new firm entry in a country. Furthermore, the significant ($p < .05$) and negative effect of automatic stay of assets supports Hypothesis 4b but not 4a. The result indicates that allowing assets to stay is *not* associated with a higher rate of new firm entry; rather, it works the other way around. Finally, neither Hypotheses 5a nor 5b are supported.

Table 4 presents the marginal effects of our main variables. The results show the magnitude of the effects of independent variables on the dependent variable—computed in terms of a unit change in the dependent variable associated with a change in one standard deviation in each independent variable from the mean shown in Table 2. When it comes to a dummy variable, it is a change from zero to one. The results indicate that 0.03 year (approximately 10 days) spent on closing time compared to 2.36 years (approximately 29 months) is associated with a 10 percent increase in the likelihood of new firm entry. The difference between 1.04 percent and 12.93 percent of estate spent on closing cost translates into an 11 percent higher likelihood of new firm entry as well. When it comes to fresh start, securing 63.18 percent of the assets means an 11 percent higher likelihood of new firm entry compared to when an entrepreneur can only secure 38.48 percent of the assets. Finally, when automatic stay of assets is guaranteed, there is an 8 percent decrease in the likelihood of new firm entry.

[Insert Table 4 about here]

In terms of robustness checks, we have tested various additional models (e.g., unconditional specification without the controls, with only the most basic controls) as well as incorporated various other variables in addition to the main control variables. In order to correct for unobserved period effects or convergence forces such as large positive shock in firm entry, we have included year dummies for the 19 years. To account for the social dimension of bankruptcy laws, we have controlled for the level of social stigma concerning failure by incorporating the suicide rate (by year, per 100,000 populations) obtained from the WHO.⁶ We have also tested the number of days and the number of procedures to start a business obtained from the *Doing Business Report* (World Bank). Since personal bankruptcy laws may apply more

⁶ For example, in Japan, where stigma of failure is very high, it is well known that bankrupt entrepreneurs often commit suicide (*Time*, 1999). About 30 people commit suicide per *day* for economic reasons in Japan (Takahashi, 2003).

to smaller firms and that the distribution of firm size may affect the occurrence of bankruptcies, following Claessens and Klapper (2005), we also use the percentage of employment attributed to small- and medium-sized enterprises (SMEs) as a control. Furthermore, we have also tried the rate of new firm entry in the previous year as a control variable to see if the previous level of new firm entry affects the rate of new firm entry in a given year. Finally, in order to account for measurement error in our dependent variable, we have created the average new firm entry rate over the time period and tested our hypotheses (Armington and Acs, 2002). The results are not qualitatively different from our main findings.⁷

Another robustness check that we have added is an attempt to tease out the possibility of reverse causality. We utilize an instrumental-variable approach (Klapper et al., 2006; Kwok and Tadesse, 2006) and test several variables as an instrumental variable. Among the bankruptcy law variables, Fan and White (2003) argue that fresh start is the most important variable for entrepreneurs since its impact can be enormous. We also find that among the five bankruptcy variables, fresh start is the only variable that has a significant relationship with interest rate and the relationship is positive. This shows that fresh start may be the most important variable when it comes to debt forgiveness. For this reason, following Klapper et al. (2006), we use legal origin as an instrument for fresh start. In the finance and economics literature, using such institutional variable is customary (Kwok and Tadesse, 2006). Specifically, we use the `ivreg` command and robust option in STATA to obtain a robust estimate. We find the results are qualitatively similar to the original results we have obtained.

7. Discussion

7.1. Contributions

⁷ Results are not shown here but are available upon request.

Overall, at least three contributions emerge. First, this article leverages insights from the past literature to address an entrepreneurship issue that has important public policy implications (Acs and Laszlo, 2007; Cumming et al., 2009; Shade and Siegel, 2008).⁸ In general, we find that the less the downside risk involved in filing bankruptcy, the more new firms are founded. For policymakers, we suggest that making bankruptcy laws more entrepreneur-friendly will positively affect entrepreneurship development by lowering exit barriers and entry barriers. For entrepreneurs starting up new firms, our advice is that they pay attention to the nuances of bankruptcy laws in their jurisdiction and that if possible they set up firms in a jurisdiction that has entrepreneur-friendly bankruptcy laws. Although management and entrepreneurship research rarely engages in public policy issues (as critiqued by Barney, 2005; Kochan, Guillen, Hunter, and O’Mahony, 2009; and Peng et al., 2009), the public policy implications of our research are clear. Specifically, our research draws on and extends the recent advance of an institution-based view of entrepreneurship in the literature (Peng et al., 2008, 2009, 2010) by shedding considerable light on how specific formal institutions—in this case, bankruptcy laws—matter and thus by contributing to important public policy debates.

Second, we extend the arguments made by Lee et al. (2007) and Peng et al. (2010) that at a societal level, entrepreneur-friendly bankruptcy laws can lower *entry* barriers by encouraging entrepreneurs to take more risks and start up more new firms. When risk-taking is encouraged by more entrepreneur-friendly bankruptcy laws, it can generate variety of entrepreneurial options at a societal level by increasing the number of firms with high growth potential in a country. This may lead to more entrepreneurship and economic development at a societal level. Thus, we echo

⁸ This point is underscored by the fact that an earlier version of this article received the U.S. Small Business Administration Best Paper Award for a Babson Conference paper “exploring the importance of small businesses to the U.S. economy and public policy issues of importance to the entrepreneurial community” at the 2008 Babson Conference.

Hoetker and Agarwal (2007), Knott and Posen (2005), McGrath (1999), Lee et al. (2007), and Peng et al. (2010) by arguing that failure, although painful for individual entrepreneurs, may be good—for the economy.

Third, we empirically substantiate our argument through a longitudinal, cross-country database covering 29 countries on five continents and spanning 19 years. Our findings, based on corporate bankruptcy laws, converge with those reported by Armour and Cumming (2008), who focus on personal bankruptcy laws in 15 countries on two continents. Specifically, we find that the less time and less cost associated with the bankruptcy procedure encourages more new firm entry. For example, on average firms spend approximately 29 months going through the bankruptcy proceedings. Decreasing this agonizing period to 10 days can boost the likelihood of new firm entry by 10 percent. It is the same with the cost of bankruptcy. When less can be spent in the bankruptcy proceeding, this means increased new firm entry as well. We also find that providing a failed entrepreneur with a fresher start will encourage higher likelihood of new entry.

It is puzzling that allowing an automatic stay of assets actually dampens the entry of new firms. Also, enabling managers to keep their positions in bankrupt firms does not necessarily have a significant impact on new firm entry. Our findings suggest that there may be important adverse selection issues associated with keeping a failing firm's managers in place—the managers who are associated with an entrepreneurial firm's financial distress may not always be the best managers to continue to manage a firm (Bebchuk, 2002).

The significant results of some of our control variables are noteworthy. We find that the degree of a country's previous economic development such as GDP per capita, financing infrastructure such as the number of banks per capita, as well as financial barrier to entry such as start-up cost indeed affect the rate of new firm entry within a country (Table 3). The marginal

effects of the control variables (Table 4) show the magnitude of their effect on new firm entry rate. In terms of GDP per capita, a difference of approximately \$12,000 translates to an 8 percent likelihood of new firm entry. The establishment of approximately 1.3 banks (per 1 million population) means 10 percent more new firm entry likelihood than 0.3 banks (per 1 million population). When it comes to start-up cost, a difference between a 10.43 percent and 20.65 percent of GNI per capita to register a firm translates into 10 percent change in new firm entry likelihood.

Finally, it is important to highlight the similarities in the letter and spirit of personal and corporate bankruptcy laws, although as noted earlier in this article we choose not to deal with personal bankruptcy laws. For example, the concepts of “fresh start” and “automatic stay” in corporate bankruptcy laws are similar to “discharge” and “exemptions,” respectively, in personal bankruptcy laws (Armour and Cumming, 2008). However, many entrepreneurs choose to incorporate their firms in order to protect their personal assets, in case their firms go under. Therefore, our findings, from a corporate bankruptcy law perspective, *complement* and *strengthen* Armour and Cumming’s (2008) findings that originate from a personal bankruptcy law perspective. In other words, our study starts to fill an important missing gap in the previous literature in terms of how entrepreneur-friendly corporate bankruptcy laws facilitate more entrepreneurship at a societal level.

7.2. Limitations and future research

Among limitations, our analysis does not incorporate time-varying bankruptcy variables. In other words, we are not able to account for the changes in corporate bankruptcy laws during the time period in the countries that are covered. While we can take account of measures such as origin of law and rule of law (La Porta et al., 1997), we are unable to capture the various levels

of development of bankruptcy laws among the countries over time. This is an important limitation that future research may need to overcome.

Since the *Doing Business Report* (World Bank) is not a direct measure of outcomes and is, instead, derived from surveys administered through local experts (e.g., lawyers, consultants, and officials), one may also question the consistency of results across countries. However, the survey is designed with academic advisors, routinely administered through more than 6,000 local experts, and subject to numerous tests for robustness. Data are collected in a highly standardized way to ensure comparability across economies and over time. This methodology actually offers several advantages including its transparency, allowing multiple interactions with local respondents to clarify potential misinterpretations of questions.

In a broader sense, we have examined mainly the regulatory, thereby *formal*, aspects of the institutional environment and their effect on new firm entry. While we have used an important *informal* aspect of the institutional environment as a control variable (uncertainty avoidance), it may be interesting to explore the interaction and/or moderating effects of this and other informal aspects of a country's institutional environment (Peng et al., 2008, 2009). In the case of default, informal workouts are often undertaken instead of formal insolvency proceedings. In future work, it will be important to examine how formal and informal constraints can be integrated to create a more coherent understanding of how institutions constrain or facilitate entrepreneurial activities in different countries.

Also, as suggested in Kaufmann, Hermann, and Van Auken (2007) and Lee et al. (2007), many entrepreneurs may not investigate the nuances of bankruptcy laws before starting up new businesses. Thus, the *ex ante* effects of bankruptcy laws on entrepreneurial entry may not be as strong as suggested by our theory. However, if this is the case, then the results presented here are

quite conservative in nature. Past research on U.S. firms, however, shows that there is a significant difference in new firm formation depending on how lenient the bankruptcy laws are in different states (Fan and White, 2003). Nevertheless, since similar cross-regional studies within the same country have not been done on countries other than the United States, where institutions are well developed, it is worthwhile to examine the relationship in other countries (Davidsson and Wiklund, 1995). It is possible that when other institutions are more developed, entrepreneurs may become more sensitive to bankruptcy laws. On the other hand, underdevelopment of other essential institutions such as financing and legal protection of properties may make entrepreneurs pay less attention to bankruptcy laws, which may have a limited impact.

For example, when property rights are not well protected, entrepreneurs may not pay enough attention to the terminal stage of bankruptcy. Just making sure that property rights are protected would be already an overwhelming task for many countries. This may be the reality in many emerging and developing economies, but the United States was not much different in the early 1800s. For example, “the Chief Justice of the Supreme Court, Joseph Story, wondered in 1820, whether lawyers would even be able to settle them [bankruptcies and other property rights disputes]” (De Soto, 2003: 9). Clearly, tremendous entrepreneurial and economic development in the United States since the early 1800s is not entirely due to certain entrepreneur-friendly bankruptcy laws. Such bankruptcy laws function in the much larger institutional framework facilitating entrepreneurial and economic development (North, 1990). Likewise, reforming bankruptcy laws and making them more entrepreneur-friendly should not be viewed as panacea for countries interested in promoting entrepreneurship development. It is the overall balanced development of the institutions that spurs entrepreneurship, not a piece-meal type development

of certain aspects of institutions.

Furthermore, more systematic research in this area such as emerging economies (EE) versus developed economies (DE), high-tech versus low-tech industries, small entrepreneurial versus large incumbent firms may be worthy of exploration. For example, while some of our attempts did not achieve convergence due to the limited sample size when it comes to splitting data between EE and DE (Wright, Filatotchev, Hoskisson, and Peng, 2005), it would be interesting to see the differential effects on firms in DE versus EE (Yamakawa, Peng, and Deeds, 2008). In terms of industry variation, a high-tech industry characterized by high uncertainty and high variance may be associated with lower levels of stigma for failure (Lee et al., 2007). Furthermore, the effect of bankruptcy laws on small entrepreneurial firms and the societal impact of their bankruptcy filings can be different from the huge financial impact of corporate bankruptcies of large incumbent firms. The policy implications of bankruptcy laws for these different kinds of bankruptcies may be different, thus necessitating further in-depth research.

8. Conclusion

Contributing to an institution-based view of entrepreneurship, we have mapped out how entrepreneur-friendly bankruptcy laws can stimulate entrepreneurship development around the world. Since “bankruptcy is an occupational hazard for entrepreneurs” (*Economist*, 2010: 68), making it less hazardous holds the potential to promote more entrepreneurship. In conclusion, let us quote the *Economist* (2010: 68), which addresses government officials desperately searching for ways to promote entrepreneurship and economic growth in the midst of the worst economic crisis:

Making it easier to close a business may not sound as inviting as announcing yet another “enterprise fund” or “innovation initiative,” but it is more vital to reviving the world’s moribund

economy. In the short run, enlightened bankruptcy laws reduce unemployment by keeping viable companies alive. In the long run they boost rates of entrepreneurship. The best way to get more people to start businesses is to make it easier to wind them up.

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FIGURE 1
Components of Bankruptcy laws and Entrepreneurship Development

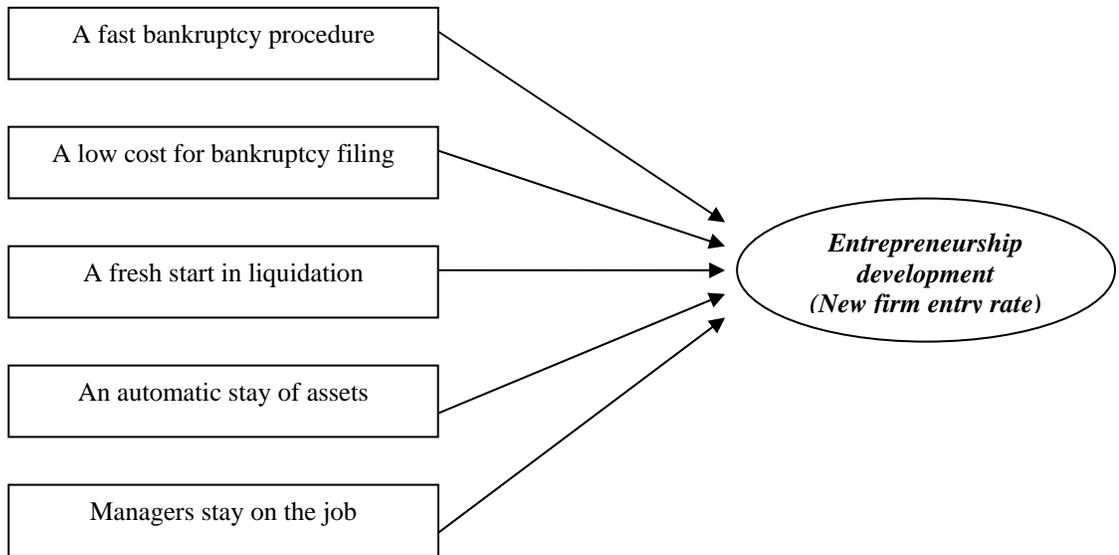


TABLE 1
New Firm Entry Rates and Bankruptcy Law Differences

Country	New Firm Entry Rate*	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)
Argentina	0.07	2.8	14.6	75.9	1	1
Australia	0.11	1.0	8.0	19.9	1	1
Austria	0.08	1.1	18.0	26.9	0	1
Belgium	0.07	0.9	4.0	13.9	0	1
Canada	0.10	0.8	4.0	10.4	1	1
Chile	0.07	5.5	17.5	79.8	1	1
Denmark	0.10	3.2	4.0	35.0	0	1
Finland	0.08	0.9	4.0	11.6	1	1
France	0.08	1.9	9.0	53.9	1	1
Germany	0.17	1.2	2.2	44.2	0	1
Greece	0.06	2.0	9.0	55.3	1	0
Hong Kong	0.04	1.1	9.0	19.1	0	0
Ireland	0.05	0.4	9.0	12.3	1	1
Italy	0.08	1.3	18.7	52.4	1	1
Japan	0.04	0.6	4.0	7.4	1	0
Netherlands	0.09	1.1	4.0	12.5	1	1
New Zealand	0.20	1.3	4.0	21.2	0	0
Norway	0.11	0.9	1.0	6.5	1	1
Peru	0.11	3.1	7.0	69.8	1	1
Portugal	0.09	2.0	9.0	26.6	1	1
Singapore	0.18	0.8	1.0	8.7	0	0
South Korea	0.03	1.5	4.0	18.9	0	0
Spain	0.10	1.0	15.0	22.6	0	1
Sweden	0.07	2.0	9.0	28.3	1	1
Switzerland	0.02	3.0	4.0	53.5	1	1
Thailand	0.09	2.7	36.0	59.4	0	0
Turkey	0.04	3.3	15.0	88.3	1	1
United Kingdom	0.13	1.0	6.0	14.7	0	0
United States	0.10	1.5	7.0	20.1	1	1

*Average during 1990-2008

Sources: Claessens and Klapper, 2005; Doing Business Report, World Bank; La Porta et al., 1998; OECD Data

TABLE 2
Descriptive Statistics and Pearson Correlation Coefficients — 29 Countries, 1990-2008

Variable	Mean	S.D.	Min.	Max.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Log [New Firm Entry Rate]	-2.47	.50	-4.30	-1.41																
2. Log [GDP/Capita (t-1)]	9.47	.93	7.19	10.94	-.03															
3. GDP Growth (t-1)	3.34	3.22	-12.57	12.82	-.00	-.10**														
4. Interest Rate (t-1)	6.42	7.13	-18.95	72.26	.06	.32***	.24***													
5. Log [Number of Banks/Capita]	-4.81	1.61	-8.19	-.34	.12*	.31***	.04	-.04												
6. Asia	.17	.37	0	1	.33***	-.07*	.19***	-.05	.11***											
7. Europe	.59	.49	0	1	.03	.32***	.21***	.13***	.21***	.54***										
8. Rule (Judicial Efficiency) Law	8.11	2.19	2.08	10	.25***	.80***	.16***	.32***	.24***	.19***	.43***									
9. Years Since 1990	9.71	5.31	0	18	.35***	.10***	-.10*	.19***	.07*	-.00	-.01	-.04								
10. Uncertainty Avoidance	63.09	26.13	8	112	.22***	.23***	-.05	.09**	-.05	-.05	.01	-.24***	-.02							
11. Log [Start-up Cost (t-1)]	1.74	1.34	-2.30	3.70	.19***	.58***	.01	.28***	-.08*	.02	-.04	-.61***	-.03	.50***						
12. Log [Bankruptcy Rate (t-1)]	-.19	1.52	-5.19	2.45	.24***	.41***	.13***	.22***	.17***	.17***	.13***	.48***	.07*	-.54***	.48***					
13. Closing Time	-2.36	2.33	-9.5	-.1	.53***	.22***	.02	-.04	.02	-.09**	.06	.17***	-.01	-.03	.12***	.07*				
14. Closing Cost	-12.93	11.89	-45	-1	.62***	.30***	-.07*	.04	-.04	.40***	.16***	.25***	.01	-.22***	.27***	.17***	.51***			
15. Fresh Start	38.48	24.70	5.6	99.6	.39***	.64***	.07*	.21***	.04	.16***	.12***	-.46***	.04	.14***	.31***	.15***	.32***	.16***		
16. Automatic Stay of Assets	.65	.48	0	1	.20***	-.06	-.08**	-.00	-.00	.32***	-.02	-.06	-.01	.26***	.28***	.13***	.11***	.03	.11***	
17. Stay of Incumbent Mgmt	.70	.46	0	1	.08	.15***	.13***	.01	.16***	.57***	.36***	.28***	-.02	.17***	.09*	.13***	-.05	.10***	-.07*	.46***

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

Source: Variable 1 (OECD Data); variable 2-4 (World Development Indicators); variable 5, 11 (Claessens and Klapper, 2005); variable 7, 15, 16 (La Porta et al., 1998); variable 9 (Hofstede, 2001); variable 10, 12-14 (Doing Business Report, World Bank)

TABLE 3
GEE Estimates of New Firm Entry Rate — 29 Countries, 1990-2008

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Hypothesis Testing
Log [GDP/Capita (t-1)]	-0.000** (.000)	-0.000*** (.000)	-0.000*** (.000)	-0.000* (.000)	-0.000** (.000)	-0.000*** (.000)	-0.000*** (.000)	
GDP Growth (t-1)	.007 (.005)	.005 (.005)	.006 (.005)	.007 (.005)	.008 (.006)	.008 (.005)	.003 (.005)	
Interest Rate (t-1)	-.004 (.005)	-.006 (.005)	-.003 (.004)	-.004 (.005)	-.004 (.005)	-.004 (.005)	-.007 (.004)	
Log [Number of Banks/Capita]	.001*** (.000)	.001*** (.000)	.002*** (.000)	.001** (.000)	.001** (.000)	.001*** (.000)	.001*** (.000)	
Asia	-.589** (.241)	-.468** (.186)	-.096 (.168)	-.501** (.240)	-.797*** (.227)	-.727*** (.250)	.010 (.190)	
Europe	-.294** (.142)	-.238* (.133)	-.137 (.125)	-.257** (.130)	-.383*** (.105)	-.298** (.126)	-.168 (.107)	
Rule (Judicial Efficiency) of Law	.107** (.043)	.081* (.049)	.057 (.044)	.124*** (.047)	.087** (.042)	.109*** (.039)	.049 (.048)	
Years Since 1990	.008 (.008)	.008 (.007)	.015** (.007)	.008 (.009)	.006 (.008)	.009 (.008)	.008 (.007)	
Uncertainty Avoidance	-.003 (.003)	-.005* (.003)	-.002 (.002)	-.003 (.003)	-.003 (.003)	-.003 (.003)	-.002 (.003)	
Log [Start-up Cost (t-1)]	.007 (.005)	.003 (.004)	.003 (.005)	.008* (.004)	.010** (.004)	.008* (.005)	.005* (.003)	
Log [Bankruptcy Rate (t-1)]	-.025 (.036)	-.023 (.030)	.002 (.040)	-.035 (.038)	.037 (.035)	-.018 (.038)	.022 (.038)	
Closing Time		.081*** (.022)					.051** (.022)	H1 Supported
Closing Cost			.031*** (.003)				.024*** (.004)	H2 Supported
Fresh Start				.004** (.002)			.005** (.002)	H3 Supported
Automatic Stay of Assets					-.410*** (.127)		-.308** (.123)	H4b Supported
Stay of Incumbent Mgmt						.206 (.186)	.203 (.162)	H5ab Not Supported
Constant	-2.830***	-2.198***	-2.055***	-3.205***	-2.395***	-2.686***	-2.292***	
Wald Chi-squared	71.01***	78.98***	304.38***	95.32***	57.47***	79.54***	397.44***	
Marginal R-squared	.266	.515	.663	.306	.351	.285	.732	
D.f.	11	12	12	12	12	12	16	
N	229	229	229	229	229	229	229	

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

TABLE 4
Significant Marginal Effects of Variables on the Rate of New Firm Entry

Variables	Estimated Marginal Effect
<u>Control Variables</u>	
GDP per Capita	-.087
Number of Banks per Capita	.100
Start-up Cost	.100
<u>Main Variables</u>	
Closing Time (H1)	.100
Closing Cost (H2)	.113
Fresh Start (H3)	.113
Automatic Stay of Assets (H4b)	-.084