The role of debt in the family business succession problem

El rol de la deuda en el problema de sucesión en empresas familiares

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The role of debt in the family business succession problem

Maximiliano González (IESA), Bernardo Misle, and Jorge Prado.

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Abstract

This paper studies the typical succession problem in family businesses with respect to the hiring or not a professional manager once the founder decides to retire. Burkart et al. (2003) show how a legal framework is an important determinant in solving this problem. We extend their model in order to consider the possibility that the founder uses bank debt to alleviate monitoring cost. We find that bank debt plays also an important role in family businesses succession problem and gives an alternative explanation of why family firms in emerging market countries are mostly financed through the banking system and do not float their own shares in the capital markets.

JEL Classification: G32, M52

Keywords: Family Businesses, Succession, Capital Structure, Emerging Markets.
1 Introduction

Students of corporate finance usually see the corporation as an independent entity where shareholders are too small to influence managers in the decision making process. Berle and Means (1932) put forward the potential agency cost that resulted when ownership and control are separated. Later, Jensen and Meckling (1976) began a rich theoretical and empirical literature on the subject of agency cost between shareholders and managers. However, until recently family firms receive relative little attention from financial economists.

Anderson and Reeb (2003) show that family firms are not only important in emerging economies with underdeveloped capital markets but also in big and developed markets such as the U.S. Family businesses represent, as they show, approximately 33 percent of the firms included in the S&P500 and close to 18 percent of the S&P500 market capitalization. More importantly, they found inconsistent evidence with the hypothesis that minority shareholders’ wealth is affected by this type of organizational structure. Another interesting empirical finding in the literature regarding family firms is that they have lower cost of debt financing. It seems that bondholders’ interests are better served by this type of organizations (Anderson, Mansi and Reeb, 2003). These examples make clear the current need of models to better interpret the empirical findings related to family businesses.

Among the more important tasks that every entrepreneur has to deal with when his or her firm had grown and matured is planning his or her own succession. Burkart, Panunzi, and Shleifer (2003) developed a model where a founder has to decide whether to hire a professional manager or to leave the firm to his heirs. They show how the legal environment affects this important decision. Their paper incorporates the current literature on the effect of legal tradition and rule of law (La Porta, Lopez-de-Silanes, Shleifer and Visny, 1997, 1998) to the family business succession problem. It shows that firm ownership will be less concentrated and the hiring of a professional manager would be more likely when legal rules are strong. These results are consistent with Dyck and Zingales (2004) and La Porta, Lopez-de-Silanes, and Shleifer (1999), among others, as they show that a weak legal environment is associated with underdeveloped financial markets and high levels of ownership concentration.

In our model, we follow the main arguments of Burkart et al. (2003), but include the founder’s possibility of alleviating his monitoring cost with bank debt. Here, we assume that bank monitoring will increase as leverage increases. In our model, the founder is able to set the firm’s debt level in order to reduce his monitoring cost. In this setting, we reproduced Burkart et al.’s results and found that banks could, in a nontrivial manner, affect the wealth of the founder who is considering hiring a professional manager to run the firm. Our model yields results consistent with Hoshi, Kashyap and Scharfstein (1990, 1993), Diamond (1991), Allen and Gale (2001), and Chakraborty and Ray (2004) who show how the banking system helps to reduce the agency cost between managers and owners; In those papers they show that bank debt is value enhancing in terms of monitoring efficiency, direct access to firm’s private information, efficiency of liquidation in case of financial distress and efficiency in renegotiation of debt.

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1See Zingales (2000) for a comprehensive review of this literature.

2For simplicity we will refer to "his" and not to "his or her" in the rest of the paper.
Our model contributes to the theoretical literature on corporate governance in several ways: first, we explicitly incorporate bargain negotiations and monitoring decision between management and shareholders (Hermalin and Weisbach, 1998); second, we interact the internal and external control mechanisms by altering the firm’s capital structure (Maug, 1997); and, we model an entrepreneur dealing with the going public decision in an environment with poor investor protection (Gomes, 2000; Shleifer and Wolfenzon; 2002).

The rest of the paper is organized as follows. In Section 2, we develop a game-theoretic model from which we obtain the main results. In Section 3, we analyzed our findings in the context of Burkart, et al. (2003). In Section 4, we set forth our conclusions.

2 The model

Based on the work of Burkart et al. (2003), we evaluate, within their framework, the inclusion of an additional variable to the founder’s decision set, i.e. increasing the family business bank debt. It is assumed that if the founder decides to hire a professional manager to run the firm, increasing its bank debt will reduce his monitoring cost after he retires. Let \( d \) be the bank debt level, and assume that \( d \in [0, 1] \).

As in Burkart et al. (2003), the founder can either hire a professional manager or let one of his heirs run the business\(^3\). Although the professional manager adds more value to the founder, the manager’s objective is to maximize his own private wealth. Therefore, the founder has to consider an expropriation risk when hiring an external manager.

The value of the firm when a professional manager is in charge is given by \( v_M \) and by \( v_F \) when the founder’s heir is in charge. Let the manager’s opportunity cost be \( c \) (assume also that the opportunity cost of the founder’s heirs is zero) and:

\[
v_M - c > v_F
\]  

(1)

Let \( \phi \in [0, 1] \) be the maximum fraction that the law allows to expropriate. If the professional manager is hired, he could at the most expropriate \( \phi v_M \) of firm value. That is, a good legal system will make \( \phi \) low (close or equal to zero) and a bad legal system will make \( \phi \) high (close or equal to one). The manager’s expropriation decision is modeled by \( \phi \in [0, \phi^*] \) where \( \phi = 0 \) is a limiting case where no expropriation occurs, and \( \phi = 1 \) (\( \phi = \phi^* = 1 \)) is a limiting case where the manager expropriates the whole firm.

Suppose there are no taxes\(^4\).

\(^3\)Hermalin (2005) argues that the appointment of a new CEO can be viewed as a call option bought by the board. It enjoys the upside potential and, because the board has the right to fired the CEO, it can partially escape the downside risk. Therefore, given the uncertainty of the professional manager’s potential, he is more valuable, ceteris paribus, than the founder’s heir.

\(^4\)In the appendix we incorporate taxes into the analysis.
2.1 Time sequence

As in Burkart et al. (2003) this is a three period game: at $t = 3$ the game ends and the manager divides the total wealth generated net of debt repayment, which he then distributes between dividend payouts and his own private wealth (salary plus an expropriation bonus).

At $t = 2$, given that the manager has accepted the work offer, the founder chooses the level of monitoring $m$ (monitoring intensity) and the bank debt level. The higher the debt level the lower the monitoring intensity the founder has to exert, given that the bank will also serve as monitor (Diamond, 1991). Also, at this stage, the founder takes into account not only the reduction of his monitoring cost produced by the bank debt but also his expected bankruptcy cost $\bar{\phi}$.

At $t = 1$ the professional manager can accept or reject the founder’s work offer depending on his opportunity cost. The manager salary package will be composed of a base salary $w$, which is a fraction of the firm’s value and, if possible, an expropriation value that is exogenous and depends on the legal system, $\bar{\phi}$.

Finally, at $t = 0$, the founder keeps a fraction $\alpha$ of the firm (he sells a fraction $1 - \alpha$) and offers $w$ to the professional manager. See Figure 1 for a summary of the variables used and the time sequence.

Figure 1

<table>
<thead>
<tr>
<th>$t=0$</th>
<th>$t=1$</th>
<th>$t=2$</th>
<th>$t=3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>The founder sells a fraction $1-\alpha$ of the firm and offers a salary to the manager equal to: $wV_M$</td>
<td>The manager, taking into account his opportunity cost, $c$, accepts or reject the offer.</td>
<td>The founder decides the supervision intensity, $m$, and the debt level, $d$.</td>
<td>The manager divides the wealth generated into a final dividend to the founder and his total compensation (salary plus, if possible, expropriation value)</td>
</tr>
</tbody>
</table>

2.2 The subgame perfect Nash equilibrium

This game is presented as a dynamic game with complete information, which we solve using backward induction. Consider the situation at $t = 3$ where the professional manager has to determine the levels of wealth extraction, not only considering the possibilities given by the legal framework, but also considering

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5Remember we are assuming there are no taxes so the firm does not generate tax shields in this setting. This assumption is not crucial to our results, but it does simplify the model. As we will comment at the end and show in the appendix, the main argument still valid when taxes and bankruptcy costs are included in the analysis.
the bank’s and the founder’s monitoring intensities. This decision can be expressed as:

$$\max \left( 0, (\bar{\phi} - m - d) \nu_M \right).$$ (2)

The law permits the manager to expropriate freely $\bar{\phi} \nu_M$; the founder, however, can recover $m \nu_M$ due to his own monitoring intensity and $d \nu_M$ due to bank supervision. We will assume that bank supervision will be proportional to firm’s debt level.

At $t = 2$ the founder determines the monitoring intensity and the debt level. Let the cost of monitoring be $k \left( \frac{m^2}{2} \right)$ and the cost of bank supervision be $k_d \left( \frac{d^2}{2} \right)$, where $k$ and $k_d$ are positive constants. Because we are assuming that there are no taxes, the bank monitoring cost basically represents to the founder a bankruptcy possibility embedded in the firm’s higher leverage. In $t = 2$ the founder had sold a fraction $1 - \alpha$ of the firm, so after paying $w \nu_M$ to the professional manager\(^6\), his profit is given by:

$$U_F (m, d) = \alpha \left( 1 - w - \bar{\phi} + m + d \right) \nu_M - k \left( \frac{m^2}{2} \right) - k_d \left( \frac{d^2}{2} \right).$$ (3)

When the legal environment limits the possibilities of expropriation and, therefore, the monitoring intensity, the founder will not monitor more than what he needs. Let’s assume that:

$$m + d \leq \bar{\phi}. \quad (4)$$

At this moment, the founder determines his optimal level of monitoring, $m^*$, and the amount of debt that he will need to obtain the optimal level of bank monitoring, $d^*$. The founder problem is represented as follow

$$\max_{m, d} U_F (m, d)$$ (5)

subject to (4).

**Proposition 1** At $t = 2$, the founder maximizes his wealth choosing a monitoring level equal to $m^*$ and a debt level equal to $d^*$, given by

$$m^* = \min \left[ \bar{\phi}, \alpha \left( \frac{\nu_M}{k} \right) \right]$$

$$d^* = \min \left[ \bar{\phi}, \alpha \left( \frac{\nu_M}{k_d} \right) \right]$$

$$m^* + d^* \leq \bar{\phi}$$

---

\(^6\)Burkart et al. (2005), like us, interpret $U_F$ as the founder’s benefit to separate ownership and management. They also consider the case where the founder keeps the firm. If we define $U_F^{NS} = v_F + B$ as the founder’s benefit to keep the firm within the family (no separation of ownership and management) where $B$ is the management "amenity potential", each dollar diverted by the founder will reduce the outside value of the firm by one dollar. Therefore, $U_F^{NS}$ will be independent of the legal framework. Because we want to study the role of debt to alleviate the agency problem between founder and manager, we will not consider this case.
Proof. The founder’s problem is reduced to solve: \( \frac{\partial U_F(m,d)}{\partial m} = \alpha v_M - km - \lambda = 0 \) and \( \frac{\partial U_F(m,d)}{\partial d} = \alpha v_M - kd - \lambda = 0 \) where \( \lambda \geq 0 \) (\( = 0 \) if \( m + d < \theta ) \).

At \( t = 1 \) the professional manager accepts or rejects the job offer taking into account his salary, \( wv_M \), the expropriation value, \( \theta v_M \), the amount of the founder and bank monitoring intensity, and his outside opportunity cost, \( c \). The manager will accept the offer if:

\[
(w + \theta) v_M - (m + d)v_M \geq c \tag{6}
\]

This condition is the manager’s participation constraint. If this condition is not met, the game ends at this stage. Rearranging we have:

\[
(w + \theta) - \frac{c}{v_M} \geq (m + d) \tag{7}
\]

The founder now needs to choose the manager’s salary, \( w \), and the fraction of the firm he will keep, \( \alpha \), subject to the manager’s participation constraint given in (7). Substituting \( m^* \) and \( d^* \) into his utility function at \( t = 0 \) yields

\[
\max_{\alpha, w} U_F(\alpha, w) = \max_{\alpha, w} \left[ (1 - w - \theta + m^* + d^*) v_M - k \left( \frac{m^2}{2} \right) - k_d \left( \frac{d^2}{2} \right) \right] \tag{8}
\]

subject to (7).

We will now show how (8) depends on the characteristics of the legal system, \( \theta \). Before proving the main result we assume:

\[
1 > \frac{c}{v_M} + v_M \left( \frac{1}{k} + \frac{1}{kd} \right) \tag{9}
\]

This assumption is needed in order to allow a poor legal system to exist, but having \( \theta \neq 1 \) in order to avoid trivial solutions. The idea is as follows: by definition we know that \( \theta \leq 1 \), solving (7) for \( \theta \) yields \( \theta \geq \frac{c}{v_M} - w + (m + d) \). From proposition 1 let \( m^* = \alpha \left( \frac{v_M}{k} \right) \) and \( d^* = \alpha \left( \frac{v_M}{kd} \right) \). Putting this two equations together yields: \( \theta \geq \frac{c}{v_M} - w + \alpha v_M \left( \frac{1}{k} + \frac{1}{kd} \right) \). Let us allow a very poor legal system but where \( \theta \neq 1 \), then \( 1 > \frac{c}{v_M} - w + \alpha v_M \left( \frac{1}{k} + \frac{1}{kd} \right) \). Let us assume that in this very poor legal system the founder will not be able to sell any of his shares (\( \alpha = 1 \)) and, therefore, the appointment of the professional manager is meaningless (\( w = 0 \)). In order for this legal system to exist we must assume (2.2).

**Proposition 2** At \( t = 0 \) there is a "poor" legal system, \( \theta \), where \( 1 \geq \theta > \frac{c}{v_M} + v_M \left( \frac{1}{k} + \frac{1}{kd} \right) \), in which:

\[
\alpha^* = 1,
\]
\[
w^* = 0,
\]
\[
m^* = \frac{v_M}{k},
\]
\[
d^* = \frac{v_M}{kd},
\]

\[
U_F(\alpha^*, w^*, \theta) = (1 - \theta) v_M + \frac{v_M^2}{2} \left( \frac{1}{k} + \frac{1}{kd} \right)
\]

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Proof. Suppose there is a legal system where \( 1 \geq \phi > \frac{c}{v_M} + v_M \left( \frac{1}{k} + \frac{1}{k_d} \right) \) holds. Note that (8) is increasing on \( \alpha \), that is \( \frac{\partial U_F(\alpha, w)}{\partial \alpha} = v_M^2 \left( \frac{1}{k} + \frac{1}{k_d} \right) (1 - \alpha) > 0 \) and decreasing on \( w \), that is \( \frac{\partial U_F(\alpha, w)}{\partial w} = -v_M < 0 \), so the founder will maximize \( U_F(\alpha, w) \) keeping all the shares \((\alpha^* = 1)\) and offering the manager a zero salary \((w^* = 0)\) in \( t = 0 \). Because the description of the equilibrium of a dynamic game requires the description of the optimal actions in each decision node, we have that in \( t = 1 \) the manager accepts the offers of zero wage, because restriction (7) is always satisfied for \( \alpha \in [0, 1] \) and \( w \in [0, 1] \); in \( t = 2 \) the monitoring intensity level are set using \( \alpha^* = 1 \) and \( w^* = 0 \), which together with proposition 1 yields \( m^* = \frac{w_M}{k} \) and \( d^* = \frac{u_M}{k_d} \), and finally, at \( t = 3 \), the founder’s payoff is made substituting \( \alpha^*, w^*, m^* \) and \( d^* \) into (8). 

In this situation (poor legal system), as the empirical evidence had shown, firms’ ownership will tend to be concentrated and capital market to be small (La Porta, et al., 1997). It is easy to imagine a situation where the professional manager is willing to accept the job offer of zero wage; his wealth will come exclusively from expropriations. The founder will monitor the manager very closely not only absorbing the cost of his monitoring effort but also increasing the debt level, in order to encourage the bank to participate also in the monitoring activities.

Proposition 3 At \( t = 0 \) there is a ”moderate” legal system, \( \overline{\phi} \), where \( 1 > \frac{c}{v_M} + v_M \left( \frac{1}{k} + \frac{1}{k_d} \right) > \overline{\phi} \geq \frac{c}{v_M} \), in which:

\[
\alpha^* = \left( \overline{\phi} - \frac{c}{v_M} \right) \frac{1}{v_M \left( \frac{1}{k} + \frac{1}{k_d} \right)}
\]

\[
w^* = 0,
\]

\[
m^* = \left( \overline{\phi} - \frac{c}{v_M} \right) \frac{1}{k \left( \frac{1}{k} + \frac{1}{k_d} \right)}
\]

\[
d^* = \left( \overline{\phi} - \frac{c}{v_M} \right) \frac{1}{k_d \left( \frac{1}{k} + \frac{1}{k_d} \right)}
\]

\[
U_F(\alpha^*, w^*, \overline{\phi}) = v_M - c - \frac{1}{2} \left( \overline{\phi} - \frac{c}{v_M} \right)^2 \left( \frac{1}{k} + \frac{1}{k_d} \right)
\]

Proof. Suppose there is a legal system where \( 1 > \frac{c}{v_M} + v_M \left( \frac{1}{k} + \frac{1}{k_d} \right) \geq \overline{\phi} > \frac{c}{v_M} \) holds. The professional manager will accept the offer if (6) is to satisfy. Because the founder will not offer but the minimum wage necessary for the manager to accept the offer and together with the result in proposition one, it must be true that: \( (w + \overline{\phi}) v_M - (m + d)v_M = c \Rightarrow \alpha = \left( w + \overline{\phi} - \frac{c}{v_M} \right) \frac{1}{v_M \left( \frac{1}{k} + \frac{1}{k_d} \right)} \). Substituting \( \alpha \) in (8) and taking derivative with respect to \( w \), yields: \( \frac{\partial U_F(\alpha, w)}{\partial w} = - \left( w + \overline{\phi} - \frac{c}{v_M} \right) \left( \frac{1}{k} + \frac{1}{k_d} \right) \leq 0 \). We know that \( w \geq 0 \) therefore \( w = \max \left[ 0, \frac{c}{v_M} - \overline{\phi} \right] \). The assumed position of the legal system, \( \overline{\phi} > \frac{c}{v_M} \), yields \( \frac{c}{v_M} - \overline{\phi} < 0 \Rightarrow w^* = 0 \). Using this result we find \( \alpha^* = \left( w + \overline{\phi} - \frac{c}{v_M} \right) \frac{1}{v_M \left( \frac{1}{k} + \frac{1}{k_d} \right)} \). Because the description of the equilibrium of a dynamic game requires the description of optimal actions in each
decision node, we have that in $t = 1$ the manager accepts the offers of zero wage, because restriction 
(7) is to satisfy for $\alpha^* = \left( \frac{\phi - c}{v_M} \right) \frac{1}{\left( \frac{1}{k} + \frac{1}{k_d} \right)}$; in $t = 2$ the monitoring intensity level are set using
$\alpha^* = \left( \frac{\phi - c}{v_M} \right) \frac{1}{v_M \left( \frac{1}{k} + \frac{1}{k_d} \right)}$ and $w^* = 0$, which together with proposition 1 yields $m^* = \left( \frac{\phi - c}{v_M} \right) \frac{1}{k \left( \frac{1}{k} + \frac{1}{k_d} \right)}$
and $d^* = \left( \frac{\phi - c}{v_M} \right) \frac{1}{k_d \left( \frac{1}{k} + \frac{1}{k_d} \right)}$; and finally, at $t = 3$, the founder’s payoff is made substituting $\alpha^*$, $w^*$, $m^*$ and $d^*$ into (8).

In this situation (moderate legal system), the founder will be able to sell a fraction $1 - \alpha^*$ of his firm in the market. The manager still accepts a wage equal to zero, because although the legal system has improved, he can still expropriate wealth from the firm’s owners. Also, the founder and the bank needs to expend less but still a positive amount of effort monitoring the manager. Finally, the wealth generated under this situation is better than under a poor legal system. The situation for the good legal system follows:

**Proposition 4** At $t = 0$ there is a "good" legal system, $\bar{\phi}$, where $1 > \frac{c}{v_M} + v_M \left( \frac{1}{k} + \frac{1}{k_d} \right) \geq \frac{c}{v_M} > \phi$, in which:

$$
\begin{align*}
\alpha^* &= 0, \\
w^* &= \frac{\phi - c}{v_M}, \\
m^* &= 0, \\
d^* &= 0, \\
U_F(\alpha^*, w^*, \phi) &= v_M - c
\end{align*}
$$

**Proof.** Suppose there is a legal system where $1 > \frac{c}{v_M} + v_M \left( \frac{1}{k} + \frac{1}{k_d} \right) \geq \frac{c}{v_M} > \bar{\phi}$ holds. The professional manager will accept the offer if (6) is to satisfy. Because the founder will not offer but the minimum wage necessary for the manager to accept the offer and together with the result in proposition one, it must be true that: $(w + \bar{\phi}) v_M - (m + d) v_M = c \Rightarrow \alpha = \left( w + \frac{\phi - c}{v_M} \right) \frac{1}{v_M \left( \frac{1}{k} + \frac{1}{k_d} \right)}$. Substituting $\alpha$ in (8) and taking derivative with respect to $w$, yields: $\frac{\partial U_F(\alpha, w)}{\partial w} = - \left( w + \frac{\phi - c}{v_M} \right) \left( \frac{1}{k} + \frac{1}{k_d} \right) \leq 0$. We know that $w \geq 0$ therefore $w = \max \left[ 0, \frac{c}{v_M} - \bar{\phi} \right]$. The assumed position of the legal system, $\frac{c}{v_M} > \bar{\phi}$, yields $\frac{\phi - c}{v_M} > 0 \Rightarrow w^* = \frac{c}{v_M} - \bar{\phi}$. Using this result we find $\alpha^* = 0$. Because the description of the equilibrium of a dynamic game requires the description of optimal actions in each decision node, we have that in $t = 1$ the manager accepts the offers of $w^* = \frac{c}{v_M} - \bar{\phi}$, because restriction (7) is to satisfy for $\alpha^* = 0$; in $t = 2$ the monitoring intensity level are set using $\alpha^* = 0$ and $w^* = \frac{c}{v_M} - \bar{\phi}$, which together with proposition 1 yields $m^* = 0$ and $d^* = 0$; and finally, at $t = 3$, the founder’s payoff is made substituting $\alpha^*$, $w^*$, $m^*$ and $d^*$ into (8).

This is the best case scenario for the founder. He can sell all his shares and offer the professional manager $\bar{\phi} - \frac{c}{v_M}$, which, he accepts. The founder does not put any amount of effort in monitoring and
the firm remains unleveraged. This is basically the same result obtained in Burkart et al. (2004) because in this scenario there is not need for monitoring. The founder’s payoff is to reach its maximum at \( u_M - c \). This amount is independent of the legal rule.

Given that the legal system is continuous in \([0,1]\) the game yields an infinite number of Bayesian Nash Equilibria.

### 3 Results and analysis

In order to better understand the implication of our model, we solve the Burkart et al. (2003) model and compare their results with ours, giving the following parameters\(^7\): \( V_M = 100; c = 10; k = 300 \), and \( k_d = 300 \). In Table 1, we compute the values of \( \alpha, w, m, \) and \( d \) for the three different legal systems. Furthermore, we derive the total value for the founder given his choice to hire a professional manager \( (U_F) \).

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<tbody>
<tr>
<td></td>
<td>( \overline{\phi} = 0.95 )</td>
<td>( \overline{\phi} = 0.95 )</td>
<td>( \overline{\phi} = 0.25 )</td>
<td>( \overline{\phi} = 0.25 )</td>
<td>( \overline{\phi} = 0.05 )</td>
<td>( \overline{\phi} = 0.05 )</td>
</tr>
<tr>
<td>( \alpha^* )</td>
<td>1</td>
<td>1</td>
<td>0.225</td>
<td>0.45</td>
<td>0</td>
<td>0</td>
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<tr>
<td>( w^* )</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0.05</td>
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<tr>
<td>( m^* )</td>
<td>0.333</td>
<td>0.333</td>
<td>0.075</td>
<td>0.15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>( d^* )</td>
<td>0.333</td>
<td>NA</td>
<td>0.075</td>
<td>NA</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>( U_F )</td>
<td>38.333</td>
<td>21.667</td>
<td>88.313</td>
<td>86.625</td>
<td>90</td>
<td>90</td>
</tr>
</tbody>
</table>

Given the substitution effect of bank debt in terms of supervision cost, the founder is willing to sell more shares as in Burkart et al. (2003). In both cases, when the legal regime is good \( \left( \overline{\phi} \leq \frac{c}{V_M} \right) \) the founder sells all his shares and the two model yields the same results (bank supervision is not needed). Each model, consistent with the empirical evidence, shows that the better the legal system the less concentrated is the ownership structure (La Porta et al., 1997). However, as our model shows, the possibility of bank supervision, makes the ownership structure less concentrated in each legal system.

The professional manager salary is zero in all but the strongest legal system. Since the manager can expropriate, he is willing to accept the offer of zero salary. When debt is introduced into the analysis, in the stronger legal system the salary must be positive in order to match the professional manager’s opportunity cost of accepting a job somewhere else.

In terms of supervision intensity, as it is intuitively obvious, the less protected the founder is, the more he has to spend on supervision. However, when debt is introduced into the model, the intensity of

\(^7\)The Mathematical file showing all the results is available upon request.
supervision the founder has to spend is an amount less than or equal to the amount given in the Burkart et al. (2003) model due to the substitution effect of bank supervision.

An important assumption in our model is that the founder can choose the bank debt level, which is sensitive, as in the context of our model, he is a blockholder that can exert power through the board of directors.

We report in Table 1 the founder’s total value ($U_F$) for each of the three legal protection systems considered in this section. Here, we show that the founder’s profit is a decreasing function of the quality of the legal system. This is a well reported fact about the direct link between legal efficiency (e.g. rule of law) and economic growth (see for example, La Porta et al., 1998). More importantly, when the founder uses debt as a way to reduce his monitoring cost, his wealth is also reduced as the legal system deteriorates but to a lesser extent, which also explains among others reasons, why we observe, on average, a strong banking sector in less developed economies (Shleifer and Wolfenzon, 2002).

Finally, after including taxes and bankruptcy cost into de model, the main results remained but closed form solution are harder to obtain.

4 Conclusions

This model extends Burkart’s et al. (2003) analysis by considering the possibility of introducing bank debt as an indirect monitoring mechanism of the professional manager hired by the founder of a family firm. We show that there are subgame perfect Nash equilibria in which the founder hires a professional manager for a wage $w$, which depends on the quality of the legal protection system, $\bar{\sigma}$.

We show, as Burkart et al. (2003) had reported, that the founder’s decisions regarding the fraction of shares he should keep, the monitoring effort he puts and the bank debt level he sets are all increasing on the deterioration of the legal system; however, we add to the discussion that the effect of this deterioration of the legal system is somehow balanced with the possibility of using bank supervision. Moreover, we show that the founder’s wealth is, as Burkart et al. (2003) had reported, a decreasing function of the quality of the legal system, but, this decreasing relation is somehow lower when bank debt is taken into account.

These findings are consistent with various empirical facts about the role of banks in emerging economies adding to the growing literature on the relationship between various financial regularities and the legal system. Particularly, this paper opens a wide range of possibilities for empirical testing related to firms’ debt level and legal environment.

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8The Mathematica file showing the results presented in Table 1 but for our extended model including taxes and bankruptcy cost are available upon request.
References


A Model of Guarantees under High Moral Hazard, Un modelo de garantías bajo condiciones de alto riesgo moral, Rafael J. Bautista-Mena, profesor asociado, Facultad de Administración, Universidad de los Andes, Mayo de 2005

Vulnerabilidades de la economía colombiana: Un examen de los balances sectoriales, Colombian Economy Vulnerabilities: A Balance-sheet Approach, Francisco A. Zúñiga, profesor asociado, Facultad de Administración, Universidad de los Andes, Junio de 2005

The Impact of Stronger Intellectual Property Rights on Science and Technology in Developing Countries, El impacto del fortalecimiento de los derechos de propiedad intelectual sobre la ciencia y la tecnología de los países en desarrollo, Clemente Forero-Pineda, Facultad de Administración, Universidad de los Andes, Agosto de 2005

Fundamentos éticos de una política de solidaridad, Ethical foundations of solidarity policies, Luis Enrique Orozco Silva, Facultad de Administración, Universidad de los Andes, Septiembre de 2005

Dinámicas de transformación de la educación superior en Colombia, Dynamics of change in Colombia higher education, Luis Enrique Orozco Silva, Facultad de Administración, Universidad de los Andes, Noviembre de 2005

Change and Organizational Demography; The Case of 30 Colombian Companies, Cambio y Demografía Organizacional: el caso de 30 empresas Colombianas, Jaime Ruiz-Gutiérrez, Facultad de Administración, Universidad de los Andes, Noviembre de 2005

Scenarios for the Future of Research in Developing Countries, Escenarios para la investigación en los países en desarrollo, Clemente Forero-Pineda, Facultad de Administración, Universidad de los Andes, Diciembre de 2005

Organizational culture and sustainability in turbulent environments, Insights from a case study of a large mining MNC in a Latin America country, Cultura organizacional y sostenibilidad en entornos turbulentos, Reflexiones a partir de un estudio de caso en profundidad de una empresa minera en Colombia, José Camilo Dávila, Facultad de Administración, Universidad de los Andes, Marzo de 2006

La tutela y la provisión de la salud en Colombia. Una explicación institucional, The use of the judicial mechanism in health provision in Colombia: an institutional perspective, Francisco A. Zúñiga, Facultad de Administración, Universidad de los Andes, Noviembre de 2006

Factors Influencing Export Potential of a Developing Country SMEs: A study of Colombian Firms, Factores que influencian el potencial exportador de la Pyme en un país en vías de desarrollo: un estudio de las empresas colombianas, Luz María Ferro, Daniella Laureno, Alejandra Martí, José Miguel Ospina and Vicente Pinilla, Facultad de Administración, Universidad de los Andes, Enero de 2007

Edad de ingreso y estructura organizacional, Posibles relaciones a partir del análisis de un conjunto de empresas colombianas, Age of entry and organizational structure: their possible relation from an analysis of a set of Colombian companies, Jaime Ruiz Gutiérrez, Facultad de Administración, Universidad de los Andes, Enero de 2007

Refractiveon over the dimension formativa of the education, Reflections on the formative dimension of education, Alejandro Sanz de Santamaría, Facultad de Administración Universidad de los Andes, Enero de 2007

La eficiencia de los mercados de renta fija en Colombia, Bond Market Efficiency in Colombia, Rafael Bautista, Eric Rodríguez, Facultad de Administración, Universidad de los Andes, Enero de 2007

La aplicación de un modelo de factores a las curvas de rendimiento del mercado de deuda pública colombiano, A three-factor yield curve model for the Colombian fixed-income market, Rafael Bautista, Álvaro Rioscos and Nicolás Sudrez, Facultad de Administración, Universidad de los Andes, Marzo de 2007

Trends in Supply Chain Management in the Colombian pharmaceutical sector, Tendencias en la gestión de la cadena de abastecimiento del sector farmacéutico colombiano, Sergio A. Hernandez, Luz Elena Orozco, Facultad de Administración, Universidad de los Andes, Marzo de 2007

Corporate Ownership and Control Contextability in Emerging Markets: the case of Colombia, Control corporativo en presencia de múltiples grandes accionistas en mercados emergentes: el caso de Colombia, Luis H. Gutiérrez R., Departamento de Economía, Universidad del Rosario, Carlos Romo Véjarano, Facultad de Administración, Universidad de los Andes, Mayo de 2007

Innovation patterns and intellectual property in SMEs of a developing country, Patrones de innovación y propiedad intelectual en pequeñas y medianas empresas de un país en desarrollo Alejandra Marín M., Daniella Laureno M., Clemente Forero-Pineda, Facultad de Administración, Universidad de los Andes, Julio de 2007


Board structure and firm performance: evidence from Colombia, Estructura de juntas directivas y desempeño corporativo: evidencia de Colombia, Roberto Fortich, Departamento de Finanzas, Universidad Tecnológica de Bolívar, Cartagena; Luis H. Gutiérrez R., Departamento de Economía, Universidad del Rosario, Bogotá; Carlos Romo Véjarano, Facultad de Administración, Universidad de los Andes, Bogotá, Julio de 2008

Ownership Concentration and the Determinants of Capital Structure in Latin America, Título en español: Jacoby Cepedes, Instituto de Estudios Superiores de Administración (IESA), Caracas, DI, Venezuela; Maximiliano González, Universidad de los Andes (UNIANDES), Bogotá, Colombia; Carlos A. Molina, Instituto de Estudios Superiores de Administración (IESA), Caracas DI, Venezuela, Octubre de 2008

Game-Theoretic Analysis of the Mattel-Radica Acquisition, Maximiliano González; María A. Mayorra; Alejandro Vera.

The role of debt in the family business succession problem, Maximiliano González (IESA); Bernardo Misle; Jorge Prado.
The role of debt in the family business succession problem

El rol de la deuda en el problema de sucesión en empresas familiares

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This paper studies the typical succession problem in family businesses with respect to the hiring or not a professional manager once the founder decides to retire. Burkart et al. (2003) show how a legal framework is an important determinant in solving this problem. We extend their model in order to consider the possibility that the founder uses bank debt to alleviate monitoring cost. We find that bank debt plays also an important role in family businesses succession problem and gives an alternative explanation of why family firms in emerging market countries are mostly financed through the banking system and do not float their own shares in the capital markets.

Este trabajo estudia el típico problema de sucesión en empresas familiares con respecto a la contratación o no de un gerente profesional una vez que el fundador decide retirarse. Burkart et al. (2003) mostraron cómo el marco legal es un determinante importante para resolver este problema. Aquí se extiende su modelo básico considerando la posibilidad que el fundador pueda usar deuda bancaria para mitigar los costos de supervisión. Encontramos que la deuda juega un papel importante en el problema de sucesión de empresas familiares y nos permite contar con una explicación alternativa de por qué las empresas familiares en los mercados emergentes están mayoritariamente financiadas con deuda bancaria y no sacan sus acciones al mercado de capitales.