Law, Institutions and Taxes:  
Optimal Regulation and the Financial Crisis

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ABSTRACT

Calls for tighter regulation of financial innovations are gathering momentum in the wake of the financial crisis. In a setting where corporate innovation imposes positive and negative externalities, the social impact of corporations depends on the sharing rule between the owners of a corporation and the non-financial claimants. We examine the role of law, regulation and institutions in altering this sharing rule. We propose a framework where the social planner puts in place an umbrella of laws, organizational form choice and taxation within which private firms optimize without invasive regulation. Since the legal regime affects the extent to which corporate owners are held responsible for the negative externalities they impose, unlimited liability may discourage innovation in strong legal regimes. Limited liability, however, might be accompanied by excessive innovation. We highlight the role of the government in altering the sharing rule due to its claim through corporate taxation and investigate the relation between law and corporate taxation. We show that the equilibrium corporate tax rates are a decreasing function of legal effectiveness of the embedding economy. Finally, we present some supporting evidence using cross-country data on corporate tax rates and measures of legal effectiveness.

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I. Introduction

The recent financial crisis has drawn widespread public attention to the negative (and positive) externalities imposed on the society at large by the activities and of private firms (corporations and financial institutions). A recognition of the large impact of these firms on the society-at-large including non-financial claimholders of these firms, have led to renewed calls for stricter regulation of their activities by policy-makers and the government. Examples of such non-financial claimholders include customers, employees, suppliers, warranty holders and others in the society-at-large who may hold existing or potential claims against the firms and financial institutions. Passionate anti-corporation groups have painted a picture of corporations (and banks) as amoral profit maximizing institutions. Meanwhile, in mainstream finance, shareholder wealth maximization remains the central paradigm. In theory, the aforementioned conflict does not arise due to the assumption that all externalities are incorporated into the stock price.

However, the conditions for this assumption to be true are restrictive and crucially dependent on the legal structure in place. For example, a corporation’s concern for non-financial claimholders is likely to depend on the ability of these claimholders to access courts and sue the corporation. In the United States, where legal structure is relatively developed, examples of large potential claims held by non-financial claimholders are pervasive. Product liability suits, such as those against Manville Corporation - the asbestos manufacturer; A.H. Robins; maker of the Dalkon Shield contraceptive device; and Dow Corning - maker of silicone breast implants, can potentially

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1 See for example, “The Corporation: The Pathological Pursuit of Profit and Power” by Joel Bakan or “Gangs of America: The Rise of Corporate Power and the Disabling Democracy” by Ted Nace.

2 Thus, nonfinancial claimholders are defined broadly to include potential awardees of legal settlements resulting from future industrial accidents as well as current holders of jury claims in product liability suits.

3 See Coase (1967) for an analysis of how transaction costs prevent the efficient outcome in such scenarios with externalities. In what follows, we assume the ‘Coase Theorem’ does not hold because of such transaction costs.
generate legal claims against the corporation exceeding the value of its assets and force corporations into bankruptcy.\textsuperscript{4}

We propose a framework where the social planner puts in place an umbrella of laws, organizational form choice and taxation within which private firms optimize without invasive regulation. More generally, the interests of the corporation and the society depend on the sharing rule used between the financial claimants and the non-financial claimants. In addition to the legal structure, the sharing rule between financial and non-financial claimants is critically affected by the choice of organization form - limited or unlimited liability corporation. In fact, offering limited liability rights to corporations is often cited as a landmark ruling that empowered the corporation to its “pathological pursuit of profits”.\textsuperscript{5} Quite early, it was well recognized that limited liability was a mixed blessing and the implications of limited liability - the feature that the owners are not liable for any claims greater than the value of the corporation - were widely debated (see, for example, Hunt (1937)). In this debate, the concern for society is evident from the following observation in Hunt (1937): “There was a corporation and widespread conviction that unlimited liability was not only some safeguard against speculation, but also that general limitation, by allowing men to indulge in their spirit of adventure without endangering their fortunes would produce a sudden convulsion, a rush into all sorts of schemes [and society will be exposed to] the evils of inconsiderate enterprise and reckless speculation”.

In this paper, we show how the legal structure and the organizational structure together alter the sharing rule between the owners of a corporation and the non-financial claimants and hence alter the costs (and benefits) affecting society at large. Within this framework of analyzing sharing rules between the corporate owners and the non-financial claimants, we then highlight the importance of the government owing to its claim on corporation cash flows through the tax channel. Finally, we analyze equilibrium social costs imposed by corporations when corporations

\textsuperscript{4} The actual social costs resulting from the corporation’s activities can often far outstrip the legal claims of the society against the corporation. For example, the Price-Anderson Act (Public Law 85-256) limits liability from nuclear accidents such that in some cases the legal claims against the corporation may be only a fraction of the full value of the actual social costs. Also note that negative externalities or social costs of significant magnitude are not limited to cataclysmic events, such as Chernobyl, Bhopal, and the Love Canal. Consider, for instance, the continuous and gradual release of pollution into the environment or the introduction of a new potentially toxic product (or byproduct). For various reasons, there are difficulties in the measurement, verification, and assignment of liabilities to the corporation for chemical injuries, environmental impairment, etc. See Katzman (1986) for further discussion.

\textsuperscript{5} See for example the op-ed piece “Reward but no risk” in New York Times, May 10, 2003
choose their organizational form.

To focus on the importance of organization form, we first analyze how limited liability alters incentives of corporate owners to invest in a strong legal system that internalizes all negative externalities. Limited liability specifies a sharing rule between the non-financial claimholders and the set of all financial claimholders. In the absence of limited liability, many socially beneficial projects might be passed up due to the threat of lawsuits while, in the presence of limited liability, the corporation might take projects that are socially undesirable. In other words, corporate limited liability may induce investment choices which deviate from the socially optimal ones.\(^6\)

We then proceed to examine the role of corporate taxation in altering the sharing rule between financial owners and non-financial claimants, and thus mitigating the conflict between the corporate owners and non-financial claimants that limited liability enjoins. Corporate taxation affects a corporation’s incentive to take projects through a reduction of its cash flows in profitable states. A lower profit reduces incentives of owners to invest in risky speculative projects. Therefore, corporate taxation can be viewed as the price that corporations have to pay for limited liability, and it plays an important role in aligning the interests of non-financial claimholders and the owners of a corporation. The view that taxation can be used to control corporation’s power to abuse stakeholders was, in fact, a primary motive to introduce taxation (see, for example, Kornhauser (1990)).\(^7\) In fact in President’s Taft’s message justifying the introduction of the corporate tax, the principal reason was that it enabled the federal government to exercise some degree of supervision, primarily by obtaining information about the business affairs of corporations, and more broadly by serving a regulatory function.\(^8\)

\(^6\) The existing finance literature has focused on the conflict of interest among various classes of capital contributors to the corporation. The incentive effects of outstanding risky debt and the distortions in investment choices have been studied extensively. Modeling the scale or the riskiness of investment as “private” choices made by corporate insiders, it has been shown that risky debt induces underinvestment (compared to value-maximizing levels) and risk-shifting (shifting into high-risk projects even at the expense of corporation-value). See Jensen and Meckling (1976) and Myers (1977). However, even in the absence of any conflicts among holders of external financial claims, say in the case of an all-equity corporation, corporate limited liability induces conflict of interest between equity holders and non financial claimholders.

\(^7\) See Desai, Dyck and Zingales (2007) on how this role aligned shareholders and government interests vis-a-vis the managers. In contrast, the role for taxation here exists even when managers and shareholders are perfectly aligned and is instead used to curb externalities imposed by the corporation on the society at large.

\(^8\) See Avi-Yonah, 2004 for a historical discussion of corporate taxation. It is useful to note that this regulatory role of taxation was initially viewed as an information gathering role, as is evident from the low tax rate employed. We however point to a second regulatory role that taxes play through their claim on firm profits. With different accounting books - that reduce the accuracy of information gathered - and a substantially higher tax rate - that increases the government’s share of profits - this second role is only likely to have become more important.
While the faculty of assuming a corporate form has been of the utmost utility in the business world, it is also true that substantially all of the abuses and all of the evils which have aroused the public to the necessity of reform were made possible by the use of this very faculty.

In the framework analyzed here, corporate taxation, in a spirit similar to President Taft’s message, prevents excessive investment activity that is socially undesirable.  

We then highlight the importance of the legal regimes when corporations choose their organization form. In this analysis, we focus on the role of law in the design of corporate tax and the equilibrium social impact of corporations by endogenizing a corporations’ choice of organizational form. This enables us to generate cross country comparisons in tax rates and the social costs imposed by corporations. We show that low corporate tax rates prevail in environments with strong legal protection, whereas countries with poor legal structures, on an average, have higher corporate tax rates. The intuition for the result follows from noting that taxes address residual conflicts left over from the legal system, and hence tax and legal strength are substitutes. However, whether this intuition is robust to a firm’s choice of organizational form is not obvious.

To see this, note that the benefits to corporations from limited liability arise from not being liable to the legal claims that are greater than corporation value. As the legal structure gets weaker, the benefits of limited liability reduce and the corporation is willing to only pay a smaller cost. Consequently, corporations will not be willing to pay a high tax rate in poor legal structures. We find that that in all regions, where limited liability plays a role in solving the under-investment problem, the optimal tax rate is indeed feasible. We also analyze the equilibrium social costs on society by comparing this feasible tax rate with the ‘first-best’ tax that would align the interests of the financial and the non-financial claimants and find that the social costs imposed by corporations increases as legal strengths weakens.

Finally, we provide preliminary evidence by using data on personal and corporate taxes around

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9 A similar point of the use of taxation to constrain managerial power has been made, more recently, by Avi-Yonah (2004) who argues that taxation reduces managerial power by (1) limiting wealth accumulation which is viewed as the foundation of managerial power and (2) the threat of tax penalties if the corporation’s activities are not used for the betterment of society. In contrast, we focus on the ex-ante effect taxation has on the investment policy that does not hinge on any threat (or attraction) of future change in tax rates.
the world to characterize the tax differential between a partnership and a limited liability firm. Indeed, we find that on an average, the taxes are higher for income from limited liability firms. Further, consistent with our framework, we also document a negative relation between this tax disadvantage and legal strength.

This paper makes several contributions. The paper is one of the first that analyzes the sharing rule between financial claimholders and non-financial claimholders, highlighting the role of organization form, corporate taxation and legal regimes; and the interaction between these institutional features. This allows us to characterize equilibrium social costs (and benefits) imposed by corporations on society. It is, however, useful to reemphasize that central to such an analysis is the lack of a commonly used assumption - that all externalities can be traced back to impact corporation value.10

The paper also characterizes one of the benefits and costs of corporate limited liability and shows how corporate taxation can be used to mitigate, or even eliminate, the social cost of limited liability. As a corollary, the paper provides justification for taxing corporations. Corporate taxation has troubled financial and public economists as is evident by the following observation in Stiglitz (1988, p.586) - “most economists cannot see any strong argument for the differential tax treatment.” In our paper, the investment distortion in limited liability corporations due to corporate taxation can benefit the non-financial claimants. Thus, corporate tax is the price that corporations pay for the benefits of limited liability.11 We, therefore, provide a rationale for corporate tax as well as double taxation of dividends paid by limited liability corporations.

Finally, the paper generates implications on how corporate taxation is related to limited liability organizations across different legal structures. In addition to generating cross-country implications, this allows us to analyze the equilibrium social costs imposed by corporations on society across different legal regimes. The implications of these results are only likely to become more important as countries, some with poor legal protection, lower corporate taxes to attract investment.

10 Consequently, we do not allow for the Coase Solution.

11 Though there has been recognition in the literature that corporate taxation may reflect the price of incorporation (Pechman(1987)), this insight has not been explored in detail.
The rest of the paper is organized as follows. In section II the basic model is presented. In section III, we analyze the investment policy under different organizational forms in the simple case of perfect legal strength. In section IV, we investigate the role of law. In section V, we analyze the link between law and taxes. Section VI addresses some extensions and Section VII provides a preliminary cross-country evidence. The conclusion follows.

II. The Model

The essential aspects of how the choice of organizational form and corporate taxation interact can be captured in the following simple model.

A. Technology

We use a two-date, single period model with t=0 denoting the initial date and t=1 the final date. The representative private firm in our economy invests I at date t=0 in the innovative project that generates a random cash flow at t=1. To capture the randomness in a simple manner, assume that the cash flow is H in the good state and L in case of the bad outcome. The probability of the good outcome, p, is uniformly distributed on [0, 1] and is privately observed by the firm’s owner/manager.12

The firm insiders observe this probability of success and make investments at time t = 0.13 The alternative to the risky innovative project is a riskless storage project.14 It is assumed that risk neutral valuation is appropriate for our economy.

12 This rules out the possibility that projects are contractible based on their probability of success. Incomplete contracting is a crucial feature of our model that captures the fact that writing and enforcing contracts that require corporation to take specific projects is not feasible.
13 We abstract from any agency issues between managers and the shareholders of the corporation.
14 Without any loss of generality, the riskfree rate is normalized to 0.
B. Non-Financial Claimants

While the total payoff to the financial claimants in the good state and the bad state is respectively H and L, the society at large bears externalities from the innovation. Let us assume that the costs that the society bears in the failure state are $C_L$ and in the success state is $C_H$. In other words, in the bad state the non-financial claimholders bear cost $C_L$ while in the good state, the non-financial claimholders bear a cost $C_H$. We also assume that the innovative project has positive externalities. For simplicity, we assume that the non-financial claimants benefit by $B_H$ (> 0) in the success state and zero in the failure state. Examples of positive externalities could be employment, innovation, infrastructure development etc. $B_H$ represents the monetary value as assessed by the society of the benefits from the firm operations that cannot be monetized. The decision makers in the firm would ignore these benefits in their decision-making since these are not part of the profits of the firm.

C. Legal System

The non-financial claimants can resort to the legal system to claim compensation for the social costs $C_H$ and $C_L$ imposed on society by the firms. To capture this in a simple manner, we denote the strength of the legal system by $\lambda$, $0 < \lambda < 1$. This is the fraction of the social costs ($C_L$ or $C_H$) that the corporation is held accountable for such that it is a liability of the corporation. Thus, $\lambda C_i$ ($i = L, H$) is the maximum compensation that the non-financial claimants are able to recover from the corporate owners via the legal channel. In a perfect legal regime, $\lambda = 1$ and the firm is held responsible for all the costs imposed on society. However, in an extremely poor legal regime ($\lambda = 0$), the corporation is not held liable for any of the social costs and the non-financial claimants bear the entire cost of the corporation’s activities. In a given legal system $\lambda$ that is in place, the extent to which the firm is actually made to pay up its liability $\lambda C_i$ ($i = L, H$), may further depend on its organizational form and the availability of assets and cash in the firm. A firm that is organized as a limited liability corporation may enjoy limited liability, i.e., its legal liability may be limited by the extent of cash flows available in the firm. In the success state the firm is liable for the entire liability, $\lambda C_H$, since $H > \lambda C_H$. However in the failure state its legal liability is

15 More generally, let the costs and benefits in each state be $C_i$ and $B_i$, where I denotes the state.
limited to $L$, the available cash flows.

III. Organizational Form: The Base Case

We now consider how the corporation’s organizational form affects the investment policy it chooses to pursue. In this section, we assume that the legal system is perfect, that is $\lambda = 1$. In section III, when we analyze the impact of law in the design of taxation and the corporations’ choice of organizational form, we consider the general scenario of different legal systems. The case of a perfect legal system ensures that firm’s liability would be $C_L$ or $C_H$ and the non-financial claimants have recourse to the legal system to recover all their social costs. To focus our analysis to the interesting scenario, we will make the following assumption.

**Assumption 1**: (a) $C_L > L$, and (b) $C_H < H$.

The assumption 1(a), central to our paper, states that the cash flows $L$ in the low state are insufficient to meet the costs $C_L$ that the non-financial claimants bear. This assumption captures scenarios in which the social costs of particular products and the legal liability resulting from them exceed corporate assets in these failure states of the world. Examples include product liability suits mentioned earlier (e.g., ADT, etc.) where the legal claims exceeded corporation value. The assumption also subsumes scenarios of industrial accidents where both the corporation and the society bear losses. Examples of such events include oil spills and nuclear accidents.

The assumption 1(b) states that social cost $C_H$ imposed in the high state is lower than corporation value, $H$. In other words, the corporation has sufficient assets in place to pay out liability claims in the high state. This ensures that the corporate owners have an incentive to undertake projects with a high probability of success. In the remaining analysis we set $L = 0$. This would imply that in the failure state of the world, a limited liability corporation would be allowed to walk from its legal liability $C_L$ since the available cash flows $L$ happen to be zero. We now consider the investment policy of an unlimited liability firm and that of a limited liability corporation relative to the socially optimal investment policy.

**A. Social Optimality**
The social planner seeks to maximize the welfare of all claimants including the nonfinancial ones. In the good state, the cash flows from the project (the benefits that can be monetized) are $H$, social costs $C_H$ and non-monetizable benefits $B_H$.\footnote{In this state, the firm absorbs all the costs it imposes.} In the poor state, the financial claimants receive 0 and the social costs $C_L$. Therefore, the social planner, who considers all social costs and benefits as well as all cash flows, would choose to implement all projects with probability of success, $p > p_S$. The cut-off point $p_S$ is given by the following equality:

$$ p_s (H - C_H + B_H) - (1 - p_s) C_L = I $$

Equation (1) characterizes the cut-off probability $p_S$ such that the risky project is implemented whenever $p > p_s$, where $p$ is success probability of the risky project. From now on we will denote the cut-off probability $p_S$ as the socially optimal investment policy. Private firms may deviate from this investment policy if they are focused on the cash flow claims of the financial claimants and do not place adequate weight on the social costs $C_H$ or $C_L$ or the non-monetizable benefits $B_H$. Although not surprising, it is useful to note that the social optimality condition is independent of both the tax structure and the organizational form. However, the relative weights that a firm may place on its after-tax cash flows, and the social costs will depend on the tax and legal regime in place as well as the organizational form of the firm and its liability structure.

**B. Unlimited Liability**

The owners of an unlimited liability corporation receive the cash flow $H$ in case of a successful outcome (and have to compensate the social costs of $C_H$) with probability $p$ but also face the prospect of losing $C_L$, the value of legal claims in the low state. This assumes that the corporation owner is personally responsible for the full extent of the legal claims.\footnote{Thus, we assume that collective level of personal wealth is sufficient to meet these legal claims. See section 6 for a discussion of how the lack of personal wealth alters our results.} Since the owners are
liable, they choose to invest if \( p(H - C_H) - (1 - p)C_L > I \). Therefore, the unlimited liability corporation accepts all projects with success probability

\[
p > P_N, \text{ where }
\]

\[
P_N = \frac{(I + C_L)}{(H - C_H + C_L)} \tag{2}
\]

Comparing \( p_N \), the probability cutoff for the unlimited liability firm in equation (2) with \( p_S \), the socially optimal cut-off probability in equation (1) we find that \( P_N > p_S \), since the denominator in equation (2) is smaller.

Consequently, relative to the socially optimal investment policy an unlimited liability firm passes up too many projects. The reason that the unlimited liability corporation is cautious is because it accounts for the potential liability claims via the legal system but does not account for (or internalize) the benefits \( B_H \) that non-financial claimants gain.

**C. Limited Liability**

We now consider the investment policy of a corporation with limited liability. Similar to the case of unlimited liability corporations, the owners of a limited liability corporation receive the cash flow \( H \) in case of a successful outcome (and have to compensate the social costs of \( C_H \)) with probability \( p \). However, unlike in an unlimited liability corporation, the owners of a limited liability corporation can walk away from the legal claims \( C_L \) by non-financial claimants in case of failure. Therefore, the limited liability firm chooses to invest if \( p(H - C_H) > I \). Thus, the limited liability corporation accepts all projects with success probability \( p > P_L, \) where

\[
P_L = \frac{I}{(H - C_H)} \tag{3}
\]

Comparing \( p_L \) with \( p_N \), the cutoff probability for the unlimited liability firm, we find that the limited liability corporation invests in risky projects more often than the unlimited liability corporation. This is because the limited liability corporation does not consider the costs \( C_L \) it imposes on society in case of failure. Both the unlimited liability firm and the limited liability
corporation fails to consider the positive externalities (the non-monetizable benefits) $B_H$ on society. To see the social desirability of this investment policy, we compare the expressions for $p_S$ in equation (1) and that for $p_L$ in equation (3). We find that the limited liability corporation invests too often in the risky project relative to the socially desirable level if the following condition is satisfied on the relative magnitudes of the social costs and benefits vis a vis the cash pay-offs to investment ratio of the project, i.e., \[
\frac{(H - C_H - I)}{I} > \frac{B_H}{C_L}.
\]

The condition states that the gain-to-loss ratio of non-financial claimholders should be less than the gain-to-loss ratio of the financial claimholders. Since we focus on the wedge between financial claimants and the non-financial claimants, we will adopt the above condition as a maintained assumption for the rest of the paper.\(^{18}\) That is,

**Assumption 2:** \[
\frac{(H - C_H - I)}{I} > \frac{B_H}{C_L}.
\]

Thus, while the limited liability corporation invests more than the overly cautious unlimited liability corporation, it can invest in too many technologies and imposes excessive social costs. The results in this section can then be summarized as follows.

**Proposition 1**

*For $B_H > 0$, an unlimited liability corporation underinvests relative to the socially optimal level, i.e., it invests less often in the risky project compared to what is socially optimal. On the other hand, under Assumption 2, i.e., for \[
\frac{(H - C_H - I)}{I} > \frac{B_H}{C_L},
\] a limited liability corporation overinvests relative to the socially optimal level, i.e., it invests more often in the risky project compared to what is socially optimal.*

The difference in the investment policy of the unlimited liability firm compared to the socially optimal investment policy arises from the fact that the private unlimited liability firm fails to take

\[^{18}\text{The gain to loss ratio can also be balanced through an appropriate design of limited liability, particularly through limitation on liability or partial liability. This approach is analyzed in section V.}\]
into account the positive externalities (the non-monetizable benefits) \( B_H \) on society. This leads to underinvestment on the part of the unlimited liability firm with respect to the benchmark of social optimality. The limited liability firm also fails to take into account the positive externalities (the non-monetizable benefits) \( B_H \) on society. In addition the limited liability firm also ignores the costs \( C_L \) it imposes on society in case of failure. The trade-off of \( B_H \) versus \( C_L \) will determine whether the limited liability firm will underinvest or overinvest compared to the socially optimal benchmark. Under Assumption 2, for \( \frac{H - C_H - I}{I} > \frac{B_H}{C_L} \) the effect of \( C_L \) dominates that of \( B_H \) and the limited liability firm overinvests compared to the socially optimal benchmark.

\[ D. \ The \ Role \ of \ Corporate \ Taxation \]

In this section, we highlight the role of corporate taxation in mitigating the conflict between the corporate owners and non-financial claimants that limited liability enjoins. We show that corporate taxation affects a corporations’ incentive to take projects by reducing its cash flows during profitable states.\(^{19}\) Therefore, corporate taxation can be viewed as the price that corporations have to be pay for limited liability.

Corporate taxation introduces an additional claimholder (the government) to the corporations’ cash flows and hence alters the sharing rule between the corporate owners and the non-financial claimholders. Let the corporate tax rate be \( T \). In the successful state, the corporate owners now only receive \( (H - C_H)(1 - T) \). In the low state, the owners of the limited liability corporation can walk away from any claims exceeding cash flows by non-financial claimants and do not pay any taxes.

Therefore, in the presence of taxation, the limited liability corporation chooses to invest if

\[ p(H - C_H)(1 - T) > I \]

With corporate taxation, the limited liability corporation accepts all projects with success

\(^{19}\) If debt is tax deductible, taxation also increases the tax advantages of risky debt. A higher debt in the capital structure reduces incentives of owners to invest in risky speculative projects.
probability $p > p_T$, where

$$p_T = \frac{I}{(H - C_H)(1 - T)} \quad (4)$$

Comparing equation (3) with equation (4), it can be seen that $p_T$ is greater than $p_L$ for any positive corporate tax rate $T$, since the denominator in equation (4) is smaller than that in equation (3). In other words, for any $T > 0$, the firm under-invests relative to the taxless scenario. This underinvestment incentive now can now counterbalance the overinvestment incentive due to corporate limited liability. The tax rate, $T$, can then be chosen such that $p_T$ is equal to $p_S$, the socially optimal investment level. Proposition 2 characterizes such an optimal tax rate $T^*$. When Assumption 2 holds there is a wedge between the gain to loss ratio of the financial claimholders and the gain to loss ratio of the nonfinancial claimholders. Define this wedge as $\Phi$, where $\Phi$ is:

$$\Phi = \frac{(H - C_H - I) - B_H}{I} - \frac{B_H}{C_L}$$

Assumption 2 implies that $\Phi > 0$. For any positive tax rate this wedge narrows since $\Phi(T) = \frac{(H - C_H)(1 - T) - I}{I} - \frac{B_H}{C_L}$ will be smaller. A tax rate $T^*$ such that $\Phi(T^*) = 0$ would induce an investment policy by the limited liability firm that coincides with the socially optimal investment policy. Such a tax rate $T^*$ has a simple characterization.

**Proposition 2**

*For the tax rate of* $T^* = \left[1 - p_L \left(\frac{B_H}{C_L} + 1\right)\right]$ *the investment policy of the corporation is identical to the socially desirable investment policy. This tax rate $T^*$ is increasing in* $\Phi$ *(in the wedge between the financial and the non-financial claimholders) and $C_L$. This tax rate $T^*$ is decreasing in* $p_L$ *and* $B_H$. 

*Proof:* See Appendix.
IV. Law and Organizational Form

In this section, we highlight the role of legal strength in altering the sharing rule between firm owners and other stakeholders. We assumed that the legal system is perfect ($\lambda = 1$) in the previous section. Here we now analyze the corporate investment policies and taxation policies as a function the legal system $\lambda$, $0 < \lambda < 1$, in the embedding economy.

A. Social Optimality

Since the social planner seeks to maximize the welfare of all claimants, the compensation that the non-financial claimants receive through the legal structure simply transfers and does not affect the optimality of the social planners’ problem. The legal structure impacts the social planner’s problem only through the corporation’s investment choices which in turn may be influenced by compensation paid to nonfinancial claimholders. Thus, the socially optimal investment policy is the same as before and all projects with probability of success, $p > p_S$ should be accepted where $p_S$ is given by the following equality:

$$p_S = \frac{C_L + I}{H - C_H + B_H + C_L}$$

B. Unlimited Liability

The owners of an unlimited liability firm now face the prospect of gaining $H - C_H \lambda$ in case of a successful outcome but also face the prospect of losing $C_L \lambda$, the value of legal claims in the low state. Since the owners are liable, they choose to invest if $p (H - C_H \lambda) - (1 - p) C_L \lambda > I$. Therefore, the unlimited liability firm accepts all projects with success probability $p > p_N (\lambda)$, where

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20 Recall that, in the earlier case of perfect legal strength, we had denoted the firm cash flows in the good state by $H = h - C_H$. More generally, the cash flow in the high state is now $h - C_H \lambda$. 

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\[ p_N(\lambda) = \frac{\lambda C_L + I}{H - C_H \lambda + C_L \lambda} \] \hspace{1cm} (6)

From equation (2) of section III B, \( p_N > p_s \) for \( \lambda = 1 \). As \( \lambda \) increases, \( p_N \) increases and hence the corporation’s investment policy becomes more conservative. Similarly as \( \lambda \) decreases, the legal system weakens and the investment incentives become stronger. Therefore, for some \( \lambda = \lambda^* \), the corporation’s investment policy is equivalent to the socially optimal investment policy. This legal strength, \( \lambda^* \), is given by

\[ \frac{\lambda^* C_L + I}{H - \lambda^*(C_H - C_L)} = \frac{C_L + I}{H - C_H + B_H + C_L} \]

For legal regimes weaker than this specified level, there is no underinvestment associated with unlimited liability. To the extent the limited liability form serves to ameliorate the underinvestment, there would then be no role for limited liability in case when the legal system is weak (\( \lambda < \lambda^* \)). We note this observation below.

\textbf{Lemma 1} For all \( \lambda \in [0, \lambda^*] \), there is no under-investment associated with unlimited liability firms.

\section*{C. Limited Liability}

We now consider the investment policy of a corporation with limited liability. Similar to the case of unlimited liability corporations, the owners of a limited liability corporation face the prospect of gaining \( H - C_H \lambda \) in case of a successful outcome. However, unlike in unlimited liability corporations, the owners of a limited liability corporation can walk away from any claims by non-financial claimants in case of failure. Therefore, the limited liability corporation chooses to invest if \( p(H - C_H \lambda) > 1 \). Thus, the limited liability corporation accepts all projects with success probability \( p > p_L(\lambda) \), where

\[ p_L(\lambda) = \frac{I}{H - C_H \lambda} \] \hspace{1cm} (7)

\textbf{Proposition 3}
The increased investment due to limited liability represented by \((p_n(\lambda) - p_L(\lambda))\) is an increasing function of the legal strength.

Proof: See Appendix.

To see the above result note that, similar to the investment policy of an unlimited liability firm \((P_n(\lambda))\), the investment policy of the limited liability firm also gets progressively more conservative as legal strength increases. However, unlike the unlimited liability firm, this increased caution arises only from the lost claims in the good state \((C_H\lambda)\) and not from any higher losses in the low state. Thus the difference between the relative investment levels increase as legal strength increases. Figure 1 summarizes the investment policies of the unlimited liability and limited liability firms.

V. Law and Corporate Taxation

We now proceed to examine the role of law in the design of corporate tax and the equilibrium social impact of corporations. To do so, we endogenize the corporations’ choice of organizational form.

A. The Corporation’s Choice of Organization Form

Firm owners benefit from limited liability as it allows them to walk away from the social costs they impose in excess of the corporation cash flows (corresponding to the low state in the model considered). However, in the presence of corporate taxation, this benefit comes at a price. In this subsection, we consider the corporation’s choice of organizational form given the above tradeoff. In a regime with legal strength \(\lambda\) and corporate tax \(T\), the owners of a limited liability corporation receive \(H(\lambda)(1-T)\) in the high state and 0 in the low state, where \(H(\lambda) = (H - \lambda C_H)\).

Therefore, the value of a limited liability corporation is

\[
V_L = \int_{\mathcal{L}_1(\lambda, T)} [H(\lambda)(1-T) p - I] dp.
\]

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where \( p_L(\lambda, T) = \frac{I}{H(\lambda)(1-T)} \)

As in the case of a limited liability corporation, owners of an unlimited liability corporation receive \( H(\lambda) \) in the high state but now also pay \( \lambda C_L \) in the low state. Therefore, the value of an unlimited liability corporation is

\[
V_N = \int_{p_N(\lambda)}^1 \left[ H(\lambda) p - \lambda C_L (1-p) - I \right] dp , \text{ where } p_N(\lambda) = \frac{I + \lambda C_L}{H(\lambda) + \lambda C_L}
\]

Consequently, a corporation will choose to be a limited liability corporation if \( V_L \) is greater than \( V_N \).

This leads to the following condition

\[
\frac{H(\lambda)(H(\lambda)-I)^2}{H(\lambda)+C_L\lambda} < \frac{[H(\lambda)(1-T)-I]^2}{(1-T)} \tag{8}
\]

The following proposition arises from an investigation of this condition.

**Proposition 4**

*For each \( \lambda \), there exists a tax rate, \( \hat{T} \), such that a corporation is indifferent between remaining an unlimited liability organization and choosing a limited liability organizational form. For all tax rates lower than \( \hat{T} \), the corporation will choose to be a limited liability organization. Further, \( \hat{T}(\lambda) \) is an increasing function of the legal strength (\( \lambda \)) in the regime.*

Proof: See Appendix.

The tax rate at which corporations are indifferent between the two organizational forms changes with the strength of the legal regime because of the changing benefits to limited liability. As the strength of the legal regime increases, the threat of being held responsible for negative externalities increases. Limited liability thus provides greater benefits now and consequently corporations are willing to pay a higher tax and yet opt for limited liability. Thus the benefits of limited liability increase as legal strength increases. In the extreme scenario of poor legal strength (\( \lambda = 0 \)), the corporation derives no benefits from limited liability. Therefore only for a corporate
tax rate of 0 the corporation is indifferent between the organizational forms, i.e., \( \hat{T}(\lambda = 0) = 0 \); for any positive tax rate, given poor legal strength \( (\lambda = 0) \), the firm prefers to be an unlimited liability organization, i.e., \( \hat{T}(\lambda = 0) > 0 \). More generally, the tax rate at which the corporation is indifferent between the two organizational forms \( \hat{T}(\lambda) \) is increasing with the legal strength, \( \lambda \).

**B. Design of Taxation**

Having specified a condition that captures the corporations’ choice of organization form as a response to the legal structure and corporate taxation, we can now proceed to solve for the tax rate that maximizes social welfare. For an economy of legal strength \( \lambda > \lambda^* \), the tax rate has to accomplish two objectives: (1) The tax rate has to provide incentives for the firm to adopt a limited liability organizational form, i.e., it has to be lower than \( \hat{T}(\lambda) \) (as stated in Proposition(4)), and (2) The optimal tax rate would be able to induces the limited liability firm to invest according to the socially optimal investment policy given by equation (5). Before we prove that such a tax rate exists, it is useful to note an important implication of our framework.

**Proposition 5** *The socially desirable tax rate, i.e., the tax rate that induces the limited liability firm to invest according to the socially optimal investment policy is a decreasing function of the legal strength \( \lambda \).*

Proof: See Appendix.

The socially desirable tax rate, that would induce the socially optimal investment level, is decreasing with the legal strength. This result follows from the ability of the legal regime to hold the firm responsible for negative externalities in the good state. Having chosen a limited liability organizational form, a corporation is less likely to follow an overly aggressive investment policy in better legal regimes since the corporation stands to lose more from lawsuits in the good state. Therefore, in spite of limited liability offering protection from lawsuits greater than corporation value, the corporation is more conservative due to better legal strength. The required corporate taxation needed to align the interests of the financial and the non-financial claimants is hence lower. In other words, law and taxes act as potential substitute instruments for the social
planner, whose problem we now consider. In other words, the tax penalty that needs to be imposed on the limited liability firms to curb their overinvestment (compared to the socially optimal benchmark) is smaller in a stronger (higher $\lambda$) legal system.

As a final issue, we just need to check that the socially optimal tax rate is indeed lower than the tax rate that makes firms indifferent between the two organizational forms. Formally, the maximum social welfare that can be achieved under the limited liability environment is

$$S_L^* = \max_T \int_{p_L} \left[ (H - C_H + B_H) p - C_L (1 - p) - I \right] dp,$$

such that $T < \hat{T}$ and $T < \left[ 1 - \frac{I}{H(\lambda)} \right]$.

The following proposition summarizes the choice of corporate taxation.

**Proposition 6**

The optimal corporate tax rate depends on $\lambda$, the strength of the legal regime. For all $\lambda < \lambda^*$ the optimal tax rate is zero and unlimited liability firms do not underinvest. For all $\lambda > \lambda^*$, where the underinvestment problem associated with unlimited liability exists, the optimal tax rate is equal to the socially desirable tax rate (Proposition 2) and induces investments at the socially optimal level.

Proof: See Appendix.

The proposition above states that, for strong legal structures ($\lambda > \lambda^*$) the tax rate can be set to the socially desirable tax rate; corporations will still opt for limited liability and invest at the socially optimal levels. The outcomes of organizational form and corporate taxation can therefore be grouped into two distinct regions based on legal strength. The first region is characterized by weak legal strength. This region corresponds to the region where $\lambda < \lambda^*$ in Figure 2. Here there is no

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21 Law and taxes however might not be substitutes in use, since corporations’ choices respond to the legal environment. For example, when law is weak, a corporation will not choose limited liability form for any tax rate greater than 0, thus taxes cannot be increased to compensate for poor legal regimes. Consequently, this argument for the inability to ’use’ law and taxes as substitutes is not because tax enforcement is a function of legal strength.
need for corporate taxation. The second is a region of limited liability and corporate taxation where the socially optimal investment policy is observed. This occurs in stronger legal regimes ($\lambda > \lambda^*$). It is interesting to note that the optimal corporate tax rate, when greater than 0, is decreasing with the legal regime. However, in countries with very weak legal regimes the optimal tax rate is 0.

C. Social Impact

It is often suggested that corporations are responsible for social harm and that they do not internalize externalities on society. However, in an economy where one does not observe any such violations by the corporation one may not observe any positive externalities either. In this section, we investigate in the equilibrium social impact in different legal structures. Based on the results in the previous subsections, we know that the socially optimal investment policy is achieved when legal strength is above $\lambda^*$ (see proposition 5). For all $\lambda < \lambda^*$, the social welfare is lower because of underinvestment. Thus, the positive externalities from corporate investment activity are passed up. We note these observations below.

**Proposition 7** Social welfare is increasing with the legal strength. However, the expected negative externalities are also increasing with legal strength.

Proof: See Appendix.

This follows from noting that when legal structures are strong, taxation can be used to align the interests of financial and non-financial groups and consequently the social welfare is maximized. As the legal structure deteriorates, limited liability and taxes do not play a role. It is also interesting to note that the negative externalities imposed are also higher with better legal strength. These are of course internalized by the corporation through courts but this might shed light on why there exists an anti-corporation sentiment even in countries such as the United States. By simply having a greater number of cases that appear before courts, the negative externalities are also more publicized. The positive externalities are less visible and are precisely the benefits that poor legal regimes give up.
VI. Extensions

In this section, we discuss some issues related to the central analysis of the paper that have previously been ignored. We begin with the impact of personal wealth on the results outlined in the paper.

A. Personal Wealth

In this subsection we highlight the impact of the owners’ wealth on the benefits and costs of limited liability. Wealth constraints at the corporation owner level can reduce the effective liability of unlimited liability corporations. For example, corporate owners who have no personal wealth are automatically liable for only the corporations’ cash flows. More specifically, if the owners combined personal wealth is

\[ 0 < W < C_L \lambda, \tag{9} \]

the costs that the unlimited liability corporation internalizes is now not \( C_L \lambda \) but only \( W \).\(^{22}\)

Therefore, the benefits of opting for limited liability decrease as corporate owners are less wealthy. However, the costs of opting for limited liability imposed via corporate taxes are independent of personal wealth.\(^{23}\) Hence, poorer owners are more likely to remain as unlimited liability corporations. Effectively then, deficiencies in personal wealth limit the legal liability and reduce the benefits of corporate limited liability. Further, it can be seen from (9) that, for a given \( W \), the constraint on personal wealth is less likely to be relevant in weaker legal regimes. Thus, the impact of personal wealth in determining the choice between limited or unlimited liability is lower in weaker legal regimes.

B. An Alternative Policy? Subsidizing Penalties

\(^{22}\) The use of non-pecuniary forms, such as imprisonment, to hold the firm owners responsible would however reduce the importance of personal wealth.

\(^{23}\) We abstract from tunneling of corporate resources for personal purposes. If corporate income can be used for personal expenditure and personal income is consequently lower, the effective tax rate, that adds the personal tax rate to the corporate tax rate, for the owners might actually become lower after limited liability.
Our analysis has focused on the role of corporate taxation in aligning the interests of limited liability corporations’ owners and society. Alternatively, we can focus on aligning the interests of an unlimited liability corporation and society. In the case of the unlimited liability corporation, the owners consider only the costs and not the benefits they impose on society. For sufficiently strong legal regimes \((x > x^*)\) they are too conservative in their investment policy relative to the socially desirable level (see section 3).

Can the interests then be aligned by simply penalizing corporations only partially for the costs they impose? In other words, can we not simply make the corporation responsible for only a fraction \(f\) of the costs it imposes, such that

\[
P_s = \frac{C_L + I}{H - C_H + B_H - C_L} = p_s(f) = \frac{fC_L + I}{H - fC_H + fC_L} \tag{10}
\]

While this might be a possible solution in stronger legal regimes where penalties on a corporation are subsidized, it might not be desirable.\(^{24}\) To see this, one only needs to consider the presence of ‘rogue technologies’ that make money at the expense of other claimants. A simple example is that of a fly-by-night operators who collect money from unsuspecting investors and then disappear. If such projects are penalized only partially for the costs they impose, they become profitable projects. More importantly, the profitability of such technologies might now shift agents from genuine ‘production’ technologies analyzed earlier to such rogue technologies. To see this in the context of the model, consider a perfect legal regime (\(\lambda = 1\)). In addition to the existing framework let us allow for a ‘rogue technology’ that generates \(R\) without any uncertainty while imposing a cost of \(R\) on society. This captures the essence of theft from society.

Let us first consider the feasibility of such technologies in the earlier prescribed design of limited liability and taxation. Since the corporation will have cash \(R\) at all times, the legal system will divert back this amount to the non-financial victims and the safety net of limited liability is never utilized. In other words, the corporation’s cash flows are always 0 \((R - R)\).\(^{25}\) Thus, there is no incentive for an agent to choose the ‘rogue technology’ over the ‘production’ technology. If

\(^{24}\) Note that in weak legal regimes, this is simply equivalent to strengthening the legal regime.

\(^{25}\) It can also be seen how the profitability of such rogue technologies increases as the legal regime weakens. The profits would now be \(R - R \lambda\).
however corporations operate in an environment where they are liable for only part of the costs they impose, then such technologies would generate positive cash flows of $R - f R$ without any uncertainty, making them attractive alternatives to the production technology.

C. Heterogeneous Firms

Finally, we discuss the impact of enriching our framework from the case of a representative corporation to that of heterogeneous corporations. The socially optimal investment policy can be characterized as (for a single corporation economy)

$$p_i(i) = \frac{C_L(i) + I}{H - C_H(i) + B_H(i) + C_L(i)}$$

Consider an economy with multiple technologies and allowances for investment based tax deductions $D_i$ (e.g., depreciation). Consistent with observed tax corporate tax systems, the economy can then be characterized by a uniform corporate tax code with constant tax rates but deductions varying across sectors. The tax-induced optimal investment policy for the limited liability corporation is then:

$$p_i(H_i - C_H(i) - T(H_i - D_i)) > I \rightarrow$$

$$p_i = \frac{I}{[H_i - C_H(i)](1 - T) + TD_i} < \frac{I}{(H_i - C_H(i))(1 - T)}$$

(11)

From (11), it can be seen that the limited liability corporations invests more in the presence of tax deductions. The increased investment level can now be compared to that of the socially optimal level to get

\(^{26}\) See John and Sundaram on why there the tax code should be uniform.
Proposition 2 can now be stated in an alternative form for the corporation/sector specific case; namely that there exists a uniform corporate tax rate $T$ and a corporation-specific depreciation deduction $D_i$ that replicates the corporation-specific socially optimal tax rate ($T_s(i)$).

$$T_s(i) = \frac{T(H_i - C_H(i) - D_i)}{H_i} = T \left( I - \frac{D_i}{H_i - C_H(i)} \right)$$  \hfill (13)$$

It is also clear that $D_i$ is unique for a given $T$, and vice-versa. Thus, for a given uniform corporate tax rate $T$, there exists a socially optimal corporation/sector-specific depreciation rate that replicates the socially optimal tax rate. Thus, the design of uniform corporate tax system calls for an economy-wide $T$ that is at least equal to $\max T_s(i)$ (for all $i$) and setting the corresponding corporation-sector specific deduction $D_i$ that satisfies

$$D_s(i) = \left[ H_i - C_H(i) \right] \left[ I - T_s(i) \right]$$

This expression also sheds light on the social impact of an observed and much analyzed tax deduction - that due to debt. While the deductibility feature encourages investments, debt also has an associated underinvestment incentive in the presence of the stockholder-bondholder conflict (Myers, 1977). To the extent that debt controls investment, it curtails the overinvestment effect of corporate limited liability, thus requiring a lower tax rate.

Consequently, to the extent higher debt is associated with a conservative investment policy, tax deductions based on debt are only consistent with the presented framework. We however note that although the underinvestment problem due to debt is now well known (see Berger and Ofek (1997) for supporting evidence) and might also be more difficult to constrain through covenants, the importance of this underinvestment effect due to debt might differ in magnitude from the overinvestment effect of limited liability.\(^{27}\) To the extent these two effects are comparable, this

\(^{27}\) See Myers (1977) for a discussion of under investment.
might provide a rationale for why a random security that has a payoff structure resembling a loan is provided tax shields.

Finally, the paper also shows that the conflict between various financial claimholders (bondholders and equityholders) can help align the interests of the corporate owners and the non-financial claimants. To this end, the paper justifies a feature of corporate taxation that has often been questioned tax deductibility of debt. Although the consequences of the tax advantage of debt over equity have been studied widely in financial economics, the rationale for it seems to have received little attention. Why would the taxing authority grant tax advantage to one type of claims over others? Is it optimal, in any sense, for the social planner to selectively encourage the use of claims with the pay-off structure of debt? In this paper, we provide a rationale as to why it may make sense from the perspective of social optimality to encourage corporations to use external claims with the debt pay-off structure. By providing incentives to issue debt, the conflict between shareholders and the non-financial claimants are reduced.28

VII. Some Evidence

In this section, we investigate if the proposed framework to analyze law and taxes is consistent with observed outcomes. We utilize two main data sources for this investigation.

First, we use data from Djankov, La porta, Lopez-Silanes and Shleifer (2003) on the efficiency of courts. To proxy for the ease with which non-financial stakeholders can resort to the legal channel for any negative externalities imposed on them, we focus on four different screens available on judicial efficiency. We utilize four different measures that are useful indications of judicial efficiency in business disputes, especially in the absence of formal contracts.

The first measure captures the extent to which the legal system is honest and uncorrupt (hon_unc). The second measure captures how affordable the legal system is (affordable); the third deals with whether the court system is consistent (consistent) and the fourth measures the extent of confidence in the legal system (confidence). We normalize each of these measures to derive a measure

28 The impact of financing decisions on the claims of nonfinancial claimholders has also been examined in Titman (1984), Fama (1985) and Cornell and Shapiro (1986). However, to our knowledge, ours is the first paper to examine the role of corporate taxes and organizational form in aligning the interests of non-financial claimants and financial owners.
between 0 and 1 and then create an index that adds these four measures (legal strength) for 44 different countries. The index has a mean value of 2.2, with a minimum value of 1.57 and a maximum value of 3.32.

Second, we utilize corporate tax information from the data compiled by La Porta, Lopez-Silanes, Shleifer and Vishny (1999, henceforth LLSV). The data compiled by the authors is ideal for our study since it separates the personal tax on capital gains from personal tax on corporate payouts. This difference is closer in spirit to the tax disadvantage of limited liability we point out. To compute this tax disadvantage, we simply use a transformation of the variable in LLSV(1999). The variable used by LLSV is a ratio of post-tax income that one gets from a pre-tax dollar paid out by corporations to the income that one gets from a pre-tax dollar of capital gains (RATIO).\(^{29}\) We define tax disadvantage of limited liability to be \(\text{TAXDISADV} = 1 - \text{RATIO}\).

Although this data is ideal for our purposes, we are limited to only 32 countries. However, we can already make a few observations that are consistent with the proposed framework. First, there is a distinct tax disadvantage on corporate payouts. On an average, income from corporate payout translates to around 80% of the income from a similar amount of pre-tax capital gains. It is this tax disadvantage that we have emphasized in the above framework.

We now proceed to check if the tax disadvantage is indeed lower in stronger legal regimes. The correlation between our index of legal strength and the tax disadvantage is -0.13. Further, in a regression of the tax disadvantage on this index, civil law status and gnp, the coefficient on legal strength is -0.17, and significant at the 10% level.\(^{30}\) As an indicator of the economic importance of this variable, it is useful to note that the coefficient on the civil status variable is also -0.17. That civil law countries have a lower tax disadvantage is also interesting in its own right. To the extent that the governments in civil law countries use other mechanisms to obtain a more stakeholder oriented society, such lower tax disadvantages are consistent.

To check which aspect of the legal strength is more important, we also check the correlation between the tax disadvantage and each of the four legal measures. We find that in each case the correlation between the tax disadvantage and the measure is negative: -0.02 (for confidence), -0.07

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\(^{29}\) Note that in the construction of this variable, the authors have taken into account imputation. For more details, see LLSV (1999).

\(^{30}\) A limitation of this regression is the use of only 19 observations. The R-square is 25%. 

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(for honest and uncorrupt), -0.10 (for consistent) and -0.30 (for affordable). These results thus support to our central results (Proposition 5) and thus the framework.

We now deviate from an investigation of law to further shed light on our conjecture - that corporate taxes play a role in mitigating conflict between shareholders and other stakeholders. We characterize two conditions when such conflict is likely to be higher. The first deals with the accounting standards in the country. In the absence of high standards that force firms to reveal their activities, such conflicts are more likely. Thus, if taxes indeed play a mitigating role, we would expect a higher tax rate when accounting standards are weak. Indeed the correlation between the tax disadvantage and accounting standards is negative (-0.06). The second deals with diversity in the population. Since conflicts are likely to arise as the number of groups in the community increase, we attempt to proxy for the potential conflicts with a variable that captures ethnic fractionalization. Ethnic fractionalization is computed as one minus the Herfindahl index of ethnic group shares. This calculation considers the probability that two persons, randomly chosen, from a population belong to different groups. Again, we find that the taxes are lower in a more uniform society, with a positive correlation of 0.20 between ethnic fractionalization and the tax disadvantage. In sum, we document evidence that suggests that taxes indeed play a role in mitigating the conflict between shareholders and other stakeholders.

VIII. Conclusions

Avi-Yonah (2004) points out that in the debate over the introduction of the tax in 1909, Sen. Cummins, an opponent of the tax stated that

*If this tax is intended not to create a revenue, but if it is intended for the purpose of supervising and regulating corporations, that is quite a different proposition. I should like to know before we get through with this whether it is proposed through this tax to impose supervisory regulation upon all the corporations of the United States...*

This paper presents an argument where corporate taxation plays an important role when corporations generate social benefits and costs as side effects of the production process. We analyze the importance of the legal structure and organization form for social welfare when corporations impose externalities on non-financial claimants. The legal structure and the
organization form alter the sharing rule between the owners of a corporation and the non-financial claimants. The sharing rule, in turn, affects the externalities imposed by corporations on the society at large. In strong legal regimes, unlimited liability may discourage investment relative to the socially desirable level. Limited liability, however, might be accompanied by excessive investment. In the presence of limited liability, we show that corporate taxation plays an important role in aligning the interests of non-financial claimholders and the owners of a limited liability corporation by reducing corporation cash flows in profitable states. Thus, taxes can be viewed as the price to pay for limited liability and corporations’ trade off the benefits of limited liability with the potential costs of taxation to choose their organizational form.

We then highlight the importance of the legal regimes when corporations choose their organization form. In this analysis, we focus on the role of law in the design of corporate tax and the equilibrium social impact of corporations by endogenizing a corporations’ choice of organizational form. This enables us to generate cross country comparisons in tax rates and the social costs imposed by corporations. We show that low corporate tax rates prevail in environments with strong legal protection, whereas countries with poor legal structures, on an average, have higher corporate tax rates. The rationale for taxation in this paper would imply a stand against the repeal of double taxation through corporations. In addition, this view of taxation presents an interesting ingredient in analyzing social implications when countries compete for investment based on corporate taxes. An interesting question to analyze is the social impact of tax competition between countries that differ in their legal strengths.
References


K. John, L. Senbet, and A. Sundaram, “Corporate Limited Liability and Design of Corporate


Appendix: Proofs

Proposition 2

Equating $p_T$ in equation (4) to $p_S$ in equation (1) and simplifying yields the given expression for the optimal tax rate $T^*$. The comparative statics results with respect to $C_L$, $p_L$, and $B_H$ follows readily from the form of the expression for $T^*$. Rearranging the derivation of $T^*$, we can also see that $T^* = p_L \Phi$. It follows that $T^*$ is increasing in $\Phi$.

Proposition 3

From the expression for $p_N(\lambda)$ in equation (6) and $p_L(\lambda)$ in equation (7) we can rewrite

\[
p_N(\lambda) = \frac{\lambda C_L + X}{Z + C_L \lambda}
\]

and

\[
p_L(\lambda) = \frac{X}{Z}
\]

where $X = I$ and $Z = (H - C_H \lambda)$. Thus $p_N$ is higher than $p_L$ and $(p_N - p_L)$ is an increasing function of $C_L \lambda$ and hence of $\lambda$.

Proposition 4

When $T=0$, the right hand side of inequality (8) is simply

\[
\left( H(\lambda) - I^2 \right) > \frac{H(\lambda)H(\lambda) - I^2}{H(\lambda) + C_L \lambda}.
\]

For $T = 1 - \frac{I}{H(\lambda)}$, the right hand side is 0. To see how the right hand side of (8) changes with the tax rate, consider the partial derivative that yields

\[
- \left[ \left( H(\lambda) \right)^2 - \left( \frac{I}{1-T} \right)^2 \right]
\]
Thus, for all \((1-T)H(\lambda) > I\), the right hand side is decreasing in \(T\). Since \((1-T)H(\lambda) > I\) (or else the project would not be viable), as the tax rate increases, the condition is less likely to hold, and there exists an interior rate \(0 < \hat{T} < 1 - \frac{I}{H(\lambda)}\) such that the corporation is indifferent between the choice of limited or unlimited liability.

**Proposition 5**

The socially desirable tax rate is an increasing function of \(p_S - p_L\), the difference between the first-best investment policy and the investment taken with limited liability. Since \(p_S\) is independent of \(\lambda\) and since \(p_L\) is increasing with higher legal strength, \(p_S - p_L\) is decreasing with higher legal strengths. Thus, the socially desirable tax rate is a decreasing function of the legal strength.

**Proposition 6**

At \(\lambda = \lambda^*\), \(p_N(\lambda) = p_S\). Since \(p_N\) is increasing with \(\lambda\), \(p_N > p_S\) for all \(\lambda \geq \lambda^*\). Also, the value of a firm is higher as its optimal investment policy, given by \(p\), is lower. Thus, the firm would prefer all rules such that their optimal investment policy will be less than \(p_N\). Since \(p_S\) is less than \(p_N\) for all \(\lambda \geq \lambda^*\), the optimal tax policy will be implementable. For \(\lambda < \lambda^*\), there is no underinvestment problem and hence no role for limited liability in our framework.
FIGURE 1: LAW, ORGANIZATIONAL FORM AND INVESTMENT
FIGURE 2: LEGAL STRENGTH AND TAXES