Judicial Discretion in Corporate Bankruptcy

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Abstract

We study a demand and supply model of judicial discretion in corporate bankruptcy. On the supply side, we assume that bankruptcy courts may be biased for debtors or creditors, and subject to career concerns. On the demand side, we assume that debtors (and creditors) can engage in forum shopping at some cost. A key finding is that stronger creditor protection in reorganization improves judicial incentives to resolve financial distress efficiently, preventing a "race to the bottom" towards inefficient uses of judicial discretion. The comparative statics of our model shed light on a lot of evidence on U.S. bankruptcy and yield novel predictions on how bankruptcy codes should affect firm-level outcomes.

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1 Introduction

Judicial discretion is a central feature of state-mandated bankruptcy procedures. Either directly or through the appointment of administrators, bankruptcy judges routinely shape reorganization plans and the extent of distressed financing, in turn crucially affecting the resolution of financial distress.[1] In a widely held view, judicial discretion is the leeway that allows judicial idiosyncrasies to shape the resolution of financial distress (e.g. Weiss and Wruck 1998). It is indeed the case that bankruptcy outcomes vary enormously across bankruptcy judges, sometimes favoring debtors, some other times favoring creditors (Bris et al. 2006, Chang and Schoar 2006). However, this view cannot explain, among other things, why judicial idiosyncrasies do not average out just like pure noise. For example, as Franks and Torous (1993) put it, U.S. Chapter 11 is systematically pro-debtor because it has "strong incentives to keep the firm as a going concern even when it is worth more in liquidation".[2]

We present a simple demand and supply model of judicial discretion that parsimoniously rationalizes why idiosyncratic differences across courts do not average out within a given code, and yields an array of novel predictions on the economic properties of court-supervised bankruptcy procedures. One key finding is that the workings of judicial discretion are crucially shaped by creditor protection in reorganization. In particular, we show that judicial discretion generates a "race to the top" towards efficient resolutions of financial distress only when creditor protection in reorganization is strong enough.

Prior seminal work on judicial discretion in bankruptcy (Giammarino and Nosal 1994; Bernhardt and Nosal 2004) focused on whether random judicial mistakes are desirable. We instead explicitly model judicial decision-making by recognizing that the forces of demand and supply shape the way bankruptcy judges use their discretion. Our model hinges on two main assumptions. On the supply side, in line with Gennaioli (2005) and Gennaioli and Shleifer (2009) we assume that bankruptcy judges can be biased in favor of debtors or creditors. On the demand side, we assume that in

[1] For example, U.S. Chapter 11 leaves bankruptcy courts discretion on issues such as first day orders, refinancing, extensions of exclusivity, appointments of trustees, and the final approval of a reorganization plan. As Gilson (1991) puts it, Chapter 11 "effectively requires judges to set corporate operating policies". Recent estimates suggest that the price of judicial discretion in financial markets can be very large. Ayotte and Gaon (2007) find that credit spreads increased by about 30 basis points for Chapter 11-eligible securitizers immediately after a controversial judicial decision in the Chapter 11 bankruptcy of LTV Steel, in which a securitization contract was unexpectedly treated by the judge as a secured loan, and as such subject to automatic stay.

[2] Political economy theories (e.g. Skeel 2001, Bolton and Rosenthal 2002) explain the systematic pro-debtor bias of bankruptcy laws with the political preferences of legislators, but cannot explain why resolutions of financial distress vary across bankruptcy courts because they assume judicial discretion away.

financial distress debtors and/or creditors can choose where to file for bankruptcy, namely "forum shop", subject to some legal restrictions. This is consistent with U.S. evidence, whereby about 60% of the large Chapter 11 cases between 1980 and 2005 has been classified as forum shopping (e.g. Lo Pucki 2005, Ayotte and Skeel 2004). In our basic model we assume that only debtors can forum shop, consistent with the evidence that about 95% of large U.S. Chapter 11 filings are initiated by debtors (Lo Pucki 2005); in Section 5 we relax this assumption.

We start with a static model where debtors, to appropriate the control rents associated with reorganization, naturally file in pro-debtor courts that over-reorganize bankrupt firms. This demand side effect creates a systematic pro-debtor bias of the bankruptcy code, even if individual judges are on average unbiased. Interestingly, such systematic pro-debtor bias becomes much stronger in the presence of judicial career concerns. If judicial bias is unobservable and judges care about attracting future, large bankruptcy cases, a pooling equilibrium can arise where even pro-creditor judges over-reorganize to establish a pro-debtor reputation and attract future filings. Rather than allowing judges to express their idiosyncratic views, judicial discretion here triggers homogeneity in judicial behavior, at least among courts competing to attract more cases. Thus, also a supply side effect concurs to generate a systematic pro-debtor bias in the bankruptcy code.

Our main finding is that stronger creditor protection in reorganization reduces the systematic pro-debtor bias of bankruptcy through both demand and supply effects. We model creditor protection as the share of reorganization proceeds that can be pledged to creditors. This parameter proxies for environmental features such as the extent of violations of absolute priority (Franks and Torous 1989), private benefits of control (Aghion and Bolton 1992) or even tunneling (Djankov et al. 2008), especially in developing countries. On the demand side, higher creditor protection reduces debtors' rents in reorganization, thereby lowering debtors' incentive to forum shop to pro-debtor courts. Crucially, under career concerns this reduction in debtors' incentives to forum shop induces also a *supply effect*: anticipating future lower demand for pro-debtor judges, pro-creditor judges have fewer incentives to establish a pro-debtor reputation, which also reduces the systematic pro-debtor bias today.

This analysis yields two implications. First, our model predicts that by shaping both debtors' and judges' incentives, stronger creditor protection in reorganization should avoid a "race to the bottom" towards pro-debtor resolutions of financial distress under discretion. Interestingly, a similar prediction follows from an increase in legal restrictions to forum shopping. Thus, our model provides two novel potential determinants of the variation of systematic bias across bankruptcy codes.

Second, our career concerns model shows that existing attempts to empirically identify the consequences of forum shopping (Lo Pucki 2005, Ayotte and Skeel 2004), which hinge on comparing bankruptcy outcomes in different courts (say Chicago and Delaware) are likely to underestimate the consequences of forum shopping and the extent of pro-debtor bias. The reason is that those tests overlook that forum shopping, rather than merely allowing debtors to file in pro-debtor courts, induces an endogenous increase in the pro-debtor stance of all courts.

We extend our basic framework by studying additional factors that affect demand and supply. In the most interesting extension, we allow some courts to be faster than others. In this setting, forum shopping is naturally more beneficial in the sense that it allows the sorting of cases into fast courts. Somewhat counter-intuitively, though, we find that such fast courts are more likely to behave in a pro-debtor manner. The intuition is that now the inflow of cases to pro-debtor fast courts becomes even larger, as it also includes firms with a pro-debtor but slow natural venue. That is, the supply effect becomes much stronger for fast courts, increasing their incentive to cater to debtors. Crucially then, this argument suggests that the ability of society to reap the potential benefits of forum shopping hinges on reducing the debtors' reorganization rents. Indeed, it is precisely the presence of these rents that motivates the sorting of cases in pro-debtor courts and thus a race to the bottom in the first place. One interesting consequence is that in our setup the first best can be attained under strong creditor protection but *low* legal restrictions to forum shopping. This regime would remove courts' incentive to cater to debtors but still preserve beneficial competition among courts, thereby triggering a race to the top towards more efficient resolutions of financial distress.

We continue our analysis by studying the case in which even creditors can forum shop with some probability, and we show that under some conditions a systematic pro-creditor bias will follow. In this sense, our analysis shows that the party in control of the venue choice has an incentive to file in a sympathetic court, thereby generating a systematic bias. We conclude by studying the case in which judges observe a noisy signal of the firm's reorganization value and show that the costs of judicial bias and thus of forum shopping are greater for firms in more innovative industries, facing more uncertain future prospects.

The roadmap of the paper is as follows. Section 2 illustrates our static model. Section 3 analyzes the model with career concerns. Section 4 examines comparative statics and welfare. Section 5 extends the basic framework to study courts' speed, forum shopping by creditors and estimation uncertainty. Section 6 illustrates how our model can rationalize a lot of cross-section and time

series evidence on U.S. Chapter 11. All proofs are in the Appendix.

2 The Static Model

We now present a basic static demand and supply analysis of judicial discretion. An existing firm is in financial distress. The firm has a current cash flow of zero, has defaulted on its debt, and has entered a formal bankruptcy procedure under court supervision. To resolve financial distress, it must be decided whether the firm is reorganized or liquidated piecemeal.[3]

The value of the firm under piecemeal liquidation is $\lambda > 0$. The reorganization value of the firm is a random variable $\rho \in \left\{\underline{\rho}, \overline{\rho}\right\}$, where $\rho = \overline{\rho}$ with probability 1/2 and $\overline{\rho} > \lambda > \underline{\rho}$. As a result, liquidation is ex post efficient if and only if the reorganization value is $\underline{\rho}$. Investors are pledged the full liquidation value λ but only a fraction α of the reorganization proceeds. The remaining share $(1-\alpha)$ of the reorganization proceeds goes to the debtor. Thus, the debtor prefers reorganization to liquidation even if the latter is socially efficient because under liquidation he obtains zero while under reorganization he obtains $(1-\alpha)\,\rho$**.** The parameter α plays a key role in our analysis and can be thought of as measuring creditor protection in reorganization: if α is higher, creditors can obtain a larger share of the reorganization proceeds. In the real world, the parameter α can measure the extent to which creditors are protected against the violations of their contractual priorities in favor of the debtors, an important source of rents for debtors particularly in the bankruptcies of large, publicly listed U.S. corporations (e.g. Franks and Torous 1989, Weiss 1990).[4] Alternatively, α can measure creditor protection against tunneling (or other forms of private benefits extraction) by debtors, which is especially relevant in developing countries (Djankov et al. 2008).[5]

[3] Here we focus on ex post outcomes in bankruptcy assuming that parties end up in court, but we have formally studied also the ex ante consequences of court behavior (see Gennaioli and Rossi 2009a), along with some contractual reactions to judicial discretion and private workouts. All of our main results are confirmed in this case. The assumption of limited ex ante contracting is consistent with the cross-country empirical evidence of Djankov et al. (2008) that there are many legal restrictions to doing so. For an analysis of optimal contracting about financial distress, see Gennaioli and Rossi (2009b).

[4] We could also allow violations of priority to be a choice variable for courts. In such a case, we would be essentially back to the current model because pro-debtor judges would always grant the maximal violations of priority up to the maximal limit $(1-\alpha)$. The only difference with the current model would be that pro-creditor judges would never violate absolute priority.

[5] These interpretations of α imply different mappings of the model with reality. The "violation of priorities" interpretation does not hinge on debtors being in control, as the debtors may obtain reorganization rents through equity stakes [Gilson (1990) shows that U.S. CEOs retain substantial equity stakes in bankrupt firms (average 10%)]. The "tunneling-private benefits" interpretation requires instead that the debtor controls the bankrupt firm for at least some time. [Gilson (1990) and Hotchkiss (1995) show that U.S. CEOs' and board members' retained their seat after emerging from bankruptcy in about 50% of cases in the 1980s and early 1990s. Ayotte and Morrison (2007) show that such percentage has recently decreased to about 20%]. Thus, defined π as the extent to which creditors' claims are violated, ψ as the probability that a bankrupt debtor is immediately replaced, e as his equity stake, t and

But how is it decided whether the firm is reorganized or liquidated? Our basic premise is that the bankruptcy procedure gives judges some discretion on this dimension. Several sources of judicial power can ultimately affect the way financial distress is resolved. As an example, judicial power to extend the exclusivity period where only debtors are allowed to file a reorganization plan allows judges to make it harder for the creditors to move the case forward without the debtor's consent. In turn, this can reduce the likelihood of liquidation. A similar reasoning applies to judicial discretion in the appointment of a trustee and in the granting of first day orders.[6]

2.1 The Supply Side: Bankruptcy Courts' Decision-Making

In light of the above observations, we take the modelling shortcut that bankruptcy courts (or, interchangeably, judges) decide whether to reorganize or liquidate the firm. Throughout the paper, we hold such judicial power constant and study which factors affect judges' willingness to use it one way or another. We assume that courts as well as outsiders perfectly observe the firm's reorganization value but courts might still be able to erroneously find it because ρ is unverifiable. In Section 5.3 we study the more general case where courts observe a noisy signal of ρ.

After observing ρ, a judge of type j decides whether the firm should be reorganized or liquidated by choosing the reorganization probability, $x(\rho)$, to maximize the utility function:

$$K\left[1-\left|x(\rho)-x_j(\rho)\right|\right], \tag{1}$$

where $x_j(\rho)$ represents judge j's ideal reorganization policy and K is a positive constant that parameterizes the intensity of the judge's preference, be it for liquidation or reorganization. Judicial preferences over the firm's reorganization policy can stem from policy (or even political) preferences over non-contracting parties such as the firm's workers who may lose under liquidation, or from the judge's personal preference for the party gaining under reorganization. In particular, when $\alpha\overline{\rho} < \lambda$ the creditor always loses from reorganization while the debtor always benefits from it so that judicial preferences can be interpreted as directly reflecting the judge's bias for the debtor or the creditor.[7] This is the most intuitive and interesting case for our analysis because it features a

b as the amount of tunneling and private benefits, respectively, one can combine the two interpretations by defining $\alpha \equiv 1-\pi e-(1-\psi)(t+b)$. Section 6 uses this decomposition of α to rationalize, in light of our model, the evolution of U.S. bankruptcy outcomes.

[6] To be sure, judges might affect the above decisions not only by exercising their legal right to do so but also by exploiting discretion in finding facts (Gennaioli 2009; Gennaioli and Shleifer 2009), especially if the social value of alternative decisions is unverifiable and debtors and creditors disagree.

[7] Strictly speaking, a judge with $x_j(\rho)=1$ can be viewed as biased in favor of the debtor controlling the filing

real conflict between parties in financial distress and thus over forum shopping.

There are two types of judges in the population. Pro-debtor judges, identified by $j = d$, are characterized by $x_d(\rho) = 1$ for every ρ, so their ideal policy is to always reorganize. Pro-creditor judges, identified by $j = k$, are characterized by $x_k(\rho) = 0$ for every ρ, so their ideal policy is to always liquidate. We denote by π_j the share of judges of type $j = k, d$ in the population. Pro-debtor and pro-creditor judges following their preferred adjudication policy obtain a fixed utility K.

In this static model, courts adjudicate by following their ideal policies, setting $x_j^*(\rho) = x_j(\rho)$, where $x_j^*(\rho)$ denotes the equilibrium policy of court type $j = k, d$. By reorganizing all firms, including those with poor prospects, pro-debtor courts reduce expected repayment to creditors. With respect to ex post efficiency, both pro-creditor and pro-debtor courts adjudicate suboptimally; which bias is socially more costly ex post depends on the comparison between the social cost of over-liquidation $\lambda - \underline{\rho}$ and that of under-liquidation $\overline{\rho} - \lambda$.

Because judicial biases affect the resolution of financial distress, the supply side of our model is consistent with a lot of evidence on the variation of several bankruptcy outcomes across U.S. courts (e.g. Chang and Schoar 2006, Bris, Welch, and Zhu 2006). We now show that adding a demand side to our model can generate also the kind of systematic biases in the resolution of financial distress empirically documented by Skeel (2001) and Franks and Torous (1989, 1993), over and beyond idiosyncratic variation in bankruptcy outcomes across courts.

2.2 The Demand Side: Debtors' Forum Shopping

The demand side of our model relies on the assumption that debtors can forum shop to their preferred bankruptcy courts. Although most bankruptcy codes contain provisions aimed at restricting forum shopping, substantial flexibility still exists, especially for large companies. For example, the U.S. bankruptcy venue statute recognizes four connections between a debtor and his "natural" bankruptcy court. The court must either be: (1) at the "domicile or residence" of the debtor, (2) at the debtor's "principal place of business", (3) at the location of the debtor's principal assets, or (4) where the bankruptcy case of an affiliate is already pending. In practice, companies – especially

decision. Thus, in closely-held firms one can interpret the bias as being pro-CEO, and in widely-held firms one can interpret the bias as being either pro-CEO, pro-board of directors or pro-controlling shareholders. In a previous version of the paper (Gennaioli and Rossi 2009a) we allowed the judge to internalize the parties' welfare in his objective function. As a result, creditor protection α entered directly into the judge's utility. These results are available upon request. The current formulation greatly simplifies the analysis, especially in the dynamic model of Section 3, without losing much insight.

the large ones – have been able to get around the filing restrictions in different ways.[8] At the same time, the debtor's filing power naturally comes from two sources. First, the U.S. bankruptcy code stipulates that both debtors and creditors can file for bankruptcy, but creditors have to meet stronger standards (see for instance §301, 303 of Chapter 11). Second, debtors are likely to enjoy a first mover advantage in filing for bankruptcy because they are informed before and more accurately than their creditors about their firms' financial problems.[9] These demand side assumptions are very realistic: 94% of all large U.S. Chapter 11 cases from 1980 to 2005 (678 out of 722) were initiated by debtors, and 57% of them (411 out of 722) have been classified as forum shopping (Lo Pucki 2005).[10] Forum shopping is also increasingly pervasive in Europe (Enriques and Gelter 2006), and around the world, especially among multinational firms (Rasmussen 2007, Guzman 2000). Before proceeding, it is important to note that although the case where only debtors forum shop is perhaps the most realistic one, our model easily extends to the case where also creditors can forum shop. Section 5.2 formally studies this case.

We assume that upon observing the reorganization value of his firm debtor i can choose where to file by bearing a forum shopping cost c_i that is uniformly distributed in $[0, c]$. Empirically, a higher c captures a bankruptcy code placing tighter legal restrictions to forum shopping.

Initially, each debtor is randomly allocated to his natural bankruptcy venue, whose ideal policy vector is denoted by $[x_j(\rho)]_\rho$ $j = k, d$. At such court, a debtor's payoff is equal to $(1-\alpha)\rho x_j(\rho)$, namely the debtor's reorganization rents times the probability that reorganization takes place, where $x_j(\rho)$ is the anticipated behavior of the court. If the debtor forum shops in a pro-debtor court he obtains the reorganization rent $(1-\alpha)\rho$ for sure. As a result, at any given ρ, a debtor characterized by cost c_i forum shops if $c_i \leq (1-\alpha)\rho[1-x_j(\rho)]$ and remains with the natural venue otherwise. Intuitively, for a debtor to forum shop it must be that: i) his natural venue is pro-creditor $[x_j(\rho) = 0]$, and ii) the forum shopping cost is smaller than the reorganization rents.

[8] For example, LoPucki and Whitford (1991) find that in the 1980s large pre-bankrupt firms from all over the U.S. began transferring their headquarters in small offices in Manhattan to be able to file at the New York court.

[9] Jensen and Meckling (1976) stress that such first mover advantage may jeopardize creditors' claims by allowing debtors to engage in asset substitution. Crucially, even if creditors challenge the venue choice, it is the debtor-chosen court to have the final say, often resulting in the pro-debtor court retaining the case.

[10] See LoPucki's data at http://lopucki.law.ucla.edu/index.htm. Forum shopping is widespread in various other areas of the law, too. For example, White (2006) finds that when asbestos lawsuits are filed in six particularly favorable jurisdictions, plaintiffs' expected returns from trial increase by $800,000 to nearly $4 million. See Proposition 2 for an argument as to why these (and similar) estimates may underestimate the impact of forum shopping.

The share of firms forum shopping away from court $[x_j(\rho)]_\rho$ is equal to:

$$f_{\rho,j}(\alpha, c) \equiv \min\left\{1, \frac{(1-\alpha)\rho}{c}\left[1 - x_j(\rho)\right]\right\}. \tag{2}$$

The mere presence of forum shopping has immediate implications for bankruptcy outcomes, as the aggregate share of reorganizations in our model is equal to:

$$\mathbb{E}_{j,\rho}\left[x(\rho)\right] = \sum_{j=d,k} \mathbb{E}_\rho\left[f_{\rho,j}(\alpha, c) + \left[1 - f_{\rho,j}(\alpha, c)\right] x_j(\rho)\right] \pi_j. \tag{3}$$

The above expression takes into account the fact that for debtors remaining with their natural venue [that occurs with frequency $1 - f_{\rho,j}(\alpha, c)$] the firm is reorganized with probability $x_j(\rho)$, while for debtors forum shopping to pro-debtor courts [that occurs with frequency $f_{\rho,j}(\alpha, c)$] the firm is reorganized with probability one. The share of firms forum shopping is integrated not only across the distribution of natural venues (π_k, π_d) but also across reorganization values as the latter determine the debtor's incentive to forum shop.

In this context, it is natural to characterize the systematic bias of bankruptcy outcomes induced by forum shopping as the difference between expression (3) and the aggregate share of reorganizations $\mathbb{E}_{j,\rho}\left[x_j(\rho)\right]$ obtained under random allocation of firms to bankruptcy courts. Forum shopping then generates a systematic pro-debtor (resp. pro-creditor) bias when the difference is positive (resp. negative). When the difference is zero, forum shopping does not generate any systematic bias over the aggregate bias of bankruptcy courts. It is thus straightforward to find:

Proposition 1 *Forum shopping creates a systematic pro-debtor bias even if the natural venue is on average unbiased, that is if* $\pi_k = \pi_d = 1/2$.

By promoting forum shopping by debtors, judicial discretion in bankruptcy should, ceteris paribus, be associated with an increase in the aggregate pro-debtor bias in the resolution of financial distress. In this sense, our demand and supply framework can reconcile judicial discretion with the systematic biases of court-supervised bankruptcy procedures, not only with idiosyncratic variation across courts.

Proposition 1 is the starting point of our analysis. We now present a dynamic version of our model where we derive a dynamic supply effect. As we shall see in Section 6, these static and dynamic effects allow us to rationalize a lot of empirical facts about U.S. bankruptcy.

3 The Supply of Bias under Career Concerns

We model career concerns by examining a dynamic version of our model where bankruptcy courts benefit not only from trying current cases, but also from attracting future ones. Several bankruptcy scholars stress that courts attracting many filings are viewed as more popular and prestigious, not least because they can choose the "best" cases and thus obtain more coverage in the press. For example, in a survey of bankruptcy judges Cole (2002) finds that "almost all of the judges suggested that there is a level of prestige and satisfaction that attaches to hearing and deciding important cases. Big Chapter 11 cases are interesting as well as prestigious." Lo Pucki (2005) also highlights the importance for bankruptcy judges to attract filings, specifically stressing that judges may want to attract large bankruptcies to boost the revenue of local bankruptcy lawyers, which results in lower social pressure on the judge from his local community, and even in a greater probability of re-election. Indeed, U.S. bankruptcy judges are subject to term limits and courts of appeal often informally consult local bankruptcy lawyers in the (re-)appointment process (Bernstein 2003).[11]

In such a world, judges have an incentive to use their discretion to establish a favorable reputation and thus attract future cases, very much like in Holmström's (1999) career concern model (see also Chemmanur and Fulghieri 1994 and references therein for other models of reputation building). The only difference with Holmström is that our model features asymmetric information in that courts know their own bias while debtors do not. Formally, there are two periods, $t = 1$ and $t = 2$. There is a measure one of debtors who have defaulted on their debt. The key difference with the model of Section 2 is that we now assume that debtors do not observe the court's bias. As a result, at $t = 1$ debtors remain with their natural venue, namely there is no forum shopping in $t = 1$, and each court is allocated one case. After observing the decision $x_1(\rho)$ taken by a court at $t = 1$, though, debtors can update their beliefs and form a posterior expectation of the court's second-period adjudication $\mathbb{E}[x_2(\rho)|x_1(\rho)]$. Based on these inferences, at $t = 2$ debtors decide

[11] In what follows, the career concerns game can be viewed as occurring both among judges and among bankruptcy jurisdictions. In the first place, jurisdictions consist of sufficiently few judges (usually 1 to 3, as for example in Delaware over the 1990s-2000s, up to a maximum of 10/12 in the Southern District of New York) that i) a judge's adjudication has an important impact on the way the jurisdiction is perceived and ii) a basic alignment between judges' and jurisdictions' preferences is natural. In the latter respect, the career concerns game can also be viewed as being played at the bankruptcy jurisdiction level, with individual judges agreeing on a course of adjudication maximizing their common career concerns motives and monitoring each other in its implementation. But our model applies even if judges' career concerns are due to the pressure of local bankruptcy practitioners (and thus also to re-election motives). Indeed, even if cases are randomly allocated among individual judges within a given jurisdiction, social pressure (and re-election motives) will be concentrated on the adjudicating judge. These pressures would provide such judge with the incentives to maximize the court's ability to attract future filings, much in the spirit of our model. Support for these arguments can be found in Lo Pucki (2005).

where to file, judges choose $x_2(\rho)$ and the game ends. Note that by expressing the first period adjudication $x_1(\rho)$ of a court as a function of the reorganization value ρ we are assuming that ρ is observed by all debtors. As in the static model, it is the unverifiability of ρ that allows courts to have discretion in adjudicating the case.

Given the game's structure, at $t = 2$ each court will play its statically optimal strategy discussed in Section 2. Hence, adjudication at $t = 2$ is solely determined by a court's bias. This is not the case at $t = 1$, when a court may have an incentive to adjudicate strategically to be perceived as pro-debtor, thereby attracting more cases at $t = 2$. We model courts' desire to adjudicate a larger number of cases by assuming that all courts obtain – irrespective of their bias – a fixed benefit $r > 0$ for each case tried. Parameter r captures the tangible and intangible benefits associated with adjudicating one case, irrespective of its outcome.

As in the previous section, each court is characterized by idiosyncratic preferences with respect to the optimal bankruptcy outcome. For simplicity, in the dynamic model we restrict our analysis to the more interesting case where half of the courts are pro-debtor and the other half are pro-creditor, i.e. $\pi_d = \pi_k = 1/2$, because in this case in the no-forum shopping benchmark the aggregate adjudication is unbiased. Given our assumption about the static judicial preferences of Section 2, assuming that judges discount the future by a factor $\gamma \leq 1$ and obtain a per-case benefit r in each period, we find that the intertemporal utility function maximized by a pro-debtor and a pro-creditor court at $t = 1$ is respectively equal to:

$$\mathbb{E}_{n_1}[x] K + \gamma \mathbb{E}_{n_2}[x] K + r n_1 + \gamma r n_2, \tag{4}$$

$$[1 - \mathbb{E}_{n_1}[x]] K + \gamma [1 - \mathbb{E}_{n_2}[x]] K + r n_1 + \gamma r n_2. \tag{5}$$

In (4) and (5) above, n_1 and n_2 represent the number of cases adjudicated by the court in period 1 and 2, respectively, while $\mathbb{E}_{n_1}[x]$ and $\mathbb{E}_{n_2}[x]$ represent the court's average reorganization policies, computed over the population of failed debtors that are expected to file at time 1 and 2, respectively. That is, in each period t, the payoff (4) of a pro-debtor court consists of the average utility $\mathbb{E}_{n_t}[x] K$ that the court derives from adjudicating cases according to its bias – which increases in the average proportions of reorganization – and the private benefits $r n_t$ that the court enjoys by adjudicating a number n_t of cases irrespective of their outcome. The total utility of a court then consists of the discounted sum of these per period payoffs. A similar reasoning underlies the intertemporal payoff (5) of a pro-creditor court. The assumption that judges care about the

policy implemented on average (without multiplying it for the total number of cases tried) allows to separate the judges' motive to follow their reorganization preferences from the private benefit r they derive from adjudicating more cases. Our results would go through even if we alternatively assumed that judges cared also about the absolute number of reorganizations and liquidations.

Under career concerns a pro-creditor court may have an incentive to always reorganize to establish a reputation of being pro-debtor and attract future cases. To see under which conditions this possibility arises, suppose that we are in a pooling equilibrium where at $t = 1$ all courts reorganize failed firms. Suppose for now that a court deviating to $x = 0$ is believed to be pro-creditor with certainty. Then, a pro-creditor court optimally pools at $x = 1$ provided that

$$r + \gamma (K + r) \geq K + r + \gamma K + \gamma r \left[1 - \frac{(1-\alpha)\,\mathbb{E}[\rho]}{2c}\right]. \tag{6}$$

The left-hand side of the inequality captures the pro-creditor court's payoff by pooling at $x = 1$, which in the first period consists of the private benefit r resulting from adjudicating one case (i.e. $n_1 = 1$), while in the second period it consists of the sum of the courts' benefit K from catering to its own preferences for liquidation, and of the private benefit r associated with adjudicating one case (in the pooling equilibrium, courts neither lose nor gain cases in the second period as firms do not learn the courts' types).

The right-hand side of (6) represents the utility enjoyed by the pro-creditor court following a deviation to $x = 0$. In this case, the court obtains a first period payoff equal to the benefit from liquidation K plus the private benefit r. In the second period, however, the private benefit enjoyed by a pro-creditor court deviating to $x = 0$ is smaller than the one the same court obtains by playing $x = 1$. The intuition is that following a deviation to $x = 0$ firms learn perfectly that the court's type is pro-creditor, and will thus forum shop away from it as long as the cost of forum shopping is small enough, which occurs with probability $(1/2)(1-\alpha)\,\mathbb{E}[\rho]/c$. In this expression, the average benefit of forum shopping to a pro-debtor court $(1-\alpha)\,\mathbb{E}[\rho]$ is multiplied by $1/2$ to reflect the probability with which the forum shopper will actually end up in a pro-debtor court reorganizing at $t = 2$ (in fact, following a deviation from a pooling equilibrium, debtors only learn the deviator's type, and not the type of the remaining courts). With respect to the amount of forum shopping, then, note that condition (6) is computed under the assumption that forum shopping is interior, i.e. $(1-\alpha)\rho < c$, which we maintain throughout the remaining part of the analysis by assuming:

Assumption 1: $c > \overline{\rho}$.

Assumption 1 reasonably implies that, at every reorganization value ρ there are some firms for which it is too costly to forum shop.[12] We can rearrange inequality (6) as:

$$\gamma \geq \overline{\gamma}(\alpha, c) \equiv (K/r) \frac{2c}{(1-\alpha)\mathbb{E}[\rho]}. \tag{7}$$

As long as $(K/r) < (1-\alpha)\mathbb{E}[\rho]/2c$ the pro-creditor court does not deviate from the pooling equilibrium provided its discount factor is sufficiently high. This result naturally reflects the intuitive tradeoff faced by a pro-creditor court when deciding whether to deviate from the pooling equilibrium or not. On the one hand, by liquidating in $t = 1$ the court enjoys a static benefit K from adjudicating according to its preferences. On the other hand, by signalling to be pro-creditor the court loses its case at $t = 2$ – and the associated private benefit r – with probability $(1-\alpha)\mathbb{E}[\rho]/2c$, which precisely represents the ex ante probability of forum shopping.

Note that, since a pro-debtor court will never be tempted to deviate to the pro-creditor policy $x = 0$, inequality (7) identifies the condition under which a pooling equilibrium may arise where pro-creditor courts reorganize at $t = 1$ to establish a pro-debtor reputation. The following proposition characterizes all possible equilibria that survive the Banks and Sobel (1987)'s divinity criterion.

Proposition 2 *For any $\gamma \in [0,1]$ the equilibrium exists and is unique. If $K/r < (1-\alpha)\mathbb{E}[\rho]/2c$ there exist two thresholds $\underline{\gamma}$ and $\overline{\gamma}$, where $1 > \overline{\gamma} \geq \underline{\gamma}$ such that in equilibrium:*
i) for $\gamma < \underline{\gamma}$ pro-debtor courts play $x = 1$ and pro-creditor courts play $x = 0$;
ii) for $\gamma \in \left[\underline{\gamma}, \overline{\gamma}\right)$ pro-debtor courts play $x = 1$, pro-creditor courts randomize between $x = 0$ and $x = 1$;
iii) for $\gamma \geq \overline{\gamma}$ all courts play $x = 1$.

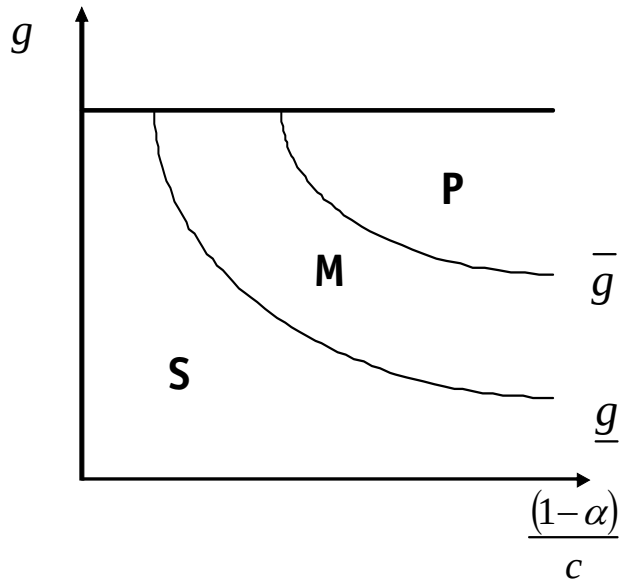
If the judges' bias is small relative to their desire to attract cases (i.e. if K/r is sufficiently small), debtors' forum shopping may be a sufficient condition to trigger a pro-debtor adjudication, irrespective of a court's intrinsic preference for the debtor or the creditor. The intuition is that now even pro-creditor courts have an incentive to adjudicate in a pro-debtor manner to establish a reputation for being pro-debtor and thus attract future cases, especially if the future is valuable (i.e. if γ high). Figure 1 below illustrates the equilibria described in Proposition 2 as a function of

[12] This assumption makes sure that such debtors remain with their natural venue even if they perfectly learn its type at $t = 1$. As a result, even courts that deviate from a given equilibrium and signal to be pro-creditor will still keep their discounted static benefit γK at $t = 2$, as in the right hand side of equation (6), because they will get to adjudicate some cases for sure.

the patience parameter γ and of the intensity of forum shopping, as measured by the parameter $(1-\alpha)/c$.

In region S the unique equilibrium is separating, in region M the unique equilibrium is in mixed strategies, while in region P the unique equilibrium is pooling. Note that the pooling pro-debtor equilibrium is sustained as long as courts are sufficiently patient. As courts' patience falls, the benefit of attracting future filings falls and pro-creditor courts begin liquidating more often. First, they do so by randomizing between liquidation and reorganization in the first period. In this case, pro-debtor and pro-creditor courts pool at "reorganize" with some positive probability. As courts become more impatient and γ falls below $\underline{\gamma}$, pro-creditor courts are no longer concerned about losing future cases. As a result, the unique equilibrium in this range is fully separating. Figure 1 below also shows that whether the unique equilibrium is separating, semi-pooling or pooling crucially depends on the intensity of forum shopping. The next section examines equilibrium forum shopping and such comparative statics in detail.

Figure 1 - Equilibria with Judicial Career Concerns



In addition to stressing the role of judicial career concerns, the general insight of our analysis is that debtors' forum shopping can generate a systematic pro-debtor bias even if courts are on average unbiased not only by sorting – on the demand side – cases into pro-debtor courts, but also by giving – on the supply side – judges the incentive to use their discretion in a pro-debtor manner.

4 Comparative Statics and Welfare

We now study the impact of creditor protection, α, legal restrictions to forum shopping, c, and other parameters on the equilibrium supply and demand of judicial discretion in both our static and dynamic models.

4.1 Creditor Protection, Filing Restrictions and Forum Shopping

We start by studying the determinants of the demand for biased adjudication. From the proof of Proposition 2 it is immediate to obtain the following result.

Corollary 1 *In the career concerns model, the equilibrium aggregate level of forum shopping away from pro-creditor courts is equal to:*

$$\mathbb{E}_{\rho,j}\left[f_{\rho,j}\left(\alpha,c\right)\right]=\frac{\left(1-\alpha\right)\mathbb{E}\left[\rho\right]}{2c}\cdot\frac{1-\sigma}{1+\sigma}, \tag{8}$$

where σ is the equilibrium probability with which pro-creditor courts reorganize. We have that:

$$\sigma\equiv\begin{cases}0 & for \quad \gamma<\underline{\gamma}\\ \sqrt{\frac{2\gamma\mathbb{E}[\rho]}{K/r}\frac{(1-\alpha)}{c}}-1 & for \quad \gamma\in\left[\underline{\gamma},\overline{\gamma}\right)\\ 1 & for \quad \gamma\geq\overline{\gamma}\end{cases} \tag{9}$$

As a result, in the pooling and separating equilibria [i.e. when $\sigma=0$ and 1, respectively] forum shopping decreases (weakly) with α and c. In the mixed strategies equilibrium [i.e. when $\sigma\in(0,1)$], instead, increases in α and c monotonically increase forum shopping. In all equilibria forum shopping decreases (weakly) also in γ.

The demand for pro-debtor courts depends negatively on both the strictness of filing rules c and on the strength of creditor protection in reorganization α, as both parameters reduce the debtors' net benefit from forum shopping. Through this effect, increases in α and c tend to reduce observed forum shopping. In the static model of Section 2, this is the only effect at play, so that forum shopping away from pro creditor courts decreases (weakly) with α and c [we formally prove this claim in the proof of Corollary 1]. In the career concerns model, though, this demand effect is not the only one and – in particular – increases in α and c may actually *increase* forum shopping over some range. The reason is that now increases in α and c affect the career concern of judges, endogenously shaping their bias for reorganization and the debtors' incentive to forum shop.

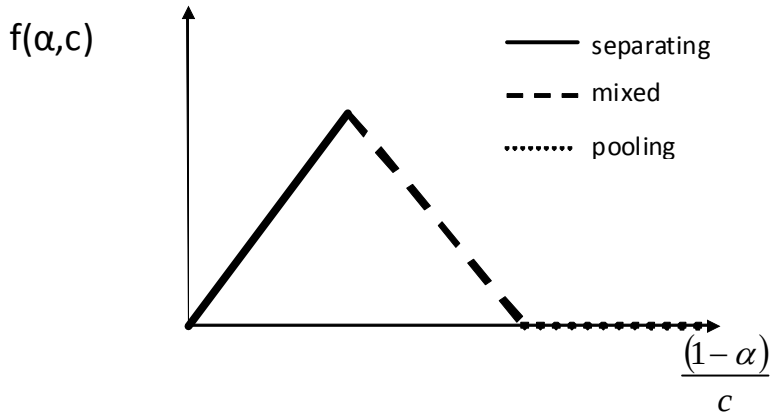
These properties can be seen as follows. First note that in the career concerns model forum shopping only occurs at $t = 2$. Then, consider pure strategy equilibria first. As Figure 1 illustrates, the separating equilibrium is associated with very low values of $(1-\alpha)/c$, compared with the pooling equilibrium. Intuitively, courts find it optimal to separate only if the extent of forum shopping by debtors is not too strong, which is precisely the case at relatively low levels of $(1-\alpha)/c$. By contrast, when $(1-\alpha)/c$ is high, debtors' incentives for forum shopping are so large that courts pool in equilibrium. As a consequence, when $(1-\alpha)/c$ is so high that a pooling equilibrium arises, no forum shopping is observed in equilibrium because all courts look identical to debtors. Therefore, a reduction in α and/or c that changes the equilibrium configuration from separating to pooling reduces observed forum shopping by inducing uniformity in courts' behavior. This intuition can be made more precise by examining the mixed strategy equilibrium, which also exhibits a positive relationship between creditor protection and observed forum shopping. In this equilibrium total forum shopping at $t = 2$ is equal to:

$$\left(1-\sigma^2\right)\frac{K}{r\gamma}, \tag{10}$$

which is obtained by expressing $(1-\alpha)\,\mathbb{E}[\rho]/c$ as a function of the equilibrium value of σ in (8). Note that: i) in expression (10) observed forum shopping decreases in the probability, σ, with which pro-creditor courts reorganize at $t = 1$, and that ii) the equilibrium value of σ increases in the strength of forum shopping $(1-\alpha)/c$. As a result, in the mixed strategy equilibrium, and unlike in the separating equilibrium, the amount of observed forum shopping declines in $(1-\alpha)/c$. The intuition is simple: the more intense the potential forum shopping is, the higher is the incentive of pro-creditor judges to behave as pro-debtor ones to avoid losing too many cases in the future. By increasing the extent of pooling among judges then, a greater $(1-\alpha)/c$ reduces observable differences across judges, thereby decreasing forum shopping at $t = 2$. Thus, career concerns contribute to generating a positive relationship between forum shopping, α and c. Overall, though, since the direct demand effects of higher α and c are also present, in the career concern model there is an inverted U-shaped relation between observed forum shopping and $(1-\alpha)/c$.

In the separating equilibrium (solid line in Figure 2 below) the demand effect dominates and so reductions in α and c increase observed forum shopping. By contrast, in the semi-separating and pooling equilibria (dashed and dotted lines, respectively), the supply effect dominates and reductions in α and c (weakly) reduce observed forum shopping.

Figure 2 - Forum Shopping



4.2 Judicial Incentives and Creditor Protection

Consider now the determinants of the systematic bias of bankruptcy outcomes in both the static model, under a general distribution (π_k, π_d) of judges' types, and in the dynamic model, under the assumed distribution ($\pi_k = \pi_d = 1/2$).[13]

Proposition 3 *In both the static and the career concern models, the systematic pro-debtor bias of bankruptcy at $t = 1$ decreases in α and in c.*

Creditor protection in reorganization improves the workings of judicial discretion. This result stems from one supply effect and one demand effect. On the demand side, higher creditor protection reduces debtors' incentive to forum shop, which in turn reduces the sorting of cases in pro-debtor courts. The supply effect instead arises in the career concerns model, where higher α makes it more likely that a separating equilibrium arises as opposed to a pooling equilibrium where systematic pro-debtor bias is strongest because all judges behave in a pro-debtor fashion. The intuition is that as α increases, pro-creditor judges anticipate lower future demand, which reduces their incentives

[13] We focus on the $t = 1$ systematic bias because it places the static and career concern model on a similar footing. In other words, we are interested in what changes, within a given period, if judges start to be concerned about the future. For our current purposes, we are instead not interested in studying how the absence or presence of asymmetric information over judicial bias can affect the total amount of forum shopping and its over-time distribution in a two-period model. It is clear however that in the career concerns model, unless the equilibrium is pooling, a systematic pro-debtor bias arises also at $t = 2$.

to establish a pro-debtor reputation. This in turn reduces the systematic pro-debtor bias. Similar effects are associated with increases in the legal restrictions to forum shopping c. A higher c reduces forum shopping, dampening both debtors' demand for biased adjudication and judges' incentives to establish a pro-debtor reputation.

More generally, our model shows that creditor protection in reorganization and legal restrictions to forum shopping may be crucial determinants of observed differences in the resolution of financial distress under different codes or over time under the same code. To the best of our knowledge, this is a novel hypothesis. In Section 6 we argue that this hypothesis may help rationalize a lot of empirical evidence on bankruptcy outcomes in the U.S.

4.3 Welfare Analysis

We now derive some welfare properties of our model by studying the impact of α and c within a given equilibrium outcome, i.e. for given strategies followed by courts. These properties apply to both the static model (as usual under a general distribution of judicial types) and the career concern model, although in the latter case holding judicial strategies fixed requires to only look at changes in parameters occurring within pure strategy equilibria. We focus on social welfare implemented by courts ex post, after forum shopping has taken place. Our welfare measure is the aggregate return realized by the entire population of financially distressed firm.

Corollary 2 *Ex post social welfare (weakly) increases in c and α if and only if $\lambda - \mathbb{E}[\rho] \geq Var[\rho]/\mathbb{E}[\rho]$. Ex post social welfare tends to $\mathbb{E}_{j,\rho}[\lambda + x_j(\rho)(\rho - \lambda)]$ as $c \to \infty$ and/or as $\alpha \to 1$.*

This result implies that forum shopping by debtors is socially detrimental when the social losses of over-reorganization are sufficiently large. That is, if λ is sufficiently larger than $\mathbb{E}[\rho]$, increases in c and α improve welfare. The intuition is that when the firms' liquidation value is large it is too costly for society to allow firms with poor prospects to forum shop to pro-debtor courts. Thus, it is welfare maximizing to increase creditor protection, or even to forbid forum shopping altogether. If instead the social losses of over-reorganization are sufficiently small, then forum shopping can be welfare increasing.

The analysis so far disregards the possibility that forum shopping may also beneficially allow debtors to select more efficient and competent courts. The next section formalizes this point.

5 Additional Determinants of Demand and Supply

We now study three extensions to our basic setup. Section 5.1 studies the effect of forum shopping when judges differ also in their speed of adjudication, not only in bias. Section 5.2 studies the case where also creditors, not only debtors, may be able to forum shop with positive probability. Section 5.3 studies the case where judges perceive a noisy signal of the firm's reorganization value.

5.1 Courts' Speed and Potential Benefits of Forum Shopping

Besides differing in bias, suppose that courts differ also in their speed of adjudication, which proxies for the deadweight costs of their decision-making. A court can be slow or fast. A slow court delays the resolution of financial distress, generating for the parties only $\eta\lambda$ in case of liquidation and $\eta\rho$ in case of reorganization [the debtor still retains a share $(1-\alpha)$ of reorganization proceeds], where $\eta < 1$ captures the depreciation of firms' assets occurring during bankruptcy. A fast court resolves financial distress quickly, yielding to the parties the same payoffs as in Section 2.1. We denote by $\varphi < 1$ the proportion of fast courts in the population.

In this new setup, forum shopping can arise both towards courts with the same bias but different speed levels and towards courts with different biases and speed levels. Consider first the static, perfect information version of the model. We assume that speed is uncorrelated with bias. Denote by $\eta_0 \in \{\eta, 1\}$ the speed of the natural venue and assume for simplicity $\eta = 0$. A firm with reorganization value ρ forum shops to fast, pro-debtor courts if $c \leq (1-\alpha)\,\rho\,[1-\eta_0 x_j(\rho)]$. The share of firms forum shopping from (j, η_0) is $f_{\rho,j,\eta_0} \equiv \min\left\{1, \frac{(1-\alpha)\rho}{c}\left[1-\eta_0 x_j(\rho)\right]\right\}$.[14] It is easy to find:

Proposition 4 *Forum shopping generates a systematic pro-debtor bias that falls in α and c. There exists a $\varphi^* < 1$ such that, for $\varphi \leq \varphi^*$ social welfare falls in α and in c, even if $\lambda - \mathbb{E}[\rho] \geq Var[\rho]/\mathbb{E}[\rho]$. The first best can only be attained at $\alpha = 1$ and $c = 0$.*

A systematic pro-debtor bias continues to arise, as debtors now forum shop to fast, pro-debtor courts.[15] Accordingly, the systematic pro-debtor bias falls in α and c. More interestingly, Proposition 4 shows that when courts differ in speed in addition to bias, forum shopping is beneficial

[14] Here we are implicitly assuming that, when debtors are indifferent as to where to file, they will file in the court preferred by creditors, which for $\alpha = 1$ and $c = 0$ is an unbiased and competent court.

[15] Notice that qualitatively similar results hold for $\eta > 0$. In particular, although in that case forum shopping would not always be beneficial, the proof of Proposition 4 shows that one would generally expect forum shopping to be beneficial provided the total proportion of slow courts φ is sufficiently large.

when the proportion of fast judges is not very large. The reason is that, if many courts are slow, forum shopping to fast courts reduces social deadweight costs, thereby improving welfare. As a consequence of this result, attaining ex post efficiency requires both strong creditor protection – which reduces the incentive of debtors to file in pro-debtor courts – and zero forum shopping costs, which minimizes deadweight costs. This result stands in sharp contrast with Corollary 2: when courts also differ in their speed then, provided creditors are protected in reorganization, not only does forum shopping fail to generate bias but it is actually *needed* to attain a first-best resolution of financial distress. In this sense, increasing creditor protection is likely to be more effective than strengthening legal restrictions to forum shopping, for when creditor protection is strong, increased forum shopping can generate more efficient resolutions of financial distress.

Consider now the dynamic model with career concerns where debtors are uninformed about the biases of different courts but perfectly informed about their speed. The following Proposition examines the impact of heterogeneity in speed of adjudication on the possibility to attain a pooling equilibrium where all courts adjudicate in a pro-debtor fashion.

Proposition 5 *There exist thresholds* $\gamma^*(\alpha, c)$ *and* $\gamma_*(\alpha, c)$*, with* $\gamma^*(\alpha, c) > \gamma_*(\alpha, c)$*, such that:*
i) for $\gamma < \gamma_*$*, pro-debtor fast courts play* $x = 1$ *and pro-creditor fast courts play* $x = 0$*;*
ii) for $\gamma \in [\gamma_*, \gamma^*)$ *pro-debtor fast courts play* $x = 1$*, pro-creditor fast courts randomize between* $x = 0$ *and* $x = 1$*;*
iii) for $\gamma \geq \gamma^*$ *all fast courts play* $x = 1$*.*
iv) Slow courts always play their statically optimal policy.
Pooling among fast courts is more likely to arise than in the career concern model where all judges are fast, as $\gamma^*(\alpha, c) < \overline{\gamma}(\alpha, c)$*.*

Relative to the model of Section 3.2, heterogeneity in courts' speed generates some forum shopping also in the "pro-debtor" pooling equilibrium (both in the first and second period), from slow to fast bankruptcy venues. In other words, slow courts will lose cases irrespective of their adjudication. As a result, they will always follow their statically optimal strategies in equilibrium. On the other hand, though, forum shopping creates an even stronger incentive for fast courts to pool, because fast courts can attract more cases in the future. The reason is that more debtors (even those who ended up in a pro-debtor but slow court) will now engage in forum shopping. Proposition 5 therefore shows that when courts differ in an observable dimension such as speed, forum shopping may exacerbate their incentive to cater to debtors. Thus, our model suggests that

the introduction of more competent (or less competent) courts in the population may actually enhance the possibility for a pooling, pro-debtor equilibrium to emerge, and more generally pro-creditor courts may be more likely to pool at "reorganize" with some probability in equilibrium.[16]

5.2 Forum Shopping by Debtors and Creditors

We now augment the model of Section 2 by assuming that with probability p the debtor controls the bankruptcy venue choice while with probability $1-p$ the creditor is in control.[17] When debtors are in control we already know that at natural venue j the share of firms with reorganization value ρ forum shopping to pro-debtor courts is $f^d_{\rho,j} \equiv [(1-\alpha)\,\rho/\overline{c}_d]\,[1-x_j(\rho)]$, where d stands for "debtor" and $c_d \sim U[0,\overline{c}_d]$. If instead the creditor is in control he will, if anything, forum shop to pro-creditor courts.[18] If the distribution of forum shopping costs is uniform also for creditors, the share of creditors forum shopping is $f^k_{\rho,j} \equiv [(\lambda-\alpha\rho)/\overline{c}_k]\,x_j(\rho)$ where $c_k \sim U[0,\overline{c}_k]$. Note that we are still assuming that forum shopping is always interior for both the debtor and the creditor, which is readily implied by $\overline{\rho} < \min(\overline{c}_d, \overline{c}_k)$ and by $\lambda > \alpha\overline{\rho}$.[19] We have the following proposition.

Proposition 6 *When $p \in (0,1)$, forum shopping allocates firms to both pro-creditor and pro-debtor judges. There exists a threshold p^* such that forum shopping creates a systematic pro-debtor bias if and only if $p \geq p^*$, where*

$$p^* = \frac{\mathbb{E}_{j,\rho}\left[f^k_{\rho,j} x_j(\rho)\right]}{\mathbb{E}_{j,\rho}\left[f^d_{\rho,j}\left(1-x_j(\rho)\right)\right] + \mathbb{E}_{j,\rho}\left[f^k_{\rho,j} x_j(\rho)\right]}, \tag{11}$$

p^* falls in $\overline{c}_k/\overline{c}_d$. For a given $\overline{c}_k/\overline{c}_d$, the systematic (pro-creditor or pro-debtor) bias falls in $\overline{c}_k+\overline{c}_d$.

[16] As Proposition 5 shows, we proved this result for $\eta = 0$. It is much harder to solve for the pooling equilibrium under more general conditions, particularly because for $\eta > 0$ the number of incentive constraints increases substantially. Nevertheless, also the case where $\eta > 0$ should naturally go in the same direction as Proposition 5. Indeed, if $\eta > 0$ debtors have less to gain from forum shopping to fast courts, so that even slow courts may hope to attract cases by signalling their pro-debtor stance. In turn, this effect reduces the incentive of fast courts to deviate from the pooling equilibrium.

[17] Notice that creditor filing *does not* imply the possibility of a creditors' run but only represents the possibility for them to decide on the bankruptcy venue. In our model, a run would be equivalent to foreclosure on the assets by the creditor (and thus to liquidation). What rules out creditors' runs is the fact that we assume the existence of a state-mandated bankruptcy procedure with an automatic stay provision. Put differently, creditor runs on the firm's assets could only occur in the absence of such procedure (Hart 1995, 2000).

[18] Recently, the issue of creditor control and creditor forum shopping has been central in the European Union. For example, Bank of America filed for the Parmalat bankruptcy in Ireland, on the grounds that Parmalat's subsidiary Eurofood was incorporated there (McCahery 2006). Creditor control has also been central in recent years in Chapter 11 - an issue to which we turn in Section 6.

[19] Note that debtors' forum shopping cost is on average lower than the creditors' if and only if $\overline{c}_d < \overline{c}_k$.

When also creditors can choose where to file, forum shopping will cause not only the reorganization of unprofitable businesses but also the liquidation of many viable firms. In turn, the former outcome is more likely to prevail, and thus the systematic bias is more likely to be pro-debtor, the higher is the probability p that the debtor is in control.[20]

Expression (11) intuitively shows that whether the systematic bias turns out to be pro-debtor or pro-creditor crucially depends on the relative extent to which debtors, as opposed to creditors, forum shop on average. In particular, for a given probability p of debtor control, this observation highlights the role of differences in the cost of forum shopping. In particular, the party for which forum shopping is cheaper on average drives the demand for biased courts and thus systematic bias, for any probability p of debtor control in bankruptcy. For example, the systematic bias could still be pro-debtor even if p is small, provided $\overline{c}_k/\overline{c}_d$ is sufficiently large.[21]

5.3 Estimation Uncertainty

We now consider what happens if bankruptcy proceedings generate a noisy estimate of the firm's reorganization value. This extension allows us to obtain empirical predictions on how the resolution of financial distress should vary across firms. The idea is that mature firms with more stable cash flows should generate less uncertainty about their reorganization value than younger, innovative, "growth" firms with more volatile cash flows. To study this problem, consider a general formalization of the judicial preferences introduced in Section 2. Specifically, suppose that upon observing ρ, the court chooses the probability $x(\rho)$ with which the firm is reorganized to solve:

$$\max_{x(\rho)} \ \beta_k(\rho)\,\lambda\,[1-x(\rho)] + \beta_d(\rho)\,\rho x(\rho) \tag{12}$$

where $\beta_k(\rho),\ \beta_d(\rho) \geq 0$ capture the weight placed by judges on liquidation and reorganization proceeds, respectively. In this general formulation, at reorganization value ρ a judge is pro-debtor when $\beta_d(\rho)/\beta_k(\rho) > 1$ and pro-creditor when $\beta_d(\rho)/\beta_k(\rho) < 1$. In the remainder, we focus on the case where the court's pro-reorganization bias is constant across ρ, i.e. $\beta_d(\rho)/\beta_k(\rho) = \beta$ for all ρ, where $\beta \geq 0$.

[20] Although we do not formally study the career concern model under the assumption that also creditors can forum shop, it is reasonable to expect that for high p reputational forces will push towards a pro-debtor pooling equilibrium, while the opposite is likely to occur at low p. For p close to $1/2$ (and for $\overline{c}_k$ close to $\overline{c}_d$), in equilibrium pro-debtor and pro-creditor courts are more likely to separate.

[21] Empirically, one reason for expecting $\overline{c}_k/\overline{c}_d$ to be large is that it is likely to be easier for the debtor to transfer his headquarters near his favorite court to be able to claim that such court is the natural venue. This arguments are of course magnified in the presence of multiple creditors who can potentially disagree over their favorite court.

In this case, the preferences introduced in Section 2 are special cases of expression (12) when $\beta_d(\rho) = K/\rho$, $\beta_k(\rho) = 0$ for pro-debtor judges, and $\beta_d(\rho) = 0$, $\beta_k(\rho) = K/\lambda$ for pro-creditor judges. As a result, pro-debtor judges have $\beta = +\infty$ and pro-creditor ones have $\beta = 0$. More generally, courts having $\beta < \lambda/\overline{\rho}$ and $\beta > \lambda/\underline{\rho}$ are strongly biased, in the sense that the former courts always find it optimal to liquidate the firm (even if they know that $\rho = \overline{\rho}$), while the latter ones always find it optimal to reorganize the firm (even if they know that $\rho = \underline{\rho}$). It is clear that the presence of imperfect information is not going to affect the adjudication of these strongly biased judges. Because their optimal reorganization policy is independent of ρ even if they perfectly observe it, a fortiori it will be independent of any imperfect signal of ρ.

As a result, the most interesting case arises when judges are only moderately biased, that is when $\beta \in (\lambda/\overline{\rho}, \lambda/\underline{\rho})$. Even if biased, these judges are still willing to examine and follow sufficiently informative evidence on ρ, so the quality of information will affect their adjudication.[22] To see this, suppose that the court only observes a noisy signal s of the firm's reorganization value, where s is normally distributed with mean ρ and variance θ^2. We call θ "estimation uncertainty" because it measures the noise with which outsiders (i.e. courts) assess the firm's reorganization value.[23] We study the policy of a single court characterized by bias β. After observing s, the court chooses the probability $x(s)$ with which the firm is reorganized to maximize:

$$\max_{x(s)} \mathbb{E}_\rho \left[\lambda \left[1 - x\left(s\right)\right] + \rho\beta x\left(s\right) | s, \theta\right] \tag{13}$$

As in the basic model, the court maximizes a weighted sum of the parties' payoffs but now this objective is averaged using the conditional distribution of ρ with respect to s. It is easy to find that a court with bias $\beta \in (\lambda/\overline{\rho}, \lambda/\underline{\rho})$ reorganizes the firm (i.e. sets $x\left(s\right) = 1$) if and only if $s \geq s_\beta$, where:

$$s_\beta = \mathbb{E}\left[\rho\right] - \frac{\theta^2}{\overline{\rho} - \underline{\rho}} \ln \frac{\beta\overline{\rho} - \lambda}{\lambda - \beta\underline{\rho}} \tag{14}$$

Estimation uncertainty is relevant only if $\frac{\beta\overline{\rho}-\lambda}{\lambda-\beta\underline{\rho}} \in (0, \infty)$, which is always the case under our assumptions. The court reorganizes a firm worth ρ with probability $\Pr\left(s > s_\beta | \rho\right)$. Since $s \rightsquigarrow$

[22] Under perfect information, judges with moderate bias $\lambda/\underline{\rho} < \beta < \lambda/\overline{\rho}$ reorganize if $\rho = \overline{\rho}$ and liquidate if $\rho = \underline{\rho}$, so they implement ex post efficiency. An interesting implication of our analysis is that when the signal is noisy, these judges start behaving in a biased manner, as the judges of Section 2. The only relevant difference, which is the source of the comparative statics of this section, is that the extent to which they act in a biased manner depends on the quality of the information they observe.

[23] While one may interpret θ also as a measure of the court's experience with similar implications, in what follows we stress the estimation uncertainty interpretation because it generates testable predictions for firm level resolutions of financial distress.

$N\left(\rho,\theta^2\right)$, such probability is equal to $x(s) = 1 - \Phi\left(\frac{s_\beta - \rho}{\theta}\right)$, where $\Phi(.)$ is the standard normal c.d.f. Thus, the probability of reorganization increases in β and in ρ.

Assume for algebraic simplicity that the ex post social cost of over- and under-liquidation are equal, i.e. $\overline{\rho} - \lambda = \lambda - \underline{\rho}$. Then, the impact of θ on the reorganization policy depends on judicial bias β. In particular, we obtain:

Proposition 7 *A higher θ increases the probability of reorganization if and only if $\beta > 1$. A higher θ reduces repayment if $\beta > 1$.*

Estimation uncertainty θ magnifies the role of bias. Courts cater even more to their own preferences when a firm's reorganization value is more noisy. The intuition is that in highly uncertain environments (when θ is large) courts are aware of making many mistakes and prefer to cater to their own bias than to err against their preferred party. Thus, a higher θ induces more liquidations if the court is pro-creditor ($\beta < 1$) and more reorganizations if the court is pro-debtor ($\beta > 1$). As a result, repayment is also lower, especially with pro-debtor courts. Section 6.2 discusses the empirical implications of this finding for the cross section of firms.

6 Discussion of Empirical Evidence on U.S. Chapter 11

A rapidly growing empirical literature documents the importance of individual judges in shaping the resolution of financial distress in U.S. Chapter 11. For example, it has been shown that judicial idiosyncrasies (e.g. Weiss and Wruck 1998), judges' identity (e.g. Chang and Schoar 2006) and bankruptcy venue (Bris, Welch, and Zhu 2006) matter for outcomes such as extensions of exclusivity, probability of reorganization, repayment to creditors and violations of priority. The supply side of our model of judicial discretion is obviously consistent with these findings.[24] That is, the simple presence of idiosyncratic judicial biases for the debtor or the creditor is sufficient to rationalize these facts.

[24] Our model also yields the prediction, consistent with evidence from Chang and Schoar (2006) that a higher pro-debtor bias also increases the probability of a bankruptcy re-filing, i.e. the probability that a recently reorganized firm files again for bankruptcy, a situation often referred to as "Chapter 22". However, the interpretation given to re-filing depends on specific assumptions. For example, if in reorganization corporate debt is restructured to a face value of $\alpha\overline{\rho}$, the debtor is doomed to default and file for bankruptcy again, because he cannot repay more than $\alpha\underline{\rho}$. In this case, re-filing is a symptom of over-reorganization, consistent with Lo Pucki and Kalin (2001). On the other hand, if in state $\overline{\rho}$ there is uncertainty about the future reorganization value (which can either be very high or very low but with average value $\overline{\rho}$), then re-filing will again be inevitable but not symptomatic of inefficiency, consistent with Ayotte and Skeel (2004).

Adding a demand side to our model then helps rationalize also the kind of systematic biases in the resolution of financial distress that have been documented by several scholars studying U.S. bankruptcy and also the over-time dynamics of such biases. We now use our model to shed light on this empirical evidence. We should stress that our aim is neither to claim that our model is the only explanation of all the pieces of evidence cited, nor necessarily the most plausible explanation for each and every one of them. We just note that our simple model is consistent with a significant number of stylized facts, some of which had been previously explained by a variety of arguments, and some of which had hitherto no explanation to our knowledge. In this sense, the aim of the following discussion is to illustrate that our model can offer a parsimonious and unifying way to think about a significant number of issues of resolutions of financial distress under court-administered systems.

Consider first the kind of systematic pro-debtor bias detected in U.S. Chapter 11 by Skeel (2001) and Franks and Torous (1989, 1993), among others. The mechanism that can lead judicial discretion to produce such a systematic bias in our model is forum shopping by debtors. Consistent with our model, not only is forum shopping widespread in the U.S., but in the 1980s it mainly rewarded the New York district, where judge Burton R. Lifland and his colleagues were known to be strongly pro-debtor. Forbes magazine described Judge Lifland "A Bankrupt's Best Friend," [Forbes, April 1, 1991, pp. 99-102, see also Weiss and Wruck (1998)]. The New York court alone attracted 32% of the Chapter 11 cases in the 1980s (LoPucki and Whitford 1991, Lo Pucki 2005). More recently, the Delaware court took over, attracting 43% (31 out of 72) of large bankruptcies between 1993 and 1996 (LoPucki and Whitford 1991, LoPucki and Doherty 2002). Some scholars argue that the Delaware court is itself pro-debtor (e.g. Lo Pucki 2005)[25], others instead stress that the Delaware court mainly attracted firms thanks to its ability to handle complex cases effectively (Ayotte and Skeel 2004).

Our demand and supply framework can contribute to this empirical debate with two observations. First, the empirical methodology used in this debate (which directly compares bankruptcy outcomes in New York and Delaware with those in other U.S. courts) may be unsuited to detect the systematic bias created by forum shopping. Papers in this literature typically regress various bankruptcy outcomes (reorganization probabilities, recovery rates, and so on) on a dummy that

[25] LoPucki stresses that one dimension along which the Delaware and other courts have been particularly pro-debtor is the appointment of a trustee. Although §1104 of the U.S. code states that "the court shall order the appointment of a trustee for cause, including fraud, dishonesty, incompetence, or gross mismanagement of the affairs of the debtor by current management, either before or after the commencement of the case," substantial flexibility is left to judges to determine whether those conditions apply. However, U.S. courts have almost never appointed trustees, not even in such famous bankruptcy cases of corporate fraud as Enron, Worldcom, Global Crossing and Adelphia.

equals one for Delaware filings, and other controls (LoPucki 2005, Ayotte and Skeel 2004; see also Elul and Subramanian 2002, White 2006). The debate is then often on whether the coefficient on the dummy for Delaware is positive and significant, in which case it is argued that forum shopping matters for bankruptcy outcomes. However, as shown in Section 3, such cross-courts comparisons fail to account for judicial incentives and thus for the uniform increase in courts' pro-debtor stance triggered by debtors' forum shopping. In other words, the coefficient on the Delaware dummy may well be zero, but that does not necessarily imply that forum shopping does not affect bankruptcy outcomes.

Second, our model of Section 5.1 illustrates the role of judicial competence in shaping the dynamics of forum shopping. At one level, our model suggests that the increasingly important role of Delaware may be due to an over-time trend in the complexity and/or sophistication of firms' debt structures, increasing firms' incentive to file in more competent courts. It may well be the case that the Delaware court is faster and more effective at dealing with conflicts among multiple creditors (Ayotte and Skeel 2004). However, the model of Section 5.1 shows that this selection of firms into more competent courts does not necessarily imply a reduction in systematic pro-debtor bias. Indeed, Proposition 5 suggests that the ability of more competent bankruptcy courts such as Delaware to attract bankruptcy cases in the 1990s may have actually boosted the incentives of these courts to act in a pro-debtor manner by increasing their potential future demand. Our model also suggests that a systematic pro-debtor bias should be more sensitive to shifts in variables such as creditor control of the bankruptcy venue, managerial turnover in bankruptcy and violations of priority.

6.1 Recent Developments of U.S. Bankruptcy

Our demand and supply model can also shed light on two recent changes in the pro-debtor bias of U.S. bankruptcy outcomes. First, Skeel (2001) documents a marked increase in pro-debtor bias after the introduction of the 1978 Bankruptcy Code. Second, Baird and Rasmussen (2003) document a marked reduction in the pro-debtor bias of U.S. bankruptcy courts around year 2001.

Consider the first fact. Skeel (2001) argues that political economy considerations were paramount in the passage of a strongly pro-debtor Bankruptcy Code in 1978, generating a systematic pro-debtor bias due to such features as the automatic stay and debtor-in-possession financing. Although this and other interpretations are possible, there is also additional evidence consistent with the mechanisms of our model. For example, while under the previous 1938 Code (Chandler Act)

failed managers were automatically dismissed upon filing and replaced by a trustee, the 1978 Bankruptcy Code increased judicial discretion on the appointment of trustees, as well as on the scope of the automatic stay and of debtor-in-possession financing. Furthermore, the 1978 Code changed the rules on venue choice, increasing the options available to debtors relative to before. For example, only after the 1978 Code could a debtor file in its state of incorporation. Therefore, the 1978 Code can be viewed as promoting both an increase in judicial discretion and a reduction in filing restrictions to forum shopping, which our model suggests should both increase the debtors' incentives to forum shop. Consistent with our model, a striking surge in forum shopping took place shortly after the introduction of the 1978 Bankruptcy Code. Indeed, we are not aware of any account of forum shopping before the early 1980s, and our model offers one explanation for this stylized fact.

Turning to the second fact, it has been argued that the pro-debtor stance of U.S. bankruptcy courts has decreased substantially since 2001. For example, Chapter 11 seems to no longer provide a safe harbor for failed managers, as 80% of CEOs are replaced within two years of the bankruptcy filing (Ayotte and Morrison 2007), and liquidations appear to be far more common after 2001 than in the past (Adler et al. 2006). Interestingly, also judicial attitudes seem to have changed, as judges have become more likely to approve liquidation of bankrupt firms, thereby inducing a zero return to pre-bankruptcy shareholders (Adler et al. 2006).

Puzzlingly, this marked shift in the workings of Chapter 11 has occurred in the absence of any statutory changes to the bankruptcy code (e.g. Adler, Capkun and Weiss 2006). What can thus explain the change of systematic bias over time? Our model can rationalize both this change in judicial attitudes and the change in bankruptcy outcomes as being the result of demand and supply forces, and in particular as the result of an increase in creditors' control in bankruptcy. Indeed, several scholars (e.g. Skeel 2001, Baird and Rasmussen 2003, Ayotte and Morrison 2007) document that creditors are now in control of the reorganization process.[26] On the one hand, greater creditor control may imply a greater ability to select the bankruptcy venue (akin to a smaller p in the context of Section 5.2). On the other hand, greater creditor control may imply a greater ability to replace financially distressed managers in bankruptcy and lower deviations from absolute priority, which translates directly to a higher α in the context of our model. It is indeed the case that managerial turnover in Chapter 11 has increased sharply, from around 50% in the 1980s (Gilson 1990) and

[26] Interestingly, this change has occurred without substantial changes to the extent of judicial discretion, with the possible exception of DIP financing (Ayotte and Morrison 2007, Adler et al. 2006), implying that natural candidates for explaining these changes are the incentives of judges to use their discretion.

1990s (Hotchkiss 1995), to about 80% in recent years (Ayotte and Morrison 2007), and that very few recent reorganization plans deviate from absolute priority (Ayotte and Morrison 2007). Consistent with the evidence, our model suggests that both of the above changes should reduce the systematic pro-debtor bias of bankruptcy by reducing judges' incentive to act in a pro-debtor manner, and also by reducing the ability and the incentives of debtors to forum shop (although without necessarily reducing observed forum shopping).

6.2 Additional Firm Level Predictions

Our model of judicial discretion also delivers additional testable predictions on firm level outcomes. Although some of these predictions are shared with alternative theories, it is still interesting to see that our parsimonious framework can generate so many implications consistent with the empirical evidence on debt finance and resolutions of financial distress across firms.

Section 5.3 delivers the novel prediction that the identity of bankruptcy judges should especially matter for innovative and more volatile industries where uncertainty about the firm's prospects is greater. Ceteris paribus, this also implies that forum shopping should be especially widespread in those industries where having the right judge is of the essence for debtors. Additionally, and turning to ex ante issues, Section 5.3 implies that the cost of debt finance − that is, the ex post inefficiencies associated with forum shopping − should be especially large for firms in innovative and volatile industries, which should therefore be associated with a greater use of equity finance. This prediction of our model is shared with the traditional view that innovative industries are more likely to use equity to avoid debt overhang problems (Myers 1977). However, this view is incomplete, because Chapter 11 is precisely a mechanism to allow bankrupt firms to raise DIP financing and undertake positive NPV projects. Our model thus provides a rationale for why Chapter 11 may be more costly for more innovative and volatile firms: judicial discretion may be a prohibitively costly mechanism to resolve financial distress for firms with uncertain prospects.

More standard firm-level predictions of our model concern the capital structure, which should heavily rely on equity-type securities (perhaps subject to less pro-debtor enforcement) so as to avoid the costs of judicial discretion in bankruptcy, both in terms of direct costs and inefficient decisions.[27] Another empirical prediction of our model concerns private workouts, as under forum

[27] This effect may be due to the different dynamics of forum shopping for equity contracts. For example, a firm's incorporation decision might be a credible way for managers to commit to a court maximizing the value of equity. In contrast to debt, where the bankruptcy venue is chosen ex post, this would create a beneficial competition among judges to properly enforce equity contracts.

shopping creditors have a strong incentive to make concessions to debtors to avoid that financial distress is resolved by a very pro-debtor judge. Thus, our model helps explain why U.S. creditors typically try to avoid Chapter 11 via private negotiations and workouts (Gilson, John and Lang 1990), despite the fact that such workouts are very costly in practice because they lead to asset sales at below market prices (Asquith, Gertner and Scharfstein 1994).[28]

7 Conclusions

We have presented a supply and demand model of judicial discretion in corporate bankruptcy that parsimoniously explains a lot of empirical evidence on resolutions of financial distress and firm-level outcomes, and also yields novel predictions on the workings of court-supervised bankruptcy procedures. One key result is that stronger creditor protection improves judicial incentives, preventing a 'race to the bottom' among courts towards pro-debtor uses of judicial discretion.

Clearly, drawing normative implications is beyond the scope of our paper. Indeed, one normative message of our model is that bankruptcy reforms that do not explicitly take into account judicial incentives may be doomed to fail. However, it is not obvious what is in practice the best way to do so. For example, it has been argued that parties should be allowed to specify the bankruptcy venue already in the debt contract (e.g. Schwartz 1997). Our model clearly shows that this provision may beneficially reduce both the demand for biased adjudication and the resulting systematic bias, triggering a "race to the top" towards more efficient resolutions of financial distress.

Another reform proposal emerging from our analysis would be to improve creditor protection in reorganization, as shown in Section 4. This reform would reduce the demand of biased adjudication and the firms' incentives to forum shop, thereby dampening systematic bias. Unlike other reforms however, such as for example increasing legal restrictions to forum shopping, increasing creditor protection would still leave room for benign forum shopping to faster and more competent courts. The general removal of private benefits of control is certainly impractical or infeasible, but our analysis suggests two possibilities that may be of practical relevance in the context of bankruptcy. In the first place, our model implies that automatic managerial turnover in bankruptcy would greatly curb managers' incentive to forum shop in pro-debtor courts, even keeping the reorganization rents

[28] Our model can also shed light on the timing of bankruptcy filings because, consistent with Bernhardt and Nosal (2004), pro-debtor bias promotes early bankruptcy filings by discouraging entrepreneurs to hide financial distress for fear of being ousted by creditors. The formal proof is available upon request.

of the new management intact.[29] By separating the identity of the party filing for bankruptcy from that of the party earning the reorganization rents, this reform would dampen debtors' demand for biased adjudication. Another complementary possibility, consistent with recent U.S. evidence, is to allow parties to contractually increase creditor protection by writing flexible contracts that allow creditors to exert more control in bankruptcy. The possibility of using those instruments is often limited in many countries, because of legal restrictions to doing so (Djankov et al. 2008). In this respect, and in line with Gennaioli and Rossi (2009b), one way to interpret our results is that we provide additional arguments in favor of increasing freedom of contract in the resolution of financial distress. In the current context, contracts would complement rather than substitute formal bankruptcy procedures by improving the workings of judicial discretion.

[29] Interestingly, recent market-based developments line up with this idea, such as for example the increasing use of turnaround specialists (Byers, Lee, Martin and Parrino 2007) in the reorganization of financially distressed firms.

Appendix 1. Proofs

Proof of Proposition 2. Let us now study the equilibria that can arise in the career concern version of our model with respect to first period adjudication (in the second period courts follow their static optimum). As described in Section 3, at $t = 1$ each court adjudicates on one firm which can either have reorganization value $\overline{\rho}$ or $\underline{\rho}$. One half of the courts is pro-creditor, having $x_j(\rho) = 0$ for every ρ, the other half is pro-debtor, having $x_j(\rho) = 1$ for every ρ. The intertemporal utility derived by a judge expecting to adjudicate n_1 cases at $t = 1$ and n_2 cases at $t = 2$ is:

$$\begin{aligned} U_{de} &= \mathbb{E}_{n_1}[x] K + \gamma \mathbb{E}_{n_2}[x] K + r n_1 + \gamma r n_2 \\ U_{cr} &= [1 - \mathbb{E}_{n_1}[x]] K + \gamma [1 - \mathbb{E}_{n_2}[x]] K + r n_1 + \gamma r n_2 \end{aligned}$$

An equilibrium is described by two numbers x_{de}, $x_{cr} \in [0, 1]$ indicating whether a pro-debtor and pro-creditor judge respectively reorganize or liquidate a bankrupt firm at $t = 1$. At $t = 2$ each court plays its static optimum. If $x_{de} \neq x_{cr}$ the equilibrium is separating, otherwise it is pooling. We study the equilibrium set of this model by adopting the Banks and Sobel (1987) "universal divinity" refinement criterion ("$D2$"). To make the analysis more transparent, we adapt the definition of $D2$ given by Fudenberg and Tirole (1991) to our game. The main difference with more standard signalling games is that in our model there is a population of receivers (debtors), which is heterogeneous in terms of reorganization value ρ and forum shopping cost. This heterogeneity, however, plays a minor role in the determination of the equilibrium because – conditional on the aggregate volume of forum shopping – courts are indifferent with respect to the composition of the debtor pool. As a result, the basic logic of the universal divinity refinement holds also in our model with respect to the total volume of forum shopping.

To see how this works, consider the following version of the Fudenberg and Tirole's definition. Let $\kappa(x^*) \in [0, 1]$ be the belief held by all debtors that a court who deviated to x^* in the first stage is pro-creditor. Define by $f[\kappa(x^*)]$ the "aggregate best response" of debtors to x^* given belief $\kappa(x^*)$, $f : [0, 1] \to \mathbb{R}$. $f[\kappa(x^*)]$ is the aggregate forum shopping to the court (if positive; away from the court if negative) that deviates to x^*. Define $D(\theta, x^*)$, where $\theta \in \{de, cr\}$ is the type of the court, as:

$$\begin{aligned} D(\theta, x^*) &= \bigcup_{\kappa(x^*) \in [0,1]} \{y \in \mathbb{R} : y = f[\kappa(x^*)] \quad \text{s.t.} \quad u(\theta) < u(\theta, y, x^*)\}, \\ \text{where } u(\theta, y, x^*) &= K - \mathbb{E}[K |x^* - x_\theta(\rho)|] + r + \gamma K + \gamma r (1 + y), \end{aligned}$$

and where $u(\theta)$ is the payoff of court θ in equilibrium and $x_\theta(\rho)$ is the optimal policy at ρ of a court of type θ. $D(\theta, x^*)$ is the set of forum shopping volumes that make court θ strictly better off by deviating to x_1. Denote by $D^0(\theta, x^*)$ the set of forum shopping volumes that make court θ exactly indifferent:

$$D^0(\theta, x^*) = \bigcup_{\kappa(x^*)\in[0,1]} \{y \in \mathbb{R} : y = f[\kappa(x^*)] \text{ s.t. } u(\theta) = u(\theta, y, x^*)\}.$$

Then, court θ is deleted for strategy x^* under the divinity criterion if:

$$D(\theta, x^*) \cup D^0(\theta, x^*) \subset D(\theta', x^*) \tag{15}$$

for some $\theta' \neq \theta$. In this case, debtors should set their posterior beliefs $\widehat{\kappa}(\theta|x^*) = 0$. In words, if a court of type θ' has more to gain from an observed deviation than a court of type θ, then *upon observing such a deviation* firms must assign a probability zero to the event that the deviation has come from a court of type θ. Thus, debtors should concentrate their beliefs on the court type that is willing to engage in such a deviation under a larger set of debtors' out-of-equilibrium beliefs. Equipped with this definition, let us analyze the equilibria of the game, starting with those in pure strategies.

Separating Equilibria in Pure Strategies. A separating equilibrium in pure strategies must have $x_{de} = 1$, $x_{cr} = 0$. Indeed, profile $x_{de} = 0$, $x_{cr} = 1$ cannot be an equilibrium, otherwise the pro-creditor court would always deviate to $x_{de} = 0$: In addition to increasing its static payoff, such deviation would increase the extent to which debtors believe it to be pro-debtor, and thus its future payoff. When does the $x_{de} = 1$, $x_{cr} = 0$ equilibrium exist? In this equilibrium, each pro-creditor court loses its case to a pro-debtor court with probability $(1-\alpha)\rho/c$, where ρ is the firm's reorganization value. Since there is an equal number of pro-creditor and pro-debtor courts in the population, each pro-debtor court expects to obtain an extra case at $t = 2$ with equal probability. Thus, $x_{de} = 1$, $x_{cr} = 0$ is an equilibrium provided:

$$K + \gamma K + r + \gamma r[1 + \mathbb{E}[\rho](1-\alpha)/c] \geq \gamma K + r + \gamma r[1 - \mathbb{E}[\rho](1-\alpha)/c] \tag{16}$$

$$K + \gamma K + r + \gamma r[1 - \mathbb{E}[\rho](1-\alpha)/c] \geq \gamma K + r + \gamma r[1 + \mathbb{E}[\rho](1-\alpha)/c] \tag{17}$$

Inequality (16) implies that pro-debtor courts prefer to play $x = 1$ today, rather than playing $x = 0$ and losing cases with probability $\mathbb{E}[\rho](1-\alpha)/c$ tomorrow; inequality (17) implies that

pro-creditor courts prefer to play $x = 0$ today and lose their case with probability $\mathbb{E}[\rho](1-\alpha)/c$ tomorrow. The equilibrium exists when:

$$\gamma \leq \underline{\gamma}(\alpha, c) \equiv \frac{c}{2(r/K)(1-\alpha)\mathbb{E}[\rho]}.$$

As long as $(r/K)(1-\alpha)(\underline{\rho}+\overline{\rho})/c > 1$, the above condition identifies a threshold $\underline{\gamma}(\alpha, c) < 1$ such that pro-debtor and pro-creditor courts fully separate at $t = 1$. Note that $\underline{\gamma}(\alpha, c)$ falls in α and c, implying that the separating equilibrium is harder to sustain when forum shopping is more pronounced.

Pooling Equilibria. The only possible pooling equilibrium in pure strategies is one where both court's types always reorganize, playing $x_{de} = x_{cr} = 1$. In particular, the pooling equilibrium cannot involve full liquidation, i.e. be $x_{de} = x_{cr} = 0$. This conclusion follows from applying the Banks-Sobel divinity criterion to the pooling equilibrium $x_{de} = x_{cr} = 0$, because divinity implies that a court deviating to $x = 1$ must be believed to be pro-debtor. As a result, pro-debtor courts will always deviate from $x_{de} = 0$, making the pooling equilibrium in $x_{de} = x_{cr} = 0$ not sustainable.

To prove this claim, consider the case of a court deviating from $x = 0$ to $x = 1$. Suppose that, after such deviation, the court is believed pro-creditor with probability κ. If $\kappa \geq 1/2$, the court loses its case with probability $(1-\alpha)\rho(\kappa - 1/2)/c$. If instead $\kappa < 1/2$ the defector attracts a positive measure $\overline{f}(\kappa)$ of cases from all other courts. For simplicity, we leave $\overline{f}(\kappa)$ implicit because our results do not depend on $\overline{f}(\kappa)$ taking on a specific value. To apply the divinity criterion we need to compute $D(cr, 1)$ and $D(de, 1)$, which is the union, across all possible beliefs, of the best-response forum shopping levels at which the courts prefer to deviate.

Let us start with the case of a pro-creditor court (i.e. $\theta = cr$). Note that if $\kappa < 1/2$ the court obtains a positive measure of cases, so that it always deviates to $x = 1$. Due to this fact, the set $D(cr, 1)$ contains $\overline{f}(\kappa)$ for $\kappa < 1/2$. If instead $\kappa \geq 1/2$, the pro-creditor court deviates as long as:

$$\gamma K + r + \gamma r \left[1 - \frac{(1-\alpha)\rho(\kappa - 1/2)}{c}\right] \geq K + r + \gamma K + \gamma r \tag{18}$$

Inequality (18) immediately shows that for $\kappa \geq 1/2$ pro-creditor courts never wish to deviate to $x = 1$. As a result, for $\kappa \geq 1/2$ the set $D(cr, 1)$ is empty. This implies that:

$$D(cr, 1) = \left\{\overline{f}(\kappa) \text{ for } \kappa < 1/2\right\}$$

Note that here the pro-creditor court has strict preferences and so $D^0(cr,1)$ is empty. Consider now the case of a pro-debtor court. Also this court will always deviate when $\kappa < 1/2$. If instead $\kappa \geq 1/2$, the pro-debtor court deviates as long as:

$$K + \gamma K + r + \gamma r \left[1 - \frac{(1-\alpha)\,\rho(\kappa - 1/2)}{c}\right] \geq r + \gamma K + \gamma r \tag{19}$$

Inequality (19) shows that pro-debtor courts are willing to deviate to $x = 1$ provided $\kappa \leq \kappa_1 \equiv 1/2 + c(K/r)/(1-\alpha)\,\rho\gamma$. As a result, we have that:

$$D(de,1) = \left\{\overline{f}(\kappa) \text{ for } \kappa < 1/2,\ -(1-\alpha)\,\rho\,(\kappa - 1/2)/c \text{ for } \kappa \in [1/2, \kappa_1]\right\}$$

As a result, since $D(cr,1) \subset D(de,1)$, a defector to $x = 1$ is believed to be pro-debtor, which implies that the pooling equilibrium in $x = 0$ is not sustainable.

This initial analysis sheds useful light on the application of the divinity criterion in the context of our model. As we shall see also when analyzing other equilibria, for given debtors' beliefs, the debtors' individual (and thus the aggregate) best response is unique and forum shopping to a court monotonically decreases in the extent to which the court is believed to be pro-creditor, potentially becoming negative. This one-to-one mapping between best responses and debtors' beliefs implies that the divinity criterion can simply be applied in our model by checking the set of beliefs under which a given player wishes to undertake a certain deviation. As a result, condition (15) can be transposed in our model to the simpler condition that if court θ deviates to an action under a smaller set of beliefs than court θ', then debtors must set $\widehat{\kappa}(\theta|x^*) = 0$.

Having this in mind, consider now a pooling equilibrium where $x_{de} = x_{cr} = 1$. It is immediate to see that a court that deviates to $x = 0$ must be believed to be pro-creditor. Suppose that the court is believed pro-creditor with probability $\kappa < 1/2$. In this case, the defector attracts cases from all other courts, gaining a positive measure of cases, implying that when $\kappa < 1/2$ both pro-debtor and pro-creditor courts deviate to $x = 0$ (although the pro-debtor court benefits less by doing so). If instead $\kappa \geq 1/2$, a pro-debtor court never deviates to $x = 0$ because it loses both statically and dynamically by doing so. A pro-creditor court is instead willing to deviate to $x = 0$ (at least for $\kappa \approx 1/2$) because, even if it loses dynamically, it enjoys a static gain from doing so. Since pro-creditor courts deviate to $x = 0$ under a larger set of debtors' beliefs κ, a deviator to $x = 0$ must be believed to be pro-creditor.

Consider now the existence of a pooling equilibrium in $x = 1$. Given the above preliminaries, a

court that deviates to $x = 0$ is believed to be pro-creditor and therefore loses its case with probability $(1-\alpha)\rho/2c$. Relative to the separating equilibrium, the term $(1-\alpha)\rho/c$ is now multiplied by $1/2$ because a debtor forum shopping away from a deviating pro-creditor court only expects to be reorganized with probability $1/2$, i.e. only if he ends up at a pro-debtor court. Pro-debtor and pro-creditor courts are thus willing to pool at $x = 1$ provided that, respectively:

$$K + \gamma K + r + \gamma r \geq \gamma K + r + \gamma r \left[1 - \frac{(1-\alpha)\,\mathbb{E}[\rho]}{2c}\right] \tag{20}$$

$$\gamma K + r + \gamma r \geq K + \gamma K + r + \gamma r \left[1 - \frac{(1-\alpha)\,\mathbb{E}[\rho]}{2c}\right] \tag{21}$$

Condition (20) is always satisfied, implying that pro-debtor courts have no incentive to deviate from the pooling equilibrium. Condition (21) is fulfilled provided:

$$\gamma \geq \overline{\gamma}(\alpha, c) \equiv \frac{2c}{(r/K)(1-\alpha)\,\mathbb{E}[\rho]}.$$

As long as $(r/K)(1-\alpha)\,\mathbb{E}[\rho] > 2c$, then $\overline{\gamma}(\alpha, c) < 1$ and thus the pooling equilibrium in $x_{cr} = x_{de} = 1$ exists provided courts are sufficiently patient. The condition can be expressed also as $r(1-\alpha)/c > 2K/\mathbb{E}[\rho]$ and simply states that a pooling equilibrium can exist as long as the expected intensity of potential forum shopping is large enough relative to the (relative) benefits of (pro-creditor) judges of playing their preferred strategy. Threshold $\overline{\gamma}(\alpha, c)$ falls in α and c, which implies that strong forum shopping fosters the existence of the pooling equilibrium. Finally, note that $\overline{\gamma}(\alpha, c) > \underline{\gamma}(\alpha, c)$ which implies that the pooling and the separating equilibria never overlap.

Mixed Strategy Equilibria. To conclude the analysis, consider mixed strategy equilibria where pro-debtor and pro-creditor courts randomize between $x = 0$ and $x = 1$. Consider first an equilibrium where pro-debtor courts play $x = 1$ with probability one while pro-creditor courts play $x = 1$ with probability σ and $x = 0$ with probability $1 - \sigma$. Upon observing $x = 0$, the court is believed to be pro-creditor. Upon observing $x = 1$ the court is believed to be pro-debtor with probability $1/(1+\sigma)$. Given these beliefs, a debtor forum shops away from a court playing $x = 0$ with probability $(1-\alpha)\,\mathbb{E}[\rho]/(1+\sigma)\,c$, where the average benefit of forum shopping to a pro-debtor court $(1-\alpha)\,\mathbb{E}[\rho]$ is multiplied by $1/(1+\sigma)$ to reflect the probability with which the forum shopper will actually end up in a pro-debtor court reorganizing at $t = 2$. The total outflow of cases from pro-creditor courts playing $x = 0$ is $(1-\sigma)(1-\alpha)\,\mathbb{E}[\rho]/2(1+\sigma)\,c$. This outflow is equally divided among the $(1+\sigma)/2$ courts playing $x = 1$, which implies that each of the latter

courts has an inflow of cases equal to $(1-\sigma)(1-\alpha)\mathbb{E}[\rho]/(1+\sigma)^2 c$. Clearly, a pro-debtor court never deviates from this equilibrium. By contrast, a pro-creditor court must be indifferent between playing $x=0$ and $x=1$. This is indeed the case as long as σ is such that:

$$K+\gamma K+r+\gamma r\left[1-\frac{(1-\alpha)\mathbb{E}[\rho]}{(1+\sigma)c}\right]=r+\gamma K+\gamma r\left[1+\frac{(1-\sigma)(1-\alpha)\mathbb{E}[\rho]}{(1+\sigma)^2 c}\right]$$

This equation pins down the randomization probability σ as being equal to:

$$\sigma=\sqrt{\frac{2\gamma(1-\alpha)\mathbb{E}[\rho]}{(K/r)c}}-1$$

The probability with which the pro-creditor court reorganizes increases in the court's patience. The more patient is the court, the more often the court must play $x=1$ to avoid losing future cases. Crucially, it is immediate to see that $\sigma=0$ for $\gamma=\underline{\gamma}(\alpha,c)$ and that $\sigma=1$ for $\gamma=\overline{\gamma}(\alpha,c)$. As a result, the mixed strategy equilibrium precisely exists in the range $\gamma\in\left[\underline{\gamma}(\alpha,c),\overline{\gamma}(\alpha,c)\right]$ where neither the separating nor the pooling equilibria exist.

It is now also immediate to see that other mixed equilibria cannot exist. Equilibria where the pro-debtor court plays $x=1$ with a probability less than one but still higher than the probability with which $x=1$ is played by the pro-creditor court cannot exist. The intuition is that in such an equilibrium pro-debtor courts have an incentive to deviate and play $x=1$ with probability one. By doing so, they both benefit statically and increase their pro-debtor reputation. If instead the pro-debtor court plays $x=1$ with a probability less than one and smaller than the probability with which $x=1$ is played by a pro-creditor court, then the latter court has an incentive to deviate and play $x=0$ with probability 1. By doing so, the pro-creditor court benefits statically and increases its pro-debtor reputation. The static benefits obtained by courts deviating to their preferred policies imply also that there cannot exist a pooling equilibrium where the two types of court mix with the same probability. As a result, the only possible mixed strategy equilibrium is the one where pro-debtor courts play $x=1$ with probability one. ■

Proof of Corollary 1. Expression (2) implies that in the static model forum shopping includes a measure $\left[(1/2)(1-\alpha)\overline{\rho}/c\right]\pi_k$ of good firms and a measure $\left[(1/2)(1-\alpha)\underline{\rho}/c\right]\pi_k$ of bad firms. The total volume of forum shopping (i.e. the sum of these two terms) always decreases in α and c. In the dynamic model, suppose that pro-debtor courts play $x=1$ with probability one while pro-creditor courts play $x=1$ with probability σ and $x=0$ with probability $1-\sigma$. Then, since here

we have $\pi_k = \pi_d = 1/2$, upon observing $x = 1$ a court is believed to be pro-debtor with probability $(1/2)/[1/2 + \sigma/2] = 1/(1+\sigma)$, which is the share of pro-debtor courts among all courts playing $x = 1$ in equilibrium. As a result, a debtor forum shops away from a court playing $x = 0$ with probability $(1-\alpha)\mathbb{E}[\rho]/(1+\sigma)c$. Since there are $(1-\sigma)/2$ pro-creditor courts playing $x = 0$, the total volume of forum shopping is equal to $[(1-\sigma)/2] * (1-\alpha)\mathbb{E}[\rho]/(1+\sigma)c$, which is the expression in Equation (8). Note that in the separating equilibrium (i.e. $\sigma = 0$), forum shopping in the dynamic model is equal to the level of forum shopping prevailing in the static model when $\pi_k = \pi_d = 1/2$. The equilibrium expression for σ is readily obtained from the proof of Proposition 1 and the comparative statics properties described in the Corollary follow by inspection. ■

Proof of Corollary 2. We study the impact of α and c within a given equilibrium outcome, i.e. for given equilibrium strategies $x_j^*(\rho)$ followed by courts. For simplicity, in the career concern model we focus on pure strategy equilibria and on social welfare at $t = 1$ and at $t = 2$. Ex post welfare in a given period is:

$$W(\alpha, c) = \mathbb{E}_{j,\rho}\left[\lambda + x_j^*(\rho)(\rho - \lambda) + f_{\rho,j}(\alpha, c)(\rho - \lambda)\left[1 - x_j^*(\rho)\right]\right]$$

Assumption 1 implies that: $dW(\alpha, c)/dc = -(1-\alpha)\mathbb{E}_{j,\rho}\left[\left(\rho^2 - \rho\lambda\right)\left[1 - x_j^*(\rho)\right]^2\right]/c^2$. In a pooling equilibrium of the career concern model, there is no forum shopping neither at $t = 1$ nor at $t = 2$. As a result, $dW(\alpha, c)/dc = 0$. In a separating equilibrium, there is still no forum shopping at $t = 1$, so that $dW(\alpha, c)/dc = 0$ in this period. By contrast, at $t = 2$ social welfare (and forum shopping) in the career concerns model is identical to that prevailing in the static model. In both cases, one can find that $dW(\alpha, c)/dc \propto -\left\{\mathbb{E}\left[\rho^2\right] - \lambda\mathbb{E}[\rho]\right\}\pi_k$. Thus, $dW(\alpha, c)/dc > 0$ for any $\pi_k > 0$ if and only if $\mathbb{E}\left[\rho^2\right] \leq \lambda\mathbb{E}[\rho]$, that is iff $\lambda - \mathbb{E}[\rho] \geq Var[\rho]/\mathbb{E}[\rho]$. By contrast, $dW(\alpha, c)/d\alpha = -\mathbb{E}_{j,\rho}\left[\left(\rho^2 - \rho\lambda\right)\left[1 - x_j^*(\rho)\right]^2\right]/c$. As a result, we have that also $dW(\alpha, c)/d\alpha$ is positive if and only if $\lambda - \mathbb{E}[\rho] \geq Var[\rho]/\mathbb{E}[\rho]$. Notice also that $\lim_{c\to\infty} W(\alpha, c) = \lim_{\alpha\to 1} W(\alpha, c) = \mathbb{E}_{j,\rho}[\lambda + x_j(\rho)(\rho - \lambda)]$. ■

Proof of Proposition 3. The overall proportion of reorganized firms is equal to:

$$\mathbb{E}_{j,\eta,\rho}\left[f_{j,\eta,\rho}(\alpha, c) + [1 - f_{j,\eta,\rho}(\alpha, c)]\, x_j(\rho)\right] = \mathbb{E}_{j,\eta,\rho}\left[x_j(\rho) + f_{j,\eta,\rho}(\alpha, c)[1 - x_j(\rho)]\right] \geq 1/2 \quad (22)$$

As a result, also in this case there is a systematic pro-debtor bias. Such bias falls in legal restrictions c, as the derivative of (22) with respect to c is equal to $-\mathbb{E}_{j,\eta,\rho}\left[f_{j,\eta,\rho}(\alpha, c)[1 - x_j(\rho)]\right]/c < 0$. Ex

post social welfare is equal to:

$$W(\alpha, c) = \mathbb{E}_{j,\eta,\rho}\left[f_{j,\eta,\rho}(\alpha, c)\,\rho + \delta\left[1 - f_{j,\eta,\rho}(\alpha, c)\right]\left[\lambda + x_j(\rho)(\rho - \lambda)\right]\right] \tag{23}$$

Taking into account that $\eta = 0$, the derivative of (23) with respect to c is proportional to:

$$-(1-\varphi)\mathbb{E}\left[\rho^2\right] - \varphi\left[\mathbb{E}\left[\rho^2\right] - \lambda\mathbb{E}\left[\rho\right]\right]\pi_k$$

Since $\mathbb{E}\left[\rho^2\right] - \lambda\mathbb{E}\left[\rho\right] \equiv \mathbb{E}\left[\rho\right]\left[\mathbb{E}\left[\rho\right] - \lambda + Var\left[\rho\right]/\mathbb{E}\left[\rho\right]\right]$, even if $\left[\mathbb{E}\left[\rho\right] - \lambda + Var\left[\rho\right]/\mathbb{E}\left[\rho\right]\right] < 0$, we have $dW/dc \leq 0$ for every (π_k,π_d) if $-(1-\varphi)\,\mathbb{E}\left[\rho^2\right] - \varphi\mathbb{E}\left[\rho\right]\left[\mathbb{E}\left[\rho\right] - \lambda + Var\left[\rho\right]/\mathbb{E}\left[\rho\right]\right] \leq 0$, which is true when $\varphi \leq \varphi^* \equiv \mathbb{E}\left[\rho^2\right]/\lambda\mathbb{E}\left[\rho\right]$. Thus, when $\varphi \leq \varphi^*$ $dW/dc \leq 0$ even if $\mathbb{E}\left[\rho\right] - \lambda + Var\left[\rho\right]/\mathbb{E}\left[\rho\right] < 0$. By deriving expression (22) with respect to α, it is immediate to see that the same reasoning implies that $dW/d\alpha \leq 0$. It is also immediate to see that for the first best to be attainable, it must be that debtors are always indifferent between staying in their natural venue and forum shopping to any court, which precisely occurs if and only if $c = 0$ and $\alpha = 1$. ■

Proof of Proposition 4. This proof focuses on establishing the thresholds for the pooling, partially pooling and separating equilibria, as the application of Banks and Sobel (1987) "divinity" refinement follows from the proof of Proposition 3 in a straightforward manner. Suppose that $\eta = 0$. Given $\eta = 0$, all debtors allocated to slow natural venues try to file in fast courts. Suppose the equilibrium is pooling and all fast courts play $x = 1$ irrespective of their bias. Then, in the first period, and expecting a pooling equilibrium to arise, a firm leaves a slow court with probability $(1-\alpha)\,\rho/c$ because the firm is sure to be reorganized by the fast court at $t = 1$. At $t = 1$ each fast court receives an extra case with probability $(1-\varphi)(1-\alpha)\,\rho/\varphi c$. At $t = 2$, debtors leave slow courts only with probability $(1-\alpha)\,\rho/2c$ because now debtors expect only pro-debtor courts (who are 1/2 of the population) to reorganize. This implies that at $t = 2$ each fast court receives a new case with the same probability $(1-\varphi)(1-\alpha)\,\rho/2\varphi c$. Then, as in the proof of Proposition 3, suppose that a court deviating to $x = 0$ is believed to be pro-creditor. Also such court loses its case with probability $(1-\alpha)\,\rho/2c$. As a result, pro-debtor and pro-creditor fast courts do not deviate from the pooling equilibrium $x_{de} = x_{cr} = 1$ provided, respectively:

$$K + \gamma r\left[1 + \frac{(1-\varphi)(1-\alpha)\,\mathbb{E}\left[\rho\right]}{2\varphi c}\right] \geq \gamma r\left[1 - \frac{(1-\alpha)\,\mathbb{E}\left[\rho\right]}{2c}\right], \tag{24}$$

$$\gamma r\left[1 + \frac{(1-\varphi)(1-\alpha)\,\mathbb{E}\left[\rho\right]}{2\varphi c}\right] \geq K + \gamma r\left[1 - \frac{(1-\alpha)\,\mathbb{E}\left[\rho\right]}{2c}\right]. \tag{25}$$

We have simplified the above expressions by directly pruning the $(r+\gamma K)$ terms that appear on both sides of both inequalities. The key difference between the above conditions and conditions (20) and (21), which hold when all courts are fast, is that now fast courts playing the equilibrium strategy gain cases both in the first and second period due to their speed. Condition (24) is always fulfilled, while condition (25) is fulfilled provided:

$$\gamma \geq \gamma^{*}(\alpha, c) \equiv \frac{2c\varphi}{(r/K)(1-\alpha)\mathbb{E}[\rho]}$$

Notice that, as long as $\varphi < 1$, $\gamma^{*}(\alpha, c) < \overline{\gamma}(\alpha, c)$, implying that the pooling pro-debtor equilibrium among fast courts is easier to attain than the pooling pro-debtor equilibrium of Proposition 3.

Similarly, in the separating equilibrium $x_{de} = 1$, $x_{cr} = 0$, each pro-creditor court loses its case to a pro-debtor court with probability $(1-\alpha)\rho/c$ Thus, the strategies $x_{de} = 1$, $x_{cr} = 0$ constitute an equilibrium provided:

$$K + \gamma r\left[1 + \frac{(1-\varphi)(1-\alpha)\mathbb{E}[\rho]}{\varphi c}\right] \geq \gamma r\left[1 - \frac{(1-\alpha)\mathbb{E}[\rho]}{c}\right] \tag{26}$$

$$K + \gamma r\left[1 - \frac{(1-\varphi)(1-\alpha)\mathbb{E}[\rho]}{\varphi c}\right] \geq \gamma r\left[1 + \frac{(1-\alpha)\mathbb{E}[\rho]}{c}\right] \tag{27}$$

Again, we have simplified the $(r+\gamma K)$ terms. Condition (26) is always fulfilled, while condition (27) is fulfilled provided:

$$\gamma \leq \gamma_{*}(\alpha, c) \equiv \frac{c\varphi}{2(r/K)(1-\alpha)\mathbb{E}[\rho]}$$

Finally, in the range $\gamma \in [\gamma_{*}(\alpha, c), \gamma^{*}(\alpha, c)]$ the unique equilibrium is in mixed strategies, where pro-debtor fast courts play $x = 1$ with probability one while pro-creditor fast courts play $x = 1$ with probability σ^{*} and $x = 0$ with probability $1 - \sigma^{*}$. Upon observing $x = 0$, the fast court is believed to be pro-creditor. Upon observing $x = 1$ the fast court is believed to be pro-debtor with probability $1/(1+\sigma^{*})$. Given these beliefs, a debtor forum shops away from a fast court playing $x = 0$ with probability $f_{\rho}^{\sigma^{*}} = (1-\alpha)\mathbb{E}[\rho]/\varphi(1+\sigma^{*})c$. The total outflow of cases from pro-creditor courts playing $x = 0$ is $(1-\sigma^{*})(1-\alpha)\mathbb{E}[\rho]/2\varphi(1+\sigma^{*})c$. This outflow is equally divided among the $(1+\sigma^{*})/2$ courts playing $x = 1$, which implies that each of the latter courts has an inflow of cases equal to $(1-\sigma^{*})(1-\alpha)\mathbb{E}[\rho]/\varphi(1+\sigma^{*})^{2}c$. Clearly, a pro-debtor court never deviates from this equilibrium. By contrast, a pro-creditor court must be indifferent between playing $x = 0$ and

$x = 1$. This is indeed the case as long as σ^* is such that:

$$K + \gamma r \left[1 - \frac{(1-\alpha)\,\mathbb{E}[\rho]}{\varphi\,(1+\sigma^*)\,c}\right] = \gamma r \left[1 + \frac{(1-\sigma^*)\,(1-\alpha)\,\mathbb{E}[\rho]}{\varphi\,(1+\sigma^*)^2\,c}\right]$$

This equation pins down the randomization probability σ^* as being equal to:

$$\sigma^* = \sqrt{\frac{2\gamma\,(1-\alpha)\,\mathbb{E}[\rho]}{\varphi\,(K/r)\,c}} - 1$$

The probability with which the pro-creditor court reorganizes increases in the court's patience. The more patient is the court, the more often must the court play $x = 1$ to avoid losing future cases. It is immediate to see that $\sigma^* = 0$ for $\gamma = \gamma_*(\alpha, c)$ and that $\sigma^* = 1$ for $\gamma = \gamma^*(\alpha, c)$. As a result, the mixed strategy equilibrium precisely exists in the range $\gamma \in [\gamma_*(\alpha, c), \gamma^*(\alpha, c)]$ where neither the separating nor the pooling equilibria exist.

Finally, notice that as long as $\varphi < 1$, $\gamma_*(\alpha, c) < \underline{\gamma}(\alpha, c)$, implying that the mixed strategy equilibrium where pro-creditor courts start mimicking pro-debtor courts is easier to attain than the pooling pro-debtor equilibrium of Proposition 3. ■

Proof of Proposition 5. Denote by $f^s_{\rho,j}$ the volume of forum shopping by party $s = d, k$ – where d and k stand for debtor and creditor, respectively – when the firm has value ρ and its natural venue is of type j. Also, denote by $x_j(\rho)$ the ideal reorganization policy of a type j court for a firm of value ρ. Then, the measure of reorganized firms equals:

$$\mathbb{E}_{j,\rho}\left[p f^d_{\rho,j} + \left[1 - (1-p)\,f^k_{\rho,j} - p f^d_{\rho,j}\right] x_j(\rho)\right]$$

After some algebra, the above expression becomes:

$$\mathbb{E}_{j,\rho}\left[x^*_j(\rho)\right] + p\left[\mathbb{E}_{j,\rho}(f^d_{\rho,j}(1 - x_j(\rho))) + \mathbb{E}_{j,\rho}(f^k_{\rho,j} x_j(\rho))\right] - \mathbb{E}_{j,\rho}\left[f^k_{\rho,j} x_j(\rho)\right] \tag{28}$$

As a result, a pro-debtor bias over and above the average individual idiosyncrasies of judges $\mathbb{E}_{j,\rho}\left[x^*_j(\rho)\right]$ arises when the probability of debtor control is higher than the threshold p^*, defined as:

$$p^* = \frac{\mathbb{E}_{j,\rho}\left[f^k_{\rho,j} x_j(\rho)\right]}{\mathbb{E}_{j,\rho}\left[f^d_{\rho,j}(1 - x_j(\rho))\right] + \mathbb{E}_{j,\rho}\left[f^k_{\rho,j} x_j(\rho)\right]}$$

Notice that $p^* \in [0, 1]$. By exploiting the expression for $f^s_{\rho,j}$, it is immediate to see that p^* only

depends on forum shopping costs via the ratio $\overline{c}_k/\overline{c}_d$ and in particular a higher $\overline{c}_k/\overline{c}_d$ (leaving constant $\overline{c}_k+\overline{c}_d$) reduces the value of p^*. It is also easy to check that an increase in $\overline{c}_k+\overline{c}_d$ (holding $\overline{c}_k/\overline{c}_d$ constant) leaves p^* unaffected but reduces systematic bias, as measured by the absolute value of the difference between (28) and $\mathbb{E}_{j,\rho}\left[x_j^*(\rho)\right]$. ■

Proof of Proposition 6. It is useful to start by recalling that r maximizes the court's utility $\mathbb{E}_\rho\left[\lambda\Phi+\beta\rho(1-\Phi)\right]$. The first order condition implies that $\mathbb{E}_\rho\left[(\lambda-\beta\rho)\Phi'\right]=0$. Consider now the effect of θ on the probability of liquidation Φ. First, by deriving expression (14) it is easy to see that $dr/d\theta=-\frac{2\theta}{\overline{\rho}-\underline{\rho}}\ln\frac{\beta\overline{\rho}-\lambda}{\lambda-\beta\underline{\rho}}$ whose sign is negative if and only if $\beta>1$. It follows that

$$\frac{d\Phi}{d\theta}=\mathbb{E}_\rho\left[\Phi'\left(\frac{(dr/d\theta)\,\theta-r+\rho}{\theta^2}\right)\right]=\mathbb{E}_\rho\left[\Phi'\left(-\frac{1}{\overline{\rho}-\underline{\rho}}\ln\frac{\beta\overline{\rho}-\lambda}{\lambda-\beta\underline{\rho}}\right)\right],$$

where the last equality exploits the court's first order condition in setting r and the definition of r. Thus, the effect of θ on the probability of liquidation is positive if and only if $\beta>1$. Finally, the derivative of expected repayment ($\mathbb{E}_\rho\left[\lambda\Phi+\alpha\rho(1-\Phi)\right]$) with respect to θ is equal to:

$$\mathbb{E}_\rho\left[(\lambda-\alpha\rho)\,\Phi'\right]\left[\frac{(dr/d\theta)\,\theta-r+\rho}{\theta^2}\right]=\mathbb{E}_\rho\left[\beta(1-\alpha)\,\Phi'\left(-\frac{1}{\overline{\rho}-\underline{\rho}}\ln\frac{\beta\overline{\rho}-\lambda}{\lambda-\beta\underline{\rho}}\right)\right]$$

where the equality exploits the court's first order condition in setting r. Thus repayment falls in θ if and only if $\beta>1$. ■

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