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ABSTRACT

Capture of Bankruptcy: Theory and Evidence from Russia*

Laws that work well in a rule-of-law country may produce unexpected outcomes in a corrupt environment. We argue that the legal system in Russia is faulted by the capture of regional divisions of arbitrage courts. We analyse the consequences of this for the efficiency of Russian bankruptcy law. Using a theoretical model and a systematic analysis of available evidence, we conclude the following: First, the governors in alliance with managers of large regional enterprises use bankruptcy institution as a mechanism for effective expropriation of the federal government and the outside investors. And second, the bankruptcy law does not create pressure on managers to restructure; instead, it may even prevent restructuring.

JEL Classification: D23, G33, H11, H77
Keywords: bankruptcy, capture, incentives, regional governments, restructuring, Russia, transition

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NON-TECHNICAL SUMMARY

A well-functioning bankruptcy institution is an important component of transition to a market economy. It aims to protect creditors, impose financial discipline on managers, induce restructuring and free assets from inefficient use. Recently, Russia has acquired bankruptcy legislation. This Paper addresses the question of whether the bankruptcy law and practice have changed managerial incentives and increased creditor protection.

We argue that a distinguishing feature of Russian bankruptcy institution is the capture of Arbitrage courts by the political power in the regions. Arbitrage court judges, who are vested with significant discretion over bankruptcy procedures, are not independent. On the basis of large amounts of available anecdotal evidence, we make an observation that regional governors have the ability to strongly influence the decisions of Arbitrage court judges.

Governors may benefit from their influence on courts in different ways: They may extract rents from managers of insolvent firms, in exchange for protection from losing control in bankruptcy. Regional authorities may also receive benefits from managers of profitable regional enterprises, who fake insolvency and use bankruptcy procedure (under regional influence) to avoid federal taxes and debt repayments to creditors outside the region. We show empirically that both cases are relevant for Russia. Finally, governors may dislike bankruptcies of large enterprises for political reasons. Using a theoretical model and empirical evidence, we conclude that the capture of Arbitrage courts results in efficiency loss: bankruptcy institution does not protect creditor rights or put pressure on managers to restructure.

Russia has had bankruptcy legislation since November 1992. We do not focus our research on the first bankruptcy law since it was completely ineffective and was not expected to have any serious impact on Russian economy. The problems with this law motivated the adoption of a new law in March 1998. This Paper analyses the results of the introduction of the second law. The legislators drafted this law according to Western standards. The law makes the initiation of bankruptcy very easy: any creditor holding a small amount (less than $5,000) of three-months-overdue debt can file for bankruptcy of the firm.

On the one hand, the law was expected to vastly improve managerial incentives because it is harsh on incumbent management: according to the law, managers lose control in bankruptcy. On the other hand, the law was drafted to avoid inefficient liquidations: judges are given sufficient discretion to refuse liquidation suggested by creditors. We show that the discretion given to

the judge by the law and the general weakness of legal enforcement mechanisms made it impossible for this law to serve its goals.

Experts had predicted that the law would cause a flood of bankruptcies, because prior to 1998, most Russian firms had accumulated large arrears to the government and private creditors. The number of bankruptcies has, indeed, increased since the law was adopted. This fact was interpreted by many economists as evidence of hardening budget constraints on the managers. Aggregate figures, however, are insufficient to make such a strong conclusion. We provide evidence in favour of the opposite conclusion by looking at which companies went bankrupt and what happened to these companies in bankruptcy. We build a simple theoretical model of capture of bankruptcy and show that empirical evidence is consistent with the model.

The model illustrates the effect of capture of Arbitrage courts on managerial incentives, financial positions of firms and protection of creditor rights. A firm with a manager and two creditors is considered. The firm is insolvent in terms of verifiable cash flows but has high private benefits that accrue to the manager. One of the creditors is the governor, who can influence the decisions of the bankruptcy judge. An important assumption of the model is that the governor may value bribes from the manager beside tax debt repayments. As a benchmark, we show that the bankruptcy law generates right incentives for restructuring and debt repayment when the judge is independent and benevolent. Our main theoretical contribution is to show what happens when the judge is under the governor's influence: Debts are not repaid; the firm does not restructure; and the manager pays bribes to the governor in exchange for protection from losing control in bankruptcy. The outside creditor is expropriated by the coalition of the incumbent manager and the governor. Two types of situations may occur depending on how easy it is for the governor to influence courts: First, if the governor is strong and can easily control decisions of the judge, he prevents restructuring even if the manager prefers to restructure. Second, if the governor is not strong enough to use his influence on the judge on his own and the manager dislikes restructuring, then the manager captures bankruptcy procedure via the governor. This represents a more classic example of state capture. The outside investor cannot force liquidation or change in management (reorganization) because the governor determines the decisions of the judge.

We apply this model to the Russian economy by noting that the federal government with its tax arrears claim to the regional enterprises has the same role as any outside creditor. We formulate testable hypotheses of the capture model and test them using the data on Russian industrial enterprises. We find that the data are consistent with our story.

Our empirical results are the following. The probability that external management procedure is initiated against a particular firm increases with the following regional factors: strength of the governor in the region, tensions between the governor and the federal centre, federal tax arrears in the region, and opacity of regional tax collection system. The probability of external management is higher for very large firms in efficient and profitable industries. In contrast, the probability of liquidation procedure decreases with the strength of the regional governor, tensions between the governor and the centre, and federal tax arrears in the region. The probability of liquidation is higher for smaller firms operating in loss-making industries. In addition, we show that introduction of external management procedure does not change performance characteristics of firms.

Our results suggest that, first, the coalition of managers of large enterprises and regional governors effectively expropriates the federal government and investors from outside the region. And second, managers of the large firms do not restructure and stay in control even under external management procedure because they are protected by regional governors from losing control in bankruptcy.

"Often, simply even with this kind of bandit methods I defend these enterprises from these things that are called bankruptcy...",- Evgeny Nazdratenko, the governor of Primorsky Kray about fish enterprises in the region. "Itogi", p.6, May 4, 1999.

1 Introduction

A well-functioning bankruptcy institution is an important component of transition to a market economy. It aims to protect creditors, impose financial discipline on managers, induce restructuring, and free assets from inefficient use. Recently, Russia has acquired bankruptcy legislation. This paper addresses the question of whether and how the bankruptcy law and practice have changed managerial incentives and increased creditor protection.

We argue that a distinguishing feature of Russian bankruptcy institution is the capture of Arbitrage courts by the political power in the regions.[1] Arbitrage court judges, who are vested with significant discretion over bankruptcy procedures, are not independent. On the basis of large amounts of available anecdotal evidence, we make an observation that regional governors have ability to strongly influence decisions of Arbitrage court judges.[2]

Governors may benefit from their influence on courts in different ways: They may extract rents from managers of insolvent firms in exchange for protection from losing control in bankruptcy. Regional authorities may receive benefits from managers of profitable enterprises who fake insolvency. They use bankruptcy procedures (under regional influence) to avoid federal taxes and debt repayments to creditors outside the region. Governors may also use their influence to prevent the bankruptcy of large enterprises for political reasons. In this paper we focus on the two first cases which are shown to be empirically relevant for Russia. Using a theoretical model and statistical evidence, we conclude that the capture of Arbitrage courts results in an efficiency loss: the bankruptcy institution does not protect creditor rights or put pressure on managers to restructure.

Russia has bankruptcy legislation since November 1992. We do not focus our research on the first bankruptcy law since it was completely ineffective and was not expected to have any serious impact on

[1] The regional divisions of Arbitrage courts hear bankruptcy cases in Russia.

[2] According to Russian legislation, all Arbitrage courts are in the federal jurisdiction and, thus, independent from the regional governors. The lack of federal financing and, often, large political and physical distance from the federal center makes Arbitrage courts highly dependent on regional politics: The governors, often, pay judges' bonuses and provide them with career opportunities.

Russian economy.[3] The problems with this law motivated adoption of a new law in March 1998.[4] This paper analyses the results of introduction of the second law. The legislators drafted this law according to Western standards. The law makes initiation of bankruptcy very easy: Any creditor holding small amount (less than $5,000) of three-months-overdue debt can file for bankruptcy of the firm.

On the one hand, the law was expected to vastly improve managerial incentives because it is harsh on incumbent management: According to the law, managers lose control in bankruptcy. On the other hand, the law was drafted to avoid inefficient liquidations: Judges are given discretion sufficient to refuse liquidation suggested by creditors. We show that the discretion given to the judge by the law and the general weakness of legal enforcement mechanisms made it impossible for this law to serve its goals.[5]

Experts had predicted that the law would cause a flood of bankruptcies, because prior to 1998, most Russian firms have accumulated large arrears to the government and private creditors (see Ivanova and Wyplosz, 1999). As reported in table 1, the number of bankruptcies has, indeed, increased since the law was adopted. This fact was interpreted by many economists as evidence of hardening budget constraints of the managers. Aggregate figures, however, are insufficient to make such a strong conclusion. We provide evidence in favor of the opposite conclusion by looking at which companies went bankrupt and what happened to these companies in bankruptcy. We build a simple theoretical model of capture of bankruptcy and show that empirical evidence is consistent with the model.

The model investigates some effects of bankruptcy capture on managerial incentives, the financial position of firms and on the protection of creditor rights.[6] A firm with a manager and two creditors

[3] Very few companies went bankrupt in the period when this law was in force. A common view is that the failure of this law to bring about financial discipline was due to restricted scope of application and excessively complicated procedure stipulated by the law. The condition for initiation of bankruptcy according to the law of 1992 was that the total amount of outstanding debt exceeds the total balance sheet value of company assets. There are obvious reasons why this condition resulted in no effective bankruptcy pressure: It was quite easy for a company manager to manipulate the balance sheet value of assets, for instance, by issuing personal worthless debt to his own firm at high face value.

[4] The second law is currently in force in Russia.

[5] If a creditor files for bankruptcy, the following procedure is undertaken. First, a temporary manager, appointed by an Arbitrage court judge, collects information about the claims to the company and organizes a creditors meeting, where the creditors decide if they want to liquidate or reorganize. Second, the judge, taking in consideration the resolution of the creditors meeting, makes a ruling on liquidation or reorganization of the company and appoints either a liquidation manager if liquidation is ordered or an external manager if reorganization is ordered. The judge does not necessarily need to follow the creditor's request. This clause in the law was motivated by the fact that creditors may opt for inefficient liquidation. Initiation of either procedure gets the current management out of control over the firm unless a member of incumbent management team is appointed as an external manager.

[6] Aghion, Hart, and Moore (1992) studied challenges of the design of bankruptcy in transition economies. In particular,

is considered. The firm is insolvent in terms of verifiable cash flows but has high private benefits that accrue to the manager. One of the creditors is the governor, who can influence the decisions of the bankruptcy judge. An important assumption of the model is that the governor may value bribes from the manager beside tax debt repayments.[7] As a benchmark, we show that the bankruptcy law generates right incentives for restructuring and debt repayment when the judge is independent and benevolent. Our main theoretical contribution is to show what happens when the judge is under the governor's influence: Debts are not repaid; the firm does not restructure; and the manager pays bribes to the governor in exchange for protection from losing control in bankruptcy. The outside creditor is expropriated by a coalition between the incumbent manager and the governor. Two types of situations may occur depending on how easy it is for the governor to influence courts: First, if the governor is strong and can easily control decisions of the judge, he prevents restructuring even if the manager prefers to restructure. Second, if the governor is not strong enough to use his influence on the judge on his own and the manager dislikes restructuring, then the manager captures the bankruptcy procedure via the governor. This represents a more classic example of state capture.[8] The outside investor can not force liquidation or changes in management (reorganization) because the governor determines the decisions of the judge.

We apply this model to Russian economy by noting that the federal government with its tax arrears claim to the regional enterprises has the same role as any outside creditor. We formulate testable hypotheses of the capture model and test them using the data on Russian industrial enterprises. We find that the data are consistent with our story.

Our empirical results are the following. The probability that an external management procedure is initiated against a particular firm increases with the following regional factors: the strength of the governor in the region, tensions between the governor and the federal center, federal tax arrears in the region, and opacity in the system of regional tax collection. The probability of external management is higher for very large firms in efficient and profitable industries. In contrast, the probability of liquidation procedure decreases with the strength of the regional governor, tensions between the governor and the center, and federal tax arrears in the region. The probability of liquidation is higher for smaller firms operating in loss-making industries. In addition, we show that introduction of external management procedure does not change performance characteristics of firms.

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they suggested some measures to overcome liquidity constraints of potential buyers in liquidation.

[7] One reason for this is that bribes are paid out of private benefit of the manager (shadow income of the firm) and, therefore, are potentially much larger than the official income of the firm, which is the basis for calculating regional taxes. See also Section 3.1 one for further motivation.

[8] For discussions of state capture see Bardhan and Mookherjee (1999), Hellman, Jones, and Kaufman (2000).

Our results suggest the following. The managers of large enterprises and regional governors collude to expropriate investors from outside the region and the federal government. Moreover, the large insolvent firms are not restructured. Instead, the incumbant managers stay in control even under the external management procedure because they are protected by regional governors from losing control in bankruptcy.[9]

Many authors have argued that "crony capitalism," i.e. maintaining close ties between business and the government in order to restrict competition, obtain favorable finance, and protect insiders from outside claimants is a common feature of governance in developing world. Our paper illustrates that "crony capitalism" becomes a growing concern in Russia as the scale and depth of regional government intervention in governance of Russian firms increases. There are several interesting papers that make this argument in different contexts: Shleifer and Vishny, 1998, Ericson, 1999 and Treisman, 1999, Gaddy and Ickes, 1998.

Our paper contributes to the literature on federalism in Russia (see, for instance, Shleifer and Treisman, 2000, Treisman, 1997, and Zhuravskaya, 2000) by documenting that the bankruptcy institution is used by the regional governments as a mechanism for redistribution of revenue from the federal center to the regions.

The paper is organized as follows. Section 2 presents basic facts about bankruptcies in Russia. Section 3 contains our theoretical model and its empirical predictions. Section 4 presents data, methodology and empirical results. Section 5 concludes.

2 Stylized facts about Russian bankruptcies

In this section, we summarize some basic facts about bankruptcy of industrial firms in Russia.[10]

1) Before 1998, bankruptcies were extremely rare. After the introduction of the 1998 law, we observe a sharp increase in the number of bankruptcies. In 1998, Arbitrage courts initiated one thousand external management procedures and forty seven hundred liquidation procedures. Table 1 presents aggregate statistics on initiation of bankruptcy procedures over time.[11]

[9] The name for reorganization procedure in Russian law is full of irony: in reality "external management" procedure does not result in change in management. The procedure would have been better called "incumbent management procedure."

[10] We derive these facts from the same data set that we use for the systematic empirical tests of our model. This data set is described in section 4.

[11] Statistics in table 1 are given for all bankruptcies and not only for industrial enterprises. In the empirical part of our study we focus on industrial enterprises.

2) Liquidation procedures have been initiated in small and rarely medium-size enterprises. External management procedures have been initiated in very large enterprises. Differences in size are large both in terms of output and employment. The mean output for firms with external management is five times bigger than the mean output for all firms in the Registry of Russian industrial enterprises.[12] The mean output for firms that entered liquidation procedures is one third of mean output for all firms in the Registry. The level of employment for externally managed firms is on average four times as large as employment of all Russian firms. Employment level of liquidated firms is not significantly different from the average in the Registry.[13] Table 2 presents summary statistics for firms subject to external management and liquidation procedures compared to Russia's average.

3) Firms under external management are not inefficient in the technical sense (measured by labor productivity) and many of them have very high cash flow. There were many industrial firms that did not go into bankruptcy and had worse performance compared to the firms that went into external management. 30.7% of firms had higher costs per ruble of output and 47.7% of firms had lower labor productivity than the median firm where external management has been introduced. In contrast, firms under liquidation procedure are extremely unprofitable and inefficient. The mean labor productivity of the firms that entered liquidation procedure was 2.5 times smaller and the mean cost per ruble of output was almost twice as large compared to firms in the Registry.

4) Externally managed firms and firms under liquidation procedure are distributed unevenly across industries. Table 3 presents the industrial structure of bankrupt firms. 80% of external management firms output is produced by firms in three industries: oil and gas (54.5%), chemical (9.4%), and ferrous metallurgy (16.5%). For comparison, the output of all firms in these industries (according to the Registry) constituted 30% of total industrial output. Firms under external management produced 24% of output in oil and gas industry. Liquidation procedures are mostly frequent in light, consumer-oriented industries. Almost a half of all liquidation procedures were initiated in logging (21%), wood-working (16%), and textile (7%). 15% of all industrial firms operate in these industries. Industries, in which external management procedures are more frequent, are best-performing in terms of cash flows and technical efficiency. On the contrary, industries, in which liquidation procedures are more frequent, are worst-performing in terms of cash flows and technical efficiency. Table 4 presents several performance characteristics for these industries.

[12] The registry is described in section 4. Here and later in this section we compare statistics as of 1996 for firms where bankruptcy procedures were initiated since 1997.

[13] Note that the Registry contains a lot of very small enterprises. This drives the average employment for the Registry down.

5) Firms with external management are distributed unevenly across regions as well. 59% of output of firms under external management was produced in Irkutskaya oblast (11%), Bashkortostan republic (13%), Kemerovskaya oblast (16%), and Tyumenskaya oblast (19%). For comparison, the output of all industrial firms in these regions equals to 18% of Russian industrial output. Above 30% of industrial production in Irkutskaya, Kemerovskaya and Tomskaya oblasts is produced by enterprises under external management. 24 regions have below one percent of their output produced by enterprises under external management.

These stylized facts deserve short discussion. Political economy literature supplied a lot of arguments explaining why politicians are generally opposed to liquidation of large and politically important companies, see for instance, Shleifer and Vishny (1994). It is not particularly puzzling, therefore, that only small and worst firms in poorly performing industries are being liquidated. Most political economy models predict too little liquidations.

The distribution of external management procedures across firms creates a puzzle, however. External management procedures have been mostly initiated against large and politically important firms in very profitable and efficient industries in politically and economically strong regions. At the same time, many regions and moderately performing industries have been unaffected by bankruptcy procedures at all. Existing theories of political economy do not explain this evidence. Moreover, one can hardly interpret these stylized facts as evidence of hard budget constraints of managers in all enterprises.

Our model of regional political protection provides an explanation for this puzzle: governors exploit their influence to protect incumbent management of large firms using external management procedure. We present this model in the next section.

3 A model

3.1 Basic assumptions

Consider a firm with large outstanding debt. There are three agents: a manager who is currently in control, and two creditors. An outside investor, and a governor. The outside investor is the major creditor, he has a large amount of outstanding debt to the firm. The governor has a claim to the firm equal to τ. It corresponds to the firm's debt to the regional budget, i.e. unpaid taxes.[14]

The key assumption in our model is that the governor is not exclusively interested in tax income (repayment of tax arrears and flows of future taxes). He values side-payments also. Therefore, he may, in exchange for bribes, use his influence on bankruptcy procedures to protect an insolvent firm from

[14] τ may also includes social contributions and debts to the regionally owned entreprises.

other creditors. The governor values side income because he also needs funds free from democratic and bureaucratic controls to pursue his goals e.g., political ambitions.

The firm is currently insolvent in terms of verifiable cash flows, it generates zero verifiable profits so that the creditors cannot be paid. The second key assumption is that although the firm is insolvent, there is a significant private benefit that accrues to the manager in control.[15] This private benefit includes hidden income, on-the-job benefits and so on. The firm could get out of financial distress by deep restructuring. It requires high managerial effort and substantial time. We assume that after restructuring the firm i) pays all its debt, ii) operates profitably thereafter (with moderate managerial effort).[16]

While the firm is insolvent, the creditors can file for bankruptcy to an arbitrage court. This initiates a procedure administered by a judge. The behavior of the judge is fully determined by his type as specified below, i.e. the judge is not a player in the game. The procedure is modeled in the following way: i) the judge decides whether to liquidate or to reject the request for liquidation, ii) in the first case the judge administers liquidation. The option "reject the request for bankruptcy" should be understood as essentially preserving the status-quo: the manager stays in control and runs the firm as he wants. This can happen when the judge initiates external management procedure and appoints the same manager to implement the reorganization.[17] The reason for this is that if the judge simply rejects to initiate any procedure, the creditors may appeal to a higher level court.[18] Whereas, if the judge initiates external management procedure and does not change the manager, all debts become frozen by the law for the period of external management procedure, creditors can not file to another court, and the status quo is preserved. In an earlier version of the paper, we showed that allowing explicitly for reorganization with an external manager appointed by the judge, yields the same qualitative results as the present simpler setting. In order to link the model with our empirical analysis, one needs to keep in mind that "rejection" corresponds to external management ("*vneshnee upravlenie*").

The judge may be either benevolent or dependent (corrupt). When the judge is benevolent his decisions are fully determined by the procedure. The outside investor as majority creditor is given the right to make the decision. This corresponds to the creditor oriented procedure. When he administers

[15] One of the possibilities is that the manager diverts profits from the profitable firm and fakes insolvency.

[16] Restructuring leads to the state in which the firm receives positive amount of verifiable profits that can not be diverted by the manager in addition to the manager's private benefits.

[17] The bankruptcy law formally requires that the manager is replaced. What we have in mind is that the new manager essentially represents the same interests as the old one, i.e. they are from the same management team.

[18] They may also file to court for an individual debt repayment.

liquidation, the judge maximizes the proceeds from the sale of the assets. He distributes them according to the priority rule: debts to the local budget τ are paid first while the outside creditor gets $L - \tau$, where L is the liquidation value ($L \geq \tau$). We also consider a modified procedure where the judge is required to turn down the majority creditor's request for liquidation when this is socially efficient.

When the judge is corrupt, his decisions are captured by the governor. If the governor prefers liquidation, the judge rules accordingly and gives all the liquidation value to the governor.[19] If the governor prefers continuation, the bankruptcy request is rejected. Influencing the judge is associated with a fixed cost γ for the governor(the cost is prohibitive for the outside investor).

The corrupt or dependent judge case reflects features of the Russian institutional framework which gives substantial effective power to the regional administration over regional arbitrage courts. The cost of influencing the judge may reflect the governor's strength in the region (see the empirical section): γ is low when the governor is strong.

The interaction is infinitely repeated. In each period the timing of the relationship is as follows. First, the manager undertakes an action. Thereafter, the creditors decide whether to file for bankruptcy or not. If one of them does, the judge decides whether to reject the request or to liquidate. When the governor can influence the judge and before the creditors decide to file or not, the governor and the manager may collude. They negotiate over a bribe paid by the manager to the governor in exchange for protection against liquidation.

3.1.1 The firm

The only input into the firm is managerial effort. We denote managerial effort by $e \in \{S, C, R\}$ where S stands for steal the assets (alternatively, zero effort), C for continue as before (moderate effort) and R stands for restructure (high effort).[20] This effort is observable, but not contractible. When the manager chooses to steal the assets, $e = S$, the firm is run down. It has zero continuation and liquidation value at the end of the period. If the manager chooses $e = C$, he secures that the firm is not run down while remaining insolvent. When the manager undertakes effort $e = R$, we say that he starts restructuring. To emphasize that this is a long process, we assume that the process can be interrupted.[21] After restructuring has been initiated but before it is completed, the creditors can file for bankruptcy. In such a case restructuring can be completed only if the request is turned down.

[19] This may correspond to manipulating the liquidation procedure so as to favor buyers representing the governor. It may also cover facilitating plain robbery of the firm's assets.

[20] S represents the situation in which the manager strips all the assets from the firm. This is an extreme case of "tunnelling" (Johnson, et. al 2000).

[21] The same assumption that restructuring is a long process was, first, made by Roland and Verdier (1999).

When the firm is restructured, it can be run profitably with moderate effort from the next period on.

3.1.2 The payoffs

There are private benefits that accrue to the player in control. We denote V^R the life time benefit (discounted as to period 1) earned by the manager when he completes restructuring and (thus) stays in control forever. $V^R = \frac{\delta}{1-\delta}V(R)$ where δ is a common discount factor and $V(R)$ is the one period benefit earned in the restructured firm. Note that the manager earns no private benefit in the first period. This reflects the private cost of restructuring, i.e. of exerting high effort. Similarly let V^C denote life time payoff when the manager exerts moderate effort ($e = C$) in all periods. $V^C = \frac{1}{(1-\delta)}V(C)$,where $V(C)$ is the corresponding one period private benefit. Finally, let V^S be the payoff associated with stealing all the assets in the first period ($e = S$). We assume that $V^C > V^R > 0$ (and $V^C > V^S$) i.e., the manager has no direct incentives to restructure.

In each period i, the manager also pays a bribe b_i to the governor in exchange for protection either from the outside investor in bankruptcy, or from the governor's own intervention. When the judge is independent the governor has no protection to offer and the bribe is equal to zero. The bribe is also zero, if the manager steals the assets. So, even in that case the bribe flow, denoted B^S, equals 0. If the judge is dependent and the firm is restructured or liquidated in the first period, the bribe flow is $B^R = b_1 \geq 0$. The manager needs no more protection after the first period since either the firm has become solvent in terms of verifiable cash flow, or he is out of control. In contrast, if the manager does not restructure, the discounted bribe flow denoted B^C is defined by $B^C = \sum_{i=1}^{\infty} \delta^{i-1} b_i$. The bribe b_i is determined in negotiations (see below).

To simplify the presentation of our infinitely repeated game, we use a short form for the continuation game following the first sequence of moves. In the appendix, we show that the payoffs associated with the short form are (subgame perfect) equilibrium payoffs of the whole game. We write the manager's payoff :

$$U_M = V^j - B^j \tag{1}$$

where V^j and B^j, $j = S, C, R$ are respectively the life time private benefit and the discounted bribe flow according to the specification above.

The governor's payoff is

$$U_G = R(\tau, e) + X(b, L, \gamma) \tag{2}$$

where $R(.)$ is tax revenues. $R(\tau, e)$ equals $G(\tau) \geq 0$ when tax debts are repaid out of liquidation value. If the firm is restructured $R(\tau, e) = G^R$, the tax is repaid and a flow of tax payments accrues

from the firm, $G^R \geq G(\tau)$. In all other cases we have $R(\tau, e) = 0$. We shall assume that $G(\tau)$ and G^R both are small (in the sense made precise later). The second term $X(b, L, \gamma)$ corresponds to side income. It includes the (flow of) bribes paid by the manager B^j, or alternatively the appropriated liquidation value L if the liquidation procedure is captured net of the cost of influence γ.

The outside investor's payoff is given

$$U_I = \Pi(e, L, \tau) \tag{3}$$

where $\Pi(e, L, \tau) = I^R$ when the firm is restructured: debts are repaid and a flow of interest on new loans (not explicitly modelled) accrues to the investor. When the firm is liquidated by an independent judge, $\Pi(e, L, \tau) = L - \tau$. In all other cases the outside investor earns 0 payoff.

3.2 The independent judge case: a benchmark

In this section, we consider the case when the judge is independent (formally, this corresponds to $\gamma = \infty$). First, we argue that the governor can not affect the fate of the firm. According to the law, the government representatives can not vote at the creditors meetings. Since the tax debt is a higher priority claim than the private creditors' debt, private creditors are given the right to decide on the fate of the firm, i.e. whether to liquidate or to restructure. The governor can trigger bankruptcy, but the outside investor controls the procedure: he decides whether to liquidate or not. In particular, the governor cannot exploit the threat of bankruptcy *against* the outside investor (to extract bribes). This is because the investor can reject his request. As a result the governor has no incentives to file for bankruptcy of the firm. We assume that when a player is indifferent between triggering bankruptcy or not, he chooses not to. Thus, when the judge is independent, the governor has no role to play, we neglect his decision nodes altogether.

In the independent judge case, the timing of the game is the following.

t = 0

The manager chooses effort $e \in \{S, C, R\}$.

t = 1/2

The outside investor chooses whether or not to trigger bankruptcy and liquidate.

t = 1

If the manager is still in control, either restructuring is completed (if it started at $t = 0$), or the firm remains insolvent (if $e = C$). If the manager has stolen the assets ($e = S$) or if bankruptcy is triggered at $t = 1/2$, the firm ceases to exist. All the players receive their payoffs.

After t=1: If restructuring has been completed, the firm enters the phase where it operates with profit. By the end of the next period, old debts are repaid out of verifiable profit and a flow of interest and taxes is generated. If the manager had not initiated restructuring but was left in control, the game starts over from $t = 0$. In all other cases the firm exists no more.
The game is illustrated in Figure 1, where the payoffs are computed as the corresponding payoffs of the continuation game.

We assume that restructuring is socially efficient, formally $V^R + I^R + G^R \geq L$. The manager, however, prefers to run the firm with moderate effort whenever $V^C > V^R$. The following proposition shows the beneficial effect of the threat of bankruptcy on managerial incentives.

Proposition 1 *i) Suppose that the investor prefers restructuring, i.e.* $L - \tau \leq I^R$.

If $V^R \geq \max\left\{V^S, (1-\delta)\, V^C\right\}$, *the threat of bankruptcy induces restructuring*

ii) If $L - \tau > I^R$, *any subgame equilibrium yields the termination of the firm's activity: Either the manager exerts moderate effort and the firm is liquidated, or he steals the assets so the firm ceases to exist.*

All proofs are in appendix.

Under the condition of proposition 1 i), the bankruptcy law serves its purpose. The threat of losing control induces the manager to restructure ($e = R$). The condition is that the life time private benefit of restructuring for the manager, V^R, exceeds his one-period private benefit of simply running, $(1-\delta)\, V^C$ and that of stealing the assets V^S. The result in proposition 1 ii) reveals a pitfall of this simple procedure. It corresponds to a classical inefficiency result applying to creditor oriented procedures. It assumes that the manager can not "bribe" the outside creditor to avoid bankruptcy. One reason is that private benefits are hidden profits and outside investors cannot use shadow income of the manager in binding negotiated agreements (*"mirnoe soglashenie"*). Another reason is that there are many outside investors. They may have a hard time agreeing on how to share the potential bribe revenue.

3.2.1 A role for the judge: no inefficient liquidation

We now consider a slight modification of the bankruptcy procedure. Instead of always rubber-stamping the outside investor's decision, the judge is required to reject any request for liquidation if the manager has started restructuring.

Recall that, by assumption, restructuring always is efficient. The outside investor however, liquidates at $t = 1/2$ whenever $L - \tau > I^R$, i.e. her action is, then, socially suboptimal. This justifies

why society may not wish to let the creditor alone decide on the fate of the insolvent firm. Instead, the decision power may be delegated to an arbitrage court judge who is to decide whether the firm should be liquidated (or an external manager should be appointed to restructure the firm). As in some other countries (like France) the bankruptcy legislation in Russia provides the judge with significant discretionary power.

To illustrate the potential value of leaving some discretion to the judge, we present the following result:

Proposition 2 *In equilibrium the efficient outcome obtains if*

i) $V^R \geq \max\left\{V^S, (1-\delta)\, V^C\right\}$ *and*

ii) the judge is benevolent and has some discretion to protect the manager.

The result in proposition 2 depends crucially on the assumption that the judge acts in the social interests. Indeed, since managerial effort is not verifiable the compliance with the rule heavily relies on the judge's benevolence. In Russia's transition economy, this assumption appears particularly unreasonable. In the next section, we consider the risks of corruption and collusion associated with discretionary power given to an opportunistic (or dependent) judge.

3.3 Capture of bankruptcy

In this section, we investigate a situation where the governor can, at some fixed cost $\gamma \geq 0$, capture the judge's decision in bankruptcy. When the governor exercises his influence, the judge effectively "rubber-stamps" the governor's decisions. If bankruptcy is triggered the governor decides whether to liquidate or reject the request (again, in our set up it is identical to external management procedure with the same manager). If he chooses to liquidate, the governor appropriates all the "proceeds" as side income. We shall assume that $\gamma < L$ the cost of influence is sufficiently small so the governor's threat to intervene is credible.[22] Note that the governor is the only agent that has influence on the judge. Neither the manager, nor the outside creditor has direct means of influencing the judge's decisions.

The dependent judge case is symmetrical to the independent judge case in the following respect. When the judge is independent, the governor has no real power because he can not vote at the creditors' meeting. In a similar way, political capture deprives the outside investor from influence over the procedure. She can trigger bankruptcy, but the governor can reject the request. Moreover, if liquidation follows, all the proceeds are appropriated by the governor.

[22] In Corollary 2, we consider a special case when $L - \gamma \leq 0$.

Note that both the governor and the outside investor are creditors. There is, however, a crucial distinction in their interests with respect to bankruptcy. The distinction arises from the following feature: side payments to the governor are feasible. In contrast, debt repayment and interest on loans are the only sources of revenue for the outside investor. As a consequence, we shall see that the effect on managerial incentives of bankruptcy threat may, in the political capture regime, turn perverse: the law may effectively discourage restructuring even in case where the manager is interested in restructuring, i.e. $V^R > V^C$.

The new feature we develop in this section is collusion: the governor and the manager can agree on a deal where the governor (use his influence to) protects the manager from liquidation in exchange for a bribe. The term collusion is used to emphasize the fact that the agreement occurs at the expense of the outside investor's interest (and society at large). The collusive agreement arises as the outcome of negotiations.

As in the previous section, we ignore the passive player (here the outside investor) in the presentation of the timing of the game.

t = 0

The manager chooses an effort $e \in \{S, C, R\}$.

t = 1/4

The governor and the manager bargain over a bribe. If agreement is reached, the manager stays in control in which case the game continues to $t = 1$. If there is no agreement, we move to $t = 2/3$;

t = 1/2

The governor files for bankruptcy and liquidates.

t = 1

If the manager is still in control, either restructuring is completed (if it started at $t = 0$),or the firm remains insolvent (if $e = C$). If bankruptcy is triggered at $t = 2/3$, the firm ceases to exist. The players receives their payoff from the firm and the bribe is paid to the governor.

After t=1: If restructuring is completed, the firm enters a phase where it is operated with profit. By the end of the next period, old debts are repaid out of verifiable profit and a flow of interests and taxes is generated. If the manager had not initiated restructuring but was left in control, the game starts over as from $t = 0$. In all other cases the firm exists no more.

The game is illustrated in figure 2 where the payoffs are computed for the corresponding continuation game.

3.3.1 Collusion

The collusive agreement at $t = 1/4$ arises as the outcome of negotiations about the size of the bribe, subject to the manager's liquidity constraint. He pays the bribe out of his current private benefit. We assume that the bribe is enforceable.[23] We do not explicitly model the bargaining game. Instead we use the (constrained) symmetric Nash bargaining solution. Our main results do not depend on the chosen solution concept. In particular, they hold for the alternative procedures where either the manager or the governor makes take-it-or-leave-it offer.

Bargaining occurs after the manager has undertaken the action, $e = S, R, C$. The collusive deal is about giving a credible promise "to protect from liquidation *in the current period*" in exchange for a bribe. Note first that in the subgame following $e = S$, the manager does not need any protection since the firm ceases to exist anyway. In the subgame following $e = R$, the net gain from avoiding bankruptcy at $t = 1/2$ is

$$V^R + G^R - (L - \gamma). \tag{4}$$

When restructuring has been initiated postponing bankruptcy for one period is equivalent "postponing" it forever. In the next period, the firm is solvent and cannot be bankrupt any more. A main issue here is that the manager is liquidity constrained. Under restructuring, the first period's private benefit is equal to zero. The manager cannot pay the governor so the gains from collusion cannot be realized.

Thus, collusion may only occur in a subgame following $e = C$. The stake of collusion, i.e. the aggregated value of postponing the liquidation decision depends on the manager's decision in the next period, we denote this decision e_2. If $e_2 = S$, the stake of collusion is equal to $\delta V^S - (L - \gamma)$, i.e. in the next period the manager steals the assets and the governor forgoes the value of liquidation. Note first that $\delta V^S - (L - \gamma) \lesseqgtr 0$, so the stake may be negative. Even if the stake is positive, it may not be realized because of the manager's liquidity constraint. His current private benefit equals to $(1 - \delta) V^C$. In the following, we assume that $(1 - \delta) V^C < L - \gamma$, so if the governor expects the manager to steal the assets in the next period, he chooses to liquidate.

Let us now consider the case when $e_2 = C$. Postponing liquidation allows the manager to earn his private benefit next period: $(1 - \delta) \delta V^C$. Since the governor can liquidate in the next period, the cost of postponing is $(L - \gamma)(1 - \delta)$. The net gain is $\left[\delta V^C - (L - \gamma)\right](1 - \delta)$ which we assume to be strictly positive. We denote the symmetric Nash bargaining solution by b^N:

[23] One motivation is that the repeated character of the interaction provides with suitable retaliation means in case of defection.

$$b^N = \frac{1}{2}\left[\delta V^C + (L-\gamma)\right](1-\delta) \tag{5}$$

which represents the value of the governor's outside option(liquidation now) plus half of the collusive gain.[24] Note that $b^N \leq (1-\delta)V^C$, so the manager's liquidity constraint is not binding. We see also that since the net gain of collusion is positive, the normalized NPV of the bribe satisfies the governor incentive constraint: $B^C = \frac{1}{2}\left[\delta V^C + L - \gamma\right] > (L-\gamma)$.

To complete the analysis, we must investigate under which circumstances the governor should expect $e_2 = C$ rather than $e_2 = S$ ($e_2 = R$ can never be optimal). This requires that we look at equilibria of the whole (repeated) game. We do that in the next section.

3.3.2 Equilibrium allocation under political capture

Our main result in this section is

Proposition 3 *When a)* $V^S - V^C > \max\left\{L-\gamma, (1-\delta)V^C\right\}$ *and b)* $G^R < L-\gamma$ *, any subgame perfect equilibrium entails*

i) no bankruptcy,

ii) no restructuring and

iii) the manager pays in each period i *a bribe* b_i^* *to the governor such that*

$$B^{C*} = \sum_{i=1}^{\infty} \delta^{i-1} b_i^* = \min\left\{\frac{b^N}{(1-\delta)}, \frac{\overline{b}}{(1-\delta)}\right\} \tag{6}$$

$$\tag{7}$$

where $\overline{b} = \left(V^C - V^S\right)(1-\delta)$ *and* b^N *is defined in (5).*

The intuition for proposition 3 is that the governor can only protect the manager in exchange for bribes as long as the manager needs protection. Condition a) secures that the governor prefers to extract bribes in each period rather than to liquidate or to take the manager's whole current period private benefit. As a consequence, the governor never takes a bribe such that it induces the manager to steal the assets: $B^{C*} \leq V^C - V^S$. Condition b) says that when the manager initiates restructuring, the governor liquidates because he values tax income too low relative to side income (bribes). Therefore, the manager never initiates restructuring.

[24] Note that the manager has a zero outside option. He receives $V^C(1-\delta)$ whether he accepts or refuses to pay the bribe. As we see later (in proposition 4), V^S is important, however, in determining the equilibrium.

Corollary 1 *The result in proposition 3 holds for* $V^R > V^C$.

This is a remarkable result which emphasizes the potential costs of corruption in bankruptcy. In the capture model, the bankruptcy law may in effect *hinder* restructuring. When $V^R > V^C$, the manager has private interests in restructuring. Capture of bankruptcy provides the governor with (additional) control rights on the firm. He uses these control rights to protect his rents (bribe flow). This requires keeping the firm insolvent, i.e. no restructuring. Note that this is only true under condition b), i.e. when the governor does not value future tax revenues too high.

Corollary 2 *If* $V^R < V^C - B^{C*}$ *, there is no restructuring in equilibrium even for* $G^R > L - \tau$.

Corollary 2 depicts a situation symmetric to that of Corollary 1. Here, the governor values restructuring a lot so he would not liquidate if the manager initiated restructuring. The manager, however, prefers to run and pay bribes for protection. Since the governor prefers to take the bribe rather than to liquidate (or induce stealing), corruption in bankruptcy even in this case leads to no restructuring and no liquidation.

Our last result shows that even when the threat of governor's intervention is not credible i.e., $L - \gamma < 0$, corruption in bankruptcy can be important. Assuming that the outside investor is uncertain about the type of the judge (so he may file in the hope that the judge is independent) while the manager knows that the judge is corrupt. We then have the following result:

Proposition 4 *If* $\gamma < (1-\delta) V^C$, *a sufficient condition for the firm never to be restructured is* $V^R < \delta V^C$.

The intuition is that if $\gamma < (1-\delta) V^C$ the manager can bribe the governor so that he rejects the investor's request for liquidation. Since the governor's threat to liquidate is not credible ($L - \gamma < 0$), the manager only needs protection against the outside investor. The outside investor only files one time. The presumption being that once she learns the true type of the judge, she leaves the manager alone.[25] When $V^R < \delta V^C$, the manager *always* prefers to pay all of his private benefit once than to restructure . Note that this result obtains when $L - \gamma < 0$, i.e. the governor has no (additional) control rights (when $L - \gamma > 0$, we are in the case depicted in proposition 3). In proposition 4, the judge is in effect captured by the manager *via* the governor. As we argue in the empirical section, we view this case as most relevant to the Russian reality. It depicts a situation when the governor and the manager explicitly collude against the outside investor. The result in proposition 4 covers situations where the

[25] This is consistent with the assumption that when a player s indifferent between filing or not he chooses not to file.

manager's per period private benefit is larger in the insolvent firm than in the restructured one. One reason is that the absence of financial discipline makes it is easier to hide income.

The main results of our theoretical investigation are as follows. When the judge is dependent on the governor, this creates a scope for collusion between the governor and the manager: the governor uses his influence to secure that the manager stays in control. There are two reasons why we have no restructuring. Either the manager prefers to run and pay bribes, or the governor prefers to keep the firm insolvent to secure side-income. The sharing of the gains of collusion between the manager and the governor depends on the costs of influence, the liquidation value of the firm and the value for the manager of stealing the assets.

The results of the model depend crucially on our definition of bankruptcy capture in terms of (political) influence rather than bribes to the judge. In particular, we rule out the possibility that the outside investor bribes the judge in exchange for letting the manager complete restructuring. In contrast, allowing for collusion between the outside investor and the governor, would not affect the results. Assume that the outside investor offers a bribe to the governor so that he (via the judge) lets restructuring be completed. Then, the governor would always take the bribe and initiate bankruptcy procedure to stop restructuring. Therefore, the outside investor would never offer such a bribe in the first place. Thus, collusion between the governor and the outside investor does not happen in equilibrium. On the contrary, the manager only pays the governor to avoid bankruptcy when the firm remains insolvent. The governor has no incentives to bankrupt the firm then because he expects to get rents in the future.

3.4 Application of the model to Russia and its empirical predictions

The creditors of most regional firms in Russia can be classified into the following types: federal government, regional government, private outside creditors, private insider creditors, and employees. The debts of firms to the federal and regional governments are primarily in the form of tax arrears.[26] The debts of firms to private outside creditors (Moscow banks, arms-length suppliers, etc.) and private insider creditors (banks in the same regional financial industrial group, closely held suppliers, etc.) are in the form of loans and trade credits. Employees' claims to firms are in the form of wage arrears.

[26] Governors, often, are able to manipulate the amount of tax debt that they have outstanding to regional energy companies. This is because, first, regional authorities set energy tariffs, and second, regional authorities may agree or may not agree to accept energy supply to the regional nonpaying enterprises as taxes, while they can administratively prohibit disconnection of these nonpaying customers. We abstract from this possibility in the model because it is specific for energy sector only.

To interpret the model in relation to Russia, we note the following. First, the federal government, often, has the same role as the outside investor. The federal government just as outside creditors is unable to influence judges' decisions when courts are regionally captured. There is a substantial amount of anecdotal evidence that regional arbitrage courts, indeed, made decisions in favor of the regional and against federal authorities. And second, insider creditors (by definition) tend to be closely associated with the managers and the regional governments.[27] Recall that rejection of liquidation in our model as initiation of external management procedure with appointment of the same manager as an external manager.

Thus, the main three results of our theoretical model are the following. First, managers of enterprises with large private benefits collude with regional governors to use external management procedure as a mechanism for protection from the federal tax obligations and repaying loans to outside investors. Second, regional governors may use bankruptcy as a threat to extract rents from the managers of potentially solvent (in terms of verifiable cash flows) firms that want to restructure and get out of governor's control. The third result is that initiation of external management procedure does not induce restructuring.

Under assumptions of no uncertainty and symmetric information, our model predicts bankruptcy procedures to be off the equilibrium path because outside creditors expect no benefits from bankruptcy procedure and do not file for it. If there is some form of uncertainty or asymmetric information, however, for instance, if outside investor does not know for sure the ability of the governor to influence courts, then we would observe bankruptcy in equilibrium. This logic allows us to formulate concrete empirical predictions:

1) Governor's costs of influencing judge are likely to be independent of firm characteristics. Thus, governors would protect large firms with high private benefits that accrue to the management, since managers of these firms are able to pay more for protection. Therefore, we expect more external management procedures and no liquidation procedures among large enterprises in efficient industries with high cash flows.[28] Smaller firms in loss making industries are more likely to have independent

[27] We do not consider employees in this paper because, according to Russia's Civil Code, employees of an enterprise are not considered to be creditors, and therefore, they can not file for bankruptcy.

[28] Firms in good industries are more likely to have large managerial private benefits. In addition, many enterprises are attractive to the governors not because they have high cash flows or private benefits themselves, but because they have strategic positions in their industries and regions. For instance, control over region-wide energy company gives power over many large enterprises in the region to the governor. Examples of such companies are Kuzbassenergo (Kemerovskaya oblast, external management introduced in September, 1998) and Dalenergo (Primorsky kray, external management was introduced in August 1998).

arbitrage court hearings, so they may be liquidated.

2) We expect external management procedures to be especially frequent in the regions where the governors are relatively strong, since their costs of influencing arbitrage courts are relatively small. For the same reason, regions with stronger governors should have fewer liquidation procedures.

3) External management procedures are an indication of the conflict between outside investors, on the one hand, and manager and regional governors, on the other. One of the largest outside creditors of Russian enterprises is the federal government. External management procedures, therefore, should be more frequent and liquidation procedures should be less frequent in the regions, where relations of the governor to the federal center are relatively bad. In addition, the regions with higher presence of firms with external management procedures should have higher federal tax arrears controlling for the total regional value added.

4) Bankruptcy is just one of possible regional protection measures. Protection implies that governors receive favors from managers. There are many different mechanisms for managers to make favors to the regional governors. These favors may come in the form of monetary contributions, barter, political support, etc. It is very difficult to measure these favors. We suggest that untransparent tax collection including in-kind tax payments and offsets could create an easy monetary channel for bribes from enterprises to the regional administration, since in kind payments usually allow arbitrary prices. The magnitude of private favors, then, could be measured by the percent of taxes collected in kind in the region controlling for regional value added.[29]

5) If courts are independent, introduction of external management in an insolvent firm should lead to restructuring, better financial management and overall increase in firm's performance because better management team replaces the old management team. In contrast, if bankruptcy procedure is captured, as we suggest, initiation of external management procedure does not improve firm's performance. We may not observe increase in performance even in case of independent bankruptcy, however, because restructuring takes a long time. Therefore, we look at employment cuts (so-called defensive restructuring) that, often, are the first step of restructuring. Independent bankruptcy is likely to cause layoffs. On the contrary, capture of bankruptcy should result in maintaining employment because layoffs are politically costly for the governor. To put it simple, capture of bankruptcy preserves

[29] A so-called "governors' off-budget fund', formed in 1997 in Kemerovskaya oblast, can serve as an example of the well-established mechanism for monetary contributions. Each enterprise in the region has been ordered by the governor to make contributions to this fund. According to the Russian nation-wide newspaper "Izvestia" (16 September, 1999), the deeply troubled West-Siberian Metallurgy Kombinat (ZapSib) has regularly contributed to this fund while accumulating large federal tax arrears.

the status quo for the firms.

4 Empirical analysis

In this section, we provide systematic tests of the empirical predictions of our model using data on Russian enterprises.

4.1 Data sources

For the purposes of our empirical study, we construct our own data set by merging data from the following sources:

1. A list of Russian firms where external management has been introduced between 1997 and the first half of 1999. We constructed this list by searching through all publicly available sources at the federal, regional and local level.[30]

2. A complete list of Russian firms where liquidation procedure has been started in between 1997 and the first half of 1999.[31]

3. Financial and statistical data for Russian firms in 1996, 1997 and 1998 from the Russian Enterprise Registry Longitudinal Database (RERLD).[32]

4. Regional statistical data from 1) statistical abstracts "Regions of Russia, 1998", 2) the official web site of the Russia's State Tax Agency, and 3) MFK Renaissance.

4.2 Empirical methodology, definitions of variables, and summary statistics

To test our model, we pose two empirical questions:

1) Given the ex ante characteristics of a firm, what are the probabilities that either a) the firm goes into external management procedure, or b) liquidation procedure is initiated against it, or c) bankruptcy procedure will not be initiated against this firm at all?

2) Do we see any signs of restructuring after external management procedure is initiated against firms?

[30] Sources included newspapers, press-releases, news-agencies announcements, etc. We had access to these sources through electronic news data bases available from the "Internet Securities" and "AK&M".

[31] This list is reported by the Higher Arbitrage Court Journal.

[32] This is a database containing panel data from the Goskomstat annual industrial censuses on most Russian industrial enterprises covering 85% of Russia's industrial output. Detailed information on how the RERLD was constructed is given in Brown and Brown (1999).

Answering the first question allows us to test empirical predictions 1 to 4 of the model described section 3.4. Giving answer to the second question tests the empirical prediction 5.

4.2.1 Testing for the effect of ex ante characteristics of firms

To answer the first question, our approach is to analyze the effect of ex ante characteristics of firms prior to time when bankruptcies were initiated on the probability that these firms become bankrupt. This approach allows ruling out any reciprocal effects of bankruptcy on characteristics of firms. So, we treat characteristics of firms as exogenous.

We divide firms into these groups by looking at their bankruptcy status in the period between 1997 and the first half of 1999.[33] We compare financial and performance characteristics of firms, industries and political characteristics of regions as of 1996 for these groups of firms. The groups are: 1) firms that did not go into bankruptcy in this period; 2) firms where external management was introduced; 3) firms in which liquidation procedure has started.

We estimate the Multinomial Logit regression model of a probability that a firm, given its characteristics, subsequently falls into either external management procedure or is liquidated. We use a sample consisting of all firms drawn from RERLD for 1996 to estimate the following model:

Probability$(Y_i = j) = F[\beta_1 * (\text{firm characteristics})_i + \beta_2 * (\text{industry characteristics})_i + \beta_3 * (\text{region characteristics})_i] + \varepsilon_i$, where F is a logistic function and i is an identifier of a firm in the sample.

Each observation of the dependent variable Y_i is equal to either of the three following outcomes, j:

0 - bankruptcy procedure was not initiated for the firm i;

1 - external management procedure was initiated for the firm i;

2 - liquidation procedure was initiated for this firm between i.

We use three groups of regressors: firm-, industry-, and region-specific characteristics. All characteristics are measured in 1996, unless stated otherwise. The first panel of the table 5 presents description of the sample, summary statistics, and definitions of all of the variables.

Firm characteristics consist of the following variables: 1) "*cash flow*" = Ln(cost per unit of output)$_i$;[34] 2) "*labor productivity*" = Ln(output per employee)$_i$; 3) "*restructuring*" = [Ln(output per employee in 1997)$_i$− Ln(output per employee in 1996)$_i$]; 4) "*size*" = Ln(employment)$_i$.

As **industry characteristics**, we consider: 1) "*industry's cash flow*" = industry median(firms' "*cash low*"); 2) "*labor productivity*" = industry median(firms' "*labor productivity*"); 3) "*restructuring*"

[33] As we discussed in introduction, bankruptcies, as an important phenomenon in Russia, started in 1998. There were, however, few bankruptcies in 1997 as well. We include them in our sample.

[34] Larger values of cost per unit of output mean smaller cash flow.

= industry median(firms' "*restructuring*").

As **regional characteristics** we use: 1) "*relations of governor to the federal center*", an index constructed by MFK Renaissance, which measures how difficult are the relationships of the governor with the federal government in 1997 (larger values mean better relationship); 2) "*strength of governor in the region*", an index constructed by MFK Renaissance, which measures to what extent the regional governor politically controls the economy of the region in 1997; 3) "*federal tax arrears*" = Ln(federal tax arrears per capita in the region of firm i in 1996); 4) "*cash tax collections*" = Ln(percentage of cash tax collections in total tax collections from the region in 1997); "GRP per capita" = Ln(gross regional product per capita in the region in 1996).[35]

Table 6 summarizes the empirical predictions of the model discussed in section 3.4 in terms of our variables in comparison to the empirical predictions of the benchmark model of an independent judge.

There are several important differences in predictions of our model and the benchmark case that allow us to test the model. Efficient bankruptcy model suggests that the effects of firm-, regional-, and industry-characteristics have the same sign for liquidation and reorganization (external management) procedures.[36] On the contrary, capture model predicts that each of the regional and industry- characteristics has opposite effect on probability that the firm is going to fall into liquidation or external management.[37] We discuss the foundations for these predictions at length in section 3.4.[38]

4.2.2 Testing whether external management causes restructuring

Our second empirical question is whether introduction of external management causes firms to restructure.[39] As discussed in section 3.4, we distinguish between two measures of restructuring: 1)

[35] Several regional characteristics are measured in 1997. For these characteristics, we do not have data for 1996. We, however, treat them as exogenous because 1) these characteristics vary very little in time and 2) very few companies in our sample of bankrupt firms went bankrupt in 1997.

[36] Signs should be the same for all variables except, possibly, the size of the firm because of political costs of liquidation. Liquidation and external management procedures may imply different magnitudes of effects, however.

[37] We do not have a clear prediction for the effect of GRP per capita, we use it just as a control for regional value added.

[38] Note that if data are consistent with predictions 1-4 from section 3.4, it is insufficient to conclude that the model is tested fully. This is because one can not empirically distinguish between the model and the following situation in which bankruptcy procedure is not captured. Suppose that strong regional governments do, indeed, provide protection to large regional enterprises against the federal government and the outside creditors. Federal government and the outside creditors, then, would try to collect their claims and, therefore, file for bankruptcy of these protected firms. In order to test our model fully, we, therefore, need to check not only what are the prior characteristics of the firms that go into bankruptcy but also test the hypothesis 5 from section 3.4.

[39] The motivation behind this question is given in point 5 of section 3.4.

growth in labor productivity, measured by $\Delta_t[\text{Ln(output per employee)}]_i$, and 2) employment growth, measured by $\Delta_t[\text{Ln(employment)}]_i$, where Δ_t is the difference between two consecutive years after introduction of external management. The first variable measures the change in firm performance; the second measures defensive restructuring.[40]

To test whether or not external management induced restructuring we compare the following two variables to zero:

$D_1 = \Delta_t[\text{Ln(output per employee)}]_i -$ Median industry $[\Delta_t[\text{Ln(output per employee)}]_i]$

$D_2 = \Delta_t[\text{Ln(employment)}]_i -$ Median industry $[\Delta_t[\text{Ln(employment)}]_i]$

The model predicts that $H_0 : D_1 = 0$ ($H_a : D_1 > 0$) and $H_0 : D_2 = 0$ ($H_a : D_2 < 0$) should not be rejected for firms with external management.[41] A clean test of these hypotheses for firms where external management was introduced in 1998 requires data for 1999. We do not have data for 1999. We can construct D_1 and D_2 only using differences between 1997 and 1998. We have 87 observations for D_1 and D_2 for firms that went into external management procedure in 1997, so we test our hypotheses on this sub-sample. We call this a "clean test". Since external management procedure in our model is identical to maintaining status quo for the firms, D_1 and D_2 (calculated using 97 and 98 data) should be zero for firms that went into external management in 1998 as well. Therefore, we test the hypotheses using a sample of 279 firms against which external management procedure started in 1997-1998. We call this a "dirty test". The second panel of table 5 presents summary statistics for variables used in these tests.

4.3 Empirical results

Table 7 presents the regression results of testing for the effect of ex ante characteristics of firms. The results support our theoretical findings since the signs of the coefficients are as predicted by our model and the magnitudes of the effects are economically significant.

First, given the industry and regional characteristics, having relatively low cash flows increases the probability that a firm falls in either forms of bankruptcy, external management or liquidation. Being technically efficient decreases the probability of a firm to fall into either forms of bankruptcy, external management or liquidation. And, having successful restructuring efforts decreases the probability of a firm to be liquidated. Successful restructuring efforts do not significantly affect the probability of a firm to fall into external management procedure. Size enters significantly: firms under external

[40] Both measures are imperfect; but only these two measures are available.

[41] Note that alternative hypotheses imply that firms with external management should have higher growth in labor productivity and lower growth in employment compared to other firms in their industry.

management are much larger than others on average, whereas firms under liquidation procedures are a bit larger than others. Size does not have significant negative effect on liquidation on average, as table 6 suggested, because as a comparison group in the regression we take all firms in the Registry that did not go bankrupt and, therefore, in the sample we have a lot of very small firms that do not even have debts (and therefore can not be bankrupt). The prediction of the model hold since the liquidated firms are small compared to firms that are large enough to have debts and to have large enough liquidation values to make it worth while to file for their bankruptcy.

Second, given the firm- and region-specific characteristics, being in an industry with large cash flows positively affects the probability of going into external management procedures negatively affects the probability of going into liquidation. Technical efficiency of an industry does not significantly affect bankruptcy probabilities. Restructuring efforts prior to most bankruptcies in an industry negatively affects the probability of a firm in this industry falling into external management and into liquidation.

Third, given the firm- and industry-specific characteristics and controlling for gross regional product per capita, regional political variables significantly affect the prior probabilities: probability to observe external management is higher and probability of liquidation is lower in the regions where the governor has bad relationships with the federal center and is relatively more politically powerful in his region. The probability of having external management is also positively affected by our measure of the regional political protection - federal tax arrears per capita. The probability of liquidation is negatively related to federal tax arrears. Percent of taxes collected in cash is lower for regions with external management procedures.

These results are very robust. They are unchanged irrespective of whether we control for 2-digit industry-specific effects with dummies and if we include all variables or run regressions for each of the variables separately or take any combination of them. (Table 7 presents the results of three regressions.) Both qualitative and quantitative results are also unaffected by running regressions on the whole sample from Registry or on a sub-sample that includes only firms with employment not below 100 employees. (The reason to run the regression on this sub-sample is that firms with employment below 100 are not obliged to file their information to the Registry, so there could be some self-selection biases associated with that.)

These results are consistent with our model of bankruptcy capture. All of them are as predicted by the hypotheses summarized in table 6.

Table 8 presents the results of the tests of our hypotheses that external management does not cause improvement in performance and is not associated with worker layoffs. The results are consistent with the model in three out of four tests. Indeed, the hypothesis that there is no difference between the

growth in labor productivity for the firms that went into external management and for the rest of the firms in their industries can not be rejected to the alternative that it is positive. The difference is statistically indistinguishable from zero. P-values are 0.42, in case of the "clean test," and 0.78, in case of the "dirty test". The next hypothesis is that there is no difference between employment growth in the firms that went into external management and the rest of the firms in their industries. The alternative hypothesis is that this difference is negative. The results of testing of this hypothesis are mixed. The "clean test" supports our model. The difference is insignificant. P-value for the test is 0.42. The "dirty test" yields negative difference with t-statistic equal to -1.41 and P-value equal to 0.08.[42] Since three tests out of four are consistent with the prediction 5 of our model and only one test rejects it with relatively low power, we conclude that the data broadly support the model of bankruptcy capture. In addition, there are many anecdotes that directly support hypothesis 5. For example, the team of external managers that are pro-Aman Tuleev (the governor of Kemerovskaya oblast) at the "Kuznetsk Metallurgy Kombinat" preformed much worse than their counterparts from a team supported by the major outside investor "МКОМ". Other examples reported in the media include: Achinsky glinozemny kombinat and Krasugol (Krasonyarski kray), West-Siberian Metallurgy Kombinat (Kemerovskaya oblast), Korshunovsky GOK (Irkutskaya oblast), and GP Russkii Dizel (St. Petersburg).

5 Conclusion

In this paper, we interpret the phenomenon of bankruptcies in Russia using a theoretical model and systematic analysis of available evidence. Bankruptcy laws are supposed to solve several important problems of governance: release assets from the inefficient use, secure rights of creditors, and discipline the managers, etc. Although Russian bankruptcy law was written to serve these goals, in reality, it does not cause restructuring or harden managerial budget constraints. We argue that current legal system in Russia is faulted by the capture of regional divisions of arbitrage courts.We analyze the consequences of this capture.

A supposedly balanced law under the absence of the rule of law has transformed into a mechanism that allows regional governors in alliance with the incumbent managers of the large regional enterprises to leave other claim-holders unsatisfied. In particular, outside creditors, even the major ones, like the large Moscow banks and the federal government, have no legal mechanism for collecting their claims.

We build a simple model to investigate effects of bankruptcy capture. We show that when the

[42] P-values are given for one-sided tests.

judiciary is captured, the manager has no incentive to restructure and the debt to the outside investor is not repaid. Instead, the threat of bankruptcy is used to perpetuate insolvency in a collusive deal between the manager and the governor. We test empirical predictions of the model using data on Russian industrial enterprises. Our empirical results are the following. First, the probability of external management in a firm is positively related to its size, profitability of the industry, strength of governor in the region where the firm is operating, tension of relationship of the governor to the federal center, federal tax arrears in the region, and opacity of tax collection system in the region. The probability of liquidation is negatively related to most of these factors. And second, introduction of the external management procedure does not change performance of the firms and is not associated with layoffs.

The dependence of arbitrage courts on regional governments has important implications for Russian economy. First, there is no pressure on managers of industrial enterprises to restructure. Second, even very profitable projects can hardly be financed by the outside investors because the bankruptcy law does not secure their property rights. Third, regional protection of firms against federal tax authorities seriously undermines federal attempts to improve tax collection.

Our findings shed some light on a fundamental question: Does the text of law matter when enforcement is poor and when there is no independent judiciary? This paper suggests that it may be worth for a society to give up some of nice and efficient features of the law in order to make it more feasible to implement. The problem of dependent judiciary is likely not to be confined to Russia.

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Appendix

Proof of Proposition 1

i) In the subgame where $e = C$, and the investor has not filed for bankruptcy, the game starts all over again for a new sequence. But then the manager faces in the new sequence exactly the same incentives, in particular if it was optimal to choose $e = C$ at $t = 0$, is also optimal to do so at $t = 1$ so debts won't be repaid at the end of the next period either. Anticipating this the investor files for bankruptcy at $t = 1/2$, since $L - \tau > 0$. Thus, choosing $e = C$ provides the manager with the life-time utility of $V^C(1-\delta)$ (as he loses control at $t = 1/2$). In the subgame where $e = R$, the investor obtains I^R if he lets the manager complete the restructuring and $L - \tau$ if he chooses to bankrupt the firm. Under the condition for proposition 1 i), he chooses the let the manager proceed. Therefore, a manager with $V^R \geq \max\left\{V^C(1-\delta), V^S\right\}$ chooses $e = R$ at $t = 0$.

ii) The proof is similar to that of i) except that under the condition of proposition 1 ii), the investor chooses to liquidate even in the subgame when $e = R$. Since $(1-\delta)V^C > 0$, the manager never initiates restructuring.■

Proof of Proposition 2

The result follows immediately from proposition 1 and the assumption of a benevolent judge. ■

Proof of Proposition 3

In any subgame where $e = R$, the governor faces the choice between awaiting debts repayment and the flow of taxes or liquidating which yields a payoff of $L - \gamma$. No bribes can be paid since the manager has no liquidity. By condition b), the governor prefers to liquidate and the manager loses control so his payoff is zero.

In the subgame where $e = C$, the governor obtains his one time payoff $L - \gamma$ if he liquidates. If he takes the bribe(and refrains from liquidating), the manager proceeds to the next period. The manager chooses $e_2 = C$ if and only if $V^C - \sum b_i^* \geq V^S$. Under condition a) $\left(V^S - V^C\right) > \max\left\{L - \gamma, (1-\delta)V^C\right\}$ the governor prefers to satisfy the condition for $e_2 = C$, rather than to liquidate or induce stealing. Using our assumption on negotiations, i.e. (constrained) symmetric Nash bargaining solution, we must in equilibrium have $\sum_{i=1}^{\infty} \delta^{i-1} b_i^* = \min\left\{\frac{b^N}{(1-\delta)}, \frac{\overline{b}}{(1-\delta)}\right\}$. Hence, we obtain that under the conditions in proposition 3, the any subgame perfect equilibrium entails $e = C$, no bankruptcy and no liquidation and $\sum_{i=1}^{\infty} \delta^{i-1} b_i^* = \min\left\{\frac{b^N}{(1-\delta)}, \frac{\overline{b}}{(1-\delta)}\right\}$. ■

Proof of Corollary 1

In the subgame where $e = R$, the governor always bankrupt the firm see proof to proposition 3. Initiating restructuring ($e = R$) means losing control and 0 payoff to the manager. Hence, he refrains

from $e = R$ even where $V^C < V^R$. ■

Proof of Corollary 2

Where G^R large, the governor has own interest in restructuring so he always lets the manager complete it. The manager however chooses not to restructure when $V^R < V^C - \sum_{i=1}^{\infty} b_i^*$. By condition a) the governor prefers to pocket bribes rather than to liquidate. ■

Proof of Proposition 4

If $\gamma < (1-\delta) V^C$, the manager has liquidity to cover the cost of protection out of his current private benefit. Since the governor is not credible ($L - \gamma < 0$), the most the manager needs to pay for protection is $(1-\delta) V^C$. He therefore chooses not to restructure in all cases when $V^R < \delta V^C$. ■

Table 1. Basic statistics on initiation of bankruptcy procedures all enterprises (including financial sector).

	1993	1994	1995	1996	1997	1998
Claims submitted	n/a	n/a	n/a	≈4,000	≈6,000	12,781
Proceedings initiated	<100	240	1,108	2,618	4,320	8,337
Liquidation ordered	50	n/a	469	1,035	2,200	4,747
External management ordered	n/a	n/a	135	413	850	1,041
Cases refused	n/a	n/a	n/a	n/a	800	4,444
Who initiated bankruptcies in 1998 (% of total claims submitted)						
Debtor		20.38				
Creditor (not government)		24.97				
Creditor (government)		53.02				
Prosecutor		1.63				

Source: Higher Arbitration Court Journal

Table 2. Summary information.

		External management		Liquidations		RERLD	
	Significant Difference B/w External Management and Liquidation	Median	Mean (SE)	Median	Mean (SE)	Median	Mean (SE)
Employment	Yes	796	2027 (202)	240	472 (45)	143	489 (11)
Output	Yes	18471	225491 (50562)	3282	14620 (4785)	4516	44692 (3806)
Cost per ruble of output	Yes	112	143 (7)	135	206 (45)	97	117 (0.97)
Labor productivity	Yes	23	52 (6)	13	22 (2)	31	54 (62)
Labor productivity growth, %	Yes	-17	-18 (2)	-29	-25 (3)	-5	-4 (34)

Table 3. Industrial structure of liquidated firms and firms under external management (1996, firms that got bankrupt in 1997-1999)

External management and liquidated firms. Industrial structure in 2 digit OKONH. All industries. Population of firms in Russia is taken as a benchmark.

Industry		Output, %			Employment, %			Number of firms, %		
		Extern. M.	Liquid.	Russia	Extern. M.	Liquid.	Russia	Extern. M.	Liquid.	Russia
11	Fuel and energy	55.98	3.97	38	15.87	1.17	13	7.10	1.06	6
12	Metallurgy	18.87	7.82	14	20.18	7.85	11	6.83	3.44	3
13	Chemical, Petrochemical, Pharmaceutical	11.75	2.56	7	15.79	4.61	7	9.84	2.38	3
14	Engineering, metal-working	8.76	24.38	17	31.74	34.62	38	30.05	21.69	24
15	Wood and paper	1.17	8.98	4	4.43	21.25	8	12.02	31.48	11
16	Construction	0.32	3.28	4	0.83	4.57	6	3.83	9.79	9
17	Light industry	0.66	2.72	2	6.27	12.16	7	10.93	15.08	12
18	Food industry	2.27	46.05	11	4.39	13.62	9	15.85	12.96	20
19	Other	0.22	0.24	4	0.51	0.14	3	3.55	2.12	12
Total		100	100	100	100	100	100	100	100	100

Liquidated firms. Industrial structure in 3 digit OKONH. Industries with highest employment percentage of all liquidated firms.

Industry		Employment, %		Output, %		Number of firms, %	
		Liquid. Firms	Russia	Liquid. Firms	Russia	Liquid. Firms	Russia
151	Logging	16.89	2.8	17.22	0.7	21.16	5.4
152	Wood-working	13.71	2.9	11.15	1.3	15.70	5.6
171	Textile	12.88	3.4	6.81	0.9	7.17	3.7
147	Other machine building (i.e. electronics)	10.97	13.1	3.49	4.1	4.44	4.1
Total		54.45	22.2	38.67	7.0	48.46	18.8

External management firms. Industrial structure in 3 digit OKONH. Industries with highest employment percentage of all external management firms.

Industry		Employment, %		Output, %		Number of firms, %	
		External Manag.	Russia	External Manag.	Russia	External Manag.	Russia
112	Fuel industry (oil and gas)	19.04	3.8	54.50	16.5	7.14	0.9
131	Chemical	16.30	4.9	9.43	4.6	9.64	1.9
121	Ferrous metallurgy	16.15	6.0	16.53	8.7	5.00	1.2
143	Instrument engineering	9.09	8.5	2.68	6.0	7.86	2.6
Total		60.58	23.2	83.15	35.8	29.64	6.6

Note: Industry number 147 is very widely defined, we have observed liquidations only in Ship building, Electronics, and Communications

Table 4. Several performance and financial indicators of a median firm in selected 3 digit OKONH industries that have biggest presence of bankrupt firms.

Industry	External management or liquidation prevails:	Cost per rouble of output	Labor productivity	Balance sheet profit	Labor productivity growth
151 Logging	Liquidation	112.7	18.8	-73.0	-9.7
152 Wood-working	Liquidation	100.0	21.0	0.0	-7.4
171 Textile	Liquidation	110.8	14.1	0.0	-9.7
147 Other machine building	Liquidation	96.1	16.9	0.0	0.0
Registry		95.7	30.0	7.2	-5.0
112 Oil and gas	External management	75.5	290.7	8998.5	-16.0
131 Chemical	External management	93.3	48.9	41.5	1.0
121 Ferrous metallurgy	External management	91.3	67.0	946.9	1.0
143 Instrument engineering	External management	91.0	30.0	34.4	6.9

Table 5

Panel A
Summary statistics and precise definitions for variables used in regressions testing for the effect of ax ante characteristics of firms

Variable:	Measured by:	Mean	Std. Dev.	Min	Max
Dependent variable:	0- No bankruptcy (16923 obs.) 1- External management (344 obs.) 2- Liquidation (208 obs.)	0.04	0.25	0	2
Independent variables:					
Firm characteristics:					
Cash flow (measured by AC)	Log cost per unit of output	4.65	0.34	-0.24	5.45
Labor productivity	Log output per employee	3.43	1.05	-1.69	6.81
Restructuring	Change in log labor productivity	-0.08	0.48	-0.99	2.44
Size	Log employment	5.17	1.27	1.10	10.53
Industry characteristics:					
Cash flow (measured by AC)	Median log cost per unit of output	4.57	0.07	4.32	5.19
Labor productivity	Median log output per worker	3.44	0.71	1.97	5.67
Restructuring	Median change in log labor productivity	-0.04	0.06	-0.88	0.75
Region characteristics:					
Relations of governor to center	MFK Renaissance Index 1	3.39	1.32	1.00	5.00
Strength of governor	MFK Renaissance Index 2	3.77	1.73	1.00	5.00
Federal tax arrears	Log federal tax arrears per capita	-3.92	0.87	-7.87	-1.50
Cash tax collections	Log % of taxes collected in cash	-0.68	0.29	-1.43	-0.06
Gross regional product	Log GRP per capita	9.49	0.42	8.54	11.09

Number of observations: 17,475 (calculated using firms for which we have all variables)

Panel B
Summary statistics and precise definitions for variables used in testing whether external management causes restructuring

Variable:	Measured by:	Mean	Std. Dev.	Min	Max
D1	Difference between the change in log labor productivity in external management firm and the change in log labor productivity in the median firm in the respective industry	-0.042	0.756	-3.97	2.55
D2	Difference between the change in log number of employees in external management firm and the change in log number of employees in the median firm in the respective industry	-0.018	0.215	-0.81	0.80

Number of observations: 279

Table 6. Predictions of our model of captured bankruptcy comparing to the predictions of the efficient bankruptcy model in terms of our empirical variables.

	Capture of bankruptcy (Dependent on governor judiciary)		Efficient bankruptcy (Independent judiciary)	
	External management	Liquidation	External management	Liquidation
Firm characteristics:				
Cash flow (measured by cost)	+	+	+	+
Labor productivity	-	-	-	-
Restructuring	?	-	-	-
Size	+	-	No effect	No effect
Industry characteristics:				
Cash flow (measured by cost)	-	+	+ or no effect	+ or no effect
Labor productivity	+ or no effect	- or no effect	No effect	No effect
Restructuring	?	-	-	-
Region characteristics:				
Relations of governor to center	-	+	No effect	No effect
Strength of governor	+	-	No effect	No effect
Federal tax arrears	+	-	+ or no effect	+ or no effect
Cash tax collections	-	No effect	No effect	No effect
Gross regional product	No effect	No effect	No effect	No effect

Table 7. Multinomial Logit Model. Comparison group - firms not in any form of bankruptcy. Bankruptcy outcomes are: 1 if firm has external management; 2 if firm is liquidated

	Regression (1)				Regression (2)				Regression (3)			
	External management		Liquidation		External management		Liquidation		External management		Liquidation	
Firm characteristics:	Coefficient	Slope, %	Coefficient	Slope %	Coefficient	Slope %	Coefficient	Slope %	Coefficient	Slope %	Coefficient	Slope %
Cash flow (measured by cost)	1.67***	3.17	1.92***	2.16	2.16***	4.08	2.55***	2.85	2.18***	4.14	2.58***	2.90
	(0.19)		(0.21)		(0.14)		(0.15)		(0.14)		(0.15)	
Labor productivity	-0.36***	-0.68	-0.47***	-0.53								
	(0.09)		(0.12)									
Restructuring	-0.02	-0.03	-0.61***	-0.70	0.04	0.08	-0.54***	-0.61	0.03	0.07	-0.53***	-0.60
	(0.10)		(0.15)		(0.10)		(0.15)		(0.10)		(0.15)	
Size	1.29***	2.47	0.61***	0.67	1.27***	2.41	0.53***	0.58	1.25***	2.38	0.55***	0.60
	(0.06)		(0.07)		(0.06)		(0.07)		(0.06)		(0.07)	
Industry characteristics:												
Cash flow (measured by cost)	-3.89***	-7.55	3.42**	4.01	-3.27***	-6.36	4.50***	5.19	-4.00***	-7.79	4.44	5.18
	(1.00)		(1.26)		(0.79)		(0.98)		(0.79)		(1.00)	
Labor productivity	0.21	0.41	0.14	0.15								
	(0.13)		(0.16)									
Restructuring	-2.85***	-5.41	-3.19**	-3.59	-2.15**	-4.08	-1.60	-1.77	-2.05**	-3.91	-1.65	-1.84
	(0.98)		(1.59)		(0.89)		(1.43)		(0.88)		(1.42)	
Region characteristics:												
Relations of governor to center	-0.16**	-0.31	0.30***	0.35	-0.24***	-0.46	0.32***	0.37				
	(0.07)		(0.09)		(0.06)		(0.09)					
Strength of governor	0.12**	0.24	-0.10	-0.12	0.15***	0.29	-0.14**	-0.16				
	(0.05)		(0.07)		(0.05)		(0.07)					
Federal tax arrears	0.16**	0.31	-0.15*	-0.18					0.21***	0.41	-0.23***	-0.27
	(0.08)		(0.08)						(0.08)		(0.08)	
Cash tax collections	-0.76***	-1.46	-0.47*	-0.52					-0.72***	-1.37	-0.36	-0.40
	(0.22)		(0.27)						(0.22)		(0.27)	
Gross regional product	-0.14	-0.27	0.05	0.06	-0.19	-0.37	-0.18	-0.20	-0.32**	-0.62	0.01	0.02
	(0.17)		(0.20)		(0.15)		(0.18)		(0.15)		(0.19)	
Constant	0.09	0.94	-33.93***	-38.90	-4.74	-8.18	-39.35***	-44.62	-0.06	0.82	-41.60***	-47.69
	(4.93)		(6.13)		(3.83)		(4.55)		(3.92)		(4.75)	
Average unconditional probability, %		1.96		1.16		1.95		1.15		1.96		1.16
Observations	17475				17632				17475			
Pseudo R2	0.223				0.212				0.214			
Log Likelihood	-2164				-2199				-2191			

Stars denote statistical significance at 1, 5, and 10% significance level

Table 8.
D1 = difference between the growth of labor productivity in external management firm and the growth of labor productivity in the median firm in the respective industry
D2 = difference between the growth of number of employees in external management firm and the growth of number of employees in the median firm in the respective industry

	Mean (SE) t-statistic (p-value for one-sided test)	Number of observations
Restructuring = change in log labor productivity		
D1:		
"Clean" test (97): H_0: D1= 0 (H_a: > 0)	0.0164 (0.086) t = 0.1923 (p = 0.42)	87
"Dirty" test (97-98): H_0: D1 = 0 (H_a: > 0)	-0.04169 (0.045) t = -0.9203 (p = 0.82)	279
Defensive Restructuring = change in log employment		
D2:		
"Clean" test (97): H_0: D2 = 0 (H_a: < 0)	-0.0057 (0.029) t = -0.1980 (p = 0.42)	87
"Dirty" test (97-98): H_0: D2 = 0 (H_a: < 0)	-0.0182 (0.013) t = -1.4107 (p = 0.08)	279

"Clean" test means that growth is calculated for 1997-1998 and sub-sample consists of firms that went into external management in 1997.
"Dirty" test means that growth is calculated for 1997-1998 and sub-sample consists of firms that went into external management in 1997 and 1998.

Figure 1. Independent judge

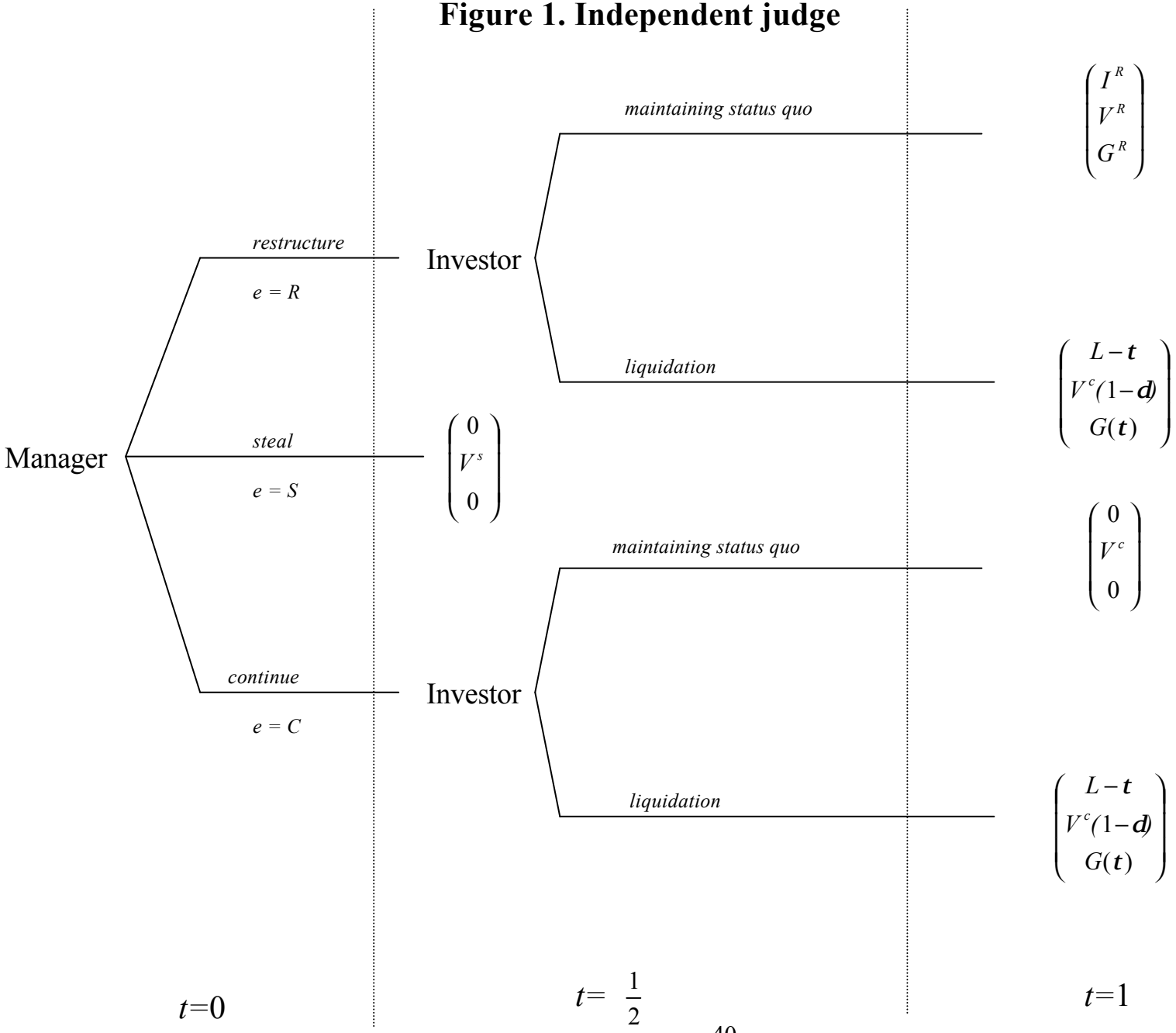

Figure 2. Dependent judge