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DISCUSSION PAPER 10-2016

CONTINUITY UNDER A DIFFERENT NAME  
THE OUTCOME OF PRIVATISATION IN SERBIA

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# Continuity under a different name

## The outcome of privatisation in Serbia

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**Abstract** Normally, privatisation is seen as beneficial. In the case of Serbia, the results are disappointing. This paper considers the failure of privatisation in Serbia – a latecomer in the matter – where privatisation was partly a result of exogenous pressures. In Serbia, a sizeable number of privatised firms were bought by bureaucrats and politicians and all firms were subjected to a period of supervision. We argue that this process of privatisation was designed to allow rent-seekers to conserve their privileges through asset stripping and that this explains the failure. In order to do so, we perform empirical analysis of the determinants of liquidation, merger and bankruptcy of privatised firms from 2002 to 2015. We construct a novel data set from primary sources, free of the ‘*survivorship bias*’ and containing proxies for various types of owners, indirect signs of asset stripping strategy and a broad range of controls. Our results indicate that firms owned by politicians face significantly higher risks of bankruptcy, especially after the end of supervision.

**Keywords** privatisation · asset stripping · logistic regression · survival analysis

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## 1 Introduction

Privatisation is dominantly aimed at increasing market efficiency. In transitions from planned economies to market economies, it is a necessary pillar. The path to this goal is long and never straightforward. Generally, the results are seen as beneficial (see Megginson and Netter, 2001). Nonetheless, there are instances where privatisation fails (Boettke, 1993, 2001, Schamis, 2002). For a number of political reasons Serbia was one of the latecomers to step on this path. The impetus for privatisation was partly domestic and partly imposed by foreign pressures, notably from international organizations and the European community. The case of Serbia fully confirms the statement that privatisation is the most challenging part of transition (Hamm et al., 2012). Serbia did not escape the privatisation-related failures and traps by learning from the experience of the other transition economies. Privatisation processes generally fall prey—as in the case of Serbia—to asset stripping (see Hoff and Stiglitz, 2004). A number of works (Gregurek, 2001, Gregoric, 2002, Cerovic and Mitrovic, 2007, Koman and Vasileva-Markovska, 2007, Koman et al., 2011, 2015) highlight the negative role of asset stripping during privatisation. Campos and Giovannoni (2006) note that the propensity to strip assets is related to the power of the agent to influence the framework of privatisation. In essence, the process of privatisation itself can be subjected to rent-seeking (Krueger, 1974, Tullock, 2011) and lead to *“institutional stickiness”*, whereby institutions are so well embedded in the fabric of society that exogenous reforms would most likely fail to generate the desired results (Boettke et al., 2008).

In this paper, we argue that failure in Serbia is explained by rent-seeking bureaucrats and politicians who, feeling threatened by the impending reforms, co-opted the framing of the privatisation process in order to maintain their rent-extraction by allowing them to strip formerly state- and socially-owned corporations of their assets. To make our case, we assemble a novel dataset in order to reveal any effects which could be attributed to asset stripping. The data collected in order to perform the analysis has several dimensions: we combine the official data from the privatisation agency with the data on the background of the buyers and the events, court decision and criminal records associated with the owners before and after the privatisation. The latter is necessary to shed light on the behaviour of the new owners: whether they complied with the law before and after the privatisation. This novel combination of data enables us to bring new variables into the analysis, which were previously left out (Guriev and Rachinsky, 2005, Gorodnichenko and Grygorenko, 2008, Sprenger, 2014). More precisely, we can divide firms by type of owner. Overall, this allows us to use a strategy of survival analysis which is well-suited to our case. Privatisation was progressive in the sense that the transfer of ownership was subjected to a supervision period. Previous papers, where survival and duration models were applied, (Xu et al., 2014, Sprenger, 2014), do not focus on the end of supervision. By differentiating owners, we can see if the outcomes differed for former bureaucrats and politicians (those who were insiders in the process and could easily shape it). In addition, our strategy is not prone to *“survivorship bias”*, a measurement error related to including in the dataset only those firms, which have survived through privatisation. In our dataset we cover the firms which failed, as well as the firms which continue their existence. Our results show that, once supervision ended, firms owned by former politicians and bureaucrats were subjected to asset stripping. While there were significant failures regardless of ownership, which is to be expected during transition as resources are reallocated, the type of owner did not matter until the end of supervision at which point failures increased dramatically for firms owned by former politicians and bureaucrats. Our strategy addresses and resolves the points of Kikeri and Nellis (2004), who criticised the empirical research of the aftermaths of privatisation. Our findings suggest a new view on the role of the shaping of the process of privatisation.

The paper is structured as follows: we start with the literature overview where we examine well-established theories of privatisation, not limited to game-theoretic models but containing empirical works as well; then we describe the empirical strategy and framework in order to ensure a smooth transition to the section on our data sources and variable descriptions. Subsequently, we present the results of the logistic regressions with estimated marginal effects, conduct goodness-of-fit tests and additionally perform survival analysis. The interpretation as well as critical assertion follows in the discussion. At the end, the concluding remarks summarise the key findings.

## 2 Literature overview

Transitioning from a planned economy to a market economy is a radical but beneficial process (Megginson and Netter, 2001). Nonetheless, the process can fail to generate the desired outcomes as a result of rent-seeking. Normally, rent-seeking is used to explain behavior aimed at acquiring gain for oneself at the expense of society either through theft or government favors (Tullock, 2011, Krueger, 1974, Mueller, 2003, pp. 333-355). Large sections of the rent-seeking literature have concentrated on rent-seeking destroying wealth through lobbying for restrictions to competition, favorable regulatory barriers and privileged market status (Olson, 1982). However, rent-seeking can also occur in the process of liberalisation, deregulation and privatisation. In the *Encyclopedia of Public Choice*, Susan Rose-Ackerman (2003, p. 70) pointed out that "unfortunately, privatisation does not always imply the creation of competitive markets" since the "process of turning over assets has itself been corrupted by collusion between powerful private and public interests" (Rose-Ackerman, 2003, 70). In essence, this process of rent-seeking may allow "bad" institutional features to "stick" (Boettke et al., 2008) and by the persistence of ambiguous property rights people are distracted from engaging in productive activities (Gelb et al., 1998).

Individuals who have a vested interest in preserving their rents can either resist the reforms or co-opt them. In planned economies, rent-seekers can be found embedded within the state (Anderson and Boettke, 1997) when individuals are making decisions about the allocation rather than markets, the rent-seeking activities are at their maximum (Gelb et al., 1998). Traditions, norms as well as political culture and associated institutions favoured numerous rent-seeking opportunities during the transition (Hillman and Ursprung, 2000). Through patronage, over-market wages, prestige and reputation, politicians and bureaucrats can extract rents (Niskanen, 1971, Mueller, 2003, pp. 359-385). In essence, politicians and bureaucrats are no angel and they can proceed to rent-extraction themselves or help others do so in exchange for a share of the spoils (Tullock, 1972, 2003). Politicians and bureaucrats who previously supervised the state-owned companies would have lost the stream of benefits associated with their functions. However, it is possible to co-opt the process by offering inside connections for the owners of the privatised firms. In fact, they could even acquire state assets and propose terms of sale that allow them to extract their rents differently. Alternatively, they may be allowed to acquire liquidated assets at below-market prices which would artificially increase profitability. Such co-opting of the reform process is a commonly used channel for explaining poor transition in formerly socialist economies. Managers of formerly state-owned firms, and politicians, have succeeded in maintaining control of large parts of the stock of socialist physical capital (Campos and Giovannoni, 2006). Thus, asset stripping of state-owned firms turns out to be a common feature of privatisation.

Hoff and Stiglitz (2004) were two of the first to model the preferences for asset stripping. They proposed that uncertainty about the legal regime leads to asset stripping, and stripping can give agents an interest in prolonging the existing legal framework (Hoff and Stiglitz, 2004). Campos and Giovannoni (2006) developed an alternative model in which asset stripping is driven by the interplay between the firm's potential profitability and its ability to influence law enforcement. They found that relatively large firms, which use stripped assets, will be safe from law enforcement due to the fact that the costs of government intervening against them (in terms of influence, bribes or political support) are larger than the benefits of reclaiming the stripped assets. Additionally, they found that the firms with sufficient political power and intermediate levels of potential profitability will be the ones that choose to use stripped assets. There is further evidence of such outcomes (e.g., Gregurek, 2001, Gregoric, 2002, Cerovic and Mitrovic, 2007, Koman and Vasileva-Markovska, 2007, Koman et al., 2011). Koman et al. (2015) tested econometric models of asset stripping in mass privatisation in Montenegro and found that, in the absence of the rule of law, many firms that appear to have disappeared in the process of privatisation were, in fact, expropriated by managers and individuals with political connections. Regarding the characteristics of the firm that turn out to be significant predictors of asset stripping, they found that more productive firms and the smaller firms were also more likely to go bankrupt or be liquidated. The absence of the rule of law, which enabled the asset stripping behavior of new owners (politicians or politically connected and influential investors), significantly influenced the success of privatisation in terms of number of firms that survived after privatisation. Megginson

and Netter (2001) found that the identity of the new owners and managers was important in determining post-privatisation performance.

The characteristics of the political system in the country are also found to be a significant factor for the presence of asset stripping behavior. Grzymala-Busse (2003) found that where several strong opposing parties competed for governance, the resulting electoral uncertainty led them to constrain each other through formal regulations and informal practices. In contrast, where one party dominated political competition, lax (or nonexistent) regulations allowed the informal extraction of resources from state firms (asset stripping), the procurement of favorable privatisation deals, and the accumulation of positions in public administration. Apart from that, several other political factors turn to be the significant predictors of success of privatisation. Bjørnskov and Potrafke (2011) found that market-oriented governments promoted the privatisation of small-scale industries more than that of large-scale ones, and that the leftist governments stuck to public ownership more strongly at the beginning of the privatisation than in the following period. Bor-tolotti and Pinotti (2008) showed that privatisation is delayed in democracies characterised by a larger number of parties and operating under proportional electoral rules.

Bearing in mind these conclusions and findings from the related literature, we proceed to formulating the empirical framework and strategy.

### 3 Empirical strategy

In the previous section we have noted the main findings of other authors. These can be summarised as follows: The first statement, consistent through many works (e.g., Koman et al., 2015, Hoff and Stiglitz, 2004, Lipton and Sachs, 1990, Boettke, 1993, 2001, Schamis, 2002, Rose-Ackerman, 2003), is that the institutional environment at the beginning of privatisation can create loopholes allowing asset stripping strategies on the part of rent-seeking agents. The second statement, often seen in the literature (e.g., Campos and Giovannoni, 2006), concerns the power of agents to outmaneuver or exploit institutions and regulation.

Before we elaborate the working hypotheses, a brief description of the privatization process and the related supervisory regulation is needed. When the price is paid in a lump sum, the Privatisation Agency continued to supervise the contractual provisions regarding investment plans, social program and continuity of the dominant or core business activity for maximum of three years after the signing of the contract. During this period, any violations of the Privatisation Agency led to a sanctions ranging from a warning to termination of the agreement. Therefore asset-stripping during this period entailed high costs and penalties. After expiration of this period, the state could no longer influence strategic decision-making in individual firms. For instance, if the firm is bought under the lump sum scheme with a single payment, then the maximum length of the supervision period would be five years from the date of purchase (date of privatisation); whereas, if the firm was bought with installment payments, the total duration of supervision reaches five years, i.e. after the last installment is paid, but with a broader range of aspects to be supervised (e.g., borrowing restrictions or restrictions on the sale (of part) of the property).

Our empirical strategy is based on identifying whether a specific type of new owner or a specific ownership strategy impacts the risk of failure, or bankruptcy. The proxies for the variables, presented below, will be explicitly mentioned in the subsequent section on the data; however, at this point we would like to formulate the empirical model needed for our purposes. In a broad sense, we estimate the determinants of failure, having specific hypotheses in mind. Distinguishing between different types of buyers is the first step in our analysis:

**Hypothesis 1** *Specific types of owner may be related to higher risks of failure.*

The first hypothesis is related to specific characteristics of owners. Certain types of owners may have different discount factors<sup>1</sup> than the others; or they may have a higher propensity or

<sup>1</sup> Here we would like to note that there exist theories of endogenous time preferences that depend on wealth. Even though some authors reject such a relationship (see Ogaki and Atkeson, 1997, for consumption decisions), it may still be the case that wealth, among many other factors, determines the individual discount factor. Distinguishing between the rich and the poor agents may be relevant for voucher privatisation; however, in our case the sample consists of auctions and tenders. Our identification strategy is based on background information on the buyers: we

ability to strip assets. An owner, who owns other firms in the sector, may purchase the firm with an intention to close it and eliminate competition. The characteristics and preferences are heterogeneous and with the help of our analysis we will be able to distinguish between the positive or negative impacts of certain types of owner categories on the risk of failure.

**Hypothesis 2** *Specific ownership strategy, attributed to asset stripping, may be related to higher risks of failure.*

The second hypothesis is related to asset stripping types of strategies, chosen by the owners. These may be related to a certain type of owner; however, they may represent an optimal outcome of economic decision-making: e.g. compliance to the contract before the end of supervision and after, or asset stripping after the end of supervision and similar strategies. Whereas the hypotheses are focused on the buyer, we also control for the characteristics of the firm.

The empirical analysis is applied on the data, where we estimate the determinants of the probability of a certain terminal outcome. In this case we require the assumption that our probabilities are conditional on the type of the owner and on the choice of strategy. We start with the formal definition of the outcome. The outcome  $j$  can be related to four mutually exclusive categories: the firm is still active (0 or the base category); liquidated (1); merged (2) or bankrupt (3). The last outcome can be identified as failure—the main focus of our paper.

Our data set, described in the next section, captures the terminal outcome of the decision-making of the owners. Yet we can isolate the main effects of interest and define the conditional probability of an outcome  $j$  as in Hosmer and Lemeshow (2000, pp. 261-262), bearing in mind that  $g_0(T, S, X) = 0$  and the probabilities sum to unity:

$$P(y = j|T, S, X) = \frac{e^{g_j(T, S, X)}}{1 + \sum_{h=1}^3 e^{g_h(T, S, X)}} \text{ for } j = 0, 1, 2, 3 \quad (1)$$

The logit functions  $g_j(T, S, X)$  for  $j \neq 0$  can also take a linear form, which we later estimate:

$$g_j(T, S, X) = \ln \left[ \frac{P(y = j|T, S, X)}{P(y = 0|T, S, X)} \right] = \beta_{j0} + \beta_{jT}T + \beta_{js}S + \beta_{jx}X \quad (2)$$

Where  $T$  is a dummy for type of owner,  $S$  is a vector of proxies for the asset stripping strategy and  $X$  is controls, mainly related to the characteristics of the firm (e.g. size, price and required investments and industry attribution). The controls would allow us to perform the robustness checks by screening off the unrelated effects, if such are present in the model.

Further we estimate the above-mentioned equation (2) and obtain the related coefficients and marginal probability effects. Bearing in mind hypothesis 1, the coefficient  $\beta_{jT}$  and the related marginal effect, would capture the marginal change in the conditional probability of a certain outcome if the agent has certain characteristic features. Let us focus on the probability of failure, or bankruptcy ( $j = 3$ ). If the marginal effect of a proxy for an agent with a high propensity to strip assets is significantly different from zero,  $\beta_{3T} \neq 0$ , then hypothesis 1 would hold. Consequently,  $\beta_{3s}$  and the related marginal effect, would capture the marginal change in the conditional probability of failure under the choice of asset stripping strategy: e.g., if the effect of the end of supervision on the risk of bankruptcy is significantly different from zero,  $\beta_{3S} \neq 0$ , hypothesis 2 would hold. One should note that hypothesis 1 is not a necessary condition for hypothesis 2 because an asset stripping strategy may still be chosen by agents with lower propensity to strip assets as an optimal solution.

#### 4 Data sources and description

Our sample consists of 1611 cases of privatised enterprises in Serbia in the period 2002-2015. The implemented data architecture resembles survival data sets, since almost all of the explanatory variables (with an exception to registered legal disputes after the privatization) were measured

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isolate extremely influential tycoons, who already run multiple businesses and persons with political background. We elaborate on this category of owners in the data section.

*prior* to privatization or at the point when the contract was registered with the Privatisation Agency. The data set encompasses the privatisation cases realised through auction and tender procedures. Descriptive statistics are presented in Table 1. In our regression model, the following outcomes were in focus: *liquidation*, *merger* and *bankruptcy*. We are interested in the determinants of these outcomes and probabilities related with them in order to understand the role of particular agents in regard to different "destinies" of firms. While the merger and bankruptcy outcomes are clear in their meaning, liquidation refers to the closure of a firm caused by the decision of its owner and it is solely owner-initiated. As mentioned before, still active firms are marked as a base category (0). Value 1 refers to the cases of liquidation. Value 2 is for merger, and 3 is for bankruptcy of enterprises. In order to assign  $j$  outcome to each case  $i$  we have used the databases of Serbian Business Registers Agency (APR), Bankruptcy Supervision Agency (ALSU) as well as Privatisation Agency (AP).

Independent variables are explained following the way they have been structured in our empirical strategy. To group  $T$  belong: *tycoon*, *politician*, *disputes prior* and *buyer origin*. The variable *tycoon* refers to a specific type of new owner, i.e. to an economic agent who has accumulated his wealth in the period prior to the privatisation and who has used the privatisation process to continue his economic expansion. The fact that they had an opportunity to accumulate capital prior to the privatisation was to some extent a unique characteristic in Serbia. In contrast to the other former socialist countries, Serbia engaged in more intensive market reforms after a decade of a transitional form of economic system between old socialist planned economy and certain market institutions. In order to determine membership in the *tycoon* class of agent, we used a list of the 300 hundred most influential people in Serbia, published in 2011 by daily newspaper Blic. We strengthened this approach by consulting personal biographies of the agents in question. All of the agents belonging to the group *tycoon* had significant capital and business experience prior to the privatisation process, i.e. prior to 2001. 7.52% of all buyers belonged to this category. Our second variable, *disputes prior*, refers to whether the new owner had had official legal disputes in the period before the privatisation. Less than 1% of all enterprises were sold to this type of agent. This variable was constructed by searching all available online sources for information about the persons and firm owners engaged in the privatisation process. The *politician* variable was determined by asking whether the new owner had, or continues to have, a political engagement in one of established political parties, or was an influential bureaucrat during the communist or Milosevic era. This was established through online searches of biographies and newspapers.<sup>2</sup> 8.32% of new owners were found to have a political background. Buyer origin was divided according to the following markers: *offshore* and *ex-socialist*. The *offshore* designation is a dummy variable, denoting whether the buyer's origin is one of the offshore zones as defined by the classification given in the IMF Table of countries, territories and jurisdictions with offshore financial centers IMF (2000). Investors coming from offshore destinations played a rather minor role, participating in around 2% of all privatisations. The *ex-socialist* designation indicates that the buyer came from one of the former socialist countries (Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Lithuania, Montenegro, Poland, Romania, Russia, Slovenia, Ukraine). 4% of all the cases fall into this category. The data on the origin of the new owner was determined from the contracts.

For the  $S$  variable group, we have used *disputes post*, *single payment*, *contract change* and *end of supervision* as categories. If the new buyer had legal disputes related to the privatised firm, the marker of 1 was assigned. In 16% of privatised enterprises, buyers had, or are still having, ex post legal disputes.<sup>3</sup> Basically there were two options for the purchase of an enterprise: lump sum or through installment payments, i.e. in six equal annual installments (with the first installment to be paid at initiation of the agreement). The lump sum mode is coded in *single payment* as 1. The majority of investors showed a preference for the second option, accounting for 65% of all sales. The percentage is even higher, if we exclude the foreign investors who had only the lump

<sup>2</sup> The sources (Newspapers, Weekly Magazines, Television and Radio Stations) used to identify persons with political background include but are not limited to: Politika, Blic, Danas, NIN, Novosti, Kurir, Vesti, Vreme, Press, Glas Javnosti, B92, Radio-Television of Serbia, Radio-Television of Vojvodina.

<sup>3</sup> We considered only legal disputes, while the list of other kinds of disputes is much broader, including complaints involving syndicates or minority shareholders, to be found in newspapers and other Internet sources, but without legal process behind them prior to the end of 2015.



sum option at their disposal, because purchase by installment payment was reserved for domestic residents by the Law on Privatisation.<sup>4</sup>

Whether *ex post* contract change occurred or not is recorded by the variable *contract change*. This happened in 21% of cases. Evidence for this was gathered by evaluation of every single contract. If the contract was supplemented by additional appendices stipulating changes in original contractual provisions, we counted that as a contract change. The reasons for contract change were very diverse.<sup>5</sup>

The dummy variable *end of supervision* refers to the period of one year between 60 and 72 months after privatisation of the given firm. If the failure happened within this time, the variable takes the value 1, and otherwise is 0. The background for this variable is to be found in the laws, bylaws and contractual provisions concerning the period in which the Privatisation Agency had the instruments at its disposal to control and supervise the diverse business aspects of the privatised enterprise. As we will see presently, this variable turns out to be a significant predictor of the risk of failure.

Table 1: Descriptive statistics

	mean	sd
Liquidation	0.0317	0.1753
Merger	0.046	0.2096
Bankruptcy	0.4066	0.4914
Tycoon	0.0752	0.2637
Politician	0.0832	0.2762
Disputes prior	0.0074	0.086
Disputes post	0.1564	0.3634
Single payment	0.3547	0.4786
Contract change	0.2067	0.4051
LN PINV	16.83	1.94
Too big to fail	0.1273	0.3334
End of supervision	0.0584	0.2345
Distance	131.92	97.54
Ex-Socialist	0.0403	0.1968
Offshore	0.0211	0.1438
Mining and Construction	0.1649	0.3712
Manufacturing	0.3242	0.4682
<i>N</i>	1611	

The category X encompasses control variables *too big to fail*, *distance*, *LN PINV*, *mining and construction*, and *manufacturing*. Around 13% of all enterprises qualify as *too big to fail*. This variable includes enterprises with more than 250 employees. We determined whether or not this criterion was satisfied using the EU classification of micro, small, medium and large enterprises according to the number of employees EU (2015). The data on the number of employees for every enterprise are given on the Privatisation Agency website, under the section enterprise profile. The variable *distance* measured how far the enterprise was from the capital. We tried to capture the regional effects of enterprise location by assuming that greater distance was correlated with poorer institutional and physical infrastructure, as well as with poorer market conditions and access to them. Logarithmic values of price and investments are captured by variable *ln price and investments (LN PINV)*. The data originate from the contracts and are constructed as a sum of price and investment value. Both values are summed together and indicate the complete direct financial liability at purchase. The variables *mining and construction* and *manufacturing* refer to the industrial sector to which the enterprise belongs. We have used the North American Classification System (NAISC) to categorise enterprises. In *mining and construction* we have

<sup>4</sup> Article 31 of the Regulation on sale of capital and property in auctions (National Assembly of Serbia, 2001), conferred an exclusive right to installment buying on natural persons.

<sup>5</sup> We have identified the following reasons for contract changes: change of owner (contract of assignment, change of the stakes among the owners in the case of consortium or the change of members of consortium), payment of the full price before the contractually determined term, corrections of price or other elements (which were incorrectly or incompletely stipulated in the original contract), delay in installments, change in dominant business activity (or addition of new activities to the dominant one), change of the legal form of the subject of the privatisation (from stock company to the limited liability form), or changes in originally negotiated investment dynamics.

aggregated mining and construction companies (codes 21 and 23 in NAISC). In *manufacturing* we include only manufacturing firms (codes 31-33). 32% of the companies in our sample are in manufacturing, while 16% are in mining and construction.

## 5 Results

### 5.1 Baseline specification

Table 2 presents the results of our basic multinomial model. The marginal effects (ME) represent the slope of the probability function and are calculated as average partial effects (see Wooldridge, 2002, pp. 470-471) for all specifications. We run a multinomial logit with three dependent variables resembling the related outcome: liquidation, merger and bankruptcy. The explanatory variables are the same, only the outcome variable has three categories. In Column 2 we report the MEs for the probability of liquidation; Column 4 contains MEs for the probability of merger; in Column 6 we report the MEs for the estimated risk of bankruptcy. The latter equation is crucial in identifying the determinants<sup>6</sup> of failure of the privatised firms and potentially, identifying asset stripping. In addition to estimating the model with robust standard errors, we perform estimation with bootstrapped standard errors (see Tables 6 and 7 in the appendix).<sup>7</sup>

In Column 2 the evidence shows that the type of agent, *tycoon*, as well as *politician*, is not significant for liquidation. The only significant effects are related to the initial purchase costs variable and the end of supervision. *LN PINV* is inversely related to the risk of liquidation. However, the effect is rather small: a 1% increase in initial costs yields a 0.777% decrease in the risk of liquidation. *End of supervision* decreases the risk of liquidation by 2.18% - the latter effect is weak and vanished after bootstrapping the errors. The estimations with bootstrapped standard errors indicate that only initial investments were significant.

Explaining the determinants of merger yields more significant effects. In Column 4 we observe that the type of agent may influence the probability of mergers: the variable *tycoon* is significant at all levels and the positive effect is around 10.7%. Owners with political background are negatively related to the probability of merger, however this effect is not significant at 5% level and it was not found after bootstrapping the errors. *Disputes prior* decrease the probability of merger by 4.64%. The status of a large firm, *too big to fail*, decreases the probability of a merger: the ME is -3.37%. The end of supervision decreases the probability of a merger by 4.86%. This means that in the first year after the end of supervision mergers are unlikely. Therefore the type of agent as well as the type of strategy are good predictors for the probability of merger. After bootstrapping the standard errors (see Table 6) the same effects were significant, with an exception to *too big to fail*.

Column 6 contains the most interesting results: both types of both agent are significant determinants of the risk of bankruptcy. The status of *tycoon* is associated with a decrease in the risk of bankruptcy: the effect is -8.78%; whereas the variable *politician* is related to an increase in this risk by 11.5%. The variable *disputes post* also increases the risk of failure by 14.3%. Contract adjustments, captured by the variable *contract change*, are inversely related to the risk of bankruptcy: the effect is around -6.28%. The initial privatisation costs, *LN PINV*, exhibit an inverse relation as well: the effect is -2.78%. Large enterprises tend to face higher risks: the ME of *too big to fail* is 17.3%. The largest effect can be seen for the end of supervision: during the first year after the end of supervision, the risk of failure increases by 53.4%. The distance effect is significant as well: with every 100 kilometers away from Belgrade, the risk increases by roughly 6.41%. With an exception to the *tycoon* variable, with the bootstrapped standard errors we find the same effects to be significant (see Table 6).

<sup>6</sup> One has to note that not all covariates may necessarily imply causality and there is room for discussion, which we elaborate in the next section.

<sup>7</sup> For bootstrapping the errors we use 200 replications, which is sufficient according to Efron and Tibshirani (1994, pp. 14-15). The settings for the seed of the *pseudo*-random number generator ensure comparability between the baseline and expanded specifications. Nevertheless, we reports the latter estimates in the appendix: due to potential sensitivity of the values of standard errors to bootstrapping parameters, they should be interpreted with caution. These bootstrapped standard errors merely serve as a check of whether the variables of interest remain significant with the bootstrapped standard errors.

The baseline specification passes the generalized Hosmer-Lemeshow quantile test with ten groups based on Fagerland et al. (2008) with an overall p-value of 0.688. Same applies to the estimations with the bootstrapped standard errors. Let us add additional control variables and check whether certain effects are still significant.

## 5.2 Robustness check

The results for the expanded model are controlled for the origin of the buyer and the industry attribution. In Column 8 we report MEs for liquidation; whereas in Columns 10 and 12 the MEs for merger and bankruptcy are displayed.

In Column 8 we observe that the effect of initial costs and investments is robust after controlling for industry attribution and origin of the buyer: the effect is -0.855%. The offshore origin of the buyer decreases the probability of liquidation by 3.2%. Attribution to mining and construction seems to be inversely related to the probability of liquidation. After bootstrapping the errors the latter effect is no longer significant; however, offshore origin and initial investments remain significant (see Table 7).

The *tycoon* status is a positive determinant for merger in Column 10 and increases the probability by 11.4%; whereas political background is associated with a decrease in the probability of merger by 2.72%, although the effect vanishes after bootstrapping the errors. *Disputes prior* tend to decrease the probability of merger by 4.67%. Large firms also have a lower probability of merger: the effect of *too big to fail* is -3.32%. During the firm's first year after the end of supervision the probability of merger decreases by 4.86%. The ex-Socialist origin of the owner is associated with an decrease of the probability of merger by roughly 3.14%. Except the for the latter buyers' origin effect, all other effects remain significant after bootstrapping the errors.

Column 12 contains the most important findings: the risk of bankruptcy is inversely related to *tycoon* status (-9.19%), and a political background increases the risk by around 11.7%. *Disputes post* are also robust, and the effect reaches 15.2%. Contract adjustments and initial costs are inversely related to the risk of bankruptcy: the effects are -5.72% and -2.71% respectively. An increase in distance from Belgrade of 100 kilometers is associated with an increase in bankruptcy risk of 5.46%. Firms from the manufacturing, and mining and construction industries faced higher risks as well: 14.8% and 9.14% increases respectively. The *too big to fail* status is related to an increase in the risk of bankruptcy by 14.9%. The effect of the end of supervision has the largest magnitude and is robust: during the first year after the end of supervision the risk of bankruptcy increases by 52.8%. In addition to this, we perform survival analysis to test the role of the end of supervision from a different perspective. All of the above-mentioned effects remain significant after bootstrapping the errors (see Table 7).

The generalized Hosmer-Lemeshow quantile test results for the expanded specification have the p-value of 0.671 overall and all groups seem to perform well (see Table 3). Same applies to the estimation with the bootstrapped errors.

In all estimations of the risk of bankruptcy, including the ones with bootstrapped errors, political background and the end of supervision remained significant. Since we have mentioned that one of the largest effects is related to the end of supervision, it is essential to consider time effects related to bankruptcy in detail. Using specific tools from the survival analysis we can consider the distribution of failures in time, starting from the moment of privatisation of each firm. This approach is implemented in the next section.

Table 2: Baseline results

Variables	(1) liquidation	(2) ME	(3) merger	(4) ME	(5) bankruptcy	(6) ME
Tycoon	0.359 (0.705)	0.0108 (0.0271)	1.397*** (0.366)	0.107*** (0.0399)	-0.232 (0.252)	-0.0878* (0.0464)
Politician	0.303 (0.551)	0.00288 (0.0175)	-0.546 (0.546)	-0.0252* (0.0131)	0.510** (0.215)	0.115** (0.0472)
Disputes <i>prior</i>	1.091 (1.186)	0.0858 (0.113)	-13.99*** (0.460)	-0.0464*** (0.00525)	-0.918 (0.897)	-0.176 (0.132)
Disputes <i>post</i>	0.104 (0.487)	-0.00607 (0.0124)	0.228 (0.388)	-0.00257 (0.0156)	0.675*** (0.168)	0.143*** (0.0363)
Single payment	-0.191 (0.322)	-0.00614 (0.00891)	0.402 (0.251)	0.0184 (0.0116)	-0.00362 (0.126)	-0.00525 (0.0259)
Contract change	0.264 (0.378)	0.0131 (0.0142)	-0.170 (0.332)	-0.00316 (0.0135)	-0.298** (0.149)	-0.0628** (0.0296)
LN PINV	-0.325*** (0.0756)	-0.00777*** (0.00237)	-0.0724 (0.0743)	-0.000119 (0.00307)	-0.156*** (0.0356)	-0.0278*** (0.00711)
<i>Too big to fail</i>	-0.387 (0.788)	-0.0161 (0.0133)	-0.816* (0.482)	-0.0337*** (0.0101)	0.722*** (0.198)	0.173*** (0.0423)
End of supervision	0.913 (1.062)	-0.0218* (0.0117)	-12.03*** (0.442)	-0.0486*** (0.00551)	2.956*** (0.426)	0.534*** (0.0339)
Distance	0.00117 (0.00133)	-5.12e-06 (3.86e-05)	0.00110 (0.00111)	-5.48e-06 (4.56e-05)	0.00318*** (0.000601)	0.000641*** (0.000118)
Constant	2.341** (1.171)		-1.542 (1.230)		1.656*** (0.587)	
Observations	1,586		1,586		1,586	

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 3: Goodness-of-fit

Generalized Hosmer-Lemeshow quantile test, group P value		
Group	Table 2	Table 4
1	0.3199	0.3002
2	0.3670	0.3479
3	0.3972	0.3847
4	0.4304	0.4223
5	0.4583	0.4613
6	0.4842	0.4994
7	0.5182	0.5395
8	0.5749	0.5903
9	0.6652	0.6898
10	0.9833	0.9866
Overall	0.688	0.671
Observations	1586	1577

Table 4: Robustness check: industry attribution and buyer origin

Variables	(7) liquidation	(8) ME	(9) merger	(10) ME	(11) bankruptcy	(12) ME
Tycoon	0.358 (0.714)	0.0107 (0.0274)	1.454*** (0.368)	0.114*** (0.0409)	-0.251 (0.250)	-0.0919** (0.0450)
Politician	0.344 (0.550)	0.00409 (0.0180)	-0.625 (0.564)	-0.0272** (0.0128)	0.529** (0.219)	0.117** (0.0471)
Disputes <i>prior</i>	1.270 (1.162)	0.101 (0.121)	-13.94*** (0.468)	-0.0467*** (0.00527)	-0.822 (0.934)	-0.164 (0.142)
Disputes <i>post</i>	0.132 (0.490)	-0.00598 (0.0125)	0.218 (0.394)	-0.00382 (0.0156)	0.730*** (0.171)	0.152*** (0.0361)
Single payment	-0.295 (0.329)	-0.00837 (0.00891)	0.375 (0.266)	0.0182 (0.0123)	-0.0593 (0.131)	-0.0150 (0.0262)
Contract change	0.290 (0.385)	0.0137 (0.0145)	-0.151 (0.327)	-0.00282 (0.0133)	-0.273* (0.151)	-0.0572* (0.0295)
LN PINV	-0.351*** (0.0755)	-0.00855*** (0.00240)	-0.0833 (0.0765)	-0.000563 (0.00316)	-0.157*** (0.0372)	-0.0271*** (0.00732)
<i>Too big to fail</i>	-0.447 (0.782)	-0.0162 (0.0132)	-0.843* (0.498)	-0.0332*** (0.0107)	0.622*** (0.203)	0.149*** (0.0429)
End of supervision	0.833 (1.063)	-0.0224* (0.0115)	-11.95*** (0.442)	-0.0486*** (0.00549)	2.940*** (0.430)	0.528*** (0.0352)
Distance	0.00110 (0.00134)	-1.73e-06 (3.90e-05)	0.000939 (0.00115)	-5.08e-06 (4.74e-05)	0.00277*** (0.000616)	0.000546*** (0.000120)
Ex-Socialist	1.090* (0.651)	0.0571 (0.0475)	-1.095 (1.111)	-0.0314* (0.0181)	-0.0623 (0.308)	-0.0239 (0.0619)
Offshore	-12.98*** (0.380)	-0.0320*** (0.00442)	0.948 (0.696)	0.0648 (0.0628)	-0.0424 (0.402)	-0.0195 (0.0808)
Mining and Construction	-0.549 (0.475)	-0.0171* (0.00943)	-0.430 (0.418)	-0.0204 (0.0125)	0.375** (0.159)	0.0914*** (0.0333)
Manufacturing	0.220 (0.336)	-0.00267 (0.00967)	0.0961 (0.284)	-0.00804 (0.0112)	0.712*** (0.132)	0.148*** (0.0273)
Constant	2.790** (1.179)		-1.292 (1.281)		1.466** (0.621)	
Observations	1,577		1,577		1,577	

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

### 5.3 Survival analysis

Special attention should be drawn to the effect of supervision, which we attempted to capture with the variable *end of supervision*, which represents a control for the first year after the end of supervision, i.e. the 6th year. In terms of the survival analysis it is important to note that we identify bankruptcy ( $j = 3$ ) as failure.<sup>8</sup>

It follows from both tables that the first year after the maximum length of supervision is associated with an increase in the risk of bankruptcy by roughly 53%, which is the change in probability for the given effect (Tables 2 and 4). However, this requires further investigation, which can be carried out by means of the survival analysis: this will allow us to derive the probability of failure at a given month after the firm was privatised. In order to apply the survival analysis we had to censor the survival sample from the very beginning of the data to the end of 2015. In Figures 1 and 2 we display the estimated failure rates using the Kaplan-Meier estimator (see Kaplan and Meier, 1958) and point-wise confidence intervals based on Cefalu (2011). Figure 2 shows the failure rate per each month for two groups: owners with political background, denoted in our tables by the variable *politician*, and all other buyers. Since the longest supervision span is related to the installment payment mode, in Figure 2 we isolate the failure estimates for buyers with political background who purchased the firms by installments. In order to verify the equality of the hazard functions for the politicians and other buyers, we perform four additional statistical tests (see Table 5).

Figure 1 suggests that starting from the longest supervision benchmark the failure rate for the firms under ownership of buyers with political background is higher. After the benchmark we observe a prominent increase in the failure rates. An even more distinctive pattern can be seen in Figure 2, for the politicians who used the installment mode to purchase the firms. In the latter case the failure rates prior to the end of the supervision are almost the same as the failure rates for the firms owned by other types of buyers; however, right after the end of supervision, we observe an increase in failure rates. In the aftermath, the estimates suggest that this type of owner is associated with distinctively higher failure rates. In Table 5 we report the test results on the equality of the hazard functions for politicians against other owners: all of the tests reject the null hypothesis of equality. Therefore, the difference in failure rates is statistically significant.

Moreover, from Table 5, panel (B), it follows that before the end of supervision the equality of the hazard functions can not be rejected. From Table 5, panel (C), we can also conclude that after the end of supervision the hazard functions diverge from each other significantly. Therefore, the end of supervision accounts for the most of the divergence between the hazard functions for firms purchased by persons with political background and other types of owners. It may be an additional hint that the asset stripping behaviour manifests itself only after the supervision has ended.

Table 5: Testing for the equality of hazard functions before and after the end of supervision

<b>A. Testing the equality for the overall function</b>	$\chi^2$	P value
Peto and Peto (1972) and Prentice (1978) test	9.83	0.0017
Generalised Wilcoxon test (see Gehan, 1965, Breslow, 1970)	8.51	0.0035
Tarone-Ware test (see Tarone and Ware, 1977)	10.25	0.0014
<b>B. Testing the equality during supervision (&lt;60 months)</b>		
Peto and Peto (1972) and Prentice (1978) test	0.07	0.7951
Generalised Wilcoxon test (see Gehan, 1965, Breslow, 1970)	0.08	0.7782
Tarone-Ware test (see Tarone and Ware, 1977)	0.21	0.6459
<b>C. Testing the equality after supervision (<math>\geq 60</math> months)</b>		
Peto and Peto (1972) and Prentice (1978) test	12.55	0.0004
Generalised Wilcoxon test (see Gehan, 1965, Breslow, 1970)	10.74	0.0010
Tarone-Ware test (see Tarone and Ware, 1977)	12.32	0.0004

Note: the  $H_0$  of equality of hazard functions for owners with political background against other owners is assumed

<sup>8</sup> Other categories such as merger and liquidation are disregarded since after mergers the firms most likely continue to exist, but in a different form, and liquidation can not be directly attributed to failure. In case of liquidation a firm does not have any problems in meeting its business related obligations and the reasons for liquidating the firm are intrinsic.

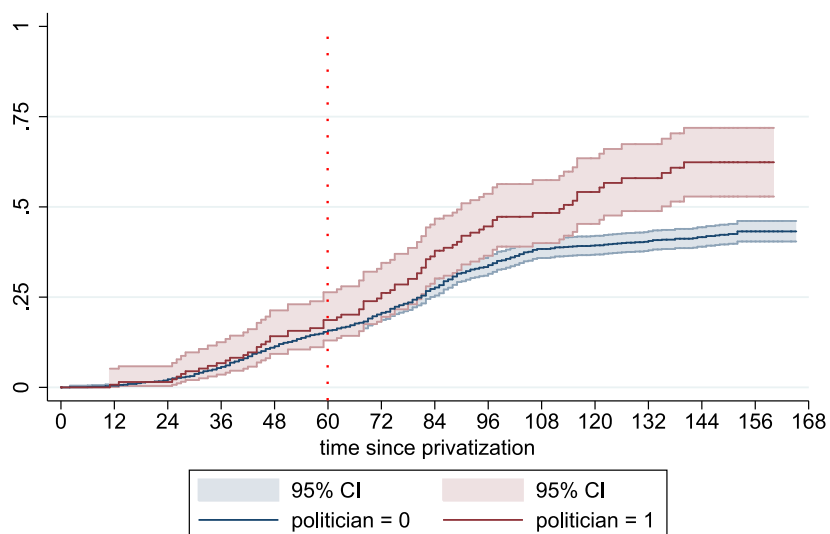


Fig. 1: Failure rates with end of 2015 censoring (dotted line denotes maximum length of supervision after the firm was privatised)

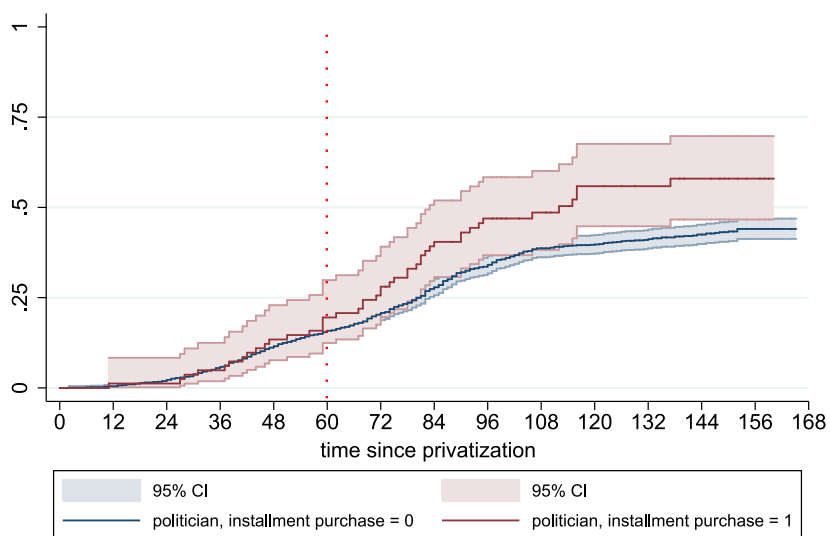


Fig. 2: Failure rates with end of 2015 censoring (dotted line denotes maximum length of supervision after the firm was privatised)

The last remark to be made is related to the macroeconomic conditions during the time of privatisation and registration of failures. As it follows from the reports of the Statistical Office of the Republic of Serbia, the first distinctive recession during our sampling period is observed during the third quarter of 2008 until the first quarter of 2010 (see Quarterly National Accounts Division, 2011, p. 1). The second recession occurred during 2012 (see Quarterly National Accounts Division, 2013, pp. 1-2). There are no signs of the impact of either recession on Figures 1 and 2: if these were present, we would see level shifts affecting both groups; however, this is not the case and both functions are relatively smooth. It is also not plausible to assume that a recession would hit only firms owned by politicians, or particularly politicians who used installment schemes. Therefore, the sharp increase of failure rates for firms owned by politicians after the end of the

maximum supervision time span most likely has an institutional, rather than macroeconomic, cause.

Our empirical findings provide evidence in the support of hypotheses 1 and 2: the specific types of buyer, in our case, influential politicians and bureaucrats, as well as the proxies for asset stripping strategies, are significant. We have also supported our findings by means of survival analysis. Still, we need to interpret these results and provide critical assertions comparing our findings to those of other authors.

## 6 Discussion

The overall estimation results reported in all our tables suggest that the probability of failure of the enterprise is significantly related to the specific type of new owner, i.e. whether the owner can be categorised as a politician.

Contrary to the explanations that rich agents (as captured by *tycoons* in our case) are able to weaken the enforcement of law and the security of property rights (Roland, 2001, Sonin, 1999, Polishchuk, 1999), or that they use their influence to outmaneuver regulation (Campos and Giovannoni, 2006), we found that rich agents were not prone to follow opportunistic strategies towards asset stripping. Moreover, the probability of bankruptcy was inversely related to tycoon status. Nevertheless, they did use the privatisation process to grow in market segments in which they already had established businesses, which is captured in the regression for the variable *merger*. Our findings, although not based on profitability or some other measure of efficiency of privatised enterprises, are in line with the argumentation of some other studies, which assert that the tycoons or oligarchs were able to improve the efficiency of enterprises (see Guriev and Rachinsky, 2005, Gorodnichenko and Grygorenko, 2008).<sup>9</sup>

In comparison, bureaucrats and former politicians behaved very differently. They had a greater propensity to declare bankruptcy and survival analysis suggests that they tended to do so only after the supervision period had ended. As we can see from Figures 1 and 2, the failure rates during the maximum length of supervision are relatively low overall. What is important is what happened after the end of supervision. The expiration of the longest supervision period, in our case 60 months, can be clearly seen as a cut-off, after which a steep rise of failure of the firms owned by the politicians can be observed. This reflects opportunistic strategies and asset stripping tendencies which materialised right after the end of supervision period. The hazard function for other types of buyers does not exhibit such jumps. The role of control and supervision in post-privatisation was meant to insure the successful transition to a privately-owned economy, yet the greater failure rate for politicians only *after* supervision ends suggests that as soon as they felt they could extract their rent, the politicians did so. It is a strong confirmation of the claim that the interplay between government and rent seeking in transition economies "has often been more personal" (see Gelb et al., 1998, p.31) and that the politicians are not behaving benevolently (Hillman, 1998). It also echoes results like those regarding transition in the Czech Republic (Stringham and Clark, 2008).

According to (Bjørnskov and Potrafke, 2011), in transition countries right-wing governments promoted more intensive privatisation policies for small and medium size enterprises, while for the large industries the privatisation ideology was less significant. In the case of Serbian privatisation, according to the same set of indicators (EBRD), privatisations were less ideologically dependant. After having passed a Law on Privatisation in 2001, there were several election cycles (2003, 2007, 2008, 2012, 2014), during which parties from different parts of the political spectrum were dominating government. After an initial rise in privatisation indexes, the respective indicators of privatisation were constant after 2005/2006. For example, after an election in 2007, when the government was led by a prime minister from the conservative Democratic Party of Serbia (Demokratska Stranka Srbije), the indicators were the same as when the left-liberal Democratic

<sup>9</sup> One has to distinguish between the analysis of failure or failure rates for all firms privatised and the analysis of the performance of the surviving firms. In the latter case one may be confronted with the "survivorship bias", the phenomenon of a measurement error, mentioned in the critique of Kikeri and Nellis (2004). Our empirical strategy covers the broadest sample of firms, including the ones which failed to survive, i.e. which were in the meantime closed or are under bankruptcy procedure.



Party (Demokratska Stranka) in coalition with the Socialist Party (Socijalistička Partija Srbije - communist successor) came into power in 2008. One should also note that trade liberalization during privatisation (see Hillman and Ursprung, 1996) created additional pressure to improve competitiveness. This created an ideological environment favorable to privatisation. One may assume that the failures in doing business made by owners with political background, whether bureaucrats or politicians, can be attributed to their incompetence. While it is a reasonable assertion, it seems hard to sustain it facing the fact that failure rates are roughly similar for all groups until the end of supervision. We do not believe that incompetence simply appears once restraints are removed. In addition, there is very little to sustain the contention that politicians were inept administrators. On a *de jure* basis, the selection and advancement of individuals for public service "is to be pledged on professional qualifications, knowledge and skills" and that only the "best candidates" should be considered (Articles 9. and 10. Law on Civil Servants and National Assembly of Serbia, 2005). On a *de facto* basis, higher wages in the public sector than in the private sector attract a wide selection of candidates which allows a certain form of "cream-skimming" (Kotakorpi and Poutvaara, 2011). Another noteworthy fact is that the median age of firm buyers in our sample is 57 years old: for tycoons it is 58 and for politicians it is 57. This similarity in characteristics militates against the belief of fundamental differences in abilities. Finally, being a former politician or bureaucrats may actually a marketable skill. Political connections are actually valuable business skills which would *de facto* give a competitive edge to politicians and bureaucrats. The ability to "game the system" allows them to obtain licences more easily in order to expand their businesses (see Hillman, 1998, p. 358). Gelb et al. (1998, p. 25) state that politicians may obtain better contracting terms by dealing with former government colleagues. Taken together, the sum of these facts suggests that they are not incompetent, they are merely continuing their rent extraction by other means.

Politicians and bureaucrats who were previously extracting rent through state-owned enterprises may have felt that the commitment to privatisation was credible. Thus, they shifted gears and co-opted the privatisation process. On top of waiting for supervision to end before they folded the privatised firms, they also established favorable terms of privatisation. For example, the variable *single payment*, which refers to the payment method (lump sum or installments), should be observed as an additional regulation tool, providing different opportunities for different buyers depending on their residence. This fits with the findings of several other studies, which state that most governments favored domestic over foreign investors (Megginson and Netter, 2001, Jones et al., 1999, Bortolotti et al., 2004). Serbia is no exception to this, although we did not observe that it had any significant influence on the outcome of privatisation. The consequence was not only that the domestic buyers were favored, but it also allowed a larger number of agents without real economic power to participate in privatisation takeovers. The competitive bidding process was designed to favor broad participation, notably by allowing domestic buyers without enough capital to acquire firms by installment. On the other hand, this would also have allowed politicians and bureaucrats to acquire firms at a discount. In many cases, the most valuable property of the enterprise was land and its location, but it was omitted from the enterprise valuation because the state-owned enterprise had only the right to use the land, without other clear property rights on it. Though considered appropriate at the beginning of the transition, this deficiency was eventually removed and land was acquired at very low cost relative to market value. Another deficiency consisted in the way enterprises were valued. The consulting firms used book values of equipment and real estate, and not market values. The divergence between those two was sometimes remarkably high and the state revenues in consequence significantly lower (see more Pavlovic, 2016).

It is also worth noting that the privatisation process in Serbia was characterised by short agency chains instead of the commonly-used voucher approach (Ellerman, 2003). This kind of regulation framework probably helped to avoid problems with the implementation of privatisation due to diversified interests,<sup>10</sup> but it contained weaknesses of another kind. Such institutional designs are prone to be captured by interest groups and strongly controlled by politicians. The

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<sup>10</sup> Contrary to experiences in some other former communist countries, such as Bulgaria (Bogetic and Hillman, 1995), workers and managers could not generally hamper the privatisation implementation.

weak institutional environment,<sup>11</sup> combined with the wide discretionary power of the privatisation agency and the government through short agency chains, produced a situation in which abuses were very probable. According to the Report of the Anti-Corruption Council (see Anti-Corruption Agency, 2015), the discretionary power of the director of the privatisation agency enabled arbitrary delays in meeting the contractual provisions.<sup>12</sup>

The last interesting effect relates to the greater risks of bankruptcy by firms with more than 250 employees. One could attribute this effect to moral hazard: new owners know about strategic importance of the firms and strip assets, anticipating that the state will perform a bail out. Indeed, the framework for bail outs was present; however, such interventions were often performed on a *case by case* basis. In the aftermath, some of the firms got the needed help and survived, the others did not. For example, the paper factory "Božo Tomić" in Čacak and the passenger transport firm "7 Juli" in Šabac survived after the intervention of the state. Other firms like textile producer "Kluz-Srem" in Ruma or the manufacturing firm "Klubara" in Lajkovac were shut down. In these cases the state had to intervene to provide financial aid. An alternative explanation regarding the higher risks of bankruptcy for large firms is that big firms in Serbia were better equipped and had largely immobile assets. As a result, they constituted a more attractive target for asset-stripping.

Judging from EBRD transition indicators regarding privatisation, the process was moving in the right direction and showing solid results, although not as efficiently as the most advanced transition countries, for example Estonia (different EBRD Transition Reports). On the other hand, when we look at public support for privatisation, this account is contradicted. According to Denisova et al. (2012), one of the main sources of public criticism of privatisation comes from the fact that in transition countries, including Serbia, more than 50% of the population view the process unfavourably. The reasons for that are that the privatisation is seen as causing illegitimate distribution of wealth, there are concerns about legitimacy of the process and many suffer economic hardships during transition. Additionally, poorly skilled workers oppose privatisation disproportionately, especially if the institutional environment improves (see Denisova et al., 2009). All the listed factors contributed to unfavourable public opinion of privatisation in Serbia. Two explanations have special weight. First, in our sample the direct loss of jobs due to bankruptcy of privatised firms was 93 572. With Serbia having one of the highest unemployment rates in Europe (20.8% in 2014), many of these people could not find new jobs, especially those with lower skill levels. Second, numerous criticisms issuing even from official institutions (see Anti-Corruption Agency, 2015) attacked the legitimacy of the privatisation process and therefore reduced public support for it.

These facts line up well with our contention that rent-seeking continued under a different guise when privatisation occurred.

## 7 Conclusion

Our study contributes to understanding the aftermaths of privatisation considering the most broad sample, free of the *'survivorship bias'*, and addressing the Kikeri and Nellis (2004) critique. Our findings confirm the need to study the design of privatisation processes in order to understand success (or failure). We found that rent-seeking bureaucrats and politicians who held sway in state-owned enterprises, faced with a credible commitment to privatisation, co-opted the reform process to maintain their privileged status through asset stripping. We based these results on a new sample designed to identify the types of owners of privatised firms and the fates of these firms. Our new data covered 1611 firms that were privatised after 2001. The evidence showed that the buyer with political background pursuing asset stripping strategies amplified the risk of bankruptcy, which confirmed our first hypothesis. Depending on the specification, the marginal

<sup>11</sup> According to the World Justice Project 2012-2013 Serbia experienced severe problems with corruption and regulatory enforcement (ranked 18/21 in the region and 74/97 global), and civil justice showed very low rankings and consequently low values for each element.

<sup>12</sup> Between June 2005 and September 2014 nine officials were accused of law violations related to privatisation. This does not reflect the scale of the problem because, according to the report, the misuses and frauds were systematically present and were the result of systematic corruption. Enormous discretionary powers, various loopholes, and supplementary amendments and conditions made such conduct possible (Anti-Corruption Agency, 2015, p.3).

effect of politician ownership on the risk of failure ranged from 11.5% to 11.7%. On the whole, former politicians and bureaucrats were more prone to failure than tycoons. However, they failed in equal proportion to others *before* supervision periods ended. In this regard, the survival analysis confirms that the expiration of the maximum supervision period, captured by the variable *end of supervision*, raises the probability of the failure of the firm significantly. The hazard function for politicians is also higher and significantly different from the hazard function of other owners after the end of supervision. The hazard function for politicians exhibits a rapid increase after the end of the supervision period. This departure at the end of supervision, in combination with other rules regarding privatisation, confirms that politicians and bureaucrats involved in formerly public enterprises co-opted the privatisation process. Faced with a credible commitment to reform, co-opting the process allowed vested interests to continue extracting rents. The outcome for the whole of Serbia was disappointing results from an otherwise beneficial process. But, this does reflect the claim of Tullock (2003) that "people are people" and that politicians are people too.

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## Appendix

Table 6: Baseline results with bootstrapped standard errors, 200 replications

Variables	(13) liquidation	(14) ME	(15) merger	(16) ME	(17) bankruptcy	(18) ME
Tycoon	0.359 (3.267)	0.0108 (0.128)	1.397*** (0.381)	0.107** (0.0488)	-0.232 (0.263)	-0.0878 (0.0613)
Politician	0.303 (1.990)	0.00288 (0.0643)	-0.546 (2.267)	-0.0252 (0.0513)	0.510** (0.215)	0.115* (0.0596)
Disputes <i>prior</i>	1.091 (7.961)	0.0858 (0.811)	-13.99*** (4.439)	-0.0464*** (0.00858)	-0.918 (6.197)	-0.176 (0.973)
Disputes <i>post</i>	0.104 (1.513)	-0.00607 (0.0378)	0.228 (0.395)	-0.00257 (0.0162)	0.675*** (0.171)	0.143*** (0.0433)
Single payment	-0.191 (0.361)	-0.00614 (0.00999)	0.402 (0.252)	0.0184 (0.0114)	-0.00362 (0.125)	-0.00525 (0.0254)
Contract change	0.264 (0.433)	0.0131 (0.0182)	-0.170 (0.383)	-0.00316 (0.0155)	-0.298** (0.142)	-0.0628** (0.0288)
LN PINV	-0.325*** (0.0737)	-0.00777* (0.00413)	-0.0724 (0.0781)	-0.000119 (0.00327)	-0.156*** (0.0366)	-0.0278*** (0.00783)
<i>Too big to fail</i>	-0.387 (4.936)	-0.0161 (0.0796)	-0.816 (1.143)	-0.0337 (0.0211)	0.722*** (0.199)	0.173*** (0.0617)
End of supervision	0.913 (6.936)	-0.0218 (0.0721)	-12.03*** (1.534)	-0.0486*** (0.00896)	2.956** (1.481)	0.534*** (0.119)
Distance	0.00117 (0.00137)	-5.12e-06 (4.19e-05)	0.00110 (0.00117)	-5.48e-06 (4.83e-05)	0.00318*** (0.000646)	0.000641*** (0.000128)
Constant	2.341** (1.175)		-1.542 (1.288)		1.656*** (0.612)	
Observations	1,586		1,586		1,586	
Bootstrapping rounds for errors	200		200		200	

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7: Robustness check with bootstrapped standard errors, 200 replications

Variables	(19) liquidation	(20) ME	(21) merger	(22) ME	(23) bankruptcy	(24) ME
Tycoon	0.358 (2.190)	0.0107 (0.0859)	1.454*** (0.368)	0.114** (0.0486)	-0.251 (0.270)	-0.0919* (0.0556)
Politician	0.344 (1.935)	0.00409 (0.0643)	-0.625 (1.889)	-0.0272 (0.0402)	0.529** (0.222)	0.117** (0.0577)
Disputes <i>prior</i>	1.270 (8.010)	0.101 (0.890)	-13.94*** (4.739)	-0.0467*** (0.0115)	-0.822 (6.982)	-0.164 (1.114)
Disputes <i>post</i>	0.132 (0.553)	-0.00598 (0.0141)	0.218 (0.425)	-0.00382 (0.0170)	0.730*** (0.178)	0.152*** (0.0374)
Single payment	-0.295 (0.334)	-0.00837 (0.00937)	0.375 (0.276)	0.0182 (0.0135)	-0.0593 (0.130)	-0.0150 (0.0259)
Contract change	0.290 (0.420)	0.0137 (0.0173)	-0.151 (0.372)	-0.00282 (0.0154)	-0.273* (0.144)	-0.0572* (0.0299)
LN PINV	-0.351*** (0.0745)	-0.00855** (0.00369)	-0.0833 (0.0756)	-0.000563 (0.00321)	-0.157*** (0.0381)	-0.0271*** (0.00790)
<i>Too big to fail</i>	-0.447 (4.457)	-0.0162 (0.0723)	-0.843 (1.145)	-0.0332 (0.0225)	0.622*** (0.200)	0.149*** (0.0546)
End of supervision	0.833 (7.116)	-0.0224 (0.0770)	-11.95*** (0.793)	-0.0486*** (0.0119)	2.940*** (0.501)	0.528*** (0.0787)
Distance	0.00110 (0.00160)	-1.73e-06 (4.82e-05)	0.000939 (0.00125)	-5.08e-06 (5.13e-05)	0.00277*** (0.000641)	0.000546*** (0.000124)
Ex-Socialist	1.090 (3.694)	0.0571 (0.283)	-1.095 (6.820)	-0.0314 (0.108)	-0.0623 (0.338)	-0.0239 (0.133)
Offshore	-12.98*** (0.865)	-0.0320** (0.0135)	0.948 (3.906)	0.0648 (0.360)	-0.0424 (0.477)	-0.0195 (0.157)
Mining and Construction	-0.549 (0.526)	-0.0171 (0.0123)	-0.430 (0.396)	-0.0204 (0.0131)	0.375** (0.156)	0.0914*** (0.0335)
Manufacturing	0.220 (0.342)	-0.00267 (0.0101)	0.0961 (0.307)	-0.00804 (0.0124)	0.712*** (0.132)	0.148*** (0.0273)
Constant	2.790** (1.153)		-1.292 (1.268)		1.466** (0.643)	
Observations	1,577		1,577		1,577	
Bootstrapping rounds for errors	200		200		200	

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

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