

UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

MASTER'S THESIS

**THE INFLUENCE OF OWNERSHIP STRUCTURE ON THE
PRODUCTIVITY OF SLOVENIAN MANUFACTURING AND
SERVICE SECTOR FIRMS BETWEEN 2006 AND 2014**

Ljubljana, September 2015

ADA GUŠTIN

AUTHORSHIP STATEMENT

The undersigned Ada Guštin, a student at the University of Ljubljana, Faculty of Economics, (hereafter: FELU), declare that I am the author of the master's thesis entitled The influence of ownership structure on the productivity of Slovenian manufacturing and service sector firms between 2006 and 2014, written under supervision of prof. dr. Janez Prašnikar.

In accordance with the Copyright and Related Rights Act (Official Gazette of the Republic of Slovenia, Nr. 21/1995 with changes and amendments) I allow the text of my master's thesis to be published on the FELU website.

I further declare

- the text of my master's thesis to be based on the results of my own research;
- the text of my master's thesis to be language-edited and technically in adherence with the FELU's Technical Guidelines for Written Works which means that I
 - cited and / or quoted works and opinions of other authors in my master's thesis in accordance with the FELU's Technical Guidelines for Written Works and
 - obtained (and referred to in my master's thesis) all the necessary permits to use the works of other authors which are entirely (in written or graphical form) used in my text;
- to be aware of the fact that plagiarism (in written or graphical form) is a criminal offence and can be prosecuted in accordance with the Criminal Code (Official Gazette of the Republic of Slovenia, Nr. 55/2008 with changes and amendments);
- to be aware of the consequences a proven plagiarism charge based on the submitted master's thesis could have for my status at the FELU in accordance with the relevant FELU Rules on Master's Thesis.

Ljubljana, September 10th, 2015

Author's signature:

TABLE OF CONTENTS

| | |
|---|-----------|
| INTRODUCTION | 1 |
| 1 THE LITERATURE ON BLOCKHOLDING | 2 |
| 1.1 The effect of concentrated ownership or blockholding on a firm's performance | 2 |
| 1.2 Different types of owners | 4 |
| 2 SLOVENIAN DEVELOPMENT AFTER INDEPENDENCE AND THE CONCENTRATION OF OWNERSHIP..... | 6 |
| 2.1 The Law on the Transformation of Social Property and the initial concentration of ownership | 6 |
| 2.2 Pre-crisis euphoria and ownership concentration..... | 7 |
| 2.3 Post-crisis downfall: firms with "stable" and "unstable" ownership | 9 |
| 3 CONCENTRATED VS. DISPERSED OWNERSHIP IN SLOVENIA: DEVELOPMENT OF THE EMPIRICAL MODEL | 11 |
| 3.1 Total factor productivity as a measure of a firm's efficiency..... | 11 |
| 3.2 Estimating total factor productivity..... | 13 |
| 3.2.1 Olley-Pakes estimation | 13 |
| 3.2.2 Levinsohn-Petrin estimation..... | 14 |
| 3.2.3 Estimations used for the further analysis..... | 14 |
| 3.3 The ownership variables..... | 15 |
| 3.4 Specification of the model and quantification..... | 16 |
| 3.4.1 Specification of the model..... | 16 |
| 3.4.2 Quantification of the model..... | 17 |
| 3.5 The hypotheses | 18 |
| 4 DATA AND VARIABLES..... | 20 |
| 4.1 Working with the data | 20 |
| 4.1.1 The data collection process..... | 20 |
| 4.1.2 Preparing the database for further use | 20 |
| 4.1.3 Creating the main variables | 21 |
| 4.1.4 Adjusting the database for the further estimations | 23 |
| 4.1.5 Creating the variable for the total factor productivity | 24 |
| 4.2 Description of the variables in the empirical model..... | 25 |
| 4.2.1 The size of the observed sample..... | 25 |
| 4.2.2 The dynamic of the main variables in all sectors | 27 |
| 4.2.3 The dynamic of the main variables in the manufacturing sector..... | 28 |
| 4.2.4 The dynamic of the main variables in the service sector..... | 29 |
| 4.2.5 The influence of the type of ownership on the variables..... | 29 |
| 5 EMPIRICAL RESULTS..... | 34 |
| 5.1 The influence of ownership type and structure on firms' TFP estimated on the sample of all firms operating in different sectors | 34 |
| 5.2 The influence of ownership type and structure on firms' TFP estimated on the sample of firms operating in the manufacturing sector | 35 |

| | |
|--|-----------|
| 5.3 The influence of ownership type and structure on firms' TFP estimated on the sample of firms operating in the service sector | 37 |
| 5.4 Estimating TFP percentile levels | 42 |
| 5.5 TFP estimated for 5 different groups of firms | 44 |
| 5.6 Estimating the TFP percentile levels of 5 different groups of firms | 47 |
| CONCLUSION | 51 |
| POVZETEK | 53 |
| REFERENCE LIST | 62 |
| APPENDIXES | 65 |

LIST OF FIGURES

| | |
|---|----|
| <i>Figure 1.</i> The share of state ownership in GDP in the year 2000 (in %) | 6 |
| <i>Figure 2.</i> The median values of the variables of all firms operating in different sectors through the period 2006-2014 (in % of the firms' total assets)..... | 28 |
| <i>Figure 3.</i> Estimates of production function coefficients of all the observed firms operating in different sectors during the period 2006-2014 based on equation (12)..... | 35 |
| <i>Figure 4.</i> Estimates of production function coefficients for firms operating in the manufacturing sector during the period 2006-2014 based on equation (12)..... | 36 |
| <i>Figure 5.</i> Estimates of production function coefficients for firms operating in the service sector during the period 2006-2014 based on equation (12) | 38 |
| <i>Figure 6.</i> The TFPs at the 10 th , 50 th , and 90 th percentiles' levels of firms operating in all sectors during the period 2006-2014 | 42 |
| <i>Figure 7.</i> The TFPs at the 10 th , 50 th , and 90 th percentiles' levels of firms operating in the manufacturing sector during the period 2006-2014..... | 43 |
| <i>Figure 8.</i> The TFPs at the 10 th , 50 th , and 90 th percentiles' levels of firms operating in the service sectors during the period 2006-2014 | 43 |
| <i>Figure 9.</i> The median values of TFP estimated on the sample of all firms during the period 2006-2014..... | 45 |
| <i>Figure 10.</i> The median values of TFP estimated on the sample of manufacturing firms during the period 2006-2014 | 46 |
| <i>Figure 11.</i> The median values of TFP estimated on the sample of service firms during the period 2006-2014 | 47 |
| <i>Figure 12.</i> The TFPs at the 10 th , 50 th , and 90 th percentile values of firms governed by one private owner estimated on the sample of all firms during the period 2006-2014 .. | 48 |
| <i>Figure 13.</i> The TFPs at the 10 th , 50 th , and 90 th percentile values of firms governed by two private owners estimated on the sample of all firms during the period 2006-2014 | 48 |
| <i>Figure 14.</i> The TFPs at the 10 th , 50 th , and 90 th percentile values of firms where a government institution was involved as the blockholder estimated on the sample of all firms during the period 2006-2014 | 49 |
| <i>Figure 15.</i> The TFPs at the 10 th , 50 th , and 90 th percentile values of firms where financial holding institution were involved as the blockholder estimated on the sample of all firms during the period 2006-2014 | 50 |
| <i>Figure 16.</i> The TFPs at the 10 th , 50 th , and 90 th percentile values of firms having dispersed ownership structure estimated on the sample of all firms during the period 2006-2014 | 50 |

LIST OF TABLES

| | |
|--|----|
| Table 1. Variables and their description..... | 24 |
| Table 2. The number of firms presenting each of 3 samples on which the further estimations were performed during the period 2006-2014..... | 26 |
| Table 3. The median values and the ranges of the variables of the all firms operating in different sectors through the period 2006-2014 | 27 |
| Table 4. The median values and the ranges of the variables of the firms operating in the manufacturing sector through the period 2006-2014 | 28 |
| Table 5. The median values and the ranges of the variables of the firms operating in the service sector through the period 2006-2014 | 29 |
| Table 6. The number of all observed firms based on their type and ownership structure operating in different sectors per year during the period 2006-2014 | 30 |
| Table 7. The median values and the ranges of the variables of all firms operating in different sectors being governed by one major blockholder (One) through the period 2006-2014..... | 31 |
| Table 8. The median values and the ranges of the variables of all firms operating in different sectors having two major blockholders (One_two) through the period 2006-2014 | 31 |
| Table 9. The median values and the ranges of the variables of all firms operating in different sectors where a government institution is involved as the blockholder (Both_GOV) through the period 2006-2014 | 32 |
| Table 10. The median values and the ranges of the variables of all firms operating in different sectors where a financial holding institution is involved as the blockholder (Both_HOLD) through the period 2006-2014..... | 33 |
| Table 11. The median values and the ranges of the variables of all firms operating in different sectors having dispersed ownership structure (Dispersed) through the period 2006-2014..... | 33 |
| Table 12. OLS regression coefficients assessment for all firms operating in different sectors based on equation (12) | 39 |
| Table 13. OLS regression coefficients assessment for firms operating in the manufacturing sector based on equation (12)..... | 40 |
| Table 14. OLS regression coefficients assessment for firms operating in the service sector based on equation (12) | 41 |

INTRODUCTION

One of the most important reasons why firms' total factor productivity (TFP) is receiving greater attention is because it has come to be considered as one of the main drivers of growth at the macroeconomic level (Corricelli, Driffield, Pal, & Roland, 2012). A wide range of factors have an impact on the achieved level of TFP in a firm. One among them is the ownership structure of the firm. Berle and Means (1932) were among the first who started to develop the theory on concentrated ownership structure and to suggest that firms governed by blockholders achieve higher levels of TFP in comparison to firms with a dispersed ownership structure. However, ongoing research on this topic has discovered that besides the structure of a firm's ownership, it is also the type of owner that matters when examining the achieved level of TFP (Koke & Ronneboog, 2005).

In the last two decades, Slovenia has undergone three privatization phases. In the first two phases, both occurring in nineties, the state withdrew its ownership rights mostly in small and medium-sized firms, meaning it was still heavily present in the equity share of large firms. Based on all-too-often disappointing performance of the state-owned enterprises (SOEs), a common perception was created that these firms operate in a less efficient way (Dewnter & Malatesta, 2001). As such, in 2005 the state decided to speed up the process of its withdrawal from the rest of the firms, and expected that the newly-privatized firms would finally start achieving higher productivity. The investors received the signal, and since the state decision coincided with a transition period for Slovenia (for example, joining the ERMII and the EU), which triggered the "lending process", they were confident they would receive enough finance, especially from the state-owned banks, for the takeover of the firms.

These developments led to the privatization of many Slovenian firms over this period, as well as increased concentration of ownership. But the reality is that the privatized firms and the concentrated ownership alone do not instantly lead to higher levels of TFP. It is important for a firm's productivity who is the blockholder holding the majority of the governance. In the case of private owners, domestic or foreign, they are assumed to have enough incentives to be concerned about the firm's TFP and look for ways to increase it; financial holding institutions, on the other hand, are assumed to search for their incentives elsewhere. Their chief concern is not focused on how to improve the firm's TFP, but rather on how to buy the firm's shares for as low a price as possible, and later on sell them for as high a price as possible. Unfortunately, financial holding institutions (in particular) grabbed the chance to concentrate their ownership share in firms during the third wave of privatization in Slovenia.

For the purpose of the research component of this thesis, a database comprising the shareholder structure of 4,448 firms over the period 2006-2014 was created, including firms that employed more than 50 employees or that possessed more than EUR 2m in total assets. The database contained information on the ten biggest owners of the firms for each year. Based on all of this information, several groups of firms with different ownership structures and types were constructed. For each of these groups the achieved TFP was estimated following the Levinsohn and Petrin (2003) methodology. Estimations were performed on the sample of all firms operating in different sectors, on the sample of manufacturing-only firms, and on the sample of service-only firms.

The thesis is structured as follows. The first chapter is dedicated to a literature review on blockholding and its effects on firms' TFP. In addition, the chapter focuses on the different types of blockholders that might enter a firm's ownership and their potential influence on the firm's TFP. The second chapter describes Slovenia's development after its independence and the concentration of ownership during the abovementioned three phases of privatization. In the third chapter, TFP as a measure of the firm's efficiency is introduced, together with ways how it can actually be measured. Moreover, the ownership variables will be introduced and the main hypothesis will be stated. The third chapter will conclude with a specification of the model and quantification. The fourth chapter is dedicated to a more in-depth presentation of the database and the process of generating the variables. In addition, the description statistics of these variables are presented. The fifth chapter explains the empirical results, and finally there is the conclusion.

1 THE LITERATURE ON BLOCKHOLDING

1.1 The effect of concentrated ownership or blockholding on a firm's performance

The relationship between a firm's performance and concentrated ownership, or blockholding, has evolved into an ongoing debate within academic circles and the general public over the last few decades. Blockholding is a commonly used term in the economics literature. It mainly refers to problems arising from greater or lesser concentrated ownership and questions of agency problems (Holderness, 2003). While discussions on blockholding mostly focus on the large owners present in firms, the limits of what large means are set differently. For instance, Demestz and Lehn (1985) define large owners as when a firm has 5 to 20 shareholders; while on the other side, Schleifer and Vishny (1986) propose that each owner needs to possess at least 5% of the firm's ownership (Earle, Kuscerá, & Telegdy, 2005). The definition of block can differ by country or industry, since its notion primarily refers to the "power to impact". It has become commonly accepted that

the type, size and number of blockholders matters for firm structure, strategy and the long-term performance of the firm (Sanchez-Ballesta & Garcia-Meca, 2007).

What corporate governance traditionally refers to is the resolution of conflicts of interest between stakeholders and those actually running the corporations (directors or managers). Managers will act optimally, meaning that they will work and make decisions for the benefit of the firm until the point when product, labour and capital markets are fully competitive. However, so-called agency problems arise in the absence of competitiveness in either of the above-mentioned markets. In order to resolve these problems, principal agents (i.e. the owners) will use additional mechanisms to discipline the managers (Pavlič Damijan, Gregorič, & Prašnikar, 2004). One of the mechanisms that help to minimize agency problems is the use of, for example, concentrated shareholdings by institutions or by blockholders. Besides this, there are also outside representation on the board, debt financing, managerial shareholding and other mechanisms that help to increase managerial monitoring and hence improve firm performance (Agrawal & Knoebler, 1996).

As far back as 1932, Berle and Means explored the links between blockholding or dispersed ownership structure and company performance, demonstrating that this is by no means a new issue. They were among the first to defend the existence of an inverse relationship between dispersed ownership and a firm's performance. Ever since then, finding the right corporate mechanisms for achieving the most effective and efficient decision-making process in firms has become more and more central to governance research (Sanchez-Ballesta & Garcia-Meca, 2007).

Berle and Means (1932) also outlined their view of the agency problem. They explain that when the owners have a plan to maximize profits but this plan is ignored by the firm's managers, since perhaps they have neither the interest nor the incentive to do so, the blockholders are able to directly affect managerial performance. With substantial ownership and voting stakes, large blockholders have a better chance of exerting a positive effect on incentives to increase profits. This statement supports the idea that blockholders play a role of active monitoring in firms, and more in-depth monitoring can help increase the profitability of a firm (Sanchez-Ballesta & Garcia-Meca, 2007). Until now, the majority of the studies have concluded that if monitoring by owners improves the quality of managerial decisions, then blockholding is positively correlated with a company's performance, provided, of course, that blockholding is causing no other ill effects (Sanchez-Ballesta & Garcia-Meca, 2007; Tribo, Berrone, & Surroca, 2002). Hoskinsson, Hitt, Johnson, and Grossman (2002) state that this might be due to easier long-term goal orientation agreements, and also due to more intense monitoring of managers' actions.

Earle et al. (2005) point out another important insight in their study. The effect of blockholding on firm performance also depends on how the blockholders interact and cooperate with each other. In other words, the presence of a second large blockholder can

on the one hand provide additional monitoring over management, while on the other hand it can limit the expropriation of private benefits by the largest blockholder. This can occur particularly in situations where the largest owner owns less than a majority share.

However, there are also a number of studies showing the negative effects of concentrated ownership on a firm's performance. Blockholding can indeed lead to decreased liquidity of equity (Maug, 1998), misguided corporate strategic alignment (Thomasen & Pedersen, 2000), or it can lead to deriving benefits from the control function only for the largest blockholder (Johnson, La Porta, Lopez-de-Silanes, & Shleifer, 2000; Prašnikar, Mikerević, & Voje, 2014). Shleifer and Vishny (1995) claim that one of the fundamental problems large blockholders create is the increased likelihood of representing their own interests. These interests may not, however, coincide with the interests of other investors or, of course, even with the interests of managers and other employees. A chance exists that the largest blockholders will not be willing to engage in forming a monitoring coalition over the firm's management, and by doing so they are increasing the chance of reducing the value of the firm (Earle et al., 2005). Blockholders play an important role as to whether the wealth will be redistributed in an efficient or inefficient way (Pavlič Damijan et al., 2004).

Therefore, whenever the ownership concentration threshold is exceeded, the other side of agency theory may arise. When studying the relationship between the distribution of equity ownership and corporate value, McConnell and Servaes (1990) discovered that the curve of firm value slopes upwards to a certain point until the concentration of ownership reaches approximately 40 to 50 percent, and after it slopes slightly downward. Some reasons for the non-linear relationship between blockholding and firm performance may involve the costs associated with ownership concentration. As described by Shleifer and Vishny (1997), it could be caused due to the expropriation effect of minority shareholders. This effect occurs when larger owners use the firm's resources for their own benefit, at the expense of the minority shareholders. So, despite all the empirical evidence in the literature today, one can hardly make consistent conclusions about the effects blockholding has on the value of the firm or to its performance, due to the confounding influences of the monitoring and expropriation effects in each firm (Sanchez-Ballesta & Garcia-Meca, 2007).

1.2 Different types of owners

Large blockholders are common all over the world. They have also proved to be relatively stable in time. Different market conditions, institutional environments, as well as privatization, which in the last few decades gathered pace in the transition economies of Central and Eastern Europe, pushed the evolution of corporate governance in the direction of concentrated ownership and voting power; namely, of course, to a system of large blockholders (Pavlič Damijan et al., 2004).

In the discussion about ownership concentration, the importance of the type of firm owner cannot be overlooked. This is an important question since different types of shareholders may also have different incentives and abilities to monitor management (Koke & Renneboog, 2005). As such, blockholders can be private owners, the state, financial holding institutions, management teams, workers and many others. Frequently, there is also the question whether the owner is domestic or foreign. For this study's analysis, three different types of blockholders are important: 1) private owners; 2) government institutions and 3) financial holding institutions. The subsequent analysis will compare their performance to the performance of firms having a dispersed ownership structure.

Since the economic performance of SOEs has often showed disappointing results, the common perception developed that they are less efficient, or at least less profitable than privately-owned enterprises (Dewnter & Malatesta, 2001). As the owner of SOEs, the state has frequently been accused of not having profit maximization as its main objective, which was one of the reasons why those firms lacked sustaining innovation and technical progress and, hence, suffered low values of TFP (Koman, Knežević Cvelbar, Lojpur, & Prašnikar, 2009). When during the 1990s the large wave of privatization in transition economies began, it triggered policymakers and others' expectations of finally achieving greater improvement of firms' economic performance (Estrin, Hanusek, Kočenda, & Svejnar, 2009).

Concentration of ownership in the hands of private owners mostly proved to have a positive influence, not only on the firms' level of TFP, but also on profitability, revenue growth, labor productivity, and employment. Studies also suggest that in former communist countries, foreign private owners do achieve better firm performance on all the above mentioned areas in comparison to domestic private owners. They proved to be more efficient not just in comparison to the SOEs, but also by having a stronger positive effect on performance than dispersed owners (Estrin et al., 2009).

Despite this, many of the studies already conducted show that the effects privatization has on firms' TFP can indeed be mixed. The researchers' opinions range from those who do not find any, or find limited systematic effects (Hanousek, Kočenda, & Svejnar, 2007), to those who cautiously attribute positive effects from privatization on firms' performance (Meggison & Netter, 2001), and of course to those who confidently conclude privatization improves firms' performance (Djankov & Murrell, 2002; Sabrinova Peter, Svejnar, & Terrell, 2012).

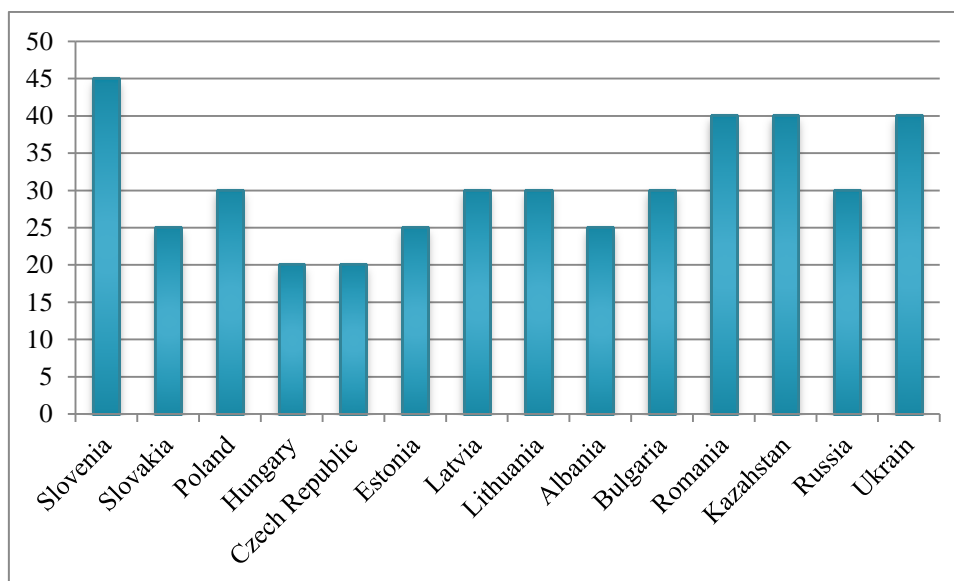
2 SLOVENIAN DEVELOPMENT AFTER INDEPENDENCE AND THE CONCENTRATION OF OWNERSHIP

2.1 The Law on the Transformation of Social Property and the initial concentration of ownership

Despite only 24 years having passed since its independence, Slovenia has already been through some turbulent and rough phases. Returning back to the beginning of the nineties, perhaps one of the biggest economic policy questions for the newly established country starting its transition was how to carry out privatization. In 1992, the Parliament passed the Law of the Transformation of Social Property allocating 20% of a firm's shares to insiders (workers), 20% to the Development Fund, which auctioned the shares to investment funds, 10% to the National Pension Fund, and 10% to the Restitution Fund. In addition, in each enterprise the workers' council in the Board of Directors (if one existed) was empowered to allocate the remaining 40% of company shares to insiders (workers) or outsiders (through public tender) (Domadenik, Prašnikar, & Svejnar, 2015).

A decade later, the first two phases of privatization came to an end. The process brought the following results – the internal owners gained the biggest ownership with a 40% share, while investment funds and state funds both seized 25% of the ownership share. The remaining part was either sold to external owners or exchanged for privatization vouchers of people who were not a part of the company (Gregorič, 2003).

Figure 1. The share of state ownership in GDP in the year 2000 (in %)



Source: J. Svejnar, *Transition Economies: Performance and Challenges*, 2002, p. 11.

As seen in Figure 1, Slovenia still held a considerable share of state ownership in gross domestic product (GDP) in the year 2000 (45%). Despite this, Slovenia did manage to

reach satisfying economic growth in comparison to other countries also going through a transition phase. Most of the success can be attributed to Slovenia's "sensible macroeconomic policy", which amongst other things exposed companies to greater competition and began to reduce soft budget constraints (Prašnikar, Domadenik, & Koman, 2015). Hence, as Domadenik, Prašnikar, and Svejnar (2008) show in their research, privatized companies during the period 1996-2000 set goals to achieve the highest possible profits and were hence managed in a similar fashion as firms in developed countries.

2.2 Pre-crisis euphoria and ownership concentration

Domadenik et al. (2008) notice that the concentration of ownership rights started gradually taking place in the early nineties, and the privatization phase turned out to be fairly efficient among small- and medium-sized firms. However, a number of large- and medium-sized firms still awaited their ownership transformation. In 2001, a managerial buy-out (MBO) of the quasi-privatized company BTC occurred, for which the firm's cash flow was used as the source of financing. This case gave a great deal of motivation and thrill for other management teams doing business in much larger firms to act in a similar way. The timing for all this was just right (Domadenik et al., 2015).

The third phase of privatization took place during the years when the booming macro environment reached Slovenia. The so-called pre-crisis period coincided with the country's accession to the EU and the European Exchange Rate Mechanism 2 (ERM II), followed by its entry into the European monetary union (Bole, Prašnikar, & Trobec, 2014b). This period was characterized by the free access of banks (and other economic units) to external resources of loanable funds, which started to play, as described in Miller-Stiglitz's model (2010), the role of financial "deep pocket" investors (Prašnikar et al., 2015).

At that time Slovenian companies' indebtedness was not particularly high and banking resources were obviously not fully tapped. One could claim that this was the first trigger leading to the higher indebtedness of firms. In addition, foreign banks were increasingly entering the market. While working to reach as big a market share as possible, they offered more and more favorable credit terms to their new clients. The increase in the banks' liabilities was enormous; however, the collateralization of credits was low, despite plenty of collateral being available (mostly real estate, inventories or companies' shares) due to rapidly increasing asset prices (Bole et al., 2014b).

The moment when access to bank loans became easier, firms and other investors' appetites enlarged. On top of that, the state made a plan for the "transparent withdrawal of its share from the economy". Based on data during the period 2004-2008, most of the companies doubled their financial debt. 60% (out of a total debt of EUR 13 billion) was taken up in

the market as core investments, and a smaller number of firms invested 40% equally into: 1) real estate; 2) countries of the former Yugoslavia and; 3) management buyouts (MBOs) (Prašnikar et al., 2015).

Blockholding in privatized firms in that period started taking place relatively fast. Another reason causing the fast pace was also the lack of transparency over share trading. The Private Investment Funds (PIDs) got into battle by not being transformed into mutual funds, but rather being transformed into financial holding companies. The appeal of this transformation lay in the fact that financial holding companies were certainly not subjected to such strict due diligence from the side of the regulator as they would have been if they had ended up as mutual funds. Some financial holding companies grabbed the opportunity of weak monitoring and leaked their assets abroad, and the rest understood their role as concentrating their ownership in certain companies (or a group of companies), which they were would eventually take over completely (Prašnikar et al., 2015).

Besides PIDs there were also some non-financial companies which transformed into financial holding companies. By selling off parts of the companies, they gained additional financial resources, which they spent on the acquisition of other companies. History has shown that the most common reason they bought these companies was to sell them later for a higher price. For the same reason a few de novo firms were established. Most of the managers who ran them possessed little or no capital. For the purchase of the new firms some of them used what they first earned through transactions with the securities of the already privatized firms, and the rest simply received loans from a different number of banks (Prašnikar et al., 2015). Leverage buyouts in that sense became an often-used tool for ownership concentration and acquisition. They were often observed in industries where the technology did not require high capital intensity (Bole, Prašnikar, & Trobec, 2012).

These manoeuvres should have immediately caught the attention of regulators. Both MBOs and financial holding institutions can be defined as firms with “unstable” ownership structure. They enormously increased their levels of debt during the pre-crisis period and were considered more inclined to invest in non-core activities (equities and real estate assets). On the other side, there were firms with a “stable” ownership structure, in which private owners, for example, can be included (Bole et al., 2012). As it turned out, they also accumulated high levels of debt during the pre-crisis period, with a similar pace as the financial holding institutions; however, they were considered to be more inclined to invest in core activities (Dominko, 2015). At the time when the economy was booming, simultaneous growth of TFP together with the above mentioned growth of firms’ indebtedness could be observed. This generated the thinking that growth would continue to proceed like this.

Corporate leverage decisions are among the most important ones company executives have to make. The beginnings of researchers’ interest in this matter go way back to Modigliani

and Miller (1958). The effects of these decisions do not only impact the firms' performance, they spread further onto the macroeconomic level. The catch is that for firms possessing a low level of leverage, the additional leverage is likely to be associated with higher TFP growth. The benefits of additional leverage at this point still outweigh the costs. A strong and positive relationship between the use of external financing and TFP growth within firms is also shown in one of the recent studies conducted by Levine and Warusawitharana (2014).

But Levine and Warusawitharana (2014) go further to explain that the costs of leverage become larger as the leverage increases; hence, TFP growth increases with leverage until the latter reaches a critical threshold beyond which leverage becomes 'excessive' and starts lowering the firm's TFP growth. At this point, its benefits completely disappear and a high-leveraged firm starts suffering from a debt overhang problem. This exact problem lowers the firm's incentives to further invest in productive investments. Its main focus thus switches from productivity improvements to the question of how to generate more cash flow, which is needed to service its debts (Corricelli et al., 2014). But as could eventually be seen, besides the level of the accumulated debt, it was also highly important in which firm's activities this debt was invested. Core activities are the ones considered to have a positive impact on a firm's TFP, while non-core activities are assumed to have no positive effect.

2.3 Post-crisis downfall: firms with “stable” and “unstable” ownership

And yet, at the awakening of the recent global crisis, Slovenia had to learn about the risk of excessive credit expansion the hard way. Before entering the EU, Slovenia implemented the standard market institutions of a developed economy, including the banking system, the capital market and market structure regulations. However, these institutions proved to be far from enough to prevent the disastrous consequences of complacent fiscal policy and a far too lax monetary policy (Bole et al., 2014b). Slovenia now faced the financial accelerator effect, which endogenously drove the amplification and propagation of the process of firms' debt accumulation, triggered by external shocks (Bole et al., 2012).

The uncertainty created on the international financial market activated a credit crunch in the wholesale market of loanable funds. Doubts about the future of economic development became enormous, so banks switched their credit policies from a “mark-to-market” approach to a “mark-to-risk” approach. They started to ignore the firms' cash flow, massively increased the necessary credit collateral coverage and considerably enhanced credit rationing.

These practices not only stopped banks from issuing new credits, but they also significantly reduced automatic revolving credit. The latter was especially prohibited for the so-called “tycoon” companies after 2009 (Bole, Oblak, Prašnikar, & Trobec, 2014a).

This caused hard times for many of the MBOs occurring in larger companies, for which Special Purpose Vehicles (SPV) were used. Through SPVs managers took out loans to purchase ownership shares of the company they intended to take over, where these loans were often insured with the shares of the same company. When the “anti-tycoon” clause was enforced, and the pipeline of revolving credit was shut down, banks, especially the state-owned ones, seized the ownership shares that were used as the collateral, since the SPVs were not able to repay the loans. Besides the MBOs occurring in the larger companies, there were also both types of financial holding companies: ones that were established by switching the core activity of the privatized firms and were themselves subject to the MBO, and others that were established through the transformation of PIDs, caught up in the same story (Prašnikar et al., 2015).

Additionally, demand in the real estate market and construction sector, both booming before the crisis, drastically collapsed, and real estate prices and the stock market fell considerably. Moreover, the banking regulator started to impose pro-cyclical interventions and the corresponding responses of banks resulted in a prolonged (after the crisis) credit crunch period, financial disintermediation (the spreading of forced intercompany credit), suboptimal sequencing and timing of deleveraging, as well as harmful structural effects (Bole et al., 2014a).

Part of what was happening in Slovenia (and elsewhere) is captured by Minsky’s (1986) financial instability hypothesis (FIH), which explains that when a negative shock hits companies’ balance sheets, it forces them to accelerate the liquidation of assets. The process lowers asset prices as well as lowering the size of collateral. The “fire-sales” that follow effectively increase the demand for liquidity (Miller & Stiglitz, 2010; Krisnamurthy, 2010). A sudden reaction whereby over-indebted units rush to sell their assets to pay their financial commitments (i.e. a Minsky moment), deflation and generalized economic crises arise as a result (Bole et al., 2014a). Adding to that and further amplifying the crisis, is the moment when surprise shocks to untested financial innovations increase the firms’ uncertainty about their investments, forcing them to withdraw from markets.

The results of Bole et al.’s (2014b) study show that the wrong timing, sequencing and calibration of deleveraging in Slovenia had high opportunity costs in the boom-bust period (2007-2012). The banking regulator’s pro-cyclical intervention and the corresponding responses of the banks prolonged the credit crunch period and the spiralling financial de-intermediation. Also, cutting bank credits irrespective of firms’ performance in the first years after the crisis pushed these firms into a negative cash flow, even causing bankruptcy in the following years. In addition, firms increased the level of intercompany credits (especially in the service and construction sectors), which spread the illiquidity to the whole economy.

Reduction in bank credits to the nonfinancial sector driven by increased collateralization, credit rationing, and neglect of cash flow performance of banking credits seriously jeopardized companies' deleveraging process, pushing them towards worst case scenarios. Firms with an "unstable" ownership structure paid the highest price for their behaviour in the boom period. Highly leveraged firms, which concentrated most of their investments in non-core activities, started to face the issue of how to generate enough cash flow for their debt repayments (Bole et al., 2014b). They no longer showed any sign of aspiration to invest in productive activities. On the other side, firms with a "stable" ownership structure, which also accumulated great levels of debt, suffered from a lower drop in their TFP and coped with the crisis better, since they dedicated most of the debt to their core activities (Dominko, 2015)

However, the intensive deleveraging policies, on the other side, led many firms to lower their debt accumulation. If the leverage of the firms (loans and debt securities) divided by EBITDA for a median firm had fallen to 5.3 by 2010, it decreased to only 3.5 by 2014. Obviously, the propulsive part of the economy (especially the Slovenian international firms) won the battle of becoming over-dependent on banking sources. Companies lost their trust in Slovenian banks, which let them down in hard times. Nowadays, when companies need to get a loan they search for it abroad, or they take on a strategy of accumulating enough cash flow and postpone investment decisions to the future. So now the banks are the ones who are facing trouble (Prašnikar et al., 2015).

3 CONCENTRATED VS. DISPERSED OWNERSHIP IN SLOVENIA: DEVELOPMENT OF THE EMPIRICAL MODEL

3.1 Total factor productivity as a measure of a firm's efficiency

There are several underlying reasons why attention should be focused on firms' TFP. Firstly, increases in productivity are generally known to be the main driver of growth at the macroeconomic level. Secondly, improvement in TFP is one of the key factors for income growth, and differences in TFP can explain a great deal about the variation in cross-country per capita GDP (more than with variables like human capital, physical capital or trade). Thirdly, TFP represents one of the most important determinants explaining how firms respond to fluctuations in the business cycle, showing that firms with low TFP are more vulnerable to such fluctuations and subsequently riskier in comparison to the firms with higher TFP. Firms with lower TFP also have a higher implied cost of capital (ICC), and yet both the levels of ICC and the ICC spread between low and high TFP firms are countercyclical (Coricelli et al., 2012).

A number of papers show a positive relationship between a firm's TFP and its value. The logic behind it is rather simple. If productivity growth results in more efficient use of scarce inputs, this might allow a firm to lower its output prices and maintain or even increase its profit margins. All this leads to the firm's long-term survival, which consequently enhances shareholder value (Coricelli et al., 2012).

Productivity can be described as the ratio of the outputs that a firm produces to the inputs that the same firm uses.

$$Productivity = Outputs / Inputs \quad (1)$$

This ratio may help to explain a firm's productivity to the point where a firm uses a single input to produce a single output, which of course is quite a rare case to find. The moment when a firm uses more than one input to produce more than one output a different method for productivity estimation needs to be used. To derive a ratio measure of productivity, one first needs to aggregate all the inputs in a single index of inputs (Coelli, Rao, & O'Donnell, 2005).

However, when discussing firms that more or less do use more than one input to produce various outputs, we are actually referring to their TFP. This measure represents the ratio that relates the aggregation of all the outputs the firm produces to the aggregation of all the inputs it uses. Researchers, as well as managers, usually look at TFP in a dynamic framework, and hence observe changes in TFP which over time can improve or collapse (Latruffe, 2010). The formal basic equation explaining productivity is a production function of the type:

$$Y_{it} = A_{it}F(X_{it}) \quad (2)$$

where Y_{it} represents the output of the generic unit i , such as company or sector, in time t to X , which presents the vector of inputs. Term A shows how much output a given unit is able to produce from a certain amount of inputs, with a given technological level. The state of technology is represented by the function F . It is given and it is common to all is (Del Gatto, Di Liberto, & Petraglia, 2009).

$$TFP_{it} \equiv A_{it} = Y_{it} / F(X_{it}) \quad (3)$$

As can be seen from equation (3), the TFP index at time t can be calculated as the ratio of produced output and total inputs a firm is employing. There also exists a common approach to measure the production function of an individual firm. It can be measured with a Cobb-Douglas formula:

$$Y_{it} = A_{it} K_{it}^{\kappa} L_{it}^{\lambda} \quad (4)$$

where Y_{it} stands for the output of firm i in period t , K_{it} represents the capital and L_{it} the labour inputs. Term A_{it} is the Hicks-neutral efficiency level, or the so-called TFP, of firm i in time t . While it is possible to observe Y_{it} , K_{it} , L_{it} , preferably in terms of value instead of quantities, A_{it} represents an unobservable term and is commonly inferred as a residual (Domadenik et al., 2015).

3.2 Estimating total factor productivity

Various methodological issues are raised when TFP is estimated using traditional methods, by applying the so-called Ordinary Least Squares (OLS) to a balanced panel of firms. Often the productivity and input choices are correlated, therefore OLS estimations of firm-level production functions enforce endogeneity or simultaneity problems. Also, whenever a balance panel is used, no allowance is made for entry and exit, which can lead to selection bias (Olley & Pakes, 1996).

Many methodological issues have been raised by the numerous estimators which have been proposed in the literature. If some traditional estimators on the one hand help to overcome endogeneity problems, for example instrumental variables or fixed effects, on the other hand they will not provide suitable results for the case of production functions. In order to eliminate these problems, a few semiparametric alternatives were developed. Two of them are described below – the Olley and Pakes estimation (1996, henceforth OP), and the Levinsohn and Petrin estimation (2003, henceforth LP) (Levinsohn & Petrin, 2003).

3.2.1 Olley-Pakes estimation

Olley and Pakes (1996) introduced an estimation algorithm that takes the selection bias as well as the simultaneity problem explicitly into account. Their dynamic model of firm behaviour allows for idiosyncratic productivity shocks, as well as the entry and exit problem. At the beginning of each period, every incumbent firm chooses whether to exit or to remain in business. If it decides to exit, it receives a special sell-off value and it never re-enters. But in case it decides to stay and continue with its operations, it selects an appropriate level of variable inputs and investments. It is assumed for a firm to maximize the expected discounted value and net cash flows, both investment and exit decisions will be based on the firm's perceptions about the distributions of future market structure, given the currently available information (Van Bevern, 2007).

A number of assumptions need to be made in order to accomplish consistency in these estimations: 1) productivity is assumed to be the only unobserved state variable at the firm level; 2) whenever industry-wide price indices are used in order to deflate inputs and outputs in value terms to proxy for their respective quantities, it is therefore implicitly assumed all firms in the industry face common input and output prices; and 3) in order to

ensure invertibility of the investment demand function, the model imposes monotonicity on the investment variable. By assuming this, investment needs to be increasing in productivity, conditional on the values of all state variables (Van Bevern, 2007).

3.2.2 Levinsohn-Petrin estimation

While on the one hand Olley and Pakes (1996) make use of investment decisions to proxy for unobserved productivity, Levinsohn and Petrin (2003) rely on intermediate inputs. Olley and Pakes's monotonicity condition requires that investment is firmly increasing in productivity, suggesting only those observations that record positive investment can be used for further estimations. This can lead to a significant loss in efficiency in cases where many firms are reporting zero investment, which can cast doubt on the validity of the monotonicity condition.

On the other hand, firms usually report a positive use of materials and energy on a yearly basis. This gives a better chance of retaining most observations in the sample of firms and implies that the monotonicity condition is more likely to hold. Another benefit occurs if firms are placed in an emergency situation, when it becomes less costly for them to adapt to the intermediate input, meaning intermediate inputs may respond more completely to the entire productivity term in comparison to investment (Levinsohn, Petrin, & Poi, 2004).

Estimates derived by using the LP approach indeed differ from the estimates derived by using the OP approach. However, this difference is not as great as the difference that occurs between the LP estimator and the more traditional estimators. From one angle the OP approach is very useful for addressing simultaneity problems, while from another angle the LP approach offers researchers an alternative that is easy to implement and which allows more of the existing data to be used. Up until now, it has generally worked well in practice, and it also appears to address some situations in which OP estimations may not work as well (Levinsohn & Petrin, 2003).

3.2.3 Estimations used for the further analysis

For the purpose of the further analysis in this thesis, the LP approach was used. By implementing this approach in Stata through the command `levpet`, the costs of goods, materials and service (CGMS) were used as the proxy variable, labour costs (LC) as the free variable, and total fixed assets (TFA) as the capital variable. After that, with the help of syntax for `predict`, the variable Omega was defined. This Omega represented the firm's predicted value of TFP. It was additionally divided by the sum of firm's capital and reserves and long-term passive accruals, and later transformed into a logarithmic value (`lnOmega`). `lnOmega` was later used to represent the dependent variable used in the OLS regression analysis.

3.3 The ownership variables

The impact that ownership structure has on a firm's performance has been one of the key analytical as well as policy questions for years (Earle et al., 2005). The main concern of all the measuring remains the correlation between unobservable productivity shocks and input levels. Firms that are looking for profit-maximization will respond to productivity shocks by expanding their output, for which they will require additional inputs. Nevertheless, when firms are faced with negative shocks, they are forced to pare back the output, meaning they will also decrease their input usage. However, to improve the accuracy of productivity estimation, many of the instruments have been developed over time (Levinsohn et al., 2004).

Based on the existing instruments, the goal of the further analysis is to estimate how the ownership structure impacted the total factor productivity of Slovenian firms during the period 2007-2014. On the one side, there will be groups of firms where the ownership is in the hands of either one owner that holds at least a 50% share of the firm or the ownership is in the hands of the two largest owners, who together own at least 50% of the ownership rights in the one firm. On the other side will be a group of firms where neither one nor the first two largest owners together hold at least a 50% share of the firm.

The first group includes firms owned by private owners, domestic and foreign, who hold at least 50% of the firm's shares. The second group includes firms owned by private owners, again domestic and foreign, where the first biggest owner alone does not maintain at least a 50% share, but together with the second largest blockholder, they do hold at least 50% of the firm's shares. The third group includes firms owned by government institutions. This group includes two types of ownership structure - one where one of the government institutions alone owns at least 50% of the shares and is, hence, the major owner, and the other, where the first biggest owner alone does not maintain at least a 50% share, but together with the second largest owner they do. However, at least one of the two largest owners has to be a government institution. Exactly the same rules as for the firms owned by the government institutions will be applied for the group of firms owned by financial holding institutions. The fourth group is therefore represented by the group of firms in which one financial holding institution alone owns at least 50% of the share and is hence the major owner, and the other, where the first biggest owner alone does not maintain at least a 50% share, but together with the second largest owner they do hold at least 50% of the share. Yet, at least one of the two largest owners has to be a financial holding institution.

The impact all four groups have on the productivity of the firms during the period 2006-2014 will be estimated. Their impact will be compared to the impact the dispersed

ownership structure has on firms' productivity, which will consequently represent the base group of the firms. Besides measuring the effect of the ownership structure on the whole sample of the firms that fit the description, the firms will additionally be divided into two sectors, for which estimations and comparisons will be made: 1) manufacturing; and 2) service.

3.4 Specification of the model and quantification

3.4.1 Specification of the model

The basic production function model is the standard Cobb-Douglas function:

$$Y_{it} = A_{it} K_{it}^{\kappa} L_{it}^{\lambda} M_{it}^{\mu} \quad (5)$$

Where Y_{it} denotes physical output, K_{it} inputs of capital, L_{it} inputs of labour, M_{it} intermediate inputs and A_{it} is the Hicks efficiency level of the firm i in time t .

Disaggregating A_{it} in the firm's level of productivity (TFP for firm i) Ω_{it} and the contribution of unexpected deviation to productivity U_{it} , the production function could be written as:

$$Y_{it} = U_{it} \Omega_{it} K_{it}^{\kappa} L_{it}^{\lambda} M_{it}^{\mu} \quad (6)$$

To study the impact on the firm's productivity level of the possible differences in firm governance (control) due to different owner structures, this basic function has to be extended so that the firm's level of productivity contribution is disaggregated in corresponding ownership induced contributions.

As already mentioned, the dominant ownership of a firm is an ownership in which one or two owners (together) have over 50% share in the firm. Four types of dominant ownership are explicitly studied: a) one private owner (holdings and government not included) with share over 50%; b) two private owners (holdings and government not included) with common share over 50%; c) the government (alone or together with another owner) has a share over 50%; and d) a holding (alone or together with another owner) has a share over 50%.

Let us denote by ${}_j\Omega_{it}$ the contribution to the productivity level of the firm i in period t of the j - type dominant ownership ($j=1, \dots, 4$), and with ${}_0\Omega_{it}$ contribution of no dominant ownership to the productivity level of the firm. If there is, further Φ_{it} non-ownership contribution to the firm productivity level and $j\delta_{it}$ indicator function (dummy) of j -type

dominant ownership of firm i in time t , then the firm's level of productivity Ω_{it} in equation (6) could be formally written as,

$$\Omega_{it} = \Phi_{it} (\prod_j {}_j\Omega_{it}^{j\delta_{it}}) {}_0\Omega_{it}^{(1-1\delta_{it}-2\delta_{it}-3\delta_{it}-4\delta_{it})} \quad (7)$$

where \prod_j denotes product operator over index $j=1,2,3,4$.

Although the dominant owner already has over 50% share in the firm's net worth, their control (governance efficiency) of the firm's productivity could still increase (but slowly) if their share in the net worth of the firm i in time t ${}_j p_{it}$ ($= {}_j W_{it}/W_{it}$) increases further. The same could also be said for firms with a non-dominant ownership structure. Let us denote the theoretical (maximal) level of productivity achievable by the ownership j in the case of unit ownership by ${}_j\Omega_t^*$. It is assumed that the impact on the firm's level of productivity ${}_j\Omega_{it}$ of the increase in governance efficiency (of type j ownership) induced by the increase in the controlled share in net worth is linear in ${}_j p_{it}^{j\pi}$, where $j\pi$ is elasticity of control on the size of ownership. Therefore,

$${}_j\Omega_{it} = {}_j\Omega_t^* ({}_j p_{it}^{j\pi} W_{it}) \quad j=0, 1, \dots, 4 \quad (8)$$

If we divide equation (7) with W_{it} , substitute (8) into (7), and log the corresponding relationship, we get

$$\log(({}_j\Omega_{it})/W_{it}) = \sum_j (\log({}_j\Omega_t^*/{}_0\Omega_t^*)_j\delta_{it} + \sum_j j\pi \log({}_j p_{it}/{}_0 p_{it}))_j\delta_{it} + \log({}_0\Omega_t^*) + \log(\Phi_{it}) \quad (9)$$

This is the final model for the analysis of the firm's level of productivity generated by types of dominant ownership. Items in the first sum show the firm's level of productivity effects from different types of dominant ownership (relative to non-dominant ownership), items in the second sum demonstrate effects on the firm level productivity caused by the elasticity of control (governance efficiency) on changing the share of ownership between 50% and 100%, while the last two items show the unit effect on the firm's level of productivity of non-dominant ownership and other non-ownership factors of the firm's productivity level, both together are therefore encompassed in intercept and random error.

3.4.2 Quantification of the model

In our empirical analysis we simplify relationship (9) by assuming that a change in the ownership share does not affect the firm's productivity level if the share is already greater than 50% (that is ${}_j\pi=0$). We will, therefore, estimate

$$\log(({}_j\Omega_{it})/W_{it}) = \sum_j (\log({}_j\Omega_t^*/{}_0\Omega_t^*)_j\delta_{it} + \log({}_0\Omega_t^*) + \log(\Phi_{it})) \quad (10)$$

Quantification of the model proceeds as follows. First, a log of the firm's productivity level ($\omega_{it} = \log \Omega_{it}$) is estimated using (5) and Levinsohn and Petrin procedure, as follows

$$\hat{\omega}_{it} = \log(Y_{it} - M_{it}) - \hat{\kappa} \log(K_{it}) - \hat{\lambda} \log(L_{it}) \quad (11)$$

where $Y_{it} - M_{it}$ is value added.

After estimating $\hat{\omega}_{it}$, the theoretical (maximal) values for the firm's level of productivity are estimated for all four studied types of dominant ownership from equation (12)

$$\hat{\omega}_{it} - w_{it} = \sum_j \omega_t^* \delta_{it} + \text{cons} + \varepsilon_{it} \quad (12)$$

where $w_{it} = \log(W_{it})$.

In regression model (12), the first four items ω_t^* (coefficients of dummies) obviously give dominant ownership (specific types) sources of the firm's level of productivity, relative to the specific levels of productivity for non-dominant ownership. The further two items (intercept and random error) encompass the unit effect of non-dominant ownership on the firm's level of productivity as well as other i.i.d non-ownership factors of firm productivity level.

3.5 The hypotheses

In this section the hypotheses (to be subsequently tested) are presented. All of them are based on the previously performed literature review. The logic behind the first stated hypothesis was developed from Berle and Means (1932), who were among the first to prove the inverse relationship between dispersed ownership and a firm's performance. They predicted that large blockholders have a better chance of exerting a positive effect on incentives to increase profits. Large blockholders are thus expected to play an active role in the monitoring of firms, and active monitoring should help increase the chances of a firm achieving a better TFP.

The incentive to achieve higher productivity of a firm for the largest private blockholders is rather high, since by achieving higher productivity they are increasing the chances that the firm's value will also grow, which the large private blockholder can take advantage of and exploit for its own increase of wealth (Sanchez-Ballesta & Garcia-Meca, 2007). Hence, the conclusion that a large private blockholder who owns the majority share in a firm helps the firm to achieve a higher TFP in comparison to firms with dispersed ownership

H1: Firms with one private blockholder with the majority share of ownership in the firm achieve higher TFP in comparison to firms with dispersed ownership structure ($\beta_1 > 0$).

The second hypothesis was determined based on the same logic as the first one. Large private blockholders are expected to have a positive impact on firm productivity in comparison to dispersed ownership structure. The higher achieved productivity can lead to greater value of the firm, which large blockholders can use for their own benefit.

H2: Firms in which the two largest private blockholders together maintain the majority share of the firm's ownership achieve higher TFP in comparison to firms with dispersed ownership structure, ceteris paribus ($\beta_2 > 0$).

Even though firms governed by large blockholders are supposed to perform better in comparison to firms with dispersed ownership, there is some suggestion that who the blockholder is also matters. If one of the most influential blockholders in the firm is a government institution, the performance of that firm might become very questionable. Hence, in the fourth hypothesis I predict that the group of firms in which a government institution is the largest blockholder, or is present as at least one of the two largest blockholders, have achieved a lower TFP in comparison to firms with dispersed ownership structure.

H3: When one of the government institutions is present as one of the largest blockholders in firms, these firms achieve lower TFP in comparison to firms with dispersed ownership structure ($\beta_3 < 0$).

The next hypothesis concerns the productivity of the group of firms where one of the financial holding institutions acts as the largest blockholder, or is present as at least one of the first two largest blockholders. This group of firms is again supposed to prove that the type of blockholder, when questioning its TFP, matters. The reason why this group of firms should be separated from the others is because of the goals financial holding institutions would like to achieve with the firm they are governing. As previously mentioned, most often their main concern has been to take over the firm at a low price, sell it later for a higher price, and earn profit while making this transaction. Financial holding institutions were also frequently the instrument used to perform MBOs over the firms (Prašnikar et al., 2015). Based on all this, the conclusion was made that the group of firms in which a financial holding institution is present as the largest blockholder, or is present as at least one of the first two largest blockholders, would have a negative impact on TFP.

H4: Firms in which a financial holding institution is present as the largest blockholder, or is present as at least one of the first two largest blockholders, have lower TFP in comparison to firms with dispersed ownership structure, ceteris paribus ($\beta_4 < 0$).

4 DATA AND VARIABLES

4.1 Working with the data

4.1.1 The data collection process

The sample for observation on which the estimations were performed, was defined based on two measures, where the selected firms needed to meet with either one. All the Slovenian firms, which were intended to be taken into consideration for further observation needed to meet at least one of the criteria from The Companies Act on micro, small, medium, and large companies – whether they employed at least 50 employees or they owned at least EUR 2 million in total assets. 2008 was picked as the base year for making the list of the companies, since later, due to the result of the global economic crisis that hit Slovenia, many of the firms stopped operating. For each year during the period 2006-2014, and for each observed firm that was included in the sample, the names and the percentage share of the first ten biggest owners were collected.

In the beginning, the database contained the identification number and name of the observed firm and later it contained the names of the ten biggest owners of the company for the elected period. Besides the name of the owner, the percentage of the ownership share each owner held was assigned. In most cases, these ownership shares differed from year to year, therefore a great deal of caution needed to be applied during the data collection. All the data was publicly available and it was gathered from different sources: 1) the Agency of the Republic of Slovenia for Public Legal Records and Related Service (AJPES); 2) GVIN.com companies' ownership web database; 3) the annual reports of the observed companies; or 4) from reliable sources published on the Internet.

In the last phase of the data collection process, the database of the observed firms and their changing ownership structure was matched with the financial data from the balance sheet and income statements. On average for each year, information on 4,448 firms was captured through the whole period 2006-2014.

4.1.2 Preparing the database for further use

Once all the data was gathered in the one place, preparation of the final sample and the variables which were intended to be included in the model for the estimation of TFP commenced. All the further procedures were performed in the data analysis and statistics software Stata.

The database needed some immediate corrections due to the fact that it was observed over a wider period of time when different occasions brought differences and changes in data.

The first change occurred in 2007, when Slovenia adopted the euro. Therefore, the data from year 2006 needed to be transformed from the Slovenian Tolar and matched with the new currency. The second change occurred in 2008. The standard classification of activities (SKD) is an obligatory national standard used for determining activity and classifying business subjects and their units. These subjects are classified for the further needs of official or any other administrative databases, which can of course be used for further statistical and analytical purposes. However, in 2008 Slovenia introduced a few updates to the SKD. Knowing this, the SKD of the firms observed in 2006 and 2007 was aligned to the new version of the SKD.

4.1.3 Creating the main variables

After finalizing the details and corrections with the database, the preparation of the variables, which were intended to be included in the model continued. To start with, four main variables needed to be created for each of the observed firms and of course for each year it operated during the period 2006-2014. The first three variables were quite easy to define since they were simply taken from either the firms' balance sheets or from their income statements. These three variables were tangible fixed assets (TFA), labour costs (LC), and costs of goods, materials and service (CGMS). The fourth among the main variables was the value added (VA), for the calculation of which the data was again taken from the firms' income statements. It was calculated by deducting the other operating expenses and the CGMS from the revenue. For the further needs of the calculation, they were all additionally transformed into logarithm values.

In the following phase, the focus was shifted to the type of the firms' owners. As already mentioned, the firms were divided into 5 different groups: 1) firms owned by private owners, domestic and foreign, who maintain at least 50% of the firm's shares; 2) firms owned by private owners, again domestic and foreign, where the first biggest owner alone does not maintain at least a 50% share, however, together with the second largest blockholder they do; 3) firms in which one of the government institutions alone owns at least 50% of the share and firms in which the first biggest owner alone does not maintain at least a 50% share, however, together with the second largest owner they do. Besides that, at least one of these two largest owners has to be a government institution; 4) firms in which one financial holding institution alone owns at least 50% of the share and firms in which the first biggest owner alone does not maintain at least a 50% share, however, together with the second largest owner they do. Still, at least one of these two largest owners has to be the financial holding institution and 5) firms having dispersed ownership structure, meaning that the first owner alone does not own a 50% share, nor do the first two largest owners together maintain at least a 50% share of the firm's ownership.

Having the percentage share of each of the ten largest owners of the observed firm, distinctions among firms having one or two blockholders and among firms having

dispersed ownership can be made. However, for the decisions on separating the groups of firms based on the type of owner, having the names of the owners (besides the percentage share of the ownership) also came in handy.

The list defining which are the government and financial holding institutions was made and can be seen in Appendix. There were 22 government and 176 financial holding institutions. All 10 largest owners of the observed firms were checked again for each year. Whenever one of the 22 government institutions or one of the 176 financial holding institutions was found, a special mark was put in the additional column beside.

After this initial check was conducted, the variable marking firms where a government institution was the major blockholder owning at least 50% share of the firm ownership was made (*One_GOV*). After that, another variable marking the firm where a government institution was present as at least one of the two largest blockholders together owning a minimum of a 50% share of the firm's ownership was made (*One_two_GOV*). The third variable, and also the one which was later used in the model, combined both of the previously constructed variables. It was labelled as *Both_GOV* and it joined together all the firms where one government institution was present as the single major blockholder or was involved as at least one of the two major blockholders.

$$Both_GOV = 1 \text{ if } (One_GOV = 1) \text{ or } (One_two_GOV = 1) \quad (12)$$

The same procedure was followed while creating the variable which would combine both types of firms where financial holding institutions were involved as the major blockholders. The first variable represented the firms where one of the financial holding institutions was the major blockholder owning at least 50% share of the firm ownership was made (*One_HOLD*). After that, another variable marking the firm where a financial holding institution was present as at least one of the two largest blockholders together owning a minimum of 50% share of the firm's ownership was made (*One_two_HOLD*). The third variable, and also the one which was later used in the model, combined both of the previously constructed variables. It was labelled as *Both_HOLD* and it joined together all the firms where one of the financial holding institutions was present as the single major blockholder or was involved as at least one of the two major blockholders.

$$Both_HOLD = 1 \text{ if } (One_HOLD = 1) \text{ or } (One_two_HOLD = 1) \quad (13)$$

When generating the groups of firms where the government or financial holding institutions were involved, the creation of the next three variables was much simpler. The first variable, labelled as *One*, contained the firms where the first largest owner possessed at least a 50% ownership share of the firms and this owner was neither one of the government institutions nor one of the financial holding institutions; therefore, all the owners that were left were defined as private owners. The second variable, labelled as

One_two, contained the firms where the first owner alone did not maintain at least a 50% share of the company, however, together with the second owner they did. This variable again excluded the group of firms where the government or financial holding institutions were present as the largest owners, therefore it represented only the private owners. Last but not least, the variable defining the type of ownership structure was labelled as Dispersed. It was generated for the firms where neither one nor the two largest blockholders together possessed at least 50% of the ownership of the firm.

Since one of the main focuses of the research was to estimate the TFP of firms with different structure and type of ownership in different sectors, two more variables needed to be created to make the distinction between them. A variable named dummy_MAN was created, which marked all the firms which were classified in the range 0.9-35, based on the official SKD classification, and therefore represented the firms operating in the manufacturing sector. Another variable that was created was labelled dummy_SER. This variable marked all the firms which were classified between the ranges 44.9999-64 and 67.9999-84, based on the official SKD classification, meaning that this variable represented all the firms in the database operating in the service sector.

4.1.4 Adjusting the database for the further estimations

Since the size of the collected database was rather large, there was a chance it would contain firms which completely stood out in comparison to other firms (with their own operations), or that wrongly reported data would be observed. All this could potentially have led to biased results and incorrect final conclusions.

To reduce the possibility of this occurring, the decision was made that the upper and the lower 0.5% values of each of the 4 main variables (VA_{it} , LC_{it} , TFA_{it} , $CGMS_{it}$) would be defined as outliers, and would therefore be removed from the observed sample. However, these 4 values were first divided by the firms' total assets in each year in order to adapt the data for the firms' size effect. Through the performed calculation, 4 new variables were derived ($VA_{div_{it}}$, $LC_{div_{it}}$, $TFA_{div_{it}}$, $CGMS_{div_{it}}$) and they were transformed into logarithmic values ($\ln VA_{div_{it}}$, $\ln LC_{div_{it}}$, $\ln TFA_{div_{it}}$, $\ln CGMS_{div_{it}}$). Then, the mentioned upper and lower 0.5% were actually defined and removed from the latter variables. In the next step, new variables were created marking the values which were equal or larger than 0.5% and which were equal or smaller than 99.5% by 1, and marking all the rest by 0. In the last step, all the values marked by 1 were multiplied by each other and presented the variable named Outliers.

In addition, while collecting the data it sometimes occurred that the owner, or information on their share of ownership in the observed firm, could not be found. In that case, the observed company was not deleted from the database but rather the empty space was left, since subsequently the missing information could be retrieved and added to the database.

Another variable labelled *dummy_missing* was created marking all these companies where the empty space was left. This offered the chance to incorporate variables in the models in a way to exclude these kinds of cases from the estimation. This was needed since the rest of the data for the observed firms, bearing in mind the balance sheets, income statements and some other information that were used for the creation of the variables, were actually there. If the mentioned cases were not excluded, they could lead to a biased estimation of the influence the different ownership structure and type has on TFP. Based on how the variable *Dispersed* was created, the program put all the firms for which the percentage share of the ownership was not found into this group. This may not always have been the correct allocation, since these firms could actually have, for instance, only one major blockholder and therefore needed to be allocated into some other group of firms.

4.1.5 Creating the variable for the total factor productivity

All the variables mentioned above were used in a further procedure of getting to the estimation of the firms’ TFP. First, the syntax for implementing the Levinsohn-Petrin model was written. After receiving the output, another syntax needed to be written to receive the so-called Omega variable. The latter represented the predicted total factor productivity and also played the role of the dependent variable in the regression model.

Table 1. Variables and their description

| Variables | Description |
|--------------------|---|
| <i>VA</i> | Value added (deducting other operating expenses and CGMS from operating gross profit) |
| <i>TFA</i> | Tangible fixed assets |
| <i>LC</i> | Labour costs |
| <i>CGMS</i> | Cost of goods, materials and service |
| <i>One</i> | Firms where one private owner holds at least 50% of the firm’s shares |
| <i>One_two</i> | Firms where the first biggest private owner alone does not hold at least a 50% share, however, together with the second largest private blockholder they do |
| <i>One_GOV</i> | Firms where one government institution owns at least 50% of the firm’s shares |
| <i>One_two_GOV</i> | Firms in which the first biggest owner alone does not hold at least a 50% share, however, together with the second largest owner they do. At least one of these two largest owners has to be a government institution |

(table continues)

(continued)

| | |
|----------------------|--|
| <i>Both_GOV</i> | Joining the firms being allocated either under <i>One_GOV</i> either under <i>One_two_GOV</i> |
| <i>One_HOLD</i> | Firms where one of the financial holding institutions owns at least 50% of the firm's shares |
| <i>One_two_HOLD</i> | Firms in which the first biggest owner alone does not hold at least a 50% share, however, together with the second largest owner they do. At least one of these two largest owners has to be a financial holding institution |
| <i>Both_HOLD</i> | Joining the firms being allocated either under <i>One_HOLD</i> or under <i>One_two_HOLD</i> |
| <i>Dispersed</i> | Firms where nor the first owner alone, neither the first two largest owners together own at least a 50% share of the firm's ownership |
| <i>Dummy_MAN</i> | Firms operating in the manufacturing sector |
| <i>Dummy_SER</i> | Firms operating in the service sector |
| <i>Outliers</i> | Combining multiplied logarithmic values of the 4 main variables after their upper and lower 0.5% values were defined as the outliers and were therefore removed |
| <i>Dummy_missing</i> | Marking the cases for which the firm's ownership structure could not be defined due to a lack of information |
| <i>Omega</i> | The predicted value of TFP |

4.2 Description of the variables in the empirical model

4.2.1 The size of the observed sample

After collecting the data the sample contained information on 4,448 firms on average in a year. Nevertheless, due to the abovementioned reasons, the decision was made that the values considered to represent the outliers needed to be excluded from further estimation, and so were the firms that contained these values.

All of these procedures performed on the original sample shrank the number of observed firms. The number of firms that were left unobserved, therefore representing the final size of the sample for each year during the period 2006-2014, is presented in the Table below. The number of all operating firms grew from 2006, when there were 3,051 firms operating and reached a peak in 2009, when there were 3,484 firms operating. After that, the number of firms started to decrease and by the year 2014 it had fallen to 2,957.

This dynamic follows the pattern of Slovenian economy, which was overheating from 2004 to 2008, hence, the number of firms rose. However, at the exact moment when the global economic crisis arrived in the country and interrupted the growth of its economy, a number of firms had to shut down for business. The economy started to overheat after Slovenia joined the ERM II mechanism and entered the euro zone, which softened the “landing process” (see Ch. 3).

Table 2 shows the number of all firms operating in different sectors, the number of those operating in the manufacturing sector, and the number of those operating in the service sector. They present 3 samples on which the further estimations were performed. In the manufacturing sector only firms falling in the C range, based on the official SKD classification, were included. Therefore, the D range, representing the electricity, gas and steam supply, and the E range, representing the water supply, sewerage, waste management and remediation, both being classified in the manufacturing sector based on the European Commission classification, have for the purpose of this research been excluded from the observation of the manufacturing sector’s behaviour. The reason was the fact that these firms share different production functions in comparison to other manufacturing firms. However, they are included in the sample where firms operating in all different sectors are observed.

While comparing the number of firms operating in all sectors, i.e. the manufacturing sector and the service sector, a similar pace of growth in the number firms can be noticed up to the year 2009. The difference between the manufacturing sector and the other two groups of firms can be seen in the post-crisis period, when the number of firms in all sectors and the service sector suffered a larger drop. Yet, the number of the latter two groups of firms is actually lower in 2014 in comparison to 2006; on the other side, the number of manufacturing firms is slightly higher in 2014 in comparison to 2006.

Table 2. The number of firms presenting each of 3 samples on which the further estimations were performed during the period 2006-2014

| Year | All firms | Manufacturing | Service |
|--------------|------------------|----------------------|----------------|
| 2006 | 3,051 | 858 | 1,597 |
| 2007 | 3,285 | 913 | 1,723 |
| 2008 | 3,411 | 949 | 1,788 |
| 2009 | 3,484 | 981 | 1,814 |
| 2010 | 3,418 | 972 | 1,783 |
| 2011 | 3,342 | 952 | 1,746 |
| 2012 | 3,225 | 924 | 1,701 |
| 2013 | 3,064 | 900 | 1,611 |
| 2014 | 2,957 | 879 | 1,534 |
| Total | 29,237 | 8,328 | 15,297 |

4.2.2 The dynamic of the main variables in all sectors

In this section the dynamics of the four main variables will be looked at. The four main variables are considered to be VA, TFA, LC and CGMS. For the estimation of their fluctuations, these values were divided by the firms' total assets in each year. This again helps to eliminate the size effect of the firms and offers more accurate results at the end.

Table 3. The median values and the ranges of the variables of the all firms operating in different sectors through the period 2006-2014

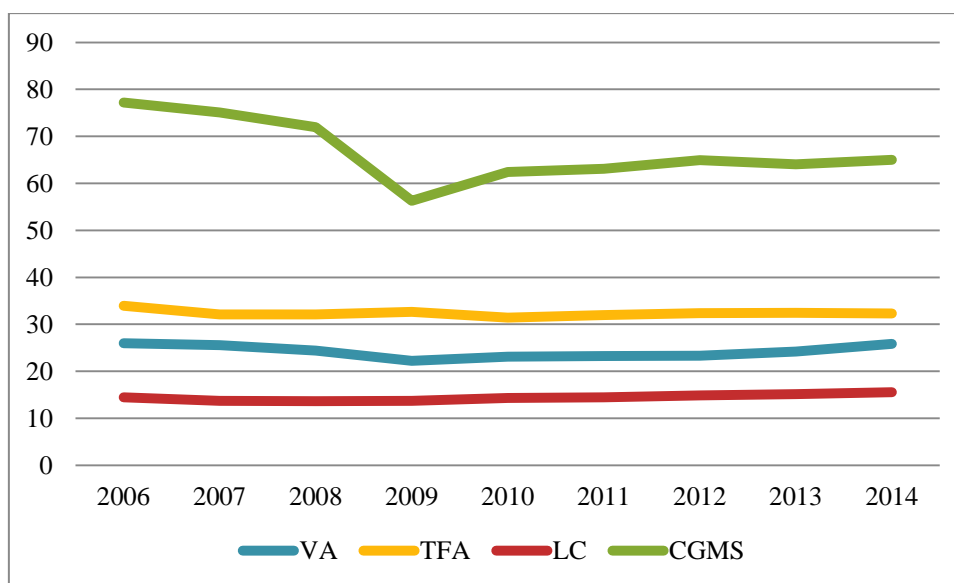
| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2596 | 0.2577 | 0.3397 | 0.4089 | 0.1447 | 0.1932 | 0.7718 | 0.9293 |
| 2007 | 0.2555 | 0.2642 | 0.3210 | 0.4160 | 0.1370 | 0.1866 | 0.7506 | 0.9332 |
| 2008 | 0.2443 | 0.2632 | 0.3208 | 0.4380 | 0.1366 | 0.1911 | 0.7197 | 0.9332 |
| 2009 | 0.2220 | 0.2485 | 0.3264 | 0.4452 | 0.1370 | 0.1895 | 0.5631 | 0.7829 |
| 2010 | 0.2311 | 0.2592 | 0.3140 | 0.4347 | 0.1430 | 0.2014 | 0.6240 | 0.7960 |
| 2011 | 0.2326 | 0.2677 | 0.3195 | 0.4341 | 0.1446 | 0.2065 | 0.6311 | 0.8717 |
| 2012 | 0.2329 | 0.2739 | 0.3237 | 0.4361 | 0.1486 | 0.2156 | 0.6497 | 0.9003 |
| 2013 | 0.2421 | 0.2750 | 0.3245 | 0.4378 | 0.1514 | 0.2157 | 0.6404 | 0.9026 |
| 2014 | 0.2584 | 0.2966 | 0.3232 | 0.4336 | 0.1558 | 0.2265 | 0.6499 | 0.9265 |
| Total | 0.2412 | 0.2667 | 0.3240 | 0.4321 | 0.1437 | 0.2017 | 0.6627 | 0.8939 |

A focus was placed on the variables' median values (p50), which represent the middle value among all the observed values after they have been ordered by rank. Besides the median values, a focus was also placed on the range between the 25th and 75th percentile (Range) of these variables.¹ Both the median values and the range of all the observed firms are presented in Table 3 above.

The flow of the median values of all 4 variables can be also seen in Figure 2. VA, TFA, and LC did not vary much through the observed period; however, CGMS already started slightly decreasing at the pre-crisis period and recorded the most obvious drop in 2009. An upward slope occurred already in the next year, and after 2010 CGMS became more stabilized on the lower value in comparison to 2006.

¹ First, both the 25th and 75th percentile of each variable were estimated, after which the value of 25th percentile was deducted from the value of 75th percentile.

Figure 2. The median values of the variables of all firms operating in different sectors through the period 2006-2014 (in % of the firms' total assets)



4.2.3 The dynamic of the main variables in the manufacturing sector

When comparing the changes of the main variables of only those firms operating in the manufacturing sector during the period 2006-2014 with the whole sample of firms operating in all sectors, hardly any major differences in fluctuation were observed. VA, TFA, and LC all maintained more or less the constant levels of their median values, while there can again be observed a larger drop of CGMS in 2009. However, a difference can be observed while comparing the actual values they are achieving. VA, TFA, and LC all reach higher values in comparison to the estimation of the values of the whole sample of firms at once presented in Table 4, while CGMS on the other side, shared almost the same value in 2006, but in all the years after 2006, the CGMS of the firms operating in the manufacturing sector were higher.

Table 4. The median values and the ranges of the variables of the firms operating in the manufacturing sector through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.3321 | 0.2315 | 0.4112 | 0.2889 | 0.2133 | 0.2092 | 0.7752 | 0.6486 |
| 2007 | 0.3313 | 0.2548 | 0.4087 | 0.2970 | 0.2059 | 0.2006 | 0.7827 | 0.6493 |
| 2008 | 0.3152 | 0.2454 | 0.4122 | 0.3046 | 0.2053 | 0.2006 | 0.7658 | 0.6420 |
| 2009 | 0.2859 | 0.2145 | 0.4222 | 0.3145 | 0.1962 | 0.1842 | 0.5899 | 0.5008 |
| 2010 | 0.2914 | 0.2398 | 0.4046 | 0.3183 | 0.1943 | 0.1976 | 0.6528 | 0.5716 |
| 2011 | 0.3009 | 0.2508 | 0.4049 | 0.3352 | 0.1962 | 0.2065 | 0.6923 | 0.6362 |

(table continues)

(continued)

| | | | | | | | | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2012 | 0.3120 | 0.2592 | 0.4053 | 0.3174 | 0.2025 | 0.2091 | 0.6897 | 0.6546 |
| 2013 | 0.3215 | 0.2656 | 0.4022 | 0.3147 | 0.2070 | 0.2121 | 0.6713 | 0.6113 |
| 2014 | 0.3352 | 0.2686 | 0.4016 | 0.3181 | 0.2097 | 0.2170 | 0.6985 | 0.6240 |
| Total | 0.3128 | 0.2489 | 0.4083 | 0.3116 | 0.2035 | 0.2032 | 0.7023 | 0.6229 |

4.2.4 The dynamic of the main variables in the service sector

The third group of firms that was looked at was the group of firms operating in the service sector. Even while comparing the sample of service firms to the whole sample of firms operating in all sectors, no major differences can be noticed in the fluctuation of the median values of the observed variables. VA, TFA, and LC preserve constant values through the whole period, while CGMS again showed a larger downfall after 2009.

But what can additionally be observed from Table 5 is that the median values of VA, TFA and LC achieved lower values throughout the whole period in comparison to all the firms that were observed and also in comparison to the firms operating in the manufacturing sector. On the other side, the median value of their CGMS is higher than the CGMS in both other groups of firms that were observed.

Table 5. The median values and the ranges of the variables of the firms operating in the service sector through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2285 | 0.2407 | 0.2627 | 0.3970 | 0.1180 | 0.1674 | 0.8791 | 1.1930 |
| 2007 | 0.2208 | 0.2419 | 0.2503 | 0.4147 | 0.1077 | 0.1582 | 0.8534 | 1.1707 |
| 2008 | 0.2093 | 0.2359 | 0.2494 | 0.4297 | 0.1089 | 0.1607 | 0.8151 | 1.2113 |
| 2009 | 0.1931 | 0.2406 | 0.2539 | 0.4313 | 0.1122 | 0.1695 | 0.6485 | 1.0703 |
| 2010 | 0.1918 | 0.2340 | 0.2563 | 0.4385 | 0.1134 | 0.1672 | 0.6718 | 1.0583 |
| 2011 | 0.1969 | 0.2364 | 0.2498 | 0.4499 | 0.1158 | 0.1779 | 0.6593 | 1.1253 |
| 2012 | 0.1957 | 0.2461 | 0.2593 | 0.4474 | 0.1218 | 0.1860 | 0.6768 | 1.1312 |
| 2013 | 0.1990 | 0.2480 | 0.2509 | 0.4497 | 0.1219 | 0.1893 | 0.6691 | 1.1422 |
| 2014 | 0.2104 | 0.2501 | 0.2438 | 0.4538 | 0.1221 | 0.1880 | 0.6855 | 1.1383 |
| Total | 0.2042 | 0.2434 | 0.2533 | 0.4338 | 0.1155 | 0.1720 | 0.7256 | 1.1494 |

4.2.5 The influence of the type of ownership on the variables

While the main interest of the research throughout the thesis is how different types and structures of ownership influence the firms' TFP, a quick look should also be given to how the variables of the different groups of the observed firms fluctuated over the time period. In Table 6, the number of firms grouped by their assigned ownership structure that were

taken into consideration for the further analysis is presented. Numbers are presented for the sample of firms operating in all sectors, while Table 3 and Table 3 in Appendix B and Appendix C present the number of firms separated by their ownership type and structure which operate in the manufacturing or service sectors.

What all 5 groups have in common is that they reach a peak in the number of firms operating in the year 2009. This once again displays the pattern of the boom and the following bust period the Slovenian economy experienced. By far the highest number of firms is those being governed by one private blockholder (One), which possesses at least a 50% share of the firm's ownership in comparison to the other groups of firms. The second largest group of firms is those that are governed by two large blockholders, who together own at least 50% of the firm's ownership (One_two). The gap between the number of firms among these two groups is already large; however, it is even larger in comparison to the other three groups of firms.

The difference in the number of firms among these last three groups of firms is not as enormous in comparison to the first two groups, but still, the third largest group is the group of firms having dispersed ownership structure (Dispersed), where neither one nor the two largest owners together do not possess at least 50% of the firm's ownership.

This group of firms is followed by the group of firms where government institutions are involved as the largest or being present as at least one of the first two largest blockholders in the firm (Both_GOV). The smallest group compared with the number of operating firms is the group of firms where a financial holding institution is involved as the major blockholder or at least as one of the first two largest holders together covering at least a 50% share of the firm's ownership (Both_HOLD).

Table 6. The number of all observed firms based on their type and ownership structure operating in different sectors per year during the period 2006-2014

| Year | One | One_two | Both_GOV | Both_HOLD | Dispersed |
|--------------|------------|----------------|-----------------|------------------|------------------|
| 2006 | 2,132 | 558 | 122 | 101 | 139 |
| 2007 | 2,297 | 602 | 128 | 108 | 150 |
| 2008 | 2,417 | 599 | 131 | 116 | 148 |
| 2009 | 2,429 | 607 | 141 | 116 | 191 |
| 2010 | 2,400 | 596 | 137 | 106 | 179 |
| 2011 | 2,357 | 571 | 137 | 101 | 176 |
| 2012 | 2,279 | 543 | 137 | 98 | 168 |
| 2013 | 2,169 | 504 | 138 | 91 | 162 |
| 2014 | 2,113 | 476 | 138 | 88 | 142 |
| Total | 20,593 | 5,056 | 1,209 | 925 | 1,455 |

A further question of interest is whether these groups of firms share the same or different median values of the observed variables. Table 7 presents the median values and ranges between the 25th and 75th percentile of the group of firms which are governed by one major blockholder. The changes in values correspond to the changes of values estimated on the whole sample of firms. The values of VA, TFA, and LC all maintained constant levels through the whole period, while CGMS again considerably fell in the year 2009.

Table 7. The median values and the ranges of the variables of all firms operating in different sectors being governed by one major blockholder (One) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2646 | 0.2553 | 0.3281 | 0.4084 | 0.1460 | 0.1949 | 0.7907 | 0.9387 |
| 2007 | 0.2620 | 0.2688 | 0.3145 | 0.4090 | 0.1405 | 0.1923 | 0.7810 | 0.9152 |
| 2008 | 0.2483 | 0.2666 | 0.3093 | 0.4264 | 0.1383 | 0.1962 | 0.7329 | 0.9155 |
| 2009 | 0.2285 | 0.2527 | 0.3120 | 0.4363 | 0.1389 | 0.1911 | 0.5972 | 0.7894 |
| 2010 | 0.2275 | 0.2616 | 0.3070 | 0.4426 | 0.1385 | 0.1977 | 0.6387 | 0.8090 |
| 2011 | 0.2290 | 0.2684 | 0.3037 | 0.4454 | 0.1399 | 0.2048 | 0.6454 | 0.9057 |
| 2012 | 0.2296 | 0.2751 | 0.3128 | 0.4464 | 0.1453 | 0.2147 | 0.6719 | 0.9243 |
| 2013 | 0.2380 | 0.2772 | 0.3150 | 0.4450 | 0.1474 | 0.2122 | 0.6595 | 0.9102 |
| 2014 | 0.2539 | 0.2946 | 0.3133 | 0.4452 | 0.1489 | 0.2230 | 0.6644 | 0.9510 |
| Total | 0.2421 | 0.2691 | 0.3123 | 0.4330 | 0.1425 | 0.2021 | 0.6854 | 0.9042 |

In Table 8 below, the median values and ranges are presented for the sample of all firms operating in different sectors, having two owners involved as the major blockholders (One_two) during the period 2006-2014. Changes in values again do not show larger deviations in comparison to the changes of values of the first group of firms. Apart from the fact that there are no large differences in the changes of values over the years, there are also no large differences in the actual values these two groups of firms achieved.

Table 8. The median values and the ranges of the variables of all firms operating in different sectors having two major blockholders (One_two) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2625 | 0.2632 | 0.3356 | 0.3673 | 0.1435 | 0.1785 | 0.8419 | 0.8927 |
| 2007 | 0.2530 | 0.2396 | 0.3147 | 0.3872 | 0.1285 | 0.1683 | 0.8119 | 0.8936 |
| 2008 | 0.2553 | 0.2423 | 0.3206 | 0.3945 | 0.1370 | 0.1680 | 0.7853 | 0.9063 |
| 2009 | 0.2210 | 0.2348 | 0.3411 | 0.4185 | 0.1349 | 0.1698 | 0.5791 | 0.8212 |
| 2010 | 0.2349 | 0.2320 | 0.3439 | 0.4133 | 0.1404 | 0.1722 | 0.6093 | 0.7900 |

(table continues)

(continued)

| | | | | | | | | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2011 | 0.2280 | 0.2316 | 0.3425 | 0.4134 | 0.1446 | 0.1705 | 0.5966 | 0.8328 |
| 2012 | 0.2349 | 0.2493 | 0.3513 | 0.4040 | 0.1475 | 0.1770 | 0.6018 | 0.8725 |
| 2013 | 0.2367 | 0.2415 | 0.3656 | 0.4184 | 0.1474 | 0.1779 | 0.5996 | 0.8297 |
| 2014 | 0.2438 | 0.2468 | 0.3465 | 0.4002 | 0.1511 | 0.1877 | 0.6614 | 0.8574 |
| Total | 0.2413 | 0.2405 | 0.3380 | 0.3996 | 0.1405 | 0.1728 | 0.6875 | 0.8674 |

In Table 9 the median values and ranges are presented for the sample of all firms operating in different sectors where government institutions are involved as one of the largest blockholders (Both_GOV) during the period 2006-2014. The values of this group of firms slightly vary in comparison to the rest of the groups that are the subject of observation in this section.

VA, LC and CGMS are increasing through the years, while TFA are decreasing. There exist a few potential explanations for this behaviour of the variables. First, many of the SOEs are energy and public utility supply firms. The prices of energy supply and the public utility supply firms, which are mainly governed by the state, took off in 2009 and have continuously risen since then. Additionally, many of the SOEs were the subject of restructuring after the crisis interrupted their business, meaning their balance sheets and income statements recorded sudden large changes.

Table 9. The median values and the ranges of the variables of all firms operating in different sectors where a government institution is involved as the blockholder (Both_GOV) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.1407 | 0.1854 | 0.7928 | 0.3799 | 0.0873 | 0.1398 | 0.1585 | 0.3354 |
| 2007 | 0.1302 | 0.1553 | 0.7801 | 0.3666 | 0.0900 | 0.1434 | 0.1524 | 0.2993 |
| 2008 | 0.1311 | 0.1443 | 0.7858 | 0.3716 | 0.0955 | 0.1235 | 0.1787 | 0.2861 |
| 2009 | 0.1233 | 0.1537 | 0.7917 | 0.4276 | 0.0822 | 0.1225 | 0.1758 | 0.2905 |
| 2010 | 0.3091 | 0.3334 | 0.4173 | 0.3777 | 0.2680 | 0.3458 | 0.5162 | 0.6868 |
| 2011 | 0.3375 | 0.3817 | 0.4206 | 0.3483 | 0.2862 | 0.3835 | 0.5912 | 0.7573 |
| 2012 | 0.3398 | 0.3879 | 0.3991 | 0.3280 | 0.2907 | 0.3912 | 0.6724 | 0.7800 |
| 2013 | 0.3819 | 0.4105 | 0.4060 | 0.3624 | 0.3026 | 0.3934 | 0.6535 | 0.8616 |
| 2014 | 0.4017 | 0.4499 | 0.3960 | 0.3500 | 0.3149 | 0.4316 | 0.6549 | 0.8447 |
| Total | 0.2200 | 0.3438 | 0.5249 | 0.5367 | 0.1583 | 0.3129 | 0.2851 | 0.7062 |

Table 10 sums the median values and the ranges of all firms operating in different sectors in which a financial holding institution is involved as one of the largest blockholders during the period 2016-2014. Besides having the lowest values of CGMS among all the other 5 groups, the values and its changes do not report any significant deviations in

comparison to the two groups where private owners are involved as the major blockholders.

Table 10. The median values and the ranges of the variables of all firms operating in different sectors where a financial holding institution is involved as the blockholder (Both_HOLD) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2259 | 0.2355 | 0.3617 | 0.4517 | 0.1547 | 0.2395 | 0.6020 | 0.7247 |
| 2007 | 0.2186 | 0.2343 | 0.2992 | 0.4795 | 0.1471 | 0.1998 | 0.5082 | 0.7152 |
| 2008 | 0.2365 | 0.2451 | 0.2575 | 0.4349 | 0.1429 | 0.2117 | 0.6488 | 0.8080 |
| 2009 | 0.1959 | 0.2523 | 0.2454 | 0.4839 | 0.1401 | 0.2260 | 0.5154 | 0.6894 |
| 2010 | 0.2023 | 0.2244 | 0.3007 | 0.5018 | 0.1423 | 0.1964 | 0.5408 | 0.7985 |
| 2011 | 0.2194 | 0.2458 | 0.3032 | 0.4648 | 0.1309 | 0.1908 | 0.5116 | 0.7792 |
| 2012 | 0.1869 | 0.2423 | 0.2986 | 0.5081 | 0.1341 | 0.1952 | 0.4520 | 0.9846 |
| 2013 | 0.2225 | 0.2406 | 0.2924 | 0.5173 | 0.1344 | 0.2105 | 0.4951 | 0.9429 |
| 2014 | 0.2340 | 0.2313 | 0.2932 | 0.5688 | 0.1491 | 0.2440 | 0.4983 | 1.0067 |
| Total | 0.2177 | 0.2440 | 0.2966 | 0.4976 | 0.1422 | 0.2087 | 0.5308 | 0.7997 |

The final table records the median values and ranges for all firms operating in different sectors having dispersed ownership structure (Dispersed) during the period 2006-2014. While the medial values and its changes of firms' TFA and CGMS did not differ much in comparison to the two groups of firms being governed by the private blockholders, firms with dispersed ownership were able to achieve the highest VA during the pre-crisis period in comparison to all the other groups of firms. Additionally, these firms also share higher median values of the LC through the whole period in comparison to others.

Table 11. The median values and the ranges of the variables of all firms operating in different sectors having dispersed ownership structure (Dispersed) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2951 | 0.2829 | 0.3292 | 0.3179 | 0.1876 | 0.2339 | 0.8341 | 0.9863 |
| 2007 | 0.2951 | 0.2978 | 0.2852 | 0.3179 | 0.1602 | 0.2205 | 0.8407 | 0.9307 |
| 2008 | 0.2718 | 0.2943 | 0.3047 | 0.3610 | 0.1554 | 0.2042 | 0.8100 | 0.9578 |
| 2009 | 0.2445 | 0.2414 | 0.3226 | 0.3589 | 0.1712 | 0.2028 | 0.5243 | 0.7096 |
| 2010 | 0.2348 | 0.2679 | 0.3009 | 0.3365 | 0.1613 | 0.2239 | 0.5615 | 0.7425 |
| 2011 | 0.2497 | 0.2764 | 0.3250 | 0.3446 | 0.1616 | 0.2131 | 0.5952 | 0.7356 |
| 2012 | 0.2426 | 0.2501 | 0.2936 | 0.3921 | 0.1616 | 0.2246 | 0.5688 | 0.7777 |
| 2013 | 0.2669 | 0.2524 | 0.2777 | 0.3906 | 0.1650 | 0.2025 | 0.5621 | 0.7640 |

(table continues)

(continued)

| | | | | | | | | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 2014 | 0.2823 | 0.3076 | 0.3060 | 0.3921 | 0.1938 | 0.2233 | 0.5675 | 0.8541 |
| Total | 0.2596 | 0.2693 | 0.3046 | 0.3554 | 0.1659 | 0.2158 | 0.6119 | 0.8512 |

The effect of different types and structures of ownership on the median values and ranges of the observed variables of firms operating in the manufacturing and service sectors can be further seen in Appendix B and Appendix C. While the trends in the changes of the median values of manufacturing or service firms do not differ much in comparison to the group of firms operating in all sectors, there are some differences in the actual values they achieved. CGMS values are comparable in all three groups of firms, while on average firms operating in the manufacturing sector do achieve the highest VA, LC and TFA, and firms operating in the service sector achieve the lowest of these values.

5 EMPIRICAL RESULTS

This part of the thesis is dedicated to interpretation of the empirical results of measuring the influence different ownership types and structures have on firms' TFP. Firstly, the results of the OLS regression analyses following the Levinsohn and Petrin (2003) methodology are presented. This was performed on three different samples of firms: 1) the sample of all firms for which the data was collected and are operating in different sectors; 2) the sample of firms operating only in the manufacturing sector; and 3) the sample of firms operating only in the service sector. Next, the 10th, 50th, and 90th percentile of the TFPs measured on all three various samples of firms is presented, followed by a look at how the TFPs of firms with different ownership types and structures behave. The chapter concludes with the presentation of the 10th, 50th, and 90th percentile of all five different groups of firms performed in all three different observed samples. The results form the basis for accepting or rejecting the hypotheses that were put forward before the study, which can be seen in Chapter 3.3.

5.1 The influence of ownership type and structure on firms' TFP estimated on the sample of all firms operating in different sectors

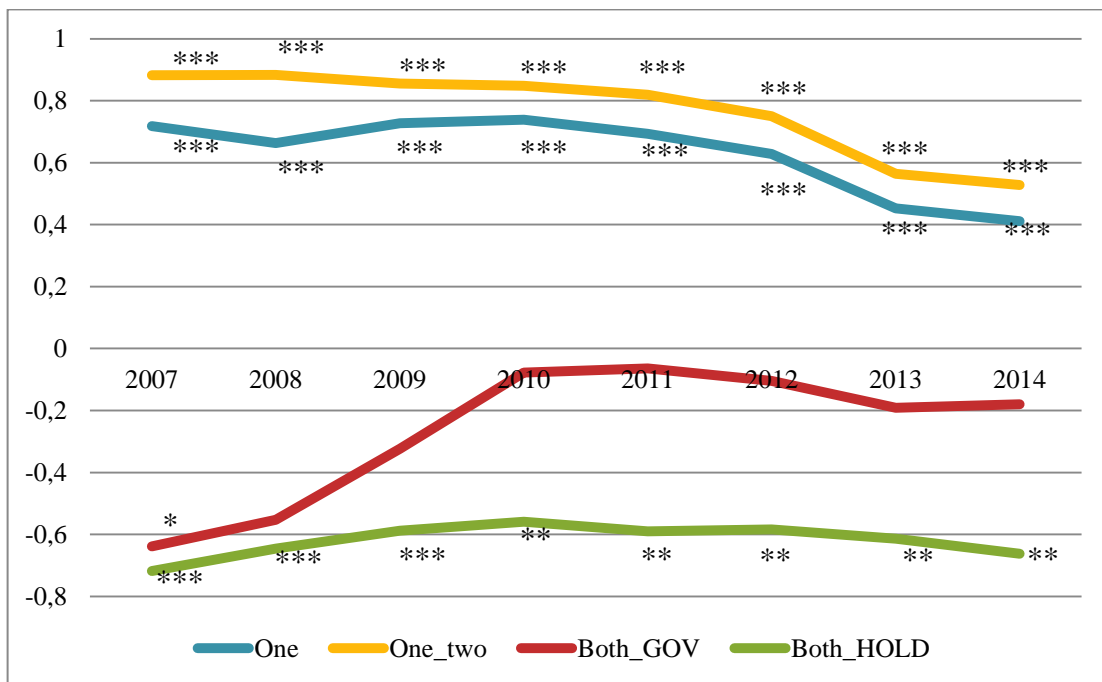
The estimated TFP on the sample of all firms operating in different of sectors that were based on OLS for equation 12 are presented in Table 12. The reported coefficients of four dependent variables are additionally plotted in Figure 3 below. Based on the given results, there is a discussion of the hypotheses to see which ones can be accepted and which ones should be rejected.

The statistically significant results reveal that hypotheses 1 and 2 can be accepted. Both types of firms, ones being governed by one private owner who alone maintains the

majority of the ownership, and others where the two largest owners together maintain the majority of the ownership, proved to reach higher levels of TFP in comparison to firms having dispersed ownership structure. Due to the demonstrated statistical significance, hypothesis 4 can also be confirmed. The presence of a financial holding institution in a firm's ownership structure as the largest owner or as one of two largest owners, proved to have a negative influence on their TFP. Through all of the observed period these firms achieved lower TFP values in comparison to the TFP achieved by firms having dispersed ownership structure.

However, except for the year 2007, hypotheses 3 cannot be accepted, since the results for the years after did not turn out to be statistically significant. Hence, one cannot claim that firms where the government was involved as the blockholder achieved lower TFP in comparison to firms with dispersed ownership structure. Lacking the statistical significance for these results gave additional motivation for the further analysis carried out on manufacturing and also on service firms.

Figure 3. Estimates of production function coefficients of all the observed firms operating in different sectors during the period 2006-2014 based on equation (12)



*** p<0.01, ** p<0.05, *p<0.1

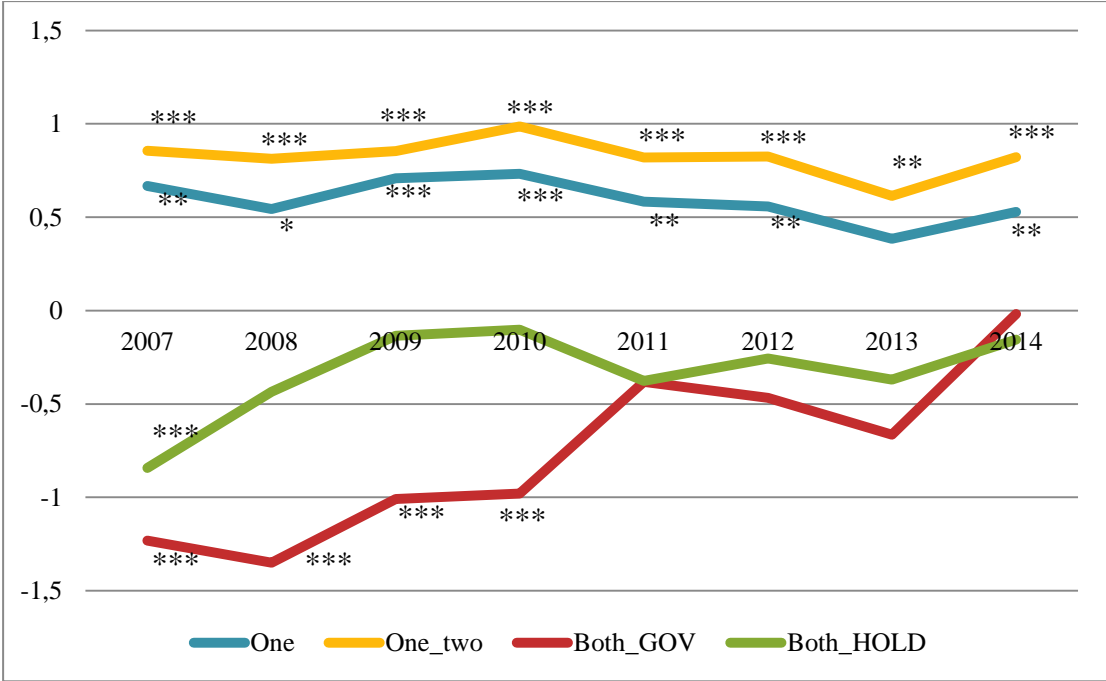
5.2 The influence of ownership type and structure on firms' TFP estimated on the sample of firms operating in the manufacturing sector

As mentioned, TFP was additionally estimated on the sample of firms operating only in the manufacturing sector. The results are presented in Table 14 and the given coefficients are

additionally plotted in Figure 4. For the purpose of these estimations the same hypotheses that were stated for all firms operating in different sectors can be taken into consideration for the manufacturing firms.

If the year 2013 is excluded, in which the results were not statistically significant, hypothesis 1 can be accepted. One private owner possessing the majority stake of a firm’s ownership displayed a positive influence on a firm’s TFP. The TFP of these firms outperformed the TFP of firms with dispersed ownership structure. Thanks to highly statistically significant results through the whole observed period of time, hypothesis 2 can be accepted with no doubt. Firms being governed by two private blockholders did reach higher levels of TFP in comparison to firms with dispersed ownership structure.

Figure 4. Estimates of production function coefficients for firms operating in the manufacturing sector during the period 2006-2014 based on equation (12)



*** p<0.01, ** p<0.05, *p<0.1

Hypothesis 3 can be accepted for the period 2007-2010; however, later on it has to be rejected, since the results did not report to be statistically significant. The early period supports the idea that government institutions’ presence among firms’ main blockholders does have a negative impact on their TFP. These firms achieved lower TFP in comparison to firms having dispersed ownership structure. But as mentioned, this cannot be said for the period after 2010.

However, except for the year 2007, hypotheses 4 also cannot be accepted, since the results for the years after did not turn out to be statistically significant. Hence, one cannot claim

firms where financial holding institutions were involved as blockholders achieved lower TFP in comparison to firms with dispersed ownership structure.

5.3 The influence of ownership type and structure on firms' TFP estimated on the sample of firms operating in the service sector

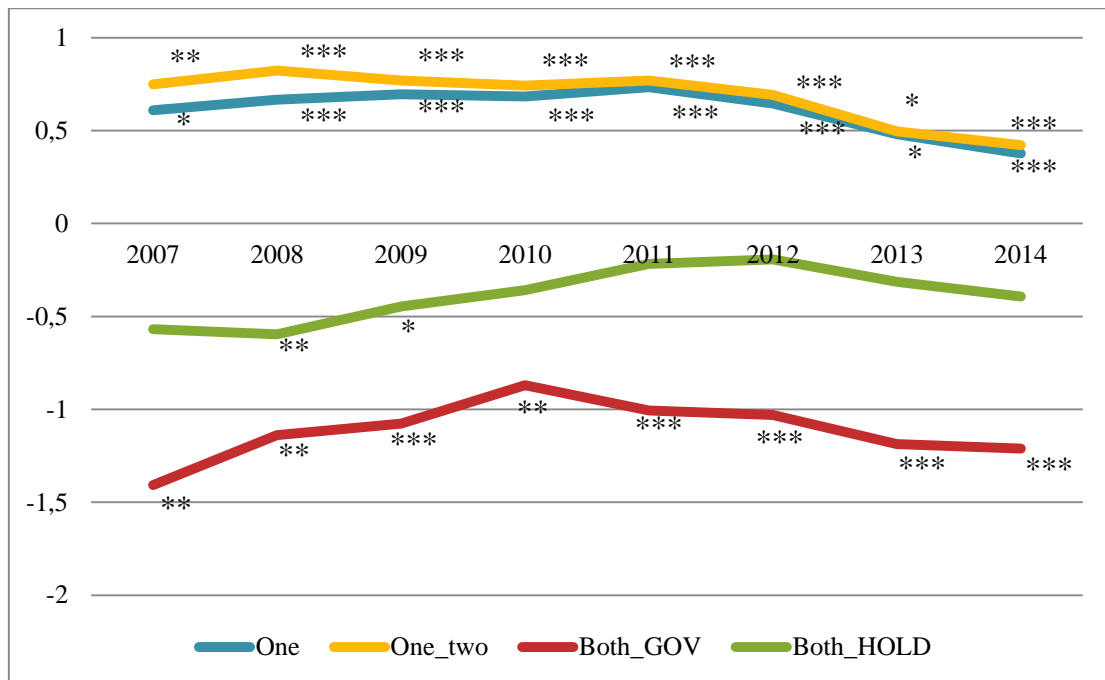
The last sample on which the regression analysis was performed was the sample of firms operating only in the service sector. The results of the estimations can be found in Table 14 and the plotted coefficients can be seen in Figure 5. For the purpose of these estimations the same hypotheses that were stated for all the firms operating in different sectors can be taken into consideration for the service firms.

In this respect, the hypotheses 1 and 2 can be accepted. Statistically significant results through the whole period 2007-2014 confirmed that firms where only one private blockholder maintains the majority of the ownership as well as the firms where two private blockholders together maintain the majority of the ownership do achieve higher levels of TFP in comparison to firms having dispersed ownership structure.

Firms in which one government institution is involved, whether as the major owner or as at least one of the two major owners, accounted for the largest change in the results. This time they turned out to be statistically significant over the whole period 2007-2014. Therefore, hypothesis 3 can be accepted in total. Government involvement does seem to lead to firms achieving lower TFP, in comparison to firms with dispersed ownership structure.

On the other hand, the results of the firms where financial holding institutions are involved among the major blockholders again miss reaching statistical significance through most of the observed period, except in the years 2008 and 2009, when statistically significant results do appear. Therefore, apart from these two years, one cannot claim that these firms do achieve lower TFP in comparison to firms with dispersed ownership structure. Hence, hypothesis 4 cannot be accepted.

Figure 5. Estimates of production function coefficients for firms operating in the service sector during the period 2006-2014 based on equation (12)



*** p<0.01, ** p<0.05, *p<0.1

Table 12. OLS regression coefficients assessment for all firms operating in different sectors based on equation (12)

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| VARIABLES | lnOmega | lnOmega | lnOmega | lnOmega | lnOmega | lnOmega | lnOmega | lnOmega |
| One | 0.718*** (0.178) | 0.663*** (0.147) | 0.727*** (0.110) | 0.739*** (0.113) | 0.693*** (0.128) | 0.628*** (0.124) | 0.453*** (0.144) | 0.411*** (0.103) |
| One_two | 0.882*** (0.200) | 0.883*** (0.188) | 0.856*** (0.123) | 0.848*** (0.129) | 0.819*** (0.130) | 0.750*** (0.120) | 0.564*** (0.147) | 0.528*** (0.120) |
| Both_GOV | -0.639* (0.363) | -0.553 (0.336) | -0.324 (0.315) | -0.0774 (0.360) | -0.0642 (0.351) | -0.104 (0.338) | -0.191 (0.342) | -0.180 (0.338) |
| Both_HOLD | -0.718*** (0.249) | -0.646*** (0.206) | -0.588*** (0.204) | -0.559** (0.227) | -0.590** (0.238) | -0.584** (0.237) | -0.614** (0.266) | -0.662** (0.252) |
| Constant | -9.608*** (0.207) | -9.701*** (0.171) | -9.937*** (0.118) | -9.998*** (0.134) | -10.03*** (0.137) | -10.04*** (0.134) | -9.969*** (0.158) | -9.995*** (0.115) |
| Observations | 3,215 | 3,314 | 3,358 | 3,279 | 3,208 | 3,095 | 2,913 | 2,829 |
| R-squared | 0.078 | 0.066 | 0.063 | 0.055 | 0.050 | 0.046 | 0.039 | 0.040 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, *p<0.1

Table 13. OLS regression coefficients assessment for firms operating in the manufacturing sector based on equation (12)

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| VARIABLES | lnOmega_MAN | lnOmega_MAN | lnOmega_MAN | lnOmega_MAN | lnOmega_MAN | lnOmega_MAN | lnOmega_MAN | lnOmega_MAN |
| One | 0.667** (0.282) | 0.544* (0.272) | 0.708*** (0.219) | 0.733*** (0.207) | 0.583** (0.223) | 0.557** (0.244) | 0.384 (0.259) | 0.529** (0.217) |
| One_two | 0.856*** (0.280) | 0.813*** (0.254) | 0.854*** (0.205) | 0.986*** (0.215) | 0.819*** (0.228) | 0.825*** (0.252) | 0.614** (0.270) | 0.821*** (0.242) |
| Both_GOV | -1.232*** (0.344) | -1.350*** (0.346) | -1.009*** (0.283) | -0.980*** (0.309) | -0.381 (0.412) | -0.468 (0.432) | -0.665 (0.391) | -0.0182 (0.406) |
| Both_HOLD | -0.842*** (0.221) | -0.434 (0.285) | -0.135 (0.236) | -0.102 (0.285) | -0.377 (0.253) | -0.256 (0.330) | -0.369 (0.283) | -0.155 (0.245) |
| Constant | -10.66*** (0.334) | -10.69*** (0.322) | -11.01*** (0.253) | -11.08*** (0.269) | -10.99*** (0.277) | -11.04*** (0.295) | -10.94*** (0.322) | -11.12*** (0.257) |
| Observations | 890 | 921 | 946 | 934 | 915 | 891 | 857 | 840 |
| R-squared | 0.079 | 0.060 | 0.060 | 0.061 | 0.044 | 0.041 | 0.037 | 0.038 |

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 14. OLS regression coefficients assessment for firms operating in the service sector based on equation (12)

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| VARIABLES | lnOmega_SER | lnOmega_SER | lnOmega_SER | lnOmega_SER | lnOmega_SER | lnOmega_SER | lnOmega_SER | lnOmega_SER |
| One | 0.610* | 0.667*** | 0.695*** | 0.683*** | 0.734*** | 0.646*** | 0.481* | 0.376*** |
| | (0.301) | (0.205) | (0.149) | (0.174) | (0.181) | (0.164) | (0.243) | (0.135) |
| One_two | 0.749** | 0.823*** | 0.769*** | 0.742*** | 0.770*** | 0.692*** | 0.495* | 0.421*** |
| | (0.325) | (0.268) | (0.174) | (0.205) | (0.179) | (0.145) | (0.251) | (0.146) |
| Both_GOV | -1.407** | -1.139** | -1.076*** | -0.870** | -1.006*** | -1.031*** | -1.187*** | -1.211*** |
| | (0.585) | (0.445) | (0.321) | (0.399) | (0.336) | (0.350) | (0.428) | (0.402) |
| Both_HOLD | -0.568 | -0.596** | -0.446* | -0.358 | -0.218 | -0.194 | -0.314 | -0.393 |
| | (0.404) | (0.268) | (0.252) | (0.298) | (0.334) | (0.287) | (0.351) | (0.288) |
| Constant | -9.228*** | -9.417*** | -9.629*** | -9.667*** | -9.787*** | -9.763*** | -9.712*** | -9.706*** |
| | (0.314) | (0.208) | (0.166) | (0.201) | (0.199) | (0.178) | (0.267) | (0.151) |
| Observations | 1,686 | 1,737 | 1,75 | 1,722 | 1,673 | 1,624 | 1,521 | 1,466 |
| R-squared | 0.062 | 0.062 | 0.059 | 0.051 | 0.057 | 0.048 | 0.049 | 0.047 |

Robust standard errors in parentheses

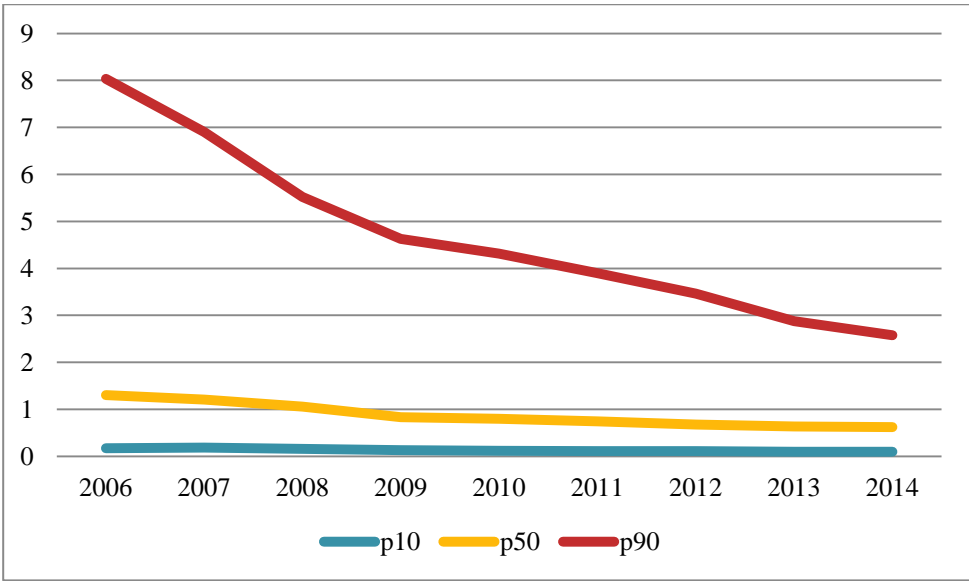
*** p<0.01, ** p<0.05, * p<0.1

5.4 Estimating TFP percentile levels

For the purpose of exploring how the TFP changed in firms struggling with low values of TFP, in firms reaching the median values of TFP, and in firms achieving high values of TFP, the 10th, 50th and 90th percentiles of the TFP were estimated. Before performing these analyses, the firm’s predicted value of TFP was additionally divided by the sum of firm’s capital and reserves and long-term passive accruals. Estimations were made on the sample combining all firms together, on the sample of firms operating only in the manufacturing sector, and on the sample of firms operating only in the service sector. And for the purpose of easier interpretation and presentation, all the received values were multiplied by 10,000.

Figure 6 presents the TFP values of all 3 different levels of percentiles estimated on the whole sample of firms. Differences among the firms reaching the highest values of TFP, in this case represented by the 90th percentile, and among firms keeping TFP around median values, represented of course by the 50th percentile, seemed to be enormous in year 2006. While firms placed in the 10th percentile maintained constant levels of TFP over the whole period, and firms placed in the median value displayed only a slight downfall of TFP from 2006-2009, which later stabilized, firms reaching higher values of TFP suffered a larger drop of their productivity over the observed period. The decrease did not show to lessen up, thus the difference among the most productive firms and the others became smaller and smaller.

Figure 6. The TFPs at the 10th, 50th, and 90th percentiles’ levels of firms operating in all sectors during the period 2006-2014



To search for an additional explanation for this behaviour, 3 different TFP percentile levels were estimated also on the samples of those firms working only in the manufacturing sector, and on sample of those working in the service sector. The results for the first are

presented in Figure 7, and for the second in Figure 8. Similarities between all three graphs can be immediately noticed. In each case TFP at the level of the 10th percentile kept a constant level over all of the years, median values reported only a slight drop of TFP from year 2006-2009 and were stabilized afterwards, while the TFP at the 90th percentile displayed a large drop during the period 2006-2014.

Figure 7. The TFPs at the 10th, 50th, and 90th percentiles' levels of firms operating in the manufacturing sector during the period 2006-2014

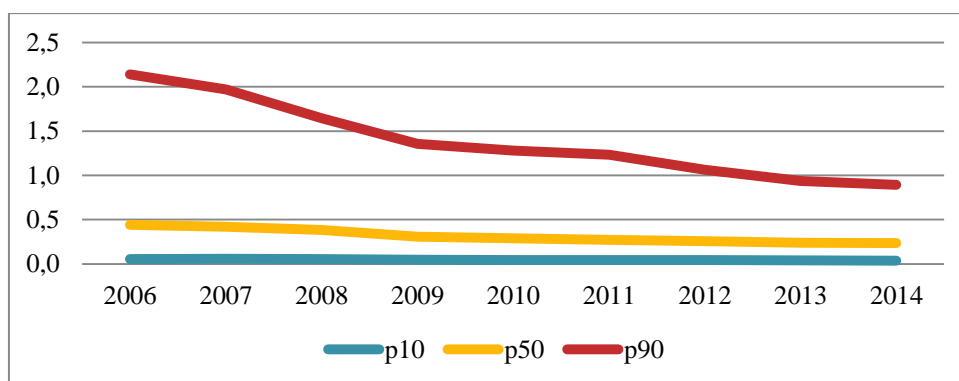
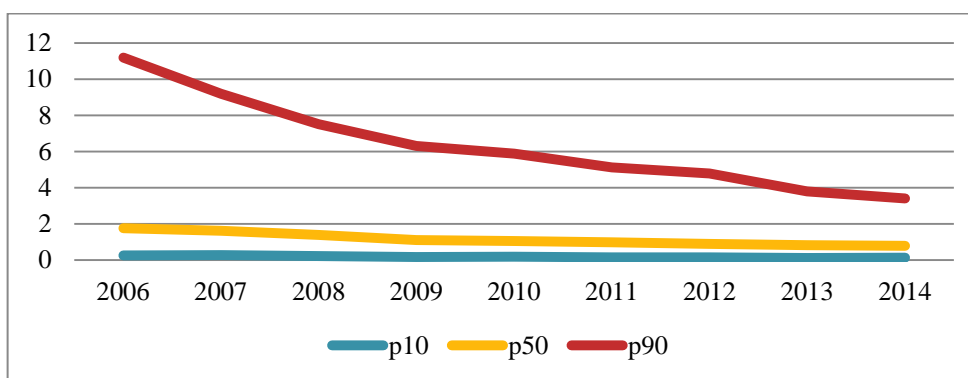


Figure 8. The TFPs at the 10th, 50th, and 90th percentiles' levels of firms operating in the service sectors during the period 2006-2014



The results of the estimated levels of TFP's percentiles performed on three different samples additionally revealed differences in the achieved level of TFP. When comparing the manufacturing and service firms with each other, it can be seen that the latter achieved a higher TFP, especially when focusing on the 90th percentile's level.

What is missing from these estimations are the observations made already from 2004 on. That was the year marking the beginning of the pre-crisis period in the Slovenian economy and hence the beginning of its overheating. It is possible that 2006 represented the peak year for firms achieving the highest levels of TFP and increasing returns. Afterwards, the effects that brought the boost to the economy, for example joining the ERM II mechanism and the euro zone, which both softened the "lending process," may already have lost their

true power and their positive effects started to cool down (Bole et al., 2012). Therefore, the artificially inflated bubbles, visible at the level of the TFP's 90th percentile, started to converge with firms experiencing lower values of TFP.

5.5 TFP estimated for 5 different groups of firms

The following three graphs present the results of the estimated TFP for five different groups of firms that were taken into consideration. Figure 9 shows the results of the estimations made on the sample combining all firms together, Figure 10 shows the results of the estimations made on the sample of only manufacturing firms, and Figure 11 shows the results of the estimations made on the sample of only service firms. For the purpose of easier interpretation and presentation, all the received values were multiplied by 10,000.

As can be seen from Graph 9, presenting the results of the estimation performed in the whole sample of firms, firms where private owners were involved as the major blockholders again proved to be more successful at achieving higher levels of TFP in comparison to others. They both achieved the highest levels of TFP in the year 2006, but since then their curves sloped downwards. Their TFP dropped with a higher pace until 2009, becoming slightly less steep afterwards. Moreover, firms where two blockholders together maintained the majority of the ownership achieved higher levels of TFP over the whole observed period than firms where only one large blockholder controlled the majority of the firm's ownership.

Firms having dispersed ownership structure, which also represented the base group while running the OLS regressions, achieved lower TFP in comparison to the firms where private blockholders were present. Their TFP grew slightly from the year 2006-2007, but then it fell drastically until 2009. From 2009 on, their TFP level stabilized and did not show any larger deviations.

Two groups of firms remained to be observed. The group of firms where a government institution played the role of large blockholder through the whole period achieved lower TFP in comparison to both groups of firms being governed by the private owners and in comparison to the group of firms having dispersed ownership structure. Yet, they proved to achieve higher TFP in comparison to firms where one of the financial holding institutions was involved as the blockholder.

An additional distinction between the last two groups exists. They both did not show any drop in TFP in the first four years of the observation; however, the TFP in firms where government was involved slightly increased in 2009, while on the other side, the TFP of firms where financial holdings were involved in the same year suffered a minor decrease.

Figure 9. The median values of TFP estimated on the sample of all firms during the period 2006-2014

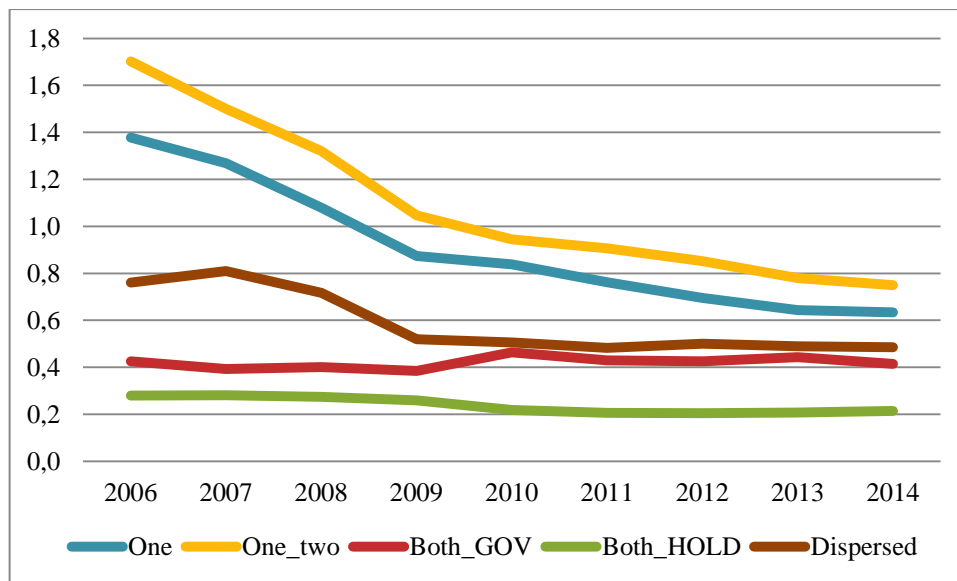


Figure 10 presents the results of the estimations performed on the sample in which firms operating only in the manufacturing sector were included. Besides the fact that all groups of firms achieved lower levels of TFP through the whole period in comparison to the levels these groups achieved while being estimated in the sample of all firms, only small differences exist in the changing trend of the curves. Firms governed by private owners again achieved the highest levels of TFP among all groups of firms. The TFP in firms where two private owners maintained the majority share of the ownership outpaced the TFP of firms governed by one private owner.

While the float of the curve presenting the TFP of firms with dispersed ownership structure did not change much in comparison to the estimations performed on the sample of all firms, curves presenting the TFP of firms where government or financial holding institutions are involved did not only change their float, but also their positions. It seems that in the manufacturing sector the TFP of firms involved with financial holding institutions as blockholders overtook the TFP of firms in which government institutions were involved until the year 2013, where the positions again switched. Apart from firms that were governed by two private owners, there were only firms where the government was involved that showed the slight growth of their TFP after year 2009.

Figure 10. The median values of TFP estimated on the sample of manufacturing firms during the period 2006-2014

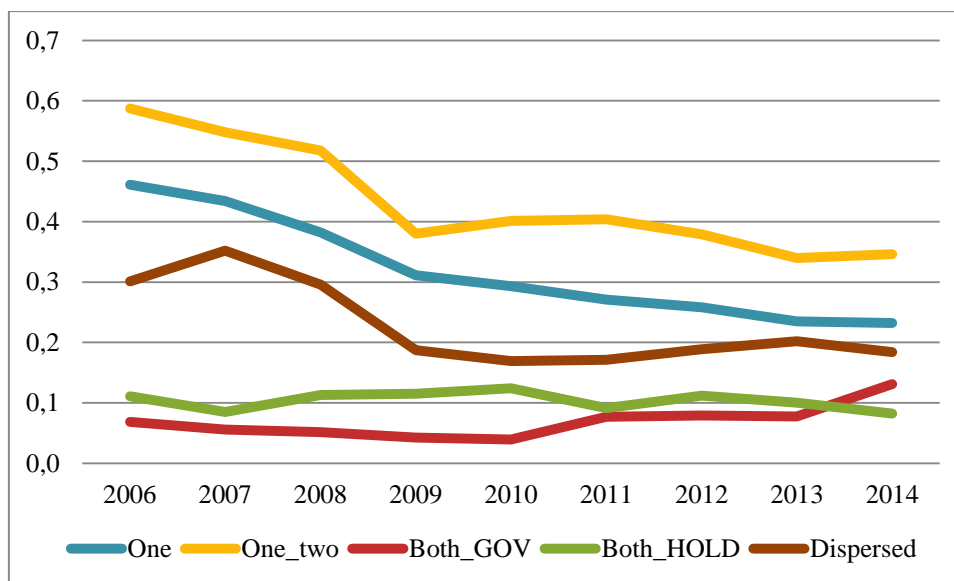
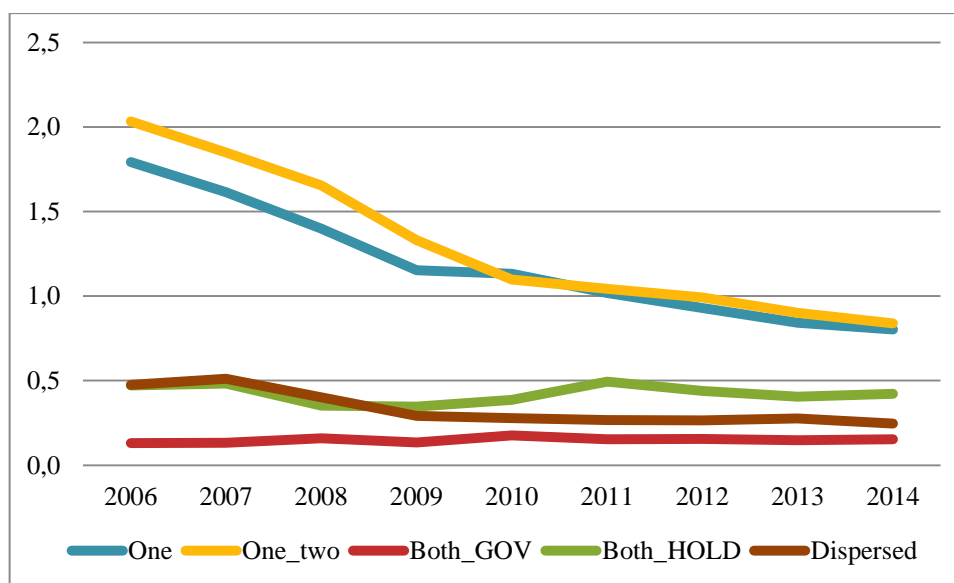


Figure 11 presents the results of the estimations performed on the sample in which only firms operating in the service sector were included. The course of curves presenting the TFP for each of the five groups of firms in this case does differ in comparison to the course of curves estimated resulting from the previous two observed samples. Firms where private owners were involved again outperformed other groups of firms by achieving the highest TFP levels. It can also be seen that service firms with private blockholders do reach higher TFP in comparison to the manufacturing firms. The difference from the two previous performed estimations occurred in 2010. From then on, it is hard to assess which of the two groups of firms performed better.

Due to the larger scale in Figure 11 in comparison to Figure 10, it is not entirely noticeable that the TFP levels of all three other groups also outperformed the TFP levels of firms operating in the manufacturing sector. The TFP's line of firms with dispersed ownership structure for service firms floated similarly through the observed period of time as in the previous 2 estimations. However, even in the service sector the TFP of firms where financial holding institutions were involved outclassed the TFP of firms where government institutions were involved, yet, in this sector they achieved higher TFP through the whole period 2006-2014.

Figure 11. The median values of TFP estimated on the sample of service firms during the period 2006-2014



What all 3 Figures share in common is the constant pattern toward greater convergence in the TFP of firms governed by private owners towards other groups of firms. The reason why they displayed a falling pattern from 2006 on, when the economy was still booming, could be attributed to the facts that have already been mentioned. Lacking data for years 2004 and 2005, it can only be predicted that 2006 was the peak year for TFP levels that these two groups of firms achieved. Perhaps firms already switched from investing in core activities to start investing in financial activities, which would hardly display any positive effects for firms' TFP. This may cause weakening of the artificially inflated bubbles in the economy. In addition, all the Figures display the prediction that firms in which the government and financial holding institutions play the role of one of the biggest shareholders do seem to perform worse than the other groups.

5.6 Estimating the TFP percentile levels of 5 different groups of firms

As before, the analysis took a closer look at the differences in the behaviour of firms reaching lower, median, and higher values of TFP. This time the TFP's at the 10th, 50th, and 90th percentiles were estimated on the whole sample of firms for each of the 5 different groups of firms that were taken into consideration, and which deviated from each other based on their ownership type and structure. As in the last instance, all the received values were multiplied by 10,000 for the purpose of easier interpretation and presentation.

Figure 12 presents the TFP percentile values of firms where one private owner maintains the majority of the ownership. The difference between the median value of TFP and its 90th percentile was again the largest in 2006. But ever since then, the TFP's level at 90th percentile started decreasing at a constant level over the years and its difference from more

productive firms and firms struggling with weaker productivity became smaller, since the latter two levels did not suffer from such a drop in TFP.

Figure 12. The TFPs at the 10th, 50th, and 90th percentile values of firms governed by one private owner estimated on the sample of all firms during the period 2006-2014

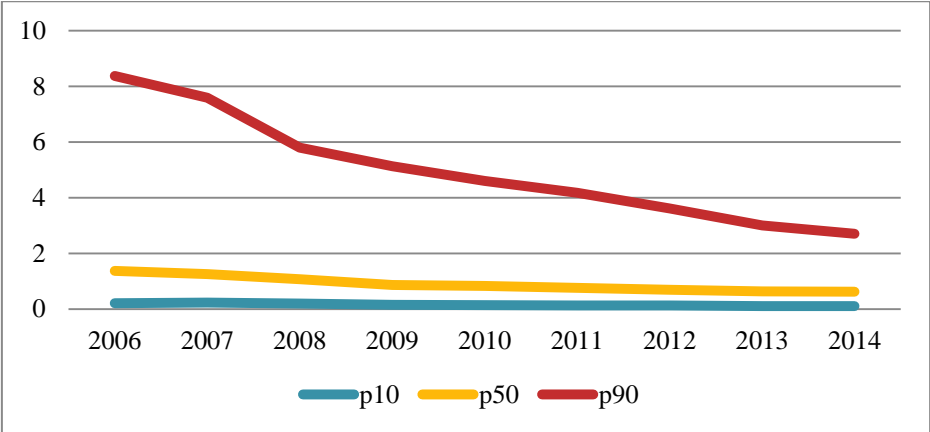
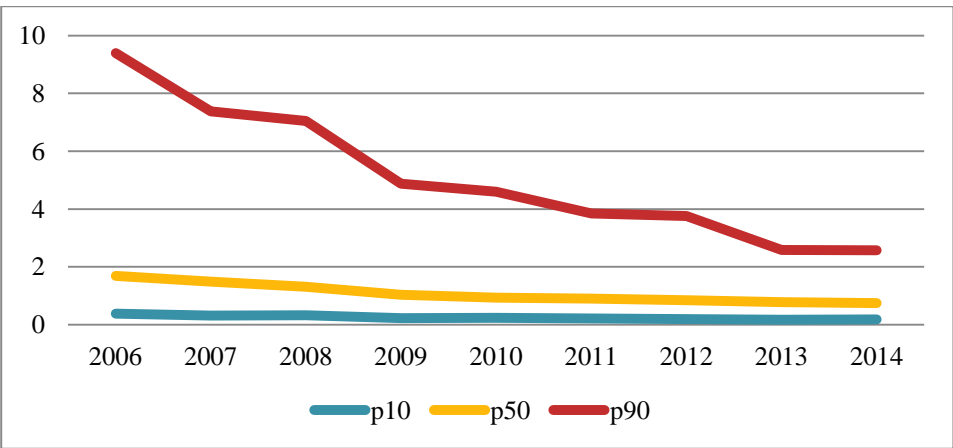


Figure 13 captures the percentile values of firms where two private owners together maintained the majority of the firm’s ownership. In comparison to the group of firms where one owner owned at least 50% of the ownership share, all 3 levels of percentiles that were estimated for this group reached higher values. The differences between the 50th and 90th percentile levels in 2006 are again large, but from that year on firms with higher levels of TFP again suffered from an enormous drop in TFP. Thus, the difference between the better and worse performing firms over the years shrank.

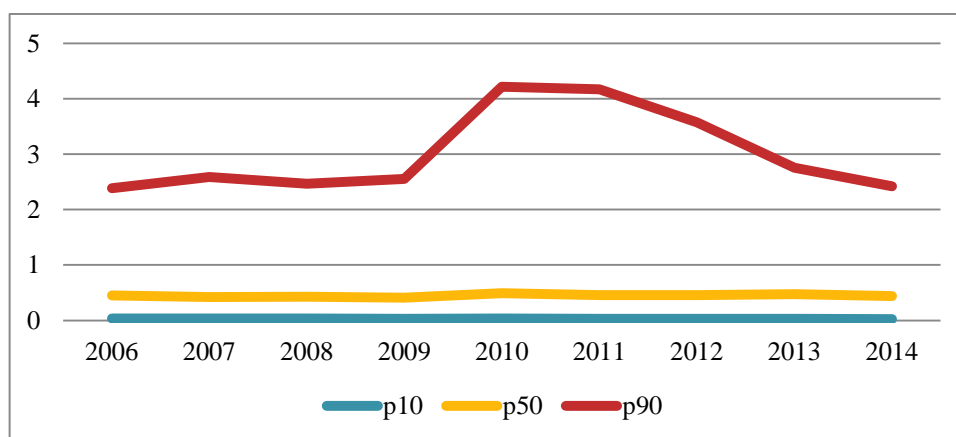
Figure 13. The TFPs at the 10th, 50th, and 90th percentile values of firms governed by two private owners estimated on the sample of all firms during the period 2006-2014



A slightly different behaviour of TFP percentile values can be seen in Figure 14, where percentiles were estimated for the firms in which a government institution was involved as the main blockholder. The 10th and 50th percentiles maintained constant levels of TFP over the years; however, larger fluctuations occurred at the 90th percentile level. At first, the

deviation in the levels of all three percentiles were not as large as recorded in Figures 12 and 13, but the TFP value of the 90th percentile jumped in 2009, and started gradually decreasing after 2011, falling to approximately the same level in 2014 as it was in 2006.

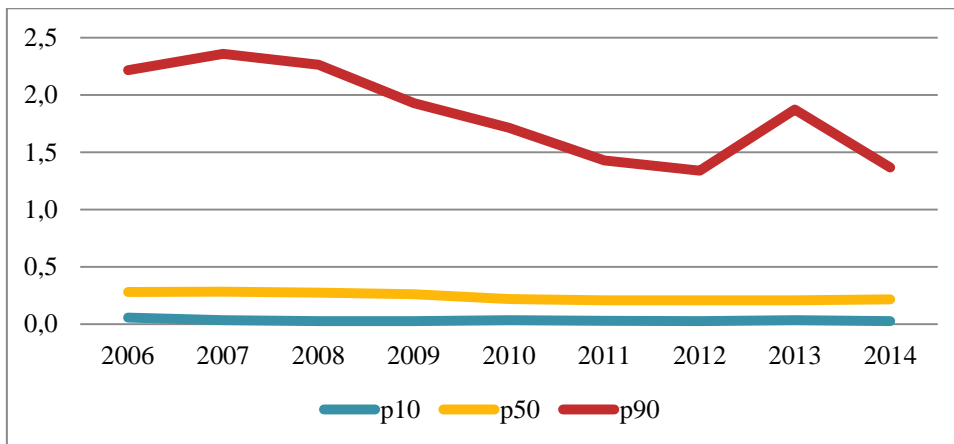
Figure 14. The TFPs at the 10th, 50th, and 90th percentile values of firms where a government institution was involved as the blockholder estimated on the sample of all firms during the period 2006-2014



The reasons for this behaviour are to be found in the fact that the government was dedicating large amounts of help to its own firms when the Slovenian economy started to fight the crisis in order to stabilize businesses. In addition, the government possesses many municipal services and energy firms. They are both places in the sectors that enormously increased the prices of their services after the year 2009. Why the TFP at the 90th percentile level sharply fell in 2011 may be due to the fact that the stabilization of firms did not achieve long-term success, or it could be due to the fact that the state's imposed austerity measures had a negative impact on consumption, which lead to a further decrease in SOE's TFP.

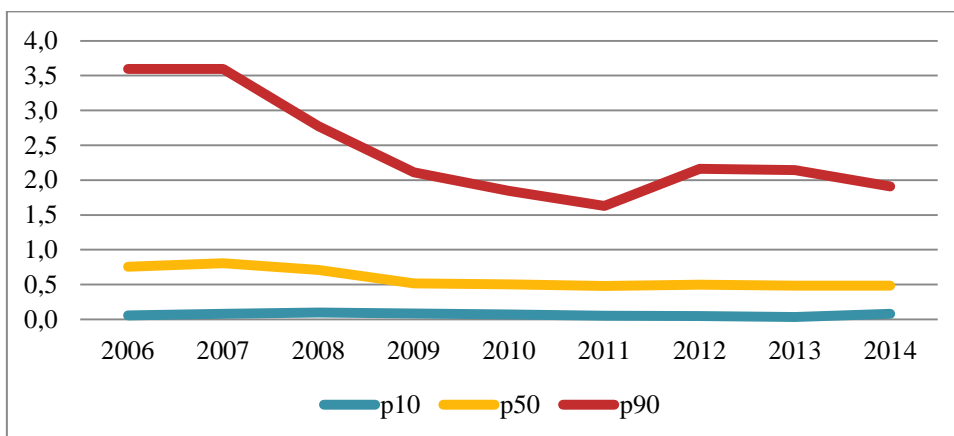
A more dynamic TFP value at the 90th percentile over the period 2006-2014 can be noticed in the firms where financial holding institutions were involved. The percentile levels for this group of firms are presented in Figure 15. Minor growth in the TFP's 90th percentile occurred from 2006-2007, followed by a sizeable drop continuing to the year 2012. In the year after, the TFP 90th percentile level grew; however, it again dropped in 2014 to approximately the same level as in 2012.

Figure 15. The TFPs at the 10th, 50th, and 90th percentile values of firms where financial holding institution were involved as the blockholder estimated on the sample of all firms during the period 2006-2014



The TFP percentile levels were lastly estimated for the group of firms having dispersed ownership structure. The course of these firms' percentile lines seemed to be moving with a similar pattern as the lines of firms where financial holding institutions were involved in their governance. While the 10th and 50th percentile levels showed only minor fluctuation up to the year 2009 and later stabilized, the bigger changes again occurred at the level of the 90th percentile. Since its value did not differ much in the first year of observation, it started sharply falling all the way until 2011. In the following two years its value again increased, and then it displayed another little drop in 2014.

Figure 16. The TFPs at the 10th, 50th, and 90th percentile values of firms having dispersed ownership structure estimated on the sample of all firms during the period 2006-2014



CONCLUSION

As many central and eastern European countries entered into a period of transition, one of the central questions they had to deal with was the privatization of state-owned firms. The topic of ownership structure and its relationship to firms' productivity therefore received more and more attention. Much of the research in this field has reported a positive relationship between concentrated ownership and higher levels of firms' TFP. However, concentrated ownership alone does not automatically lead to better company performance. It is, in fact, hugely important who the blockholders of the company are. What distinguishes them are their interests and the expectations they have about the firm's short and long-term perspective.

The analysis revealed that firms with concentrated ownership structure outperform firms with dispersed ownership structure only in cases where the blockholders in the firms are private owners. Therefore, private owners can be perceived as "tough" owners. On the other hand, the results show that concentrated ownership does not have a positive influence on firms' TFP when among the major blockholders the government or financial holding institutions are involved. Consequently, these firms can be alleged as "weak" owners.

The so-called "tough" owners seem to find enough incentives to move towards achieving higher levels of TFP. They can use their larger ownership stakes for more active monitoring in order to increase firms' profitability. It was also discovered that firms perform best when they are owned by two large blockholders who together maintain the majority of the firm's ownership, instead of being owned by only one major blockholder. This could lead to the conclusion that the presence of another large blockholder in a firm offers an additional chance for more thorough monitoring over the firm's performance.

The incentives of the so-called "weak" owners should be found elsewhere. Up until now, the state was rarely considered as an efficient owner leading firms towards their highest productivity levels. This was additionally supported by the results generated in this thesis. However, in an attempt to improve the efficiency of SOEs, Slovenia decided to privatize as many of them as possible. But one of the major buyers of the stakes in these firms were the financial holding institutions. The results point to the fact that firms under their governance achieved lower TFP in comparison to firms with dispersed ownership structure, and in comparison to firms owned by "tough" owners. This supports the claim that the main purpose of the financial holding institutions was to buy an ownership stake for as low a price as possible and to sell it later for as high a price as possible. During this time they did not focus much of their attention on improving a firm's TFP.

Estimations were performed on three samples of firms. The first sample contained all the firms operating in different sectors, the second contained firms operating only in the manufacturing sector, and third contained firms operating only in the service sector. For all

three of them the results were the same. “Tough” owners proved to have the most positive impact on firms’ performance, “weak” owners were shown to have a negative influence on firms’ performance, while the performance of the firms with dispersed ownership structure seemed to be right in the middle.

A final point should be made. There are other ways that estimations could be improved upon in subsequent studies, providing even more accurate results. For instance, the data could be deflated. In so doing, it is possible that the coefficients of firms where government institutions are involved, whether as the single major blockholder or as one of the two largest blockholders, would not jump as high as observed in the present study and the results would be easier to explain.

POVZETEK

Eden ključnih razlogov, zaradi katerih totalna faktorska produktivnost (TFP) podjetij pridobiva na vse večji pozornosti, je ta, da TFP deluje kot ena izmed glavnih poganjalk rasti gospodarstva na makroekonomski ravni (Corricelli, Driffield, Pal & Roland, 2012). Na doseženo raven TFP podjetij vplivajo mnogi dejavniki. Eden izmed njih je lastniška struktura podjetij. Berle in Means (1932) sta kot prva pričela z raziskovanjem vpliva koncentriranega in disperziranega lastništva podjetij na njihovo produktivnost. Prišla sta do zaključka, da naj bi podjetja s koncentriranim lastništvom dosegala višje stopnje TFP v primerjavi s podjetji z disperziranim lastništvom. Vendar pa je med preučevanjem vpliva lastništva podjetij na njihovo TFP poleg njihove strukture lastništva, potrebno ločiti tudi med samim tipom lastništva.

V zadnjih dveh desetletjih se je Slovenija soočila s tremi privatizacijskimi fazami, predvsem v majhnih in srednje velikih podjetjih, še vedno pa je ostala močno prisotna v lastniških strukturah velikih podjetij. Večkrat prikazano slabše poslovanje podjetij v državni lasti v primerjavi s podjetji v privatni lasti je privedlo do splošnega prepričanja, da državna podjetja obratujejo manj učinkovito kot bi sicer lahko (Dewnter & Malatesta, 2001). To prepričanje je v letu 2005 privedlo Slovenijo do odločitve o hitrem izstopu države iz lastniških struktur vseh preostalih podjetij. Pričakovati je namreč bilo, da bo njen izstop zadostoval za pospešeno rast produktivnosti le-teh. Potencialni investitorji so prejeli signal. Potrebno je bilo najti le še vir financiranja za nakupe in prevzeme lastniških deležev teh podjetij. Glede na to, da je pospešen državni izstop iz podjetij sovpadel z obdobjem povečanega in lahkotnejšega posojilo-dajalnega procesa, ki je bil sprožen ob vstopu Slovenije v EU ter njeni pridružitvi ERMII, je med investitorji veljalo prepričanje, da bodo za nakupe lastniških deležev prejeli zadostno financiranje, zlasti s strani državnih bank. To se je tudi zgodilo.

Mnoga slovenska podjetja so postala privatizirana in njihova lastniška struktura je postajala vse bolj koncentrirana. Ker pa sama privatizacija ter koncentracija lastništva še ne privedeta do povečane TFP podjetij, je tako postalo pomembno vprašanje, kdo so bili ti novi lastniki privatiziranih podjetij. Na eni strani dojemamo večinske privatne lastnike, tako domače kot tuje, kot tiste vrste lastnikov, ki premorejo dovoljšen del motivacije za doseganje visoke produktivnosti v podjetjih. Koncentrirano lastništvo v rokah le-teh naj bi tako pripomoglo k boljšemu poslovanju podjetij. Na drugi strani pa dojemamo državne institucije ter finančne holdinge kot tiste vrste lastnikov, ki v večini primerov iščejo motivacijo za poslovanje drugje kot v iskanju načinov za izboljšavo produktivnosti podjetij. Kadar postane večinski delež lastništva obvladovan s strani katere od teh dveh vrst lastnikov, se za ta podjetja ne pričakuje, da bodo poslovala bolje in učinkoviteje v primerjavi s podjetji z disperzirano lastniško strukturo. Rezultat tretje faze privatizacije v Sloveniji je bil ta, da so za večino nakupov državnih lastniških deležev stali predvsem finančni holdingi.

Za potrebe analitičnega dela naloge, katerega namen je bil preučiti vpliv različnih struktur in tipov lastništva na doseženo vrednost TFP podjetij, je bila ustvarjena posebna baza podatkov. Slednja v povprečju vsebuje podatke o lastniški strukturi 4.448 slovenskih podjetij na letni ravni za obdobje 2006-2014. Na podlagi zbranih podatkov je bilo ustvarjenih pet različnih skupin podjetij, ki so se razlikovale na podlagi strukture in tipa lastništva. Za vsako skupino posebej je bila ocenjena dosežena vrednost TFP, katera je bila ocenjena na podlagi Levinsohn-Petrinove metodologije (2003). Meritve so bile izvedene na vzorcu vseh podjetij, na vzorcu proizvodnih podjetij ter na vzorcu storitvenih podjetij.

Struktura naloge je sledeča. Prvo poglavje je posvečeno pregledu že obstoječe literature vpliva koncentriranega lastništva ter vpliva različnih tipov lastništva na TFP podjetij. Drugo poglavje opisuje razvoj Slovenije po njeni osamosvojitvi ter poteku koncentracije lastništva skozi tri obdobja privatizacije. Tretje poglavje predstavlja TFP kot merilec učinkovitosti podjetij ter načine, kako lahko samo TFP tudi merimo. V nadaljevanju poglavja so predstavljene ustvarjene spremenljivke lastništva, hipoteze ter glavni model meritev. V četrtem poglavju se nahaja podroben opis baze podatkov in proces generiranja glavnih spremenljivk, poleg česar so predstavljene tudi deskriptivne statistike podatkov. Peto poglavje predstavlja rezultate analitične raziskave, na koncu pa sledi še sklep naloge.

Pregled literature

Pojem koncentriranega lastništva oz. *blockholding*, se nanaša na večje lastnike v podjetjih. Meje, kdo naj bi bil smatran kot večji lastnik, se v literaturi razlikujejo. Če na eni strani Demestz in Lehn (1985) definirata, da so v podjetju prisotni večji lastniki v primeru, ko je teh največ 20, na drugi strani Shleifer in Vishny (1986) zagovarjata teorijo, da so veliki lastniki tisti, ki si lastijo najmanj 5% deleža podjetja. *Blockholding* se v literaturi v večini pojavlja ob vprašanju problema principala in agenta. V podjetju namreč lahko prihaja do razhajanj v interesih med lastniki podjetja ter njegovimi managerji. V želji po zmanjšanju ali izogibu teh konfliktov, lahko prevladujoči lastniki izkoristijo svojo moč ter uporabijo dodatne mehanizme za usklajevanje interesov managerjev s svojimi lastnimi interesi (Damijan, Gregorič, & Prašnikar, 2004).

Berle in Means (1932) sta med prvimi dokazala inverzno povezanost med disperziranim lastništvom ter TFP podjetji. Razlog naj bi tičal ravno v dejstvu, da imajo večinski lastniki večjo moč ter bolj direkten vpliv nad odločitvami managementa podjetja. Ti lastniki lahko tako vršijo aktivni nadzor nad upravljanjem podjetja in ga s tem vodijo proti doseganju višje produktivnosti, ki lahko čez čas privede podjetje do boljše profitabilnosti (Sanchez-Ballesta & Garcia-Meca, 2007). Earle in drugi (2005) v študiji dodatno opomnijo še na en pomemben vidik. Pomembno je namreč, kako ti večji lastniki med seboj sodelujejo in komunicirajo. Prisotnost dveh velikih lastnikov v podjetju lahko predstavlja še poostrejši

nadzor nad njihovim upravljanjem ter preprečuje izčrpavanje podjetja s strani enega samega lastnika na račun preostalih manjših lastnikov.

Seveda pa ima lahko *blockholding* tudi slabe plati. Shleifer in Vishny (1995) kot glavno težavo navedeta povečano verjetnost, da bodo večji lastniki zagovarjali svoje lastne interese, ti pa niso nujno v skladu s pravili, ki bi vodili podjetje do učinkovitejšega poslovanja. Ti lastniki potencialno tudi ne bodo kazali želje po vezavi v koalicijsko z ostalimi manjšimi lastniki, ki bi pripomogla k večjemu nadzoru nad upravljanjem podjetja in s pomočjo katere bi preprečili razhajanja med interesi večine lastnikov ter interesi managementa podjetja.

Neskladni interesi znotraj upravljanja podjetja kažejo na dejstvo, da je potrebno ločevati med različnimi tipi večinskih lastnikov v podjetjih. Za potrebe nadaljnjih raziskav v nalogi, smo podjetja ločili na tista, ki so v večinski lasti ali privatnih lastnikov, države, ali pa finančnih holdingov. Namen analize je bil preučiti vpliv teh vrst večinskih lastnikov na dosežene vrednosti TFP ter te vrednosti primerjati z doseženimi vrednostmi TFP podjetij z disperzirano lastniško strukturo.

Slovenija je v prvih dveh fazah privatizacije po osamosvojitvi umaknila državno lastništvo pretežno iz majhnih in srednje velikih podjetij, precejšen delež pa je obdržala v velikih podjetjih. Da bi privedla do privatizacije tudi teh, je Slovenija v letu 2005 nastopila z odločitvijo o pospešenem izstopu države iz njihovih lastniških struktur. Tretja faza privatizacije se je tako pričela v pred kriznem obdobju, ki je sovpadlo z vstopom Slovenije v EU, z njenim vstopom v evropski mehanizem deviznih tečajev (ERM II) ter z njenim kasnejšim vstopom v evropsko monetarno unijo (Bole, Prašnikar, Trobec, 2014b). To obdobje je bilo zaznamovano s prostim dostopom bank in ostalih ekonomskih subjektov do tujih sredstev posojilo dajalskih skladov. Zadolženost slovenskega gospodarstva se je pričela drastično povečevati. Določena podjetja, predvsem tista stabilnejša, so ta dolg investirala pretežno v osnovne dejavnosti, spet druga, manj stabilnejša podjetja, pa so investicije usmerjala pretežno v ne osnovne dejavnosti. Slednja so tako zagrabila priložnost lažjega dostopanja do financiranja za nakupe in prevzeme lastniških deležev podjetij. Mnoga državna podjetja so tako postala privatizirana in v velikih primerih končala v rokah finančnih holdingov (Prašnikar, Domadenik, & Koman, 2015).

Koncentrirane vs. disperzirane lastniške strukture v Sloveniji

Obstaja kar nekaj razlogov, zakaj je vse več pozornosti usmerjene v TFP podjetij. Izboljšava njihove produktivnosti naj bi bila eden izmed glavnih poganjalcev rasti na makroekonomski ravni. Poleg bruto domačega proizvoda (BDP) naj bi izboljšana produktivnost podjetij povečevala tudi sam dohodek prebivalstva. Dosežena vrednost TFP prav tako kaže smernice in trende, kako naj bi se ob fluktuaciji poslovnega cikla podjetja obnašala ter ima hkrati tudi pomemben vpliv na njihovo vrednost (Coricelli et al., 2012).

Glede na vse bolj pomembno vprašanje produktivnosti podjetij, je prišlo do razvoja različnih metod njenega merjenja in ocenjevanja. Ob uporabi tradicionalne metode dveh kvadrantov (OLS) se pojavljata problema endogenosti in simultanosti. Izločitve teh dveh problemov sta se med prvimi lotila Olley in Pakes (1996) ter kasneje še Levinsohn in Petrin (2003). Med obema meritvama obstajata razlike. Če je na eni strani Olley-Pakes metoda uporabna predvsem za izločitev problema simultanosti, potem Levinsohn-Petrinova metoda ponuja alternativo, saj se jo v meritve implementira na enostaven način ter v njih zajame tudi precej večjo količino opazovanih podatkov. Slednja je bila tako izbrana za nadaljnje analize podatkov v nalogi.

Pred izpeljavo Levinsohn-Petrinove metode je bilo potrebno ustvariti nekatere nove spremenljivke. Stroški blaga, materiala in storitev (CGMS) so predstavljali *proxy* spremenljivko, stroški dela (LC) so predstavljali *free* spremenljivko, opredmetena osnovna sredstva (TFA) pa spremenljivko kapitala. Po vnosu sintakse *predict* je bila izmerjena Omega, ki je predstavljala predvideno vrednost TFP opazovanih podjetij. Omega je bila normirana z vsoto kapitala ter rezerv in dolgoročnih pasivnih časovnih razmejitev, nato pa še dodatno logaritmirana (lnOmega). lnOmega je bila kasneje uporabljena kot odvisna spremenljivka v OLS regresijski analizi.

Namen nadaljnje analize je bilo ugotoviti, ali obstajajo razlike v doseženih stopnjah produktivnost podjetij, katera imajo koncentrirano lastniško strukturo, v primerjavi s podjetji, ki imajo disperzirano lastniško strukturo. V ta namen je bilo potrebno ustvariti posebne spremenljivke, ki bi definirale različne lastniške strukture podjetij. Slednje so bila deljene na tri skupine: 1) podjetja, kjer si največji lastnik lasti najmanj 50% lastniški delež podjetja; 2) podjetja, kjer si prvi lastnik sam ne lasti najmanj 50% lastniškega deleža podjetja, pač pa si ta delež lasti skupaj z drugim največjim lastnikom podjetja ter; 3) kjer si niti prvi največji lastnik podjetja sam ne lasti najmanj 50% lastniškega deleža podjetja, niti si tega deleža ne lasti skupaj z drugim največjim lastnikom. Prvi dve skupini predstavljata podjetja s koncentrirano lastniško strukturo, tretja skupina pa predstavlja podjetja z disperzirano lastniško strukturo.

Glede na že omenjeno dejstvo, da pri meritvi vpliva lastniške strukture na produktivnost podjetij pozornost ne sme biti usmerjena le v ločevanje med koncentriranim in disperziranim lastništvom, pač pa je potrebno ugotoviti, kdo ti lastniki podjetja pravzaprav so, smo prvi dve skupini, ki predstavljata podjetja s koncentrirano lastniško strukturo, dodatno razdelili še na štiri podskupine: 1) podjetja, v katerih prvi največji lastnik obvladuje najmanj 50% lastniškega deleža podjetja in ta lastnik ni niti državna institucija, niti finančni holding, pač pa gre za privatnega lastnika (One) ; 2) podjetja, v katerih prvi največji lastnik sam ne obvladuje najmanj 50% lastniškega deleža podjetja, obvladujeta pa najmanj tak delež skupaj z drugim največjim lastnikom, kjer nobeden od njiju ni niti državna institucija, niti finančni holding, pač pa gre za privatna lastnika (One_two) ; 3)

podjetja, v katerih ena izmed državnih institucij sama obvladuje najmanj 50% lastniškega deleža podjetja ter podjetja, v katerih največja dva lastnika skupaj obvladujeta najmanj 50% lastniškega deleža podjetja in kjer je vsaj eden izmed njiju državna institucija (Both_GOV) ter; 4) podjetja, v katerih eden izmed finančnih holdingov sam obvladuje najmanj 50% lastniškega deleža podjetja ter podjetja, v katerih največja dva lastnika skupaj obvladujeta najmanj 50% lastniškega deleža podjetja in kjer je vsaj eden izmed njiju finančni holding (Both_HOLD).

Empirični model ter hipoteze

Izpeljava modela je pripeljala do ocene \hat{w}_{it} , ki predstavlja teoretično (maksimalno) vrednost produktivnosti na ravni podjetja. S pomočjo spodnje enačbe (12), je bila \hat{w}_{it} ocenjena za vse štiri različne tipe dominantnih lastniških struktur

$$\hat{w}_{it} - w_{it} = \sum_j \beta_j \omega_{jt}^* \delta_{it} + \text{cons} + \varepsilon_{it} \quad (12)$$

kjer je $w_{it} = \log(W_{it})$.

Prvi dve spremenljivki $\beta_j \omega_{jt}^*$ (koeficienti *dummy* spremenljivk) v regresijskem modelu (12) prikazeta vpliv dominantnega lastništva (specifičen tip) na stopnjo produktivnosti podjetja, ki je relativna od specifične stopnje produktivnosti podjetja z ne-dominantno lastniško strukturo. Naslednji dve spremenljivki pa zajemata tako učinek ne-dominantne lastniške strukture kot tudi ostale faktorje, ki vplivajo na produktivnost na ravni podjetja.

Pred začetkom obdelave podatkov so bile postavljene štiri hipoteze. Vse so bile določene na podlagi predhodno predelane literature. Poleg tega, da sta Berle in Means (1932) med prvimi zagovarjala teorijo o inverzni povezanosti med disperziranim lastništvom in produktivnostjo podjetja, sta Sanchez-Ballesta in Garcia-Meca (2007) v svoji študiji prikazala, da naj bi bila motivacija velikih privatnih lastnikov za izboljšavo produktivnosti podjetja precejšnja. Izboljšana produktivnost namreč lahko vodi podjetje do dosega višje vrednosti, slednja pa daje možnost velikim lastnikom po izkoriščanju te vrednosti na svoj račun. Te ugotovitve so povzete v prvi hipotezi, ki predvideva, da naj bi podjetja, v katerih prvi največji lastnik obvladuje prevladujoč delež lastništva, dosegala višjo vrednost TFP, v primerjavi s podjetji, katerih lastniška struktura je disperzirana.

H1: Podjetja, v katerih prvi največji lastnik obvladuje prevladujoč delež lastništva, dosegajo višjo vrednost TFP v primerjavi s podjetji, katerih lastniška struktura je disperzirana ($\beta_1 > 0$).

Druga hipoteza je postavljena na podlagi podobne logike kot prva. Pričakovati gre namreč, da bo imela prisotnost drugega velikega lastnika v podjetju prav tako pozitiven vpliv na stopnjo produktivnosti podjetja. Z njegovo prisotnostjo se namreč monitoring nad delom

managementa ter njihovim upravljanjem le še dodano poveča. Tako naj bi podjetja, v katerih prva dva največja lastnika skupaj obvladujeta najmanj 50% lastniškega deleža, dosegala višjo vrednost TFP v primerjavi s podjetji, katerih lastniška struktura je disperzirana.

H2: Podjetja, v katerih prva dva največja lastnika skupaj obvladujeta prevladujoč delež lastništva, dosegajo višjo vrednost TFP v primerjavi s podjetji, katerih lastniška struktura je disperzirana ($\beta_2 > 0$).

Čeprav naj bi podjetja s koncentrirano lastniško strukturo praviloma dosegala višje vrednosti TFP, pa to ne velja za vse tipe večjih lastnikov, ki vršijo svoj vpliv nad poslovanjem podjetja. Eden izmed vrst lastnikov, s strani katerega ni moč pričakovati pozitivnega vpliva na produktivnost podjetij, je država. Tako se za podjetja, v katerih je slednja vpletena kot prevladujoči lastnik ali kot vsaj eden izmed dveh prevladujočih lastnikov pričakuje, da dosegajo nižje vrednosti TFP v primerjavi s podjetji, katerih lastniška struktura je disperzirana.

H3: Podjetja, v katerih državna institucija igra vlogo prevladujočega lastnika ali pa se pojavlja kot vsaj eden izmed dveh prevladujočih lastnikov, dosegajo nižje stopnje TFP v primerjavi s podjetji, katerih lastniška struktura je disperzirana ($\beta_3 < 0$).

Zadnja hipoteza pa se nanaša na obnašanje produktivnosti podjetij, v katerih vlogo prevladujočega lastnika ali vlogo vsaj enega izmed dveh prevladujočih lastnikov igra finančni holding. Tudi od slednjih ne gre pričakovati, da bi kot večinski lastniki vršili pozitivne učinke na produktivnost podjetij. Za glavno motivacijo poslovanja finančnih holdingov v Sloveniji se je namreč izkazalo iskanje načina za nakup lastniških deležev podjetij po čim nižji ceni ter njihova nadaljnja prodaja po čim višji ceni. Med potekom omenjenih procesov se finančni holdingi načeloma niso ozirali na izboljšavo učinkovitosti poslovanja podjetja. Tako se pričakuje, da dosegajo tista podjetja, v katerih eno izmed glavnih vlog med lastniki prevzema finančni holding, nižjo produktivnost v primerjavi s podjetji, katerih lastniška struktura je disperzirana.

H4: Podjetja, v katerih finančni holding igra vlogo prevladujočega lastnika ali pa se pojavi kot vsaj eden izmed dveh največjih prevladujočih lastnikov, dosegajo nižje vrednosti TFP v primerjavi s podjetji, katerih lastniška struktura je disperzirana ($\beta_4 < 0$).

Baza podatkov in spremenljivke

Baza podatkov, ki je služila kot osnova za nadaljnje analize, je zajemala podatke slovenskih podjetij, ki so zadovoljevala vsaj enega izmed določenih dveh selektivnih kriterijev. Da so bila podjetja vzeta pod drobnogled raziskave, so morala ali zaposlovati več kot 50 ljudi ali pa so morala na svoji aktivni beležiti vsaj 2 milijona evrov sredstev. Za

ta podjetja je bilo za vsako leto posebej med obdobjem 2006-2014 določenih njihovih 10 največjih lastnikov. Poleg njihovega imena je bil pripisan tudi njihov odstotni delež lastništva podjetja. Po zaključenem zbiranju podatkov o lastništvih, so bile novo pridobljene informacije združene s podatki bilanc stanja ter izkazi poslovnih izidov podjetij. V povprečju je tako baza vsebovala informacije o 4,448 podjetjih na letni ravni.

Vsi nadaljnji postopki povezani z obdelavo podatkov so bili izvedeni s pomočjo statistične programske opreme Stata. Sprva je bilo potrebno generirati štiri glavne spremenljivke. Te spremenljivke so bile opredmetena osnovna sredstva (TFA), stroški dela (LC), stroški blaga, materiala in storitev (CGMS) ter dodana vrednost (VA). Za izračun slednje so bili od kosmatega donosa iz poslovanja odšteti drugi poslovni odhodki ter CGMS. Sledilo je ustvarjanje petih spremenljivk lastništva. Če je bilo po prvotno zbranih podatkih lahko ločiti podjetja s koncentrirano lastniško strukturo od podjetij z disperzirano lastniško strukturo, pa je bilo potrebno izvesti še nekaj dodatnih postopkov za lažjo diverzifikacijo različnih tipov lastništva. V ta namen je bilo sprva določenih 22 institucij, ki so bile smatrane kot državne institucije ter 176 institucij, ki so bile smatrane kot finančni holding. Vse te institucije se je selekcioniralo med lastniki opazovanih podjetij in se jih v osnovni bazi dodatno označilo. Večji lastniki, ki tega pripisa niso imeli, so veljali za privatne lastnike. Omenjeni postopki so pripomogli k določitvi kretnic, ki so razlikovale pet različnih tipov lastništva (One, One_two, Both_GOV, Both_HOLD, Dispersed). Na koncu sta bili na podlagi SKD klasifikacije določeni še spremenljivki, ki sta določevali podjetja, ki obratujejo v produkcijskem sektorju ter podjetja, ki obratujejo v storitvenem sektorju.

Glede na samo velikost baze podatkov je bilo potrebno slednjo pred nadaljnjo analizo prečistiti. Vrednosti glavnih štirih spremenljivk so bile logaritmirane ($\ln TFA$, $\ln LC$, $\ln CGMS$, $\ln VA$), logaritmirane vrednosti pa so bile dodatno deljene s celotnimi sredstvi podjetja. Osamelce dobljenim vrednostim sta predstavljala njihov zgornji in spodnji 0,5%. Te vrednosti so bile iz nadaljnje analize odstranjene, zmnožek vmesnih vrednosti vseh spremenljivk, ki pa so ostale predmet nadaljnje analize, pa je predstavljal spremenljivko Outliers. Dodatno je bila ustvarjena še kretnica `dummy_missing`, ki je označevala manjkajoče podatke pri določevanju lastništva opazovanih podjetij. Med zbiranjem omenjenih podatkov je namreč lahko prišlo do situacije, ko opazovano podjetje o svojih lastnikih ni poročalo, zato podatki niso mogli biti vneseni.

Kot zadnje je na vrsto prišlo ustvarjanje spremenljivke, ki bi merila TFP podjetij. Takoj po zagnani sintaksi Levinsohn-Petrinovega modela je bila, preko dodatnega zapisa, ustvarjena nova spremenljivka Omega. Omega je predstavljala prevideno TFP opazovane skupine podjetij in je po tem, ko je bila njena vrednost logaritmirana ter deljena z vsoto kapitala in dolgoročnih pasivnih časovnih razmejitev, igrala vlogo odvisne spremenljivke v regresijskih modelih.

Empirični rezultati

OLS regresijske analize, s pomočjo katerih se je meril vpliv različnih lastniških struktur podjetij na njihovo TFP, so bile izvedene na treh različnih vzorcih podjetij – na vzorcu vseh zajetih podjetij, na vzorcu proizvodnih podjetij ter na vzorcu storitvenih podjetij. Na podlagi meritev izvedenih na vzorcu vseh podjetij smo lahko sprejeli prvo, drugo in četrto postavljeno hipotezo, zavrniti pa smo morali tretjo. Statistično značilni rezultati so razkrili, da podjetja, ki so v večinski lasti privatnih lastnikov, dosegajo višje vrednosti TFP v primerjavi s podjetji, katerih lastniška struktura je disperzirana. Prav tako so podatki razkrili, da naj bi podjetja, v katerih lahko med večinskimi lastniki najdemo finančne holdinge, dosegajo nižje stopnje TFP v primerjavi s podjetji z disperzirano lastniško strukturo. Zaradi statistično neznačilnih rezultatov pa nismo uspeli dokazati, da naj bi podjetja v lasti državnih institucij poslovala slabše.

Za meritve na naslednjih dveh vzorcih so veljale iste hipoteze, le da so se vezale ali samo na podjetja, ki obratujejo v proizvodnem sektorju, ali pa samo na podjetja, ki obratujejo v storitvenem sektorju. Tako lahko po meritvah izvedenih na vzorcu proizvodnih podjetij prav tako sprejmemo prvi dve hipotezi. Statistično značilni rezultati ponovno pripeljejo do zaključka, da podjetja v lasti privatnih lastnikov dosegajo višje vrednosti TFP v primerjavi s podjetji z disperzirano lastniško strukturo. Tretjo hipotezo, ki trdi, da naj bi državna podjetja dosegala nižjo produktivnost v primerjavi s podjetji z disperziranim lastništvom, lahko potrdimo le za obdobje 2007-2010, rezultati za kasnejša leta pa so se izkazali za statistično neznačilne. Zadnje navedeno hipotezo, da proizvodna podjetja z močno vpletenostjo finančnih holdingov v svojih lastniških strukturah dosegajo nižje stopnje TFP v primerjavi s podjetji, katerih lastniška struktura je disperziran, lahko sprejmemo le za prvo opazovano leto, za vsa nadaljnja opazovana leta, pa tega dejstva, zaradi ponovne statistične neznačilnosti rezultatov, ne moremo potrditi.

Kot v prejšnjih dveh primerih smo lahko tudi v primeru analiziranja storitvenih podjetij sprejeli prvi dve hipotezi. Statistično značilni rezultati prav tako potrjujejo četrto hipotezo in s tem dejstvo, da naj bi storitvena podjetja, ki so v večinski lasti finančnih holdingov, dosegala nižje vrednosti TFP v primerjavi s podjetji z disperziranim lastništvom. Tudi tokrat pa je bilo zaradi pomanjkanja statistične značilnosti potrebno zavrniti tretjo hipotezo in s tem idejo, da naj bi bila poleg finančnih holdingov tudi državna kot večinski lastnik tista, ki vodi podjetja do dosega nižjih vrednosti produktivnost v primerjavi s podjetji z disperziranim lastništvom.

Sklep

Analiza je razkrila, da naj bi koncentrirano lastništvo vodilo podjetja do dosega višjih vrednosti TFP v primerjavi z disperziranim lastništvom le v primeru, ko je to koncentrirano lastništvo obvladovano s strani privatnih lastnikov. Privatne lastnike lahko

zato poimenujemo tudi "čvrsti" lastniki. Ti namreč izkoriščajo svoj prevladujoči položaj v podjetju za natančnejši monitoring nad upravljanjem podjetja in delom managementa. Večja produktivnost podjetja namreč povečuje tudi njegovo vrednost, koristi le-te pa se lahko poslužujejo večinski lastniki sami. Kadar pa je večinski lastniški delež v obvladovanju ali države ali finančnega holdinga, pa to podjetje pelje do doseganja nižjih stopenj TFP. Državne institucije in finančne holdinge tako lahko poimenujemo tudi "šibki" lastniki.

REFERENCE LIST

1. Agrawal, A., & Knoebler, C. (1996). Firm Performance and Mechanism to Control Agency Problems Between Managers and Shareholders. *Journal of Financial and Quantitative Analysis*, 31(3), 377-399.
2. Berle, A. A., & Means, G. C. (1932). *The Modern Corporation and Private Property* (1991 reprint). New Brunswick, NJ: Transaction Publishers.
3. Bole, V., Prašnikar, J., & Trobec, D. (2012). *Debt accumulation: Dynamics, structure and mechanism*. Ljubljana: Faculty of Economics.
4. Bole, V., Oblak, A., Prašnikar, J., & Trobec, D. (2014a). *Financial Frictions and Indebtedness of Firms: Balkan Countries vs. Mediterranean and Central European Countries*. A paper, presented at Seventeenth World Congress, IEA, June, 6-10, Dead Sea, Jordan.
5. Bole, V., Prašnikar, J., & Trobec, D. (2014b). Policy measures in the deleveraging process: a macroprudential evaluation. *Journal of Policy Modeling*, 36(2), 410–432.
6. Coelli, T. J., Rao P. D. S., & O'Donnell, J. C. (2005). *An Introduction to Efficiency and Productivity Analysis*. New York: Springer Science I Business Media, Inc.
7. Coricelli, F., Driffield, N., Pal, S., & Roland, I. (2012). When does leverage hurt productivity growth? A firm-level analysis. *Journal of International Money and Finance*, 31(6), 1674-1694.
8. Del Gatto, M., Di Liberto, A., & Petraglia, C. (2009). Measuring productivity. *Working paper IAREG*, 5(1).
9. Demestz, H., & Lehn, K. (1985). The structure of Corporate Ownership: Causes and Consequences. *Journal of Political Economy*, 93(6), 1155-1177.
10. Dewenter, K. L., & H. Malatesta, P. (2001). State-Owned and Privately Owned Firms: An Empirical Analysis of Profitability, Leverage, and Labour Intensity. *American Economic Association*, 91(1), 320-334.
11. Djankov, S., & Murrell, P. (2002). Enterprise Restructuring in Transition: A Quantitative Survey. *Journal of Economic Literature*, 40(3), 739-792.
12. Domadenik, P., Prašnikar, J., & Svejnar, J. (2008). Restructuring of Firms in Transition: Ownership, Institutions and Openness to Trade. *Journal of International Business Studies*, 39(4), 725-746.
13. Domadenik, P., Prašnikar, J., & Svejnar, J. (forthcoming in 2015). Political Connectedness, Corporate Governance and Firm Performance. *Journal of Business Ethics*.
14. Dominko, M. (forthcoming in 2015). *Increasing Indebtedness of Slovenian companies as a result of ownership transformation* (Master's Thesis). Ljubljana: Faculty of Economics.
15. Earle, J. S., Kuscer, C., & Telegdy, A. (2005). Private benefits of Control: An international comparison. *The Journal of Finance*, 59(2), 537-600.

16. Estrin, S., Hanusek, J., Kočenda, E., & Svejnar, J. (2009). The Effects of Privatization and Ownership in Transition Economies. *Journal of Economics Literature*, 47(3), 699-728.
17. Gregorič, A. (2003). *Corporate Governance in Slovenia: An International Perspective* (PhD Dissertation). Ljubljana: Faculty of Economics.
18. Hanousek, J., Kočenda, E., & Svejnar, J. (2007). Origin and concentration. *Economics of Transition*, 15(1), 1-31.
19. Holderness, C. G. (2003). A Survey of Blockholders and Corporate Control. *Economic Policy Review*, 9(1), 51-64.
20. Hoskisson, R. E., Hitt, M. A., Johnson, R. A., & Grossman, W. (2002). Conflicting voices: The Effects of Institutional Ownership Heterogeneity and Internal Governance on Corporate Innovation Strategies. *Academy of Management Journal*, 45(4), 697-716.
21. Johnson, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2000). Tunneling. *American Economic Review*, 90(2), 22-27.
22. Koke, J., & Renneboog, L. (2005). Do Corporate Control and Product Market Competition Lead to Stronger Productivity Growth? Evidence from Market-oriented and Blockholder-based Governance Regimes. *Journal of Law and Economics, University of Chicago Press*, 48(2), 475-516.
23. Koman, M., Knežević Cvelbar, L., Lojpur, A., & Prašnikar, J. (2009). Effects of ownership and management changes on productivity in privatized Montenegrin firms. *Eastern Europe Economics*, 49(3), 5-26.
24. Krisnamurthy, A. (2010). Amplification mechanism in liquidity crisis. *American Economic Journal: Macroeconomics*, 2(3), 500-518.
25. Latruffe, L. (2010). Competitiveness, Productivity and Efficiency in the Agricultural and Agri-Food Sectors. *OECD Food, Agriculture and Fisheries Papers*, No. 30, OECD Publishing.
26. Levine, O., & Warusawitharana, M. (2014). *Finance and Productivity Growth: Firm-level Evidence*. Finance and Economics Discussion Series Division of Research & Statstic and Monetary Affairs Federal Reserve Board, Washington, D.C.
27. Levinsohn, J., & Petrin, A. (2003). Estimating Production Functions Using Inputs to Control Unobervables. *The Review of Economic Studies*, 70(2), 317-341.
28. Levinsohn, J., Petrin, A., & Poi, B. (2004). Production Function Estimation in Stata Using Inputs to Control for Unobservables. *Stata Journal*, 4(2), 113-123.
29. Maug, E. (1998). Large shareholders as monitors: Is there a trade-off between liquidity and control? *Journal of Finance*, 53(1), 65-98.
30. McConnell, J. J., & Servaes, H. (1990). Additional Evidence on Equity Ownership and Corporate Value. *Journal of Financial Economics*, 27(2), 595-612.
31. Meggison, W. L., & Netter, M. J. (2001). From State to Market: A Survey of Empirical Studies on Privatization. *Journal of Economic Literature*, 39(2), 321-389.
32. Miller, M., & Stiglitz, J. (2010). Leverage and asset bubbles: Averting armageddon with chapter 11. *Economic Journal*, 120(544), 500-518.

33. Minsky, H. (1986). *Stabilizing an unstable economy*. New Haven: Yale University Press.
34. Olley, G., & Pakes, A. (1996). The Dynamics of Productivity in the Telecommunications Equipment Industry. *Econometrica*, 64(6), 1263-1297.
35. Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporate Finance and the Theory of Investment. *The American Economic Review*, 48(3), 261-297.
36. Pavlič Damijan, J., Gregorič, A., & Prašnikar, J. (2004). Ownership concentration and firm performance in Slovenia. *Katholieke Universiteit Leuven: LICOS discussion papers*, 142.
37. Prašnikar, J., Mikerevič, D., & Voje, D. (2014). Blockholding and organizational diversity: the case of transition economy. *Journal for East European Management Studies*, 19(3), 277-304.
38. Prašnikar, J., Domadenik, P., & Koman, M. (2015). *The Puzzle of State Ownership*. Ljubljana: Faculty of Economics, Publishing.
39. Sabrinova Peter, K., Svejnar, J., & Terrell, K. (2012). Foreign Investment, Corporate Ownership, and Development: Are Firms in Emerging Markets Catching Up to the World Standard? *The Review of Economics and Statistics*, 94(4), 981-999.
40. Sanchez-Ballesta, J. P., & Garcia-Meca, E. (2007). A Meta-Analytic Vision of the Effect of Ownership Structure on Firm Performance. *Corporate Governance: An International Review*, 15(5), 879-892.
41. Shleifer, A., & Vishny, R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy*, 94(3), 461-488.
42. Shleifer, A., & Vishny, R. W. (1995). Politicians and Firms. *Quarterly Journal of Finance*, 52(2), 737-783.
43. Shleifer, A., & Vishny, R. W. (1997). The takeover wave of the 1980s. In Donald H. Chew (ed) *Studies in International Corporate Finance and Governance Systems: A Comparison of the U.S., Japan, and Europe*. Oxford: Oxford University Press.
44. Svejnar, J. (2002). Transition Economies: Performance and Challenges. *Journal of Economic Perspectives*, 16(1), 3-28.
45. Thomasen, S., & Pedersen, T. (2000). Ownership structure and economic performance in the largest European companies. *Strategic Management journal*, 21(6), 689-750.
46. Tribo, J. A., Berrone, P., & Surroca, J. (2007): Do the type and Number of Blockholders Influence R&D Investments? New Evidence from Spain. *Corporate Governance: An International Review*, 15(5), 828-842.
47. Van Bevern, I. (2007). Total Factor Productivity Estimation: a Practical Review. *LICOUS Discussion paper*, 182.

APPENDIXES

TABLE OF APPENDIXES

APPENDIX A: OWNERS IDENTIFIED AS THE GOVERNMENT OR FINANCIAL HOLDING INSTITUTIONS 1

APPENDIX B: THE DYNAMIC OF THE MAIN VARIABLES IN THE MANUFACTURING SECTOR 6

APPENDIX C: THE DYNAMIC OF THE MAIN VARIABLES IN THE SERVICE SECTOR..... 9

APPENDIX A: Owners identified as the government or financial holding institutions

Table 1. Owners identified as the government institutions

| NAME |
|---|
| D.S.U., DRUŽBA ZA SVETOVANJE IN UPRAVLJANJE, D.O.O. |
| DRI UPRAVLJANJE INVESTICIJ, D.O.O. |
| DUTB, D.D. |
| INSTITUT JOŽEF STEFAN |
| JAVNI MEDOBCINSKI STANOVANJSKI SKLAD MARIBOR |
| KAPITALSKA DRUŽBA, D.D. |
| KEMIJSKI INŠTITUT |
| KRAJEVNE SKUPNOSTI |
| MINISTRSTVA |
| NACIONALNI INŠTITUT ZA BIOLOGIJO |
| OBČINE |
| PDP, D.D. |
| REPUBLIKA SLOVENIJA |
| SLOVENSKI DRŽAVNI HOLDING, D.D. |
| SKLAD REPUBLIKE SLOVENIJE ZA RAZVOJ LJUBLJANE |
| SKLAD ZA FINANCIRANJE RAZGRADNJE NUKLEARNE ELEKTRARNE |
| SLOVENSKI REGIONALNI RAZVOJNI SKLAD |
| SLOVENSKA ODŠKODNINSKA DRUŽBA, D.D. |
| STANOVANJSKI SKLAD REPUBLIKE SLOVENIJE |
| UNIVERZA V MARIBORU |
| UNIVERZA V NOVI GORICI |
| UPRAVNE ENOTE |

Table 2. Owners identified as the financial holding institutions

| NAME |
|--|
| 4U, TELEKOMUNIKACIJE Z DODANO VREDNOSTJO, D.O.O. |
| 6 M HOLDING, D.O.O. |
| A1, INVESTICIJSKO UPRAVLJANJE, D.D. |
| A2A HOLDIŠKA DRUŽBA, D.O.O. |
| A2A POSLOVNO SVETOVANJE, D.O.O. |
| AB HOLDING POSLOVNO SVETOVANJE, D.O.O. |
| ABC POSVET, DRUŽBA ZA POSLOVNO SVETOVANJE, D.O.O. |
| ACH, DRUŽBA ZA GOSPODARJENJE Z NALOŽBAMI, D.D., LJUBLJANA |
| ACTIUM, UPRAVLJANJE NALOŽB, D.O.O. |
| ADRIA CAPITAL KOPER, FINANČNI INŽENIRING, D.D. |
| ADRIACOMMERCE, FINANCIRANJE, USTANAVLJANJE IN UPRAVLJANJE PODJETIJ, D.D. |
| ADVENA DRUŽBA ZA UPRAVLJANJE, D.O.O. |
| AG, DRUŽBA ZA INVESTICIJE, D.D. |
| AKTIVA NALOŽBE, INVESTIRANJE IN UPRAVLJANJE NALOŽB, D.D. |
| ALISIO HOLDING, D.O.O. |
| ALOK INVEST, DRUŽBA ZA INVESTIRANJE, D.O.O. |
| ALPE ADRIA INTERNATIONAL, MEDNARODNI REZERVACIJSKI SISTEM, TURIZEM IN TRGOVINA, D.O.O. |
| ALTA SKUPINA, UPRAVLJANJE DRUŽB, D.D. |
| APR INVESTIRANJE, DRUŽBA ZA INVESTIRANJE, D.O.O. |
| AUTOCOMMERCE, DRUŽBA ZA GOSPODARJENJE Z NALOŽBAMI, D.D., LJUBLJANA |
| BERTRO HOLDING, DRUŽBA ZA INVESTIRANJE, ZASTOPSTVO IN SVETOVANJE, D.O.O. |
| C.J.I. KOMERCIALNA SKUPINA PODJETJE ZA OPRAVLJANJE KOMERCIALNIH IN SKUPNIH OPRAVIL, D.O.O. |
| CA IB CORPORATE FINANCE, FINANČNO SVETOVANJE, D.O.O. |
| CENTER NALOŽBE, FINANČNA DRUŽBA D.D. |
| CERTA PODJETJE ZA UPRAVLJANJE IN INVESTIRANJE, D.D. |
| CG INVEST, INVESTIRANJE IN UPRAVLJANJE NALOŽB, D.D. |
| COLLIS PLUS, UPRAVLJANJE NALOŽB, D.O.O. |
| CVS, DRUŽBA ZA UPRAVLJANJE, SVETOVANJE IN STORITVE, D.O.O. |
| D.P. STEKLARNA HRASTNIK DRUŽBA POOBLAŠČENKA, D.D. |
| DMK IN SINOVI, DRUŽBA ZA NALOŽBE, D.O.O. |
| DOMEL HOLDING DRUŽBA POOBLAŠČENKA, D.D. |
| DOMEL HOLDING, D.D. |
| EDING ELEKTRONSKI DIDAKTIČNI INŽENIRING D.O.O., LJUBLJANA |
| ELAN SKUPINA, HOLDIŠKA DRUŽBA, D.O.O. |
| ELAN, PROIZVODNJA ŠPORTNIH IZDELKOV, D.O.O. |
| EMONA - FARMA IHAN DRUŽBA POOBLAŠČENKA, D.D. |
| ENERGOPLAN HOLDING, DRUŽBA ZA UPRAVLJANJE IN FINANCIRANJE, D.O.O. |
| ENLUX, DRUŽBA ZA TRGOVINO, STORITVE IN NALOŽBE, D.D. |
| EQUITY POSLOVNE IN FINANČNE STORITVE, D.O.O. |
| ERA, DRUŽBA ZA UPRAVLJANJE, FINANCIRANJE IN STORITVE, D.D. |
| EUROIN FOND MANAGEMENT DRUŽBA ZA FINANČNI INŽENIRING IN SVETOVANJE, D.O.O., LJUBLJANA |
| EVRIA HOLDINGS DRUŽBA ZA FINANČNE NALOŽBE IN POSLOVNE STORITVE, D.O.O. |
| FACIG, UPRAVLJANJE DRUŽB IN SVETOVANJE, D.O.O. |
| FINANČNA POT, UPRAVLJANJE NALOŽB, D.D. |
| FINANCE ZUPANC, FINANČNA DRUŽBA, D.D. |

| |
|---|
| FINEA HOLDING DRUŽBA ZA UPRAVLJANJE, D.O.O. |
| FINIKS, FINANČNE INVESTICIJE, KOOPERACIJE IN STORITVE, D.O.O. |
| FINIRA, USTANAVLJANJE, FINANCIRANJE IN UPRAVLJANJE DRUŽB, D.D., LJUBLJANA |
| FINIRA, USTANAVLJANJE, FINANCIRANJE IN UPRAVLJANJE DRUŽB, D.O.O. LJUBLJANA |
| FINSTRO HOLDIŠKA DRUŽBA, D.O.O. |
| FMR FINANCIRANJE IN UPRAVLJANJE NALOŽB, D.D. |
| FMR HOLDING DRUŽBA POOBLAŠČENKA, D.D. |
| FMR PODJETJE ZA FINANCIRANJE, MARKETING IN RAZVOJ, D.D. |
| FORI SKUPINA, UPRAVLJANJE Z NALOŽBAMI, D.O.O. |
| FUNDAMENT SVETOVANJE IN INVESTICIJE, D.O.O. |
| GBD SKUPINA, FINANČNA DRUŽBA, D.D. |
| GEN ENERGIJA, D.O.O. |
| GENERA GROUP DRUŽBA ZA UPRAVLJANJE S PODJETJI, D.O.O. |
| GIP HOLDING, DRUŽBA ZA UPRAVLJANJE IN FINANCIRANJE, D.O.O. |
| HD +, FINANČNE STORITVE, D.O.O., |
| HIDRIA, D.D. PODJETJE ZA USTANAVLJANJE IN UPRAVLJANJE DRUŽB |
| HIDRIA, D.O.O., PODJETJE ZA USTANAVLJANJE IN UPRAVLJANJE DRUŽB |
| HIDRIA FIN, UPRAVLJANJE NALOŽB, D.O.O. |
| HOLDING M & M, UPRAVLJANJE NALOŽB IN STORITVE, D.O.O. |
| HOLDING NARIS, UPRAVLJANJE DRUŽB IN NALOŽB, D.O.O. |
| HOLDING SLOVENSKE ELEKTRARNE, D.O.O. |
| HTI INVEST, HOTELI, TURIZEM, IGRALNIŠTVO IN INVESTICIJE, D.O.O. |
| ID INVESTICIJE, INVESTICIJSKA DRUŽBA, D.O.O. |
| IDRA SC GRADNJE, D.O.O. |
| IMKO PROIZVODNJA, INŽENIRING, TRGOVINA, D.D. |
| IMOS HOLDING UPRAVLJANJE POVEZANIH DRUŽB, D.D., LJUBLJANA |
| IMPAKTA HOLDING, DRUŽBA ZA UPRAVLJANJE Z NALOŽBAMI, D.O.O. |
| INFOND HOLDING, FINANČNA DRUŽBA, D.D. |
| INSTALACIJE SILA NALOŽBE IN UPRAVLJANJE, D.O.O. |
| INTERCEMENT, UPRAVLJANJE NALOŽB, D.O.O. |
| INTERING HOLDING, SVETOVANJE, D.O.O. |
| ISKRA ELEKTRO IN ELEKTRONSKA INDUSTRIJA, D.D. |
| ISKRA INDUSTRIJA SESTAVNIH DELOV, D.O.O. |
| ISKRA INDUSTRIJA SESTAVNIH DELOV, D.D. |
| ISTRABENZ, HOLDIŠKA DRUŽBA, D.D. |
| JAVNI HOLDING LJUBLJANA, D.O.O., DRUŽBA ZA IZVAJANJE STROKOVNIH IN RAZVOJNIH NALOG NA PODROČJU GOSPODARSKIH JAVNIH SLUŽB |
| KD GROUP, FINANČNA DRUŽBA, D.D. |
| KD HOLDING, FINANČNA DRUŽBA, D.D. |
| KD KAPITAL, FINANČNA DRUŽBA, D.O.O. |
| KD KAPITAL, FINANČNA DRUŽBA, D.O.O.. |
| KD, FINANČNA DRUŽBA, D.D. |
| KLS SI, DRUŽBA ZA UPRAVLJANJE, SVETOVANJE IN POSLOVNE STORITVE, D.O.O. |
| KLS, DRUŽBA ZA UPRAVLJANJE, SVETOVANJE IN POSLOVNE STORITVE, D.O.O. |
| KONTEUS INVESTICIJE, D.O.O |
| KOVINAR TRGOVINA IN STORITVE, D.D., KOČEVJE |
| KOVINOPLASTIKA LOŽ DRUŽBA POOBLAŠČENKA, D.D. |
| KRANJSKA INVESTICIJSKA DRUŽBA, D.O.O. |
| KRISTAL MARIBOR PROIZVODNJA, MONTAŽA IN TRGOVINA Z RAVNIM STEKLOM – 1921, D.D. |

| |
|--|
| KRISTAL MARIBOR, PODJETJE ZA USTANAVLJANJE IN UPRAVLJANJE DRUŽB, TRGOVINO IN POSREDNIŠTVO, D.D. |
| KS NALOŽBE FINANČNE NALOŽBE, D.D. |
| M1, FINANČNA DRUŽBA, D.D., LJUBLJANA |
| MAKRO 5, INVESTICIJE IN UPRAVLJANJE Z DRUŽBAMI, D.O.O. |
| MAKSIMA HOLDING, D.D., FINANČNA DRUŽBA |
| MAKSIMA INVEST, FINANČNA DRUŽBA, D.D. |
| MEDALJON UPRAVLJANJE DRUGIH DRUŽB, D.D. |
| MEDVEŠEK PUŠNIK, DRUŽBA ZA UPRAVLJANJE, D.D. |
| MERCATA, FINANČNA DRUŽBA, D.D., LJUBLJANA |
| MERFIN, HOLDINŠKA DRUŽBA, D.O.O. |
| MER-PROJEKT, UPRAVLJANJE NALOŽB, D.O.O. |
| METALKA ZASTOPSTVA HOLDING PODJETJE ZA UPRAVLJANJE, ZASTOPANJE IN STORITVE, D.D. |
| METREL DUS DRUŽBA ZA UPRAVLJANJE IN SVETOVANJE, D.D. |
| MODRA LINIJA HOLDING, FINANČNA DRUŽBA, D.D. |
| MOHAR SATLER INVESTICIJE DRUŽBA ZA SVETOVANJE IN INVESTIRANJE, D.D. |
| MT INVEST DRUŽBA ZA INVESTIRANJE, D.O.O. |
| NFD HOLDING, FINANČNA DRUŽBA, D.D. |
| NOVO TIVOLI, IGRE NA SREČO NA IGRALNIH AVTOMATIH, TRGOVINA IN STORITVE, D.O.O. |
| NOVOLINE, UPRAVLJANJE IN SVETOVANJE, D.O.O. |
| NOVUS, NALOŽBENO PODJETJE, D.D. |
| ONYX GROUP TRŽENJE IN STORITVE, D.O.O. |
| PAPIRUS, HOLDING, D.O.O. |
| PC IZBIRA TRGOVINA IN DRUGE STORITVE, D.O.O. |
| PERIKLEJ, FINANČNE NALOŽBE, D.O.O. |
| PIVKA, DRUŽBA POOBLAŠČENKA, D.D. |
| POM-INVEST, DRUŽBA ZA INVESTIRANJE, D.D. |
| POM-INVEST, DRUŽBA ZA INVESTIRANJE, D.D. |
| POMORSKA DRUŽBA, UPRAVLJANJE HOLDING DRUŽB, D.D., PORTOROŽ |
| POTEZA SKUPINA, HOLDING PODJETJE, D.D., LJUBLJANA |
| PREVENT NT PODJETJE ZA NOVE TEHNOLOGIJE, D.O.O. |
| PRIMORJE HOLDING, D.D. |
| PRODROMOS, POSLOVNE STORITVE, D.O.O. |
| PROHOLDING, NALOŽBE IN UPRAVLJANJE, D.O.O. |
| PROPHETES PARTNERSKA DRUŽBA ZA FINANCIRANJE IN RAZVOJ, D.D. PROPHETES, PARNERISED COMPANY FOR FINANCING AND DEVELOPMENT INC. |
| PSL STORITVE, FINANČNA DRUŽBA, D.D. |
| PSU POSLOVNE STORITVE, UPRAVLJANJE, D.O.O. |
| PUBLIKUM HOLDING, UPRAVLJANJE DRUŽB, D.O.O. |
| PUBLIKUM, DRUŽBA ZA INVESTICIJE, D.D. |
| QUADRO, DRUŽBA ZA UPRAVLJANJE INVESTICIJ, D.O.O. |
| RADGONSKE GORICE - SKUPNOST, DRUŽBA POOBLAŠČENKA, D.D. |
| REPRO-PHARM, DEJAVNOST HOLDINGOV, D.O.O. |
| RIALTO INVESTICIJE, D.O.O. |
| S.T.HAMMER, DRUŽBA ZA INVESTICIJE, D.O.O. |
| SAVA, DRUŽBA ZA UPRAVLJANJE IN FINANCIRANJE, D.D. |
| SAVAPRO, HOLDING, D.O.O. |
| SIRINGA TRGOVSKO PODJETJE, D.O.O. |
| SIVENT, DRUŽBA TVEGANEGA KAPITALA, D.D., LJUBLJANA |
| SIVENT, USTANAVLJANJE, FINANCIRANJE IN UPRAVLJANJE DRUŽB, D.D., |

| |
|--|
| LJUBLJANA |
| SKIMAR, FINANCIRANJE IN RAZVOJ, D.O.O. |
| SKUPINA CLAAS, TRŽENJE IN INVESTICIJE, D.D. LJUBLJANA |
| SKUPINA FMC, HOLDIŠKA DRUŽBA, D.O.O. |
| SKUPINA KOVINAR, HOLDIŠKA DRUŽBA, D.D., KOČEVJE |
| PRVA GROUP, INSURANCE HOLDING COMPANY, PLC. |
| SKUPINA TUŠ, UPRAVLJANJE DRUŽB IN NALOŽB, D.O.O. |
| SLOVENSKE ŽELEZNICE, D.O.O. |
| S-REAL, DRUŽBA ZA INVESTICIJE, D.D. |
| STH HOLDING, DRUŽBA ZA INVESTICIJE, D.D. |
| SUROVINA HOLDING, DEJAVNOST HOLDINGOV, D.D. |
| TMK INVESTICIJE DRUŽBA ZA RAZVOJ IN UPRAVLJANJE INVESTICIJ, D.O.O. |
| TOM TOVARNA OPREME, D.D. |
| TOMOS INVEST, D.O.O., DRUŽBA ZA UPRAVLJANJE Z NALOŽBAMI |
| TOMOS, D.O.O., PROIZVODNJA DVOKOLES IN KOMPONENT, KOPER |
| TOMPLAST PREDELAVA TERMOPLASTOV, D.O.O. |
| TP CONSULTING DEJAVNOST HOLDINGOV, D.O.O. |
| TRDNJAVA HOLDING, FINANČNA DRUŽBA, D.D. |
| TRIGLAV INT, HOLDIŠKA DRUŽBA, D.D. |
| TUŠ HOLDING, UPRAVLJANJE DRUŽB IN NALOŽB, D.O.O. |
| ULTRALES SKUPINA, INVESTIRANJE IN SVETOVANJE, D.O.O. |
| UNICREDIT CAIB SLOVENIJA, FINANČNO SVETOVANJE, D.O.O. |
| VERITAS B.H. BORZNO POSREDNIŠKA HIŠA, D.O.O. |
| VIESTE RAZVOJNA DRUŽBA, D.O.O., |
| VIPA DRUŽBA ZA FINANČNO POSLOVANJE IN RAZVOJ, D.D. |
| VIPA DRUŽBA ZA FINANČNO POSLOVANJE IN RAZVOJ, D.D. NOVA GORICA |
| VIPA HOLDING, D.D. |
| VITA HOLDING, D.O.O., DRUŽBA ZA UPRAVLJANJE PODJETIJ |
| W & P PROFIL - SOLARVALUE HOLDING, DRUŽBA ZA UPRAVLJANJE, D.O.O. |
| ZAFINA, HOLDING DRUŽBA, D.O.O. |
| ZDRAVILIŠČE ROGAŠKA ZDRAVSTVO, HOTELI, TURIZEM IN UPRAVLJANJE HOLDING DRUŽB, D.D. |
| ZENERGO, UPRAVLJANJE INVESTICIJ, D.O.O. |
| ZRMK HOLDING, D.D. |
| ŽELEZAR ŠTORE D.P. DELNIŠKA DRUŽBA POOBLAŠČENKA, D.D. |

APPENDIX B: The dynamic of the main variables in the manufacturing sector

Table 3. The number of the manufacturing firms based on their type and ownership structure per year during the period 2006-2014

| Year | One | One_two | Both_GOV | Both_HOLD | Dispersed |
|--------------|-------|---------|----------|-----------|-----------|
| 2006 | 621 | 142 | 12 | 31 | 52 |
| 2007 | 666 | 146 | 12 | 30 | 59 |
| 2008 | 704 | 144 | 12 | 37 | 52 |
| 2009 | 709 | 152 | 13 | 36 | 71 |
| 2010 | 698 | 165 | 11 | 31 | 67 |
| 2011 | 697 | 149 | 10 | 29 | 67 |
| 2012 | 686 | 140 | 10 | 31 | 57 |
| 2013 | 674 | 133 | 11 | 28 | 54 |
| 2014 | 660 | 124 | 13 | 34 | 48 |
| Total | 6,115 | 1,295 | 104 | 287 | 527 |

Table 4. The median values and the ranges of the variables of the manufacturing firms having one major blockholder (One) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.3262 | 0.2335 | 0.4145 | 0.3036 | 0.2066 | 0.2009 | 0.7707 | 0.6558 |
| 2007 | 0.3297 | 0.2566 | 0.4160 | 0.3105 | 0.2017 | 0.2003 | 0.7863 | 0.6571 |
| 2008 | 0.3115 | 0.2472 | 0.4143 | 0.3100 | 0.1969 | 0.2019 | 0.7555 | 0.6380 |
| 2009 | 0.2788 | 0.2290 | 0.4215 | 0.3245 | 0.1895 | 0.1863 | 0.5978 | 0.5033 |
| 2010 | 0.2910 | 0.2561 | 0.4093 | 0.3177 | 0.1925 | 0.2033 | 0.6666 | 0.5848 |
| 2011 | 0.3023 | 0.2641 | 0.4060 | 0.3371 | 0.1974 | 0.2154 | 0.7161 | 0.6488 |
| 2012 | 0.3152 | 0.2739 | 0.4065 | 0.3200 | 0.2057 | 0.2221 | 0.7214 | 0.6599 |
| 2013 | 0.3257 | 0.2702 | 0.4041 | 0.3224 | 0.2088 | 0.2165 | 0.7053 | 0.6141 |
| 2014 | 0.3457 | 0.2731 | 0.4014 | 0.3233 | 0.2095 | 0.2272 | 0.7138 | 0.6341 |
| Total | 0.3128 | 0.2583 | 0.4113 | 0.3169 | 0.2008 | 0.2072 | 0.7138 | 0.6269 |

Table 5. The median values and the ranges of the variables of the manufacturing firms having two major blockholders (One_two) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.3603 | 0.2296 | 0.4040 | 0.3081 | 0.2281 | 0.2345 | 0.7877 | 0.6355 |
| 2007 | 0.3362 | 0.2552 | 0.4072 | 0.3182 | 0.2138 | 0.2002 | 0.7781 | 0.6828 |
| 2008 | 0.3356 | 0.2281 | 0.4458 | 0.3231 | 0.2337 | 0.1766 | 0.7839 | 0.7424 |
| 2009 | 0.2895 | 0.1890 | 0.4642 | 0.3252 | 0.2065 | 0.1726 | 0.5559 | 0.4813 |
| 2010 | 0.3096 | 0.2116 | 0.4284 | 0.3350 | 0.2116 | 0.1899 | 0.6148 | 0.5589 |
| 2011 | 0.3105 | 0.2305 | 0.4433 | 0.3409 | 0.1899 | 0.1969 | 0.6337 | 0.6486 |
| 2012 | 0.3170 | 0.2298 | 0.4365 | 0.3385 | 0.2064 | 0.1867 | 0.5911 | 0.6417 |
| 2013 | 0.3183 | 0.2582 | 0.4335 | 0.3504 | 0.2059 | 0.1845 | 0.5992 | 0.6271 |
| 2014 | 0.3216 | 0.2583 | 0.4473 | 0.3251 | 0.2091 | 0.2038 | 0.6216 | 0.5430 |
| Total | 0.3194 | 0.2319 | 0.4323 | 0.3251 | 0.2119 | 0.1930 | 0.6757 | 0.6352 |

Table 6. The median values and the ranges of the variables of the manufacturing firms where a government institution is involved as the blockholder (Both_GOV) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.3684 | 0.2338 | 0.4124 | 0.1952 | 0.2524 | 0.1573 | 0.7528 | 0.4524 |
| 2007 | 0.2842 | 0.2428 | 0.3595 | 0.2433 | 0.2334 | 0.1817 | 0.6023 | 0.5127 |
| 2008 | 0.2724 | 0.2700 | 0.4178 | 0.2692 | 0.2382 | 0.2052 | 0.7290 | 0.6016 |
| 2009 | 0.2005 | 0.2567 | 0.4480 | 0.2543 | 0.1638 | 0.2307 | 0.4388 | 0.5461 |
| 2010 | 0.2400 | 0.2352 | 0.4455 | 0.3307 | 0.2188 | 0.2244 | 0.5428 | 0.5653 |
| 2011 | 0.3013 | 0.2413 | 0.4637 | 0.1552 | 0.2430 | 0.1808 | 0.6033 | 0.8592 |
| 2012 | 0.2847 | 0.2604 | 0.4097 | 0.2401 | 0.3080 | 0.2009 | 0.5857 | 0.7536 |
| 2013 | 0.4154 | 0.3516 | 0.4585 | 0.2034 | 0.3288 | 0.2856 | 0.6086 | 0.4320 |
| 2014 | 0.2544 | 0.2374 | 0.5013 | 0.2187 | 0.2335 | 0.1508 | 0.5088 | 0.1793 |
| Total | 0.2760 | 0.2630 | 0.4428 | 0.2235 | 0.2453 | 0.1803 | 0.5713 | 0.5269 |

Table 7. The median values and the ranges of the variables of the manufacturing firms where a financial holding institution is involved as the blockholder (Both_HOLD) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.3428 | 0.2182 | 0.4011 | 0.1865 | 0.2277 | 0.2310 | 0.6020 | 0.5727 |
| 2007 | 0.3257 | 0.2258 | 0.3737 | 0.2140 | 0.2171 | 0.2332 | 0.6008 | 0.4836 |
| 2008 | 0.3128 | 0.2175 | 0.3519 | 0.2360 | 0.2385 | 0.2447 | 0.6952 | 0.4941 |
| 2009 | 0.3169 | 0.2061 | 0.3718 | 0.2954 | 0.2313 | 0.1873 | 0.6279 | 0.4031 |
| 2010 | 0.2914 | 0.2121 | 0.3422 | 0.2973 | 0.2123 | 0.1969 | 0.6908 | 0.5326 |
| 2011 | 0.2900 | 0.1934 | 0.3243 | 0.2477 | 0.2003 | 0.1667 | 0.6385 | 0.4996 |
| 2012 | 0.2765 | 0.2428 | 0.3410 | 0.3026 | 0.1605 | 0.1685 | 0.5570 | 0.6808 |
| 2013 | 0.3174 | 0.2606 | 0.3535 | 0.1966 | 0.1726 | 0.1923 | 0.5282 | 0.6493 |
| 2014 | 0.3243 | 0.3520 | 0.3106 | 0.2482 | 0.1768 | 0.2063 | 0.5314 | 0.8177 |
| Total | 0.3128 | 0.2236 | 0.3555 | 0.2403 | 0.2108 | 0.1994 | 0.6055 | 0.5539 |

Table 8. The median values and the ranges of the variables of the manufacturing firms having dispersed ownership structure (Dispersed) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.3209 | 0.2390 | 0.3859 | 0.2526 | 0.2159 | 0.1952 | 0.8762 | 0.7142 |
| 2007 | 0.3416 | 0.2514 | 0.4013 | 0.2273 | 0.2008 | 0.1997 | 0.8917 | 0.7030 |
| 2008 | 0.3452 | 0.2642 | 0.4017 | 0.2153 | 0.1966 | 0.2361 | 0.8446 | 0.6240 |
| 2009 | 0.2973 | 0.2064 | 0.3729 | 0.2559 | 0.2060 | 0.1873 | 0.5914 | 0.5025 |
| 2010 | 0.2766 | 0.2185 | 0.3753 | 0.2477 | 0.1865 | 0.1832 | 0.6093 | 0.6208 |
| 2011 | 0.2752 | 0.2203 | 0.3597 | 0.2904 | 0.1736 | 0.1733 | 0.6517 | 0.5671 |
| 2012 | 0.2825 | 0.1949 | 0.3622 | 0.2787 | 0.1865 | 0.1950 | 0.6829 | 0.5482 |
| 2013 | 0.2926 | 0.2122 | 0.3437 | 0.3137 | 0.1899 | 0.2045 | 0.6434 | 0.4748 |
| 2014 | 0.2919 | 0.2013 | 0.4020 | 0.2916 | 0.2071 | 0.1829 | 0.6913 | 0.3785 |
| Total | 0.3003 | 0.2106 | 0.3755 | 0.2572 | 0.1968 | 0.1938 | 0.6974 | 0.5965 |

APPENDIX C: The dynamic of the main variables in the service sector

Table 9. The number of the service firms based on their type and ownership structure per year during the period 2006-2014

| Year | One | One_two | Both_GOV | Both_HOLD | Dispersed |
|--------------|--------|---------|----------|-----------|-----------|
| 2006 | 1,149 | 314 | 25 | 47 | 63 |
| 2007 | 1,239 | 340 | 27 | 51 | 66 |
| 2008 | 1,296 | 335 | 30 | 54 | 73 |
| 2009 | 1,297 | 344 | 36 | 57 | 80 |
| 2010 | 1,292 | 328 | 33 | 51 | 79 |
| 2011 | 1,266 | 323 | 34 | 47 | 76 |
| 2012 | 1,228 | 318 | 33 | 44 | 78 |
| 2013 | 1,170 | 293 | 33 | 42 | 73 |
| 2014 | 1,129 | 276 | 30 | 37 | 62 |
| Total | 11,066 | 2,871 | 281 | 430 | 650 |

Table 10. The median values and the ranges of the variables of the service firms having one major blockholder (One) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2314 | 0.2446 | 0.2510 | 0.4018 | 0.1179 | 0.1716 | 0.8832 | 1.1801 |
| 2007 | 0.2255 | 0.2490 | 0.2436 | 0.4129 | 0.1095 | 0.1690 | 0.8701 | 1.1524 |
| 2008 | 0.2136 | 0.2435 | 0.2390 | 0.4250 | 0.1101 | 0.1670 | 0.8310 | 1.1808 |
| 2009 | 0.1980 | 0.2479 | 0.2433 | 0.4288 | 0.1132 | 0.1704 | 0.6658 | 1.0642 |
| 2010 | 0.1966 | 0.2429 | 0.2452 | 0.4366 | 0.1157 | 0.1724 | 0.7015 | 1.0667 |
| 2011 | 0.2020 | 0.2427 | 0.2396 | 0.4492 | 0.1158 | 0.1840 | 0.6808 | 1.1536 |
| 2012 | 0.2007 | 0.2501 | 0.2450 | 0.4377 | 0.1221 | 0.1867 | 0.6994 | 1.1085 |
| 2013 | 0.1992 | 0.2499 | 0.2413 | 0.4438 | 0.1212 | 0.1895 | 0.7122 | 1.1605 |
| 2014 | 0.2094 | 0.2581 | 0.2282 | 0.4560 | 0.1213 | 0.1927 | 0.6950 | 1.2101 |
| Total | 0.2070 | 0.2482 | 0.2413 | 0.4313 | 0.1164 | 0.1767 | 0.7488 | 1.1565 |

Table 11. The median values and the ranges of the variables of the service firms having two major blockholders (One_two) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2295 | 0.2026 | 0.2865 | 0.3451 | 0.1185 | 0.1343 | 0.9482 | 1.1768 |
| 2007 | 0.2203 | 0.2079 | 0.2692 | 0.3912 | 0.1038 | 0.1302 | 0.9062 | 1.1359 |
| 2008 | 0.2128 | 0.2117 | 0.2932 | 0.4004 | 0.1046 | 0.1313 | 0.8804 | 1.0830 |
| 2009 | 0.1924 | 0.2087 | 0.3025 | 0.3973 | 0.1111 | 0.1507 | 0.7046 | 1.0389 |
| 2010 | 0.1905 | 0.2032 | 0.3048 | 0.4148 | 0.1103 | 0.1374 | 0.6974 | 0.9715 |
| 2011 | 0.1906 | 0.2051 | 0.2901 | 0.3979 | 0.1168 | 0.1437 | 0.7057 | 1.0571 |
| 2012 | 0.1994 | 0.2185 | 0.2990 | 0.3934 | 0.1199 | 0.1570 | 0.7225 | 1.0736 |
| 2013 | 0.2027 | 0.2245 | 0.3095 | 0.4318 | 0.1245 | 0.1607 | 0.6467 | 1.0352 |
| 2014 | 0.2155 | 0.2068 | 0.2818 | 0.4130 | 0.1262 | 0.1613 | 0.7519 | 1.0025 |
| Total | 0.2049 | 0.2124 | 0.2932 | 0.3994 | 0.1135 | 0.1445 | 0.7723 | 1.0585 |

Table 12. The median values and the ranges of the variables of the service firms where a government institution is involved as the blockholder (Both_GOV) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.1385 | 0.2414 | 0.5520 | 0.5139 | 0.0587 | 0.1868 | 0.0734 | 0.3628 |
| 2007 | 0.1040 | 0.2776 | 0.6135 | 0.5943 | 0.0561 | 0.1922 | 0.0982 | 0.2633 |
| 2008 | 0.1254 | 0.2144 | 0.6084 | 0.5299 | 0.0665 | 0.1829 | 0.1264 | 0.2576 |
| 2009 | 0.1015 | 0.2171 | 0.6044 | 0.5886 | 0.0637 | 0.1954 | 0.1070 | 0.2461 |
| 2010 | 0.1119 | 0.1541 | 0.6301 | 0.5792 | 0.0607 | 0.1741 | 0.1452 | 0.2310 |
| 2011 | 0.1156 | 0.2534 | 0.4810 | 0.6593 | 0.0663 | 0.2077 | 0.1630 | 0.2324 |
| 2012 | 0.1145 | 0.2727 | 0.3700 | 0.6505 | 0.0696 | 0.2396 | 0.1640 | 0.1596 |
| 2013 | 0.1079 | 0.2644 | 0.3504 | 0.6318 | 0.0797 | 0.2718 | 0.1287 | 0.2080 |
| 2014 | 0.1238 | 0.5056 | 0.2911 | 0.6547 | 0.0822 | 0.4354 | 0.1440 | 0.4020 |
| Total | 0.1119 | 0.2685 | 0.5249 | 0.6347 | 0.0649 | 0.2206 | 0.1287 | 0.2431 |

Table 13. The median values and the ranges of the variables of the service firms where a financial holding institution is involved as the blockholder (Both_HOLD) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2177 | 0.2862 | 0.1677 | 0.5647 | 0.1341 | 0.2682 | 0.7438 | 1.5204 |
| 2007 | 0.1738 | 0.2183 | 0.1828 | 0.6680 | 0.1028 | 0.1728 | 0.5873 | 1.4889 |
| 2008 | 0.1867 | 0.2144 | 0.1266 | 0.4895 | 0.1159 | 0.1727 | 0.6284 | 1.6319 |
| 2009 | 0.1857 | 0.2044 | 0.1592 | 0.5285 | 0.1209 | 0.2110 | 0.5007 | 1.4112 |
| 2010 | 0.1694 | 0.2144 | 0.2075 | 0.6051 | 0.1420 | 0.1983 | 0.5566 | 1.4174 |
| 2011 | 0.1846 | 0.2613 | 0.1708 | 0.5377 | 0.1238 | 0.2283 | 0.7098 | 1.4722 |
| 2012 | 0.1789 | 0.2412 | 0.1300 | 0.5068 | 0.1389 | 0.1769 | 0.7410 | 1.4635 |
| 2013 | 0.1969 | 0.2406 | 0.1156 | 0.5419 | 0.1565 | 0.2153 | 0.6414 | 1.4251 |
| 2014 | 0.2090 | 0.2180 | 0.1404 | 0.5607 | 0.1642 | 0.2109 | 0.6369 | 1.4308 |
| Total | 0.1881 | 0.2285 | 0.1532 | 0.5395 | 0.1297 | 0.2037 | 0.6230 | 1.4761 |

Table 14. The median values and the ranges of the variables of the service firms having dispersed ownership structure (Dispersed) through the period 2006-2014

| Year | VA | | TFA | | LC | | CGMS | |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | p50 | Range | p50 | Range | p50 | Range | p50 | Range |
| 2006 | 0.2409 | 0.2723 | 0.2495 | 0.3715 | 0.1568 | 0.2356 | 0.7838 | 1.2247 |
| 2007 | 0.2048 | 0.2506 | 0.1941 | 0.2119 | 0.1216 | 0.2260 | 0.8407 | 1.2551 |
| 2008 | 0.1928 | 0.2889 | 0.2577 | 0.2871 | 0.1079 | 0.2053 | 0.8085 | 1.4415 |
| 2009 | 0.1682 | 0.2646 | 0.2548 | 0.3633 | 0.1059 | 0.2278 | 0.5210 | 1.0365 |
| 2010 | 0.1742 | 0.3009 | 0.2676 | 0.3729 | 0.1094 | 0.2329 | 0.5193 | 0.9064 |
| 2011 | 0.1843 | 0.2699 | 0.2695 | 0.3852 | 0.1293 | 0.2047 | 0.4530 | 1.0473 |
| 2012 | 0.1764 | 0.2649 | 0.2552 | 0.4544 | 0.1207 | 0.2182 | 0.2872 | 0.9423 |
| 2013 | 0.1995 | 0.3350 | 0.2418 | 0.4124 | 0.1438 | 0.2311 | 0.2911 | 0.8173 |
| 2014 | 0.2157 | 0.3490 | 0.2825 | 0.4050 | 0.1315 | 0.2312 | 0.2706 | 0.9393 |
| Total | 0.1947 | 0.2808 | 0.2480 | 0.3851 | 0.1192 | 0.2254 | 0.5345 | 1.1048 |