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OWNERSHIP STRUCTURE AND FIRM PERFORMANCE: EMPIRICAL STUDY FROM POLAND

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Foreword

The achievement of this master's dissertation closes a chapter of my life. After five years of studying, this expedition has come to an end, I hope, but my gratitude towards the people who took part in the obtaining of my degree will last forever.

I'm very grateful to Mr. Vu Ha for his indefatigable and prompt support during these last two years. His guidance and encouragement helped me pursue this dissertation to the end.

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1 Introduction

1.1 Introduction

In the past, Poland was a centrally planned economy, part of the USSR. Since 1989 and the fall of the communist government, Poland has pursued a liberalization of the economy by going from a centrally planned economy to a market-based economy. The different governments privatized in the meanwhile small and medium size state-owned companies. Sensitive sectors such as energy, rail & transport, steel and coal were also privatized since 1990 and lasted for several years with for example the sale of 30% of the shares of PKO Bank Polski, the largest bank in Poland in 2004. Liberal laws also played a major role in developing the private sector with a constant objective of improving the firm performance. More recently, in 2004, the country became a member of the European Union and, in 2007, opened its boarders to a large number of European countries, enterprises, investors by signing the *Schengen Agreement*. Being a member of the EU makes Poland also member of the "Four Freedoms". Indeed, the European Single Market seeks to guarantee: the free movement of goods (1), capital (2), services (3) and labour (4) within the EU members. The intention is to improve the efficiency of the allocation of resources through economies of scales, specialization and an increase in competition. Poland is therefore an interesting country by his proximity with the most productive country of Europe (Germany) and his membership of the European Single Market.

This mix of liberalization made Poland an attractive country for foreign investors: the Foreign Direct Investment in Poland (FDI index) boomed from 50.000 Million EUR in 2004 to an astonishing 180.000 Million EUR in 2012. Furthermore, there was a constant increase in the GDP per capita since 1991 with a little 5500 USD in 1991 to a 14000 USD in 2015.

Given the numbers described above, one might argue that Poland is not an emerging country anymore. In fact, there's no official definition for an emerging country and each organism has therefore its own list and factors to define it. Nevertheless, every institution agrees on saying that Poland is an "advanced emerging" market but still an emerging market. The well-known FTSE organism has decided to reclassify Poland as an advanced economy in September 2018 (See appendix 6.1 & 6.2). As it can be seen in appendix 6.3, the MSCI index still includes Poland as an emerging market and does not communicate on the possibility for this country to be removed from the index.

The literature on ownership structure and firm performance in Poland is very tight. Lskavyan & Spatareanu (2006) compared the influence of concentrated ownership on firm performance in UK, Poland & Czech Republic. Hagemejer, Tyrowicz, & Svejnar (2014) studied the privatization in Poland and Kowalewski, Talavera, & Stetsyuk (2010) looked into the specific case of family firms. This dissertation aims to ascertain the relations between several

types of ownership and firm performance using the fixed effect model on a sample of 403 enterprises in Poland. More specifically, the objectives are to:

1. Look at the specific impact of state ownership on the performance of enterprises
2. Examine the specific effect of family ownership on the firm performance
3. Study the consequence of foreign ownership on the performance
4. Look at how the combined types of owners impact the firm performance

This dissertation brings two new approaches to the literature. Firstly, it is by studying three main types of ownership in Poland: state, family and foreign. It first studies them separately and then see if the conclusions from the separate results confirm the results from the combined types of ownership. Secondly, this study brought a new way of analysing different types of ownership concentration by finding a cubic relationship with foreign ownership and firm performance. To the best of our knowledge, it has never been done before.

1.2 Structure of the Dissertation

This dissertation is organised as follows. Chapter 2 first provides the theoretical framework as well as a review of the literature. Chapter 2 also poses the hypotheses of the relation between the different types of ownership and the firm performance. Chapter 3 describes the data sample as well as the performance and control variables. The last part of chapter 3 discusses the model used to estimate the parameters. Chapter 4 discusses the results from the fixed effects model. The conclusion is given in chapter 5.

2 Literature Review

Before getting more insights from an empirical point of view, we set a theoretical framework where two important theories are reviewed which, combined, can explain why one company might be better or worse than another, based on its shareholders. Section 1 reviews the “Agency Theory” and section 2 explains the special family case through the “Stewardship Theory”. After having settled the central theory, we will look at empirical studies on the subject in section 3. Finally, section 4 draws the hypotheses regarding the state, family and foreign ownership.

2.1 Agency Theory

2.1.1 General Principle

The centre of this study lies on the agency theory founded by (Jensen & Meckling, 1976) and further developed by (Fama, 1980), (Fama & Jensen, 1983) and (Jensen, 1986). The theory states that an agency problem might occur when one entity (the agent) is able to make decisions on behalf of another entity (the principal). The problem arises when the agent has the incentive to act in his own best interest instead of making the best decision for the principal. In our case, the agent can be seen as the board of managers of an enterprise, while the principal can be seen as the shareholders of the company. As specified by Kunz & Pfaff (2002) the utility function of the agent is to maximize its gains rather than that of the organization while the utility function of the principal is to maximize its profits. In practice, as mentioned by Dechow & Sloan (1991), they have consequently a different vision on the way to deal with the growth of the company, the investment horizon and the attitude to risk aversion.

These dichotomies, in addition to the information asymmetry between the principal and the agent lead to a tension between the two actors, resulting in a cost for the company. It can be summarized in the following figure:

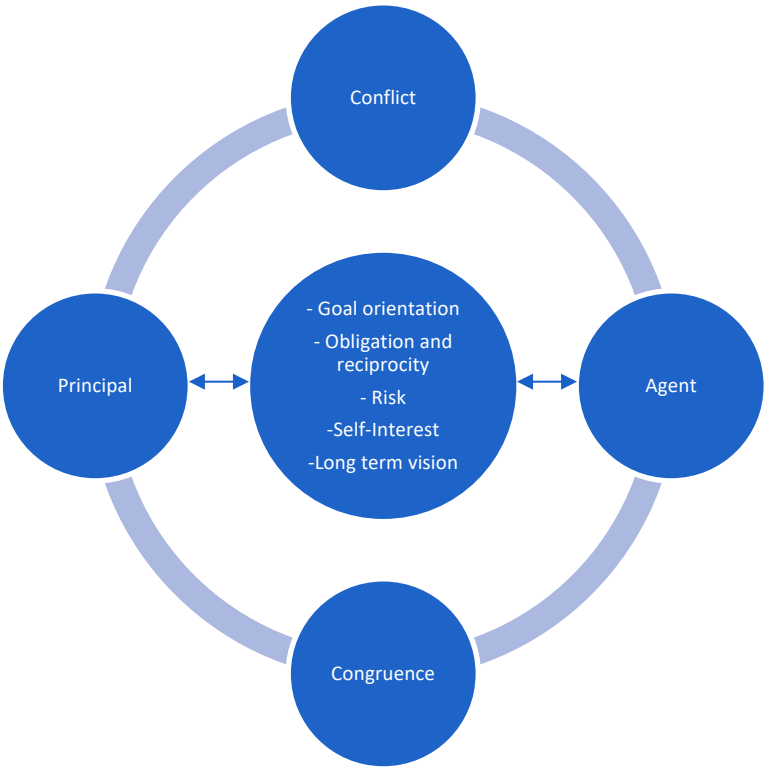


Figure 2.1: Relationship between agents and principals

The theory was further developed to a more general principle: it can be seen as a conflict or a tension between two entities (not especially a principal and an agent) with different utility functions. In fact, new theorists such as (Chrisman, Chua, & Litz, 2004) divided the costs into four categories:

1. An information asymmetry between the principal and "his" agent.
2. A decision influence asymmetry between a large principal and another small principal.
3. A decision influence asymmetry (i.e. different utility functions) between the principal and the agent.
4. An agency cost arising from a separation of ownership and management.

Since the private sector is seen from agency proponents (Laffont & Martimort, 2001) as best suited to reduce these problems, foreign and family-owned enterprises should perform better than State-Owned Enterprises (SOEs).

The main assumption of the agency framework is the presence of information asymmetry between the owners and the managers (Myers & Majluf, 1984). Hence, the following section examines this specific problem and tries to explain within the theoretical framework the "pressures" that are at stake. Next section will discuss another relevant theory for this dissertation: the stewardship theory. We will afterwards take a look at previous studies to verify whether the practice meets the theory.

2.1.2 Information Asymmetry

Information asymmetry investigates the study of decisions when one entity has more or better information than the other entity. In a company, the manager is working in the day-to-day operation and has therefore a deeper knowledge on the enterprise. This better insight can be used by the manager to increase his own welfare at the owner's expense. As highlighted by Mas-Colell, Whinston, & Green (1995), from information asymmetry may arise several problems as *adverse selection*[1]*, signalling effects*[2] and *screening effects*[3], causing a welfare loss. This lead to a Pareto inefficient market (or company in our case) and must therefore be attenuated as much as possible.

As mentioned by Cuervo & Villalonga (2000), the information asymmetries between the daily management team and the shareholders can be reduced through a series of internal and external mechanisms, such as capital and corporate control, managerial ownership, rewards and the board of directors. Cuervo & Villalonga (2000) stated that these mechanisms are virtually absent for SOEs, hence raising the agency problem and therefore hindering the performance. Another problem from SOEs is a multiplication of conflicts and relationships since one or several politicians sit in between the agent and the other principals. Indeed, a conflict may arise from the owner-to-politician relationship as well as from the politician-to-manager relationship.

[1] "Adverse selection refers generally to a situation where sellers have information that buyers do not have, or vice versa, about some aspect of product quality." ("Adverse Selection," 2018)

[2] "In contract theory, signalling is the idea that one party (termed the agent) credibly conveys some information about itself to another party (the principal)." ("Signalling (economics)," 2018)

[3] "Screening in economics refers to a strategy of combating adverse selection, one of the potential decision-making complications in cases of asymmetric information, by the agent(s) with less information." ("Screening (economics)," 2018)

2.2 Stewardship Theory

As indicated by Poutziouris, Savva, & Hadjielias (2015), the stewardship theory is an alternative to the agency theory. The main principle posits that agents, left on their own, will act as responsible stewards of the company they manage. Within the family context, owners (principals) are generally the managers (agents) and may therefore act as stewards for the company. Steward agents may also be present in companies owned by a large block holder because they have the ability to put an agent of his own to manage the enterprise.

As mentioned by Davis, Schoorman, & Donaldson (1997), the theory studies the relations in organizations where members are collectivists in the sense that they value cooperative rather than self-interest behaviour.

We can appreciate this concept as a subsidiary of the agency theory where the asymmetry cost is highly reduced or even non-existent, due to the altruistic behaviour of the agents and the matching utility functions of the manager and the shareholder. Consequently, regarding this cost reduction, family-owned enterprises are expected to outperform their foreign and state counterparts.

Eddleston & Kellermanns (2007) drew a conceptual model to understand the relations that are at stakes and which one may influence positively or negatively the firm performance therefore giving a better insight of the agency's costs and the stewardship-altruism theory.

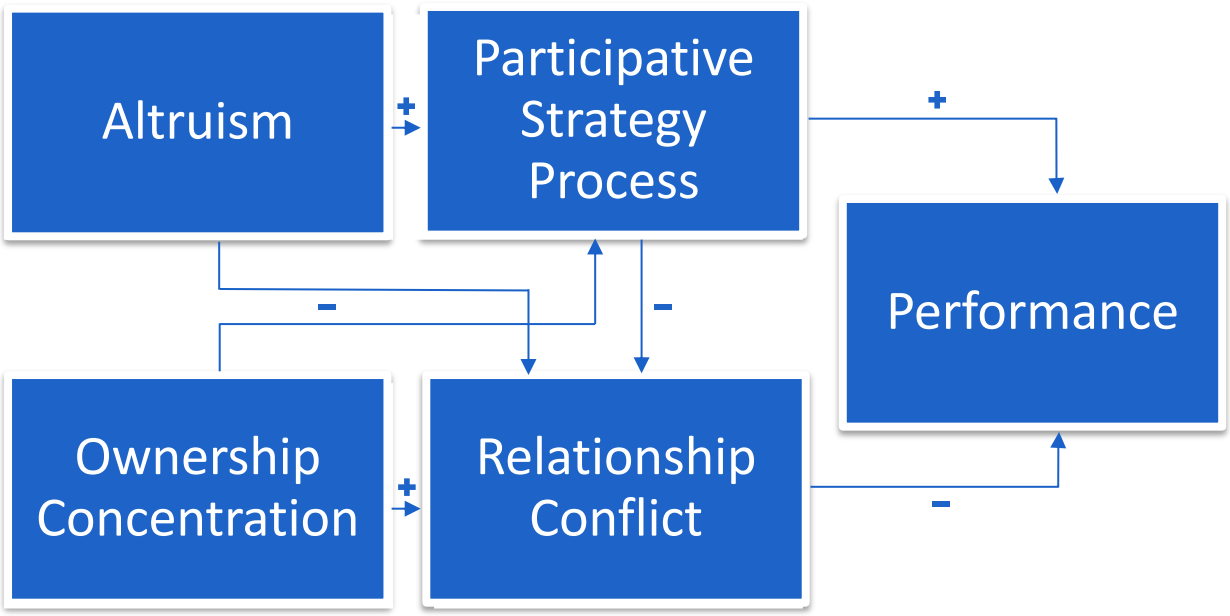


Figure 2.2: Stewardship Conceptual Model

Corbetta & Salvato (2004) suggested that it is the level of altruism that will determine how the firm will behave. Pure altruism will enable the minimization of costs for the agency theory

and a maximization of potential performance (innovation, proactiveness, etc.) for the stewardship model.

The stewardship is a complementary point of view that this dissertation will take into account while drawing the hypotheses of family ownership. When discussing family enterprises, it may even take the step on the agency theory.

2.3 Empirical Review

The following sections focus on the literature related to the ownership structure and the firm performance. Section 1 discusses the empirical evidence from the state ownership, while section 2 takes a look at the family ownership and the last section reviews the foreign ownership.

2.3.1 State Ownership

The state may have a mixed influence on a firm performance. This is mainly due to the upcoming of a misalignment between normal shareholders trying to maximize their profit and the state trying to maximize social and political goals. The research of Sun, Tong, & Tong (2002) gives a strong understanding why the relationship is so unclear. In their study of China's SOEs, they identified three main roles that a state has in a company and that may affect the firm performance. (1) The first one is called the signalling effect which describes the change in the perception of a company after the state has acquired some shares. (2) The second one is the monitoring role where agency problems might occur. Agency conflicts take many shapes. One is the conflict between the profit maximization firm's objective and the social welfare maximization state's objective. In a fully competitive market, the latter conflict vanishes. Indeed, in a strong competitive industry, the goals of the shareholders (state and normal) tend to align on profit maximization to ensure the perpetuity of the company. In fully competitive market, the profit maximization can therefore be seen as a social/political goal. On the contrary, in a non-competitive market, the government has the incentive to monitor the enterprise to increase the social outcome. (3) The last role is the policy role. SOEs enjoy a preferential treatment from the state. The many political connections are used to keep the company on track. The burden of debt can be reduced, and laws can be changed to improve the position of a specific company. According to Sun et al. (2002), the three roles above could only affect the company negatively if there is not enough competition in the industry.

According to the property rights theory, the impact of the state should theoretically be negative. The conclusions of the work of Ramaswamy (2001) are supporting this idea. He studied firms in India and found a negative relationship between state ownership and firm performance. He also investigated more thoroughly the relationship with the competition intensity and found that ownership is much more critical (negative for SOEs) in highly competitive markets. The paper of Aydin, Sayim, & Yalama (2007) used the Operating Margin Profit, ROA and ROE of firms from the Istanbul Stock Exchange and performed a t-test to find a negative influence of state ownership on firm performance. They suggested two reasons to explain why foreign investors perform better. One is the ability to monitor the firm therefore increasing incentives to the management. The other reason would be the savings from the operating profit due to technology transfers. Xiao & Dong (2000), studying listed firms from China also found a negative state impact but highlighted the requirement of being in a

competitive environment to have such a negative impact. In less competitive markets, it seems that state-owned enterprises perform as average. Pham & Carlin (2008) studied the transition of a state-owned enterprise towards a privatized enterprise in Vietnam. They found out that even if the profitability of newly privatized firms was not better than state-owned companies, their (1) average cost reduction and (2) better management are starting to pay off after 3 years. This indicates that these firms might be better off in the future than state-owned enterprises.

On the other hand, state-owned enterprises can have a positive impact on the firm's performance. As mentioned previously, it appears that the state can help an enterprise in many ways. Li, Meng, Wang, & Zhou (2008) and Firth, Lin, & Wong (2008), both studying enterprises in China, found that the Communist Party (i.e. the state) helped obtain loans from banks or other state institutions and affords them more confidence in the legal system, hence, having a positive impact on firm performance. The increased performance is mainly due to the preferences of the state to its own enterprises, more than due to an excellent managerial board. As it tends to diminish from year to year, the positive impact should decrease accordingly.

More nuanced, other studies found a nonlinear relationship between state-owned enterprise and firm performance. Yu (2013) investigated nonfinancial Chinese firms from 2003 to 2010. Initially she found that state concentration at low levels has a negative impact on firm performance. But in fact, when the ownership is concentrated enough, the control effect enhances the enterprise. Hence, a highly concentrated state ownership is leading to a better performance. That's why her final conclusion is that state ownership has a U-Shape relationship. Boardman & Vining (1989) studied three types of ownership: SOE's (State Owned Enterprises), ME's (Mixed Enterprises) and PCs (Private Companies). With a dataset of 500 companies throughout the world, they found no evidence of SOEs or PCs performing better: in fact, only the MEs were performing worse. These findings are in line with a nonlinear relationship: only a strong concentration of ownership performs better. Mao (2015) employed a panel of data from China between 2008 and 2014. His conclusions were as follows: despite the fact that state owners pursue political goals instead of profit maximization goals involving a negative state-ownership influence, at high concentration, he found a positive relationship. This U-Shape relation is, according to him, explained by the incentives of institutional investors to monitor management and therefore enhancing firm performance. Wei & Varela (2003) using the Tobin's Q as performance indicator studied firms in China and found a convex (U-Shape) relationship with state ownership. They also stated that, even if there is a relationship between both, the main factors to explain the firm performance are significantly more related to the size and the strategic industry status of the company.

On the contrary, Kang & Kim (2012) using the GMM and the fixed effects model, found a positive outperformance of partially privatized SOEs against SOEs in China. In China, market supporting institutions are underdeveloped, leading to inefficient markets. Hence, as seen

above, the difference in performance between SOEs and non-SOEs is minimal. But by inviting third parties in the shares of SOEs, the companies perform better. It is explained by the ability of third parties to better monitor the management and blocking political pressures to increase the social welfare instead of the profit. Non-state shareholders are also more actively involved in improving the firm value because it will increase their return. Gunasekarage, Hess, & Hu (2007) also found a negative influence of state ownership on firm performance giving a dataset of firms in China in the 2000-2004 period. They also have a look at block ownership and found that this negative influence tends to become positive when other shareholders are influencing the enterprise's decisions. Meaning that it is only negative at high state-owned concentration. These two studies are implying that there is a reversed U-Shape relationship between firm performance and state ownership.

Except for the study mentioned previously in this chapter, there are not yet papers investigating the influence of state ownership on firm performance in Poland. One of the goals of this dissertation is to fill the corresponding gap in the literature.

Study reference	Sample	Country	Time frame	Performance indicator	Regression method	Trend
(Ramaswamy, 2001)	110	India	1990-1992	ROS, ROI	ANOVA	-
(Aydin et al., 2007)	301	Turkey	2003-2004	OPM[4], ROA & ROE	t-test	-
(Pham & Carlin, 2008)	21	Vietnam	1999-2003	ROA	Pooled OLS	-
(Li et al., 2008)	2324	China	2002	ROA, ROE	OLS	+
(Firth et al., 2008)	1203	China	1991-2004	Tobin's Q	Fixed-effect model	+
(Yu, 2013)	10639	China	2003-2010	ROA, ROE, Tobin's Q	Panel data regression	u
(Boardman & Vining, 1989)	500	US	1983	ROA, ROS, ROE, NI	OLS	u
(Mao, 2015)	6993	China	2008-2014	ROA, ROE, Tobin's Q	Pooled OLS	u
(Wei & Varela, 2003)	591	China	1994-1996	Tobin's Q, MSR[5]	Pooled OLS	u
(Kang & Kim, 2012)	6588	China	1994-2002	Tobin's Q, ROA,	Fixed-effect, GMM	n
(Gunasekarage et al., 2007)	1034	China	2000-2004	Tobin's Q, MBR[6]	Pooled regression	n

Table 2.1: Summary of State Literature

[4] Operating Profit Margin

[5] Arithmetic average monthly stock return

[6] Market-to-Book Ratio

2.3.2 Family Ownership

There is contradictory evidence on family ownership and firm performance through the various studies on the subject. Dyer (2006) tried to understand why there were so many different conclusions between the studies. He posed the basis for a new understanding of family ownership by having 4 types of families. They are divided by considering two factors: (1) their agency cost (Low – High) and (2) the family assets (Asset – Liability). By studying it with these factors, he is able, in a theoretical manner (i.e. agency theory), to assess whether a specific family owned enterprise should perform better or worse than the average.

While most of the studies found a positive or nonlinear relationship (in accordance with the agency theory) very few studies found a negative relationship between family ownership and firm performance. King & Santor (2008) found a negative relationship using the ROA and Tobin's Q as performance indicators when they studied 613 Canadian firms from 1998 to 2005. In fact, they made a distinction: family-owned enterprises with a single type of shares perform equally well as other firms, but family enterprises with dual-class shares have a 17% negative impact on firm performance.

On the other hand, a lot of studies found a positive relationship. Theoretically, this may be due to the reduction of principal-agent conflict through the stewardship theory. With the help of three performance indicators (ROA, ROE & Tobin's Q), Martínez, Stöhr, & Quiroga (2007) found a positive relationship. They studied 175 Chilean firms from 1995 to 2004 and used the difference of means to come to their conclusions. The same conclusions were drawn by Lee (2006): he studied enterprises from the S&P500 from 1992 to 2002 and concluded that family firms have higher employment, revenue growth and are more profitable. He also states that family firms play an important role in maintaining employment during recession periods. Chu (2011) also found a positive relationship. According to him, family firms perform better especially when they are implicated in the management and control of the company. His study was realized on Taiwanese enterprises from 2002 to 2007. On the contrary, Saito (2008) suggested that there is a positive relationship if and only if they are not owned and managed by the same people. He also added that family firms owned and managed by founders are traded at a premium price which might suggest a higher performance.

The conclusion for a nonlinear relationship is found in various studies. Silva & Majluf (2008) show that the Chilean firm performance is not negatively affected by family ownership as long as the latter concentration is not above 67,8%. Using data from 2000 to 2003, they suggest that, as long as families are involved in the enterprise with a low ownership concentration, the outcome is positive. But when families are alone and there is no other important shareholder to monitor them, they perform worse. Market scrutiny seems to have a positive effect on the control of the family and therefore the firm performance. Maury (2006) studied a sample of 1672 nonfinancial Western European enterprise. His findings also suggest

a decrease of the benefits at high family control. Even if family ownership decreases classical agency problems at high control levels, it is cancelled by family opportunism and this is why we have a reversed U-Shape relationship. Arosa, Iturralde, & Maseda (2010) studied 586 non-listed firms from Spain. They found a positive relationship at low concentration level, due to the monitoring effect, and a negative relationship at high concentration, due to the expropriation effect. It is understandable that, if a family has enough power to not need the consent of other shareholders, they might try to increase their own profit at the expense of the stakeholders. Evidence from the UK studied by Poutziouris et al. (2015) also highlighted a nonlinear relationship. With the help of the Tobin's Q and many other accounting ratios, they found an optimum at 31% at which point performance begins to decrease. Another study done on the S&P500 by Anderson & Reeb (2003) found that family enhances firm performance. Their interpretation is that family understand the business and that involved family members stemmed themselves as stewards for the company. But they also highlighted that when families have the greatest control over the enterprise the performance dampens down. They link therefore family ownership with a good monitoring third party to enhance the performance.

I found only one study investigating the influence of family ownership on firm performance in Poland. Kowalewski et al. (2010) found a reverted U-shape relationship between family ownership and firm performance when using a panel data of 217 enterprises from 1997 to 2005 in Poland. They also discovered that firms with family CEOs are likely to outperform in comparison with other family enterprises.

Study reference	Sample	Country	Time frame	Performance indicator	Regression method	Trend
(King & Santor, 2008)	613	Canada	1998-2005	ROA, Tobin's Q	OLS	-
(Martínez et al., 2007)	175	Chile	1995-2004	ROA, ROE, Tobin's Q	Difference of means	+
(Lee, 2006)	141	US	1992-2002	Growth[7], NPM[8]	Cross-sectional	+
(Chu, 2011)	786	Taiwan	2002-2007	ROA	OLS	+
(Saito, 2008)	1818	Japan	1990-1998	Tobin's Q	OLS	Mixed
(Silva & Majluf, 2008)	331	Chile	2000-2003	Tobin's Q, ROA	/	n
(Maury, 2006)	1672	Western-Europe	1996-1998	Tobin's Q, ROA	Fixed-effect	Mixed
(Arosa et al., 2010)	586	Spain	2006	ROA	OLS	n
(Poutziouris et al., 2015)	141	UK	1998-2008	Tobin's Q	Fixed-effect	n
(Anderson & Reeb, 2003)	403	US	1992-1999	Tobin's Q, ROA	Fixed-effect	n
(Kowalewski et al., 2010)	217	Poland	1997-2005	ROE, ROA	System GMM	n

Table 2.2: Summary of Family Literature

[7] Revenue, income, employment

[8] Net Profit Margin

2.3.3 Foreign Ownership

Foreign ownership and Foreign Direct Investment (FDI) have been widely studied. A lot of studies showed a positive relation between foreign ownership and firm performance. Matthias Arnold & Javorcik (2009) studied the causal relationship between foreign ownership and plant performance in Indonesia. Their conclusion is that a foreign control significantly increases the productivity. The improvements are seen during the acquisition year and last in subsequent periods. This increase in productivity is explained, according to them, by a restructuring of the plant and integration in the global economy. Ongore (2011) used a Pearson's product moment correlation and a logistic regression to study various types of ownership (foreign, state, corporation, manager, etc.). He found a positive relationship with foreign ownership and firm performance in Kenya. He explained that by the fact that foreign investors improve the management system and have access to huge resources. A study operated in Greece in 1997 by Dimelis & Louri (2002) also found a positive relationship. Their conclusions are of interest for this study: there's evidence that even minority foreign ownership is most important for the domestic economy and for low productivity local firms. Furthermore, they stated that the impact of foreign ownership has a significant influence in less developed economies, while it is mitigated in more developed countries. Huang & Shiu (2009) found in Taiwan a pronounced ownership effect whereby stocks with high foreign ownership outperform stocks with low foreign ownership. In their study, they found a significant correlation between foreign ownership and R&D and therefore firm performance. This is, according to them, mainly due to the capacity of foreign investors to provide experience, expertise and resources that are lacking domestic enterprises. Kimura & Kiyota (2007) studied in Japan the differences between foreign and domestically-owned enterprises. They found a positive relationship of foreign-owned enterprises. It seems that foreign investors are more capable of forecasting the performance of firms in the future. Therefore, foreigners are not especially investing in firms that are right now profitable but are more investing in firms with a bright future. Harris & Robinson (2003) using the Generalized Method of Moments found that in general, FDI enhance productivity. But in some occasions, it might hinder the performance. One of the problems occurring is a huge culture barrier which will arise agency problems and therefore the overall productivity of the firm.

Other studies also found a positive relationship but addressed a more nuanced view about it. Lin, Liu, & Zhang (2009) looking into spill overs from Foreign Direct Investment (FDI) in China from 1998 to 2005 found a positive relationship except for one group of foreign investors: Hong Kong, Macao and Taiwan (HMT). These three countries share a strong history and entertain specific relations with one another. This may be the key to explain why they have a negative impact on spill overs. Buckley, Wang, & Clegg (2007) studied the impact of ownership in China in 2001. Studying it by a group of industries, they were able to point out that the positivity of foreign investors was mainly in the technology industry, while positive spill overs

for the labour industry came from the HMT group. A study conducted in Russia by Yudaeva, Kozlov, Melentieva, & Ponomareva (2003) found a positive relation between firm performance and Foreign Direct Investment, due to the transfer of technologies and managerial competences. But they also pointed out that it can lead to a negative effect on firms in vertically related firms. More specifically, the new standards of the outside investors are too high for the local suppliers. There's therefore a reduction of relationship between the local suppliers and the enterprises, which can be harmful for the invested country's economy. Chhibber & Majumdar (1999) studied 1000 enterprises in India and found that only firms controlled (more than 51% of rights) by foreigners are expected to perform better. Benfratello & Sembenelli (2006) studied how foreign ownership affects the firm performance in Italy. Using a System-GMM model, they found no relationship. But when controlling for the simultaneity of ownership structure with the nationality of the foreign investors, they found that US-owned enterprises have a positive effect on firm performance. Highlighting the importance of controlling for simultaneity for the foreign variable. Mihai (2012) found no relationship in Romania either; interestingly, it seems that the recessing period by which the study was performed (year 2010), where nobody invested capital in Romania's firms resulted in a zero relationship between firm performance and foreign ownership. Now that the days are better off, a positive relationship would be expected.

On the other hand, there are a few studies that found a nonlinear relationship between foreign ownership and firm performance. Greenaway, Guariglia, & Zhihong (2014) studied a panel of data of more than 20.000 firms in China between 2000 and 2005. Using a GMM model, they found a reversed U-Shape relationship. In fact, it is only when the foreign ownership is between 47 and 61 percent that the company performs better. They also highlighted that the MHT countries have the biggest impact on the enterprises performance in China. Gurbuz & Aybars (2010) also found a reversed U-Shape relationship. Their study applied in Turkey with a 3-year data sample from 2005 to 2007. Their conclusion was that foreign ownership has a positive impact on firm performance up to a certain level beyond which it has no impact or worse, a negative impact. They also pointed out the importance of taking into account the financial crisis and therefore the lack of capital transfers. That's why they decided to study only from data pre-2008.

Study reference	Sample	Country	Time frame	Performance indicator	Regression method	Trend
(Matthias Arnold & Javorcik, 2009)	308439	Indonesia	1983-2001	/	Difference of difference	+
(Ongore, 2011)	54	Kenya	/	ROE, ROA, DY[9]	Pearson's Product	+
(Dimelis & Louri, 2002)	4056	Greece	1997	Labour productivity	Quantile regression	+
(Huang & Shiu, 2009)	523	Taiwan	1994-2001	Adapted Fama-French Factors	Logit regression	+
(Kimura & Kiyota, 2007)	22000	Japan	1994-1998	ROE, ROA	Random effects	+
(Harris & Robinson, 2003)	15000	UK	1974-1995	RGO[10]	System GMM	**+**/[-]
(Lin et al., 2009)	245973	China	1998-2005	"Output"	Fixed effect	**+**/[-]
(Buckley et al., 2007)	/	China	2001	Sales	OLS	+
(Yudaeva et al., 2003)	16100	Russia	1995-2000	Firm's value added[11]	Fixed effect	+
(Chhibber & Majumdar, 1999)	1000	India	Around 1991	ROA, ROS	Spline regression	+
(Benfratello & Sembenelli, 2006)	2026	Italy	1992-1999	TFP[12]	System GMM	x
(Mihai, 2012)	63	Romania	2010	ROA, ROE	Linear regression	x
(Greenaway et al., 2014)	21582	China	2000-2005	ROA, ROS, TFP, PROD	System GMM	n
(Gurbuz, 2010)	205	Turkey	2005-2007	ROA, EBITDA	Generalized Least Squares	n

Table 2.3: Summary of Foreign Literature

[9] Dividend Yield
[10] Real Gross Output
[11] (Total Output + Wage Bill) - Total Costs
[12] Total Factor Productivity

2.4 Hypotheses

2.4.1 State Ownership

State ownership structure relates to the percentage of state ownership in a firm. It is calculated as:

$$State\ ownership = \frac{Share's\ market\ price\ \times\ Number\ of\ shares\ held\ by\ the\ state}{Market\ value\ of\ equity}$$

Xia & Walker (2015) found that state ownership is statistically significant. Moreover, it is influenced by the firm size and the region. It can be argued that state ownership has a positive impact on firm performance. The access of resources and political connections have a true impact on a firm performance. Chen, Firth, & Xu (2009) are following the same reasoning and found a positive impact of state on enterprises. Le & Buck (2011) stated that state-owned enterprise may be a strategic asset rather than an agency burden. However, they are not sure if this positive outcome is driven by efficiency or power relations. In terms of power, the state can support a company by regulating the new entrants, affect taxation and loan decisions leading to an increase in performance. They also found efficiency characteristics in SOEs: the government may push the managers to perform well to demonstrate the efficiency of the government. Furthermore, the threat for further dilution of state-owned shares improve the profitability put efficient pressures to at least keep the performance at a satisfactory level.

State ownership can also have a negative impact. Borisova, Brockman, Salas, & Zagorchev (2012) studied firms from the EU and found a negative relationship. The lack of control and the social/political goals instead of profit driven are the two reasons. Interestingly, they made a difference between countries under civil law[13] and common law[14]: the governance quality is much better under common law countries. Boycko, Shleifer, & Vishny (1996) also support the idea of a negative relationship. The state ineffectiveness is mainly explained by the excess labour spending. As privatization depoliticize the company, it is able to restructure itself to increase the performance. They also stated that the main reason for underperformance comes from agency problems with the politicians rather than with the manager. Dewenter & Malatesta (2001) highlighted significantly higher liabilities-to-asset ratios and employees-to-sales ratios leading to underperformance of SOEs. They also studied the privatization process and found that the increase of profitability occurs in the 3 years before the sale of state shares.

[13] "Legal system originating in Europe whose most prevalent feature is that its core principles are codified into a referable system which serves as the primary source of law." ("Civil Law vs Common Law," 2018)

[14] "Legal system characterized by case law, which is law developed by judges through decisions of courts and similar tribunals." ("Civil Law vs Common Law," 2018)

Hence, the improvement can't be attributed to the change of ownership. They concluded that it is the capacity to operate more profitably through time that the state was not able to do. Before privatization, the state restructures the company to increase its value, but it cannot keep these improvements more than three years. Konings, Estrin, Zolkiewski, & Angelucci (2002) found a higher firm performance and firm productivity in Bulgaria and Poland. Their findings go on the positive impact of domestic competitive pressure on firm performance and found that Poland is advanced enough to have only a little technology gap when competing with foreign companies. Bai, Lu, & Tao (2009) studied the firm performance but also social welfare indicators such as wages per labour for workers, price for consumers, etc. They found little evidence of an improvement in all the indicators but stressed that the reason was that the Chinese government could still pressure non-SOEs.

The results of the combined effects are mitigated and may lead to a nonlinear, convex, relationship or no relationship at all. Ng, Yuce, & Chen (2009) stated that, as long as a company has mixed shares, it will underperform. Two solutions are possible: a fully non-state company or a fully-state company. They also highlighted that a mixed enterprise with a government control is the most armful possible choice. Tian & Estrin (2008) also show a U-shaped relationship: it is better to have a fully SOE or a fully PC than a ME. However, they also pointed out that a fully private company still performs better (5%) than a fully state-owned enterprise. As always, the reasons for a state company to perform better than mixed enterprises are attributed to political help.

The insights given above lead us to formulate the 1st hypothesis:

State ownership has a nonlinear, convex, relationship with the performance of listed firms in Poland.

$$\boldsymbol{PERF = \beta_0 + \beta_1 STATE + \beta_2 STATE^2}$$

Where, $\beta_1 > 0$

$\beta_2 < 0$

2.4.2 Family Ownership

Family ownership structure relates to the percentage of family ownership in a firm. It is calculated as:

$$Family\ own = \frac{Share's\ market\ price\ \times\ Number\ of\ shares\ held\ by\ family\ investors}{Market\ value\ of\ equity}$$

The literature review on family ownership reveals mixed evidence with a tendency to outperform, given the stewardship benefits. Miller & Le Breton-Miller (2006) tried through the agency and stewardship theory to explain the pros and cons of family ownership. Family firms are likely to reduce the free-ride agency cost[15] which can be associated with reduced costs and therefore generate superior performance. Highly concentrated ownership has a dual effect: it can reduce the monitoring costs, as large owners have more incentives and capabilities to monitor the managers, but it can also trigger an extraction of benefit effect from the control owner of the enterprise. Andres (2008) found a positive effect of family ownership on firm performance and stated that the negative effects mentioned above are, at every level of ownership, more than counterbalanced by the positive ones. Wagner, Block, Miller, Schwens, & Xi (2015) support this rationale, but highlighted a weak economically, albeit statistically significant, relationship.

The stewardship theory is the basic line to explain the fluctuations of family ownership on firm performance. Despite the long-term vision and altruism effect, the stewardship theory can also explain some problems arising in family firms. When families become too powerful, an expropriation effect arises, harming the firm performance. When the principal is the agent, poor stewardship behaviour can occur. An owner-manager can lead the company into risky decisions or strategic stagnation with both hazardous spill overs. Moreover, as mentioned by Miller & Le Breton-Miller (2006), concerns for the company survival as well as its reputation might drive the manager to adopt financial conservatism and therefore miss growth opportunities. In contrary to the authors who found a linear positive relationship, others have found a non-linear relationship: the positive and negative effects rise and fall regarding the concentration level. Isakov & Weisskopf (2014) found such a relation and more specifically concave: they argued that before 80% of family shares, family ownership dampens classical agency problems such as conflict of interests. Above 80%, family opportunism captures the profits and lower its performance. They also stated the importance to have strong legal investor protection to avoid those family opportunism behaviours.

[15] "The free rider problem is a situation where some individuals consume more than their fair share or pay less than their fair share of the cost of a shared resource. It is a market failure that occurs when people take advantage of being able to use a common resource, or collective good, without paying for it." (Investopedia, 2007)

The same conclusions were found by Amit, Ding, Villalonga, & Zhang (2015) and Poutziouris et al. (2015). Poutziouris et al. (2015) introduced a new interpretation not based on the agency and stewardship theory: they stressed the importance of the firm's age. Younger family enterprises seem to have a positive effect on performance. They explain it by a specific characteristic: the entrepreneurial vigour on behalf of the founders. This might open the basis of a new theoretical framework adding the vigour of an enterprise in addition to the relations costs and benefits.

Cheng (2014) did a review of all the available studies related to family ownership. In addition to all the subjects discussed here above, he stressed the importance of investor protection as a major factor of correlation with firm performance. Bunkanwanicha, Fan, & Wiwattanakantang (2013) made an interesting and unexpected discovery: it seems that firms' stock price increase when a family member marries a member of a wealthy business family or a political family.

Regarding the agency theory, stewardship theory and previous studies, this dissertation argues a positive link between family ownership and firm performance until a certain point at which it will become to decrease. As agency costs are likely to be minimal and the presence of the family owner may encourage stewardship attitudes, the relationship between family ownership and firm performance should be overall slightly better than other types of relationships, but high concentrations could trigger some nepotism behaviours hindering the performance. Hence, this dissertation poses the 2nd hypothesis:

There is a non-linear, inverted U-shaped relationship between family ownership and firm performance.

$$\boldsymbol{PERF = \beta_0 + \beta_1 FAMILY + \beta_2 FAMILY^2}$$

Where, $\beta_1 < 0$

$$\beta_2 > 0$$

2.4.3 Foreign Ownership

Foreign ownership structure relates to the percentage of foreign ownership in a firm. It is calculated as:

$$Foreign\ ownership = \frac{Share's\ market\ price\ \times\ Number\ of\ shares\ held\ by\ the\ foreign}{Market\ value\ of\ equity}$$

Foreign ownership leads to higher performance as indicated by Koo & Maeng 2006). They explain it because foreigners are more capable of lowering information asymmetries in companies. This affects positively the access of external funds at a lower cost and therefore increasing the overall profitability. They also warned countries about opening abruptly their stock market: there is a big chance that they will face severe instability in capital markets. Azzam, Fouad, & Ghosh (2013) found that foreign ownership has a positive impact on the profitability of a company. This might be explained by the positive effect of foreign ownership on debt since foreign investors can improve the firm's access to financing means. But they also stressed the problem of high foreign concentration which will hinder the firm's profitability. Hence, profitability is low at low concentration levels and then, rise up to a certain point and finally drop when concentration is too high. Estrin, Hanousek, Kočenda, & Svejnar (2009) studied three different regions. Among them, the Central Eastern Europe which is of interest for the study. Their conclusion was that foreign ownership considerably improved firm performance in every transition economy. Foreign firms bring capable expatriate managers, invest heavily in training. Local firms gain access to international networks and are introduced with advanced corporate governance and ethics. Foreign ownership is therefore seen as a compensation from a weak legal and institutional system which is one of the major characteristics of developing countries. Pervan, Pervan, & Todoric (2012) took three different angles regarding ownership structures. Their first finding was that concentrated ownership is hurting the performance whichever type of owner it is. The second finding is over foreign ownership: the performance of foreign-owned enterprise is superior to domestically-owned enterprises. They assign that to a better access to financial resources, a better management and a support with technical and know-how expertise. The last finding is interesting: there is no statistical evidence that foreign ownership is better than state ownership. Aitken & Harrison (1999) found a mitigated relation. Foreign ownership is positive for small companies (fewer than 50 employees). When looking at foreign investment, they saw a negative effect on domestically-owned enterprises. The net effect suggests a slight positive effect. They found no evidence of technology spill overs from foreign enterprises to domestic one. An indirect way to estimate the benefits of foreign ownership is to look at the work of Kolasa, Rubaszek, & Taglioni (2010). They studied the role of foreign ownership during the global recession of 2008 and found that foreign-owned enterprises are more resilient. They concluded that it was the ability to rely on inter-group financing to have lower credit constraints that helped foreign-owned enterprises. Makhija & Spiro (2000) stated that foreign ownership is monotonically positively

related to firm performance. They attribute this excess profitability to a superior ability to identify more profitable firms.

Schmidt (1996) had a more theoretical approach. Nevertheless, his work has shown some interesting points of view. The forgiveness from government in poorly managed public firms has led to what he calls an "ex-ante behavioural regularity" from the manager. In other terms, he will underinvest in cost reduction. He stressed two results from privatization: the improved incentives effect as mentioned above and the allocative inefficiency[16]. Cuervo & Villalonga (2000) theorized about why privatization is increasing the performance. As a firm is privatized, two prior changes have to happen before even think of an increase in performance: the management replacement (1) and the change in corporate governance (2) to ensure a board control. This leads to a change in goals and incentives, leading to a change in the firm's strategy and culture and finally its performance.

Given the insights above, the 3rd and last hypothesis will be:

Foreign ownership has a nonlinear, concave, relationship with the performance of listed firms in Poland.

$$\boldsymbol{PERF = \beta_0 + \beta_1 FOREIGN + \beta_2 FOREIGN^2}$$

Where, $\beta_1 < 0$

$$\beta_2 > 0$$

[16] "allocative efficiency says that a public firm will choose a socially more efficient production level because the government cares about social welfare and internalizes externalities, whereas a private owner just maximizes private profits." (Schmidt, 1996)

3 Data & Methodology

3.1 Data

3.1.1 Data Sample

This study employs a database from Orbis-Europe, a subsidiary of Bureau Van Dijck. The dataset contains all companies publicly listed on the Warsaw Stock Exchange. The database covers the years 2014 to 2016. The last year, 2016, was chosen for a reason: it is the last year where every institution agrees that Poland is still an emerging market. As explained in the introduction, more and more institutions are considering upgrading Poland to a developed country.

The database covers 403 enterprises subdivided in 4 main activities: manufacturing, retail, wholesale and services. The data is expressed in thousand and in the local currency (złoty). Since the variables are coming from the balance sheet and income statement, the information about them is at year-end.

By introducing a 3-year time frame, some companies were deleted from the database, due to an absence of data for some years. This decision may introduce a survivorship bias but as envisaged by Liljeblom & Löflund (2005), there shouldn't be a bias at all in practice.

3.1.2 The Financial Sector & Poland Regulatory System

The financial sector in Poland is regulated by the Polish Financial Oversight Commission (= KNF: Komisja Nadzoru Finansowego) and the European Union. From these two regulators, the financial sector has to follow some specific rules that are not mandatory for nonfinancial companies. The Solvency II regulation from the KNF is one of the examples where insurances are obliged to have higher solvency ratios. This is also the case for banks under the Bale 3 regulation. Another example is the deposit guarantee for customers in every bank in the European Union: when a bank goes bankrupt, all of its client gets a maximum of 100,000€ back. These are some examples among others to show how the financial sector has to follow strict rules to avoid new financial crises.

Regarding what was mentioned above, banks and insurances are completely different from nonfinancial companies. The rules for the financial sector are more severe, leading to a change in their firm performance and many other ratios. Consequently, financial enterprises cannot be analysed the same way. As a matter of fact Liljeblom & Löflund (2005) highlighted the problem that arises from including banks and insurance to the database: variables such as leverage, and many other variables are non-comparable or non-existent for financial companies. The rationale about the financial sector and its omission in the database is in accordance with many studies such as Phung & Mishra (2016) and will be followed in this dissertation.

3.2 Variables

3.2.1 Performance indicator variable

As seen in the literature review, it seems that there are a lot of possibilities about the firm performance indicator. It appears, however, that there is an indicator commonly recognized as a good performance indicator: The Tobin's Q.

$$PI_{it} = Tobin's\ Q = \frac{market\ value}{fixed\ asset\ replacement\ costs}$$

While the market value is easy to calculate, the fixed asset replacement cost is harder. As studied by Lewellen & Badrinath (1997), this value will fluctuate in function of the amortization method (LIFO, FIFO, etc.) and will no longer be a valid value. Therefore, they propose to replace it by the net book fixed asset value. Alternatively, Perfect & Wiles (1994) suggest numerous alternative estimators for the Tobin's Q with higher mean and larger variances but robust. Other studies, such as Saona & San Martín (2016) are using an even simpler proxy to get to the Tobin's Q: the market-to-book ratio.

$$Tobin's\ Q = \frac{market\ value}{book\ value}$$

It seems to be the best indicator if your study is on listed firms in a (nearly) perfect market but as highlighted by Dybvig & Warachka (2011), the Tobin's Q proxy might have some problems. In particular, capital (in the denominator) is endogenous since managers can underinvest. If a firm underinvests, it operates under his profit-maximizing scale while the Tobin's Q is increasing due to the decrease of the firm's *net present value*. Also stated by Dybvig & Warachka (2011), the Tobin's Q might have an ambiguous impact when strong governance can either underinvest or lower the costs. As Poland is at the edge of becoming a developed country, we stipulate that its market is nearly perfect. Hence, we will use the market-to-book ratio as a proxy for our performance indicator.

3.2.2 Control variables

3.2.2.1 Size

As thoroughly explained by Himmelberg, Hubbard, & Palia (1999), the effect of the enterprise's size is mitigated. Large firms experience higher agency costs as well as requiring more experienced managers who will also increase the information asymmetry. Managers are also less able to direct the firm efficiently. As mentioned by Konijn, Kräussl, & Lucas (2011), there's also a tendency for larger firms to have a lack of growth opportunities. On the other side, large firms are profiting from economies of scale. In addition, with a good management team, this can also increase the company's rating, hence, dampening the costs. On the contrary, little firms will experience fewer agency problems but won't be able to enjoy economies of scale.

The size variable is calculated as the natural logarithm of sales:

$$Size = \log(sales)$$

3.2.2.2 Leverage

As explained by Pathirawasam & Wickremasinghe (2012), debt can have a mixed effect on firm performance. On the one hand, debt ratio is seen as an investment capital at a much cheaper cost than equity financing. In addition, debt can be deducted from the tax and is therefore used as a tax shield. On the other hand, as highlighted by Chhibber & Majumdar (1999), the recurring repayments can lead a company to bankruptcy. Hence, we hypotheses that debt has a non-monotonic relationship as it is a very good financing instrument but up to a certain point only. Afterwards, debt can become dangerous.

This variable is determined as the following ratio:

$$Leverage = \frac{Total\ Debt}{Book\ Value\ of\ Assets}$$

3.2.2.3 Capital Intensity

Capital intensity shows the amount of capital needed per złoty of revenue. It can be argued that capital intensity can be non-linear. Companies with a high capital intensity ratio are known to suffer lower agency costs as argued by Konijn et al. (2011), therefore improving the firm's performance. But a high capital intensity ratio also means that the company is using more assets compared to its sales and may not be as profitable as thought. On the other hand, a low capital intensity is beneficial because it generates more revenue using fewer assets but increases its agency costs. As the two effects cancel out, this variable may have very little impact on the firm performance.

This variable is estimated as the ratio of:

$$Capital\ Intensity = \frac{Total\ Assets}{Sales}$$

3.2.2.4 *Liquidity*

Liquidity is seen as the capacity of an enterprise to meet his short-term debt payments. As stated by Phung & Mishra (2016), liquidity lessens cash flow uncertainty, making internal funds available, helping firms avoid the cost of external funding. It is therefore expected to have a positive relationship with firm performance.

This ratio is estimated as $Liquidity = \frac{Current\ Assets - Stocks}{Current\ Liabilities}$

3.2.2.5 *Profitability*

Profitability is the ability of a firm to generate profit. Profit generating should always have a positive impact on firm performance. As a matter of fact, Margaritis & Psillaki (2010) and Phung & Le (2013) found a monotonic, positive, relationship with firm performance.

In this study, this ratio is approximated by

$$Profitability = \frac{EBIT}{Operating\ Revenue}$$

3.3 Model Specification

3.3.1 Empirical Model

This dissertation used panel data regressions to estimate the relationship between state, family and foreign ownership and firm performance. As stated by Hsiao (1986), panel data regressions are known to deal with a main economic problem that frequently arises in empirical studies: the problem of omitted variables that are correlated with explanatory variables. As mentioned by Wooldridge (2003), panel data regressions also allow to control for individual unobserved heterogeneity. They are also better suited to analyse the dynamics of change (Gujarati & Porter, 2003).

The equation to be estimated is as follows:

$$PI_{i,t} = \beta_0 + \beta_1 OWN_{i,t} + \beta_2 OWN_{i,t}^2 + \beta_3 X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{i,t}$$

Where,

$$PI_{i,t} = performance\ indicator\ of\ firm\ i\ at\ time\ t$$
$$OWN_{i,t} = ownership\ concentration\ of\ firm\ i\ at\ time\ t$$
$$OWN_{i,t}^2 = square\ onwership\ concentration\ of\ firm\ i\ at\ time\ t$$
$$X_{i,t} = control\ variables\ of\ firm\ i\ at\ time\ t$$
$$\varepsilon_{i,t} = error\ term\ of\ firm\ i\ at\ time\ t$$
$$\gamma_t = year\ fixed\ effect$$
$$\alpha_i = industry\ fixed\ effect$$

The first papers studying the ownership structure in relation with the firm performance estimated it by using simple OLS (or pooled OLS to deal with the problems mentioned above). This method minimizes the sum of squares between observed and predicted values of the dependent variable to linearly estimate the coefficients. The major problem with this simple method is to keep the results unbiased and consistent. In order to keep the results unbiased and consistent, it must not violate the following key assumptions: (1) random sampling, (2) linear in parameters[17], (3) absence of perfect collinearity and (4) explanatory variables must be exogenous[18]. However, assumption 4 is violated because there is endogeneity by nature when studying ownership structure and firm performance.

The way to deal with the endogeneity problem is done by adopting the fixed effects model. Indeed, the fixed effects model allows to take into account two characteristics: the time variant-industry invariant effect and the time invariant-industry variant effect. As they can be a source of endogeneity, the fixed effect method solves the problem by eliminating the effect of the two fixed variables: γ_t and α_i.

[17] Non-linear in parameters would be: $y = \beta^2 \mathrm{X} + \varepsilon$

[18] Exogeneity means zero conditional mean of errors: $E(\varepsilon_i|X) = 0$

In addition, to take into account the dynamicity of the dependent variable (firm performance), we add a lagged firm performance variable in the regression. The model is therefore estimated as:

$$PI_{i,t} = \beta_0 + \theta PI_{i,t-1} + \beta_1 OWN_{i,t} + \beta_2 OWN_{i,t}^2 + \beta_3 X_{i,t} + \alpha_i + \gamma_t + \varepsilon_{i,t}$$

Where,

$$PI_{i,t} = performance\ indicator\ of\ firm\ i\ at\ time\ t$$
$$PI_{i,t-1} = performance\ indicator\ of\ firm\ i\ at\ time\ t-1$$
$$OWN_{i,t} = ownership\ concentration\ of\ firm\ i\ at\ time\ t$$
$$OWN_{i,t}^2 = square\ onwership\ concentration\ of\ firm\ i\ at\ time\ t$$
$$X_{i,t} = control\ variables\ of\ firm\ i\ at\ tie\ t$$
$$\varepsilon_{i,t} = error\ term\ of\ firm\ i\ at\ time\ t$$
$$\gamma_t = year\ fixed\ effect$$
$$\alpha_i = industry\ fixed\ effect$$

Following the hypotheses stated in the previous chapter, β_1 should be positive for state ownership and negative for family and foreign ownership. β_2 should be negative for state and positive for family and foreign ownership.

4 Data Analyses & Results

This chapter describes and discusses the empirical findings of the relationship between the firm performance and the ownership structure. Section 1 discusses analyses of the data such as a descriptive analysis, a correlation matrix and a description table of the shape of the industry. Section 2 analyses the results of the model regarding the three specific types of ownership. Section 3 discusses the results of the control variables and section 4 examines the combination of the 3 models into one model to strengthen the analyses.

4.1 Descriptive Analysis

This section describes a summary of statistics, including a correlation matrix for the firm performance, the ownership variables and the control variables. A short description of the data is also included in this section. Table 4.1 describes a statistic summary of the variables, including their mean, standard deviation, minimum and maximum.

Statistic	N	Mean	St. Dev.	Min	Max
TOB	1,209	0.696	0.669	0.003	4.516
SIZE	1,209	5.030	0.942	2.090	8.029
LEV	1,209	0.499	0.200	0.022	1.155
LIQU	1,209	1.405	1.415	0.034	13.918
PROF	1,209	0.067	0.133	-0.886	0.820
CAPINT	1,209	2.050	4.660	0.057	99.588
FAM	1,209	0.273	0.307	0.000	0.982
FOREIGN	1,209	0.127	0.239	0.000	1.000
STATE	1,209	0.013	0.080	0.000	0.720

Table 4.1: The table reports a statistic summary over a three-year time frame from 2014 to 2016 from listed Polish companies. Tobin's Q is estimated as a ratio of Market Value over Book Value, the firm's size as the logarithm of sales, the leverage as the ratio of Total Debt on the Book Value of Assets, the liquidity as the ratio of (Current Assets – Stocks) on Current Liabilities, the profitability as the ratio of the EBIT on the Operating Revenue, the capital intensity as the ratio of Total Assets on Sales and the three types of ownership as a percentage of shares held in an enterprise.

The mean value of Tobin's Q in Poland is 0.7 meaning that the market value of the company is lower than its book value. This is very interesting because it theoretically means that there is a certain mistrust from the shareholders. This will make it harder for the company to raise funds and therefore to increase the dividends for the investors. The Tobin's Q of listed firms in Poland is significantly lower than the value of 1.083 in Vietnam (Phung & Mishra, 2016), the value of 1.1 in Chile (Martínez et al., 2007) or the value of 1.45 in Japan (Saito, 2008).

The average size (natural logarithm of sales) of a Polish's enterprise is 5 with a standard deviation of 1. Leverage – measured by the ratio of Total Debt on Book Value of Assets – fluctuates significantly among enterprises. Its lower bound is 0.022 while its upper bound is 1.155 with a mean of 0.5. This value is somewhat high and indicates that approximately half of the total assets were funded through debt. Profitability – proxied as the ratio of EBIT on Operating Revenue – is pretty low due to a large number of observations with a negative ratio. Its average value is of 6.7% with a standard deviation of 0.133. The liquidity ratio – approximated by (Current Assets – Stocks) on Current Liabilities – has an average of 1.405. This rather high ratio means that the enterprises are on average able to repay the debt interests without any problem. The capital intensity which tends to illustrate how well a company uses his assets to generate sales is on average at 2 for our sample with a pretty high standard deviation of 4.6 due to a group of companies with some extreme values.

The correlation matrix is shown in table 4.2. It can be seen that the Tobin's Q is positively correlated with the family and foreign ownership as well as with the liquidity and profitability while it is negatively related to state ownership, size, leverage and capital intensity. We can already suspect that foreign and state ownership will have no impact on the Tobin's Q due to their very low correlation level (0.054 and -0.043 respectively). The profitability with a correlation of -0.024 shouldn't be critical in a firm's performance either. The correlation matrix shows no highly correlated variables.

	TOB	SIZE	LEV	LIQU	PROF	CAPINT	FAM	FOREIGN	STATE
TOB	1	-0.113	-0.252	0.119	0.024	-0.080	0.107	0.054	-0.043
SIZE	-0.113	1	0.041	-0.182	0.068	-0.225	-0.431	0.144	0.260
LEV	-0.252	0.041	1	-0.414	-0.058	0.097	-0.014	0.059	-0.104
LIQU	0.119	-0.182	-0.414	1	0.229	0.053	0.051	-0.008	0.027
PROF	0.024	0.068	-0.058	0.229	1	0.167	-0.053	0.063	0.091
CAPINT	-0.080	-0.225	0.097	0.053	0.167	1	-0.042	0.015	0.065
FAM	0.107	-0.431	-0.014	0.051	-0.053	-0.042	1	-0.328	-0.132
FOREIGN	0.054	0.144	0.059	-0.008	0.063	0.015	-0.328	1	-0.072
STATE	-0.043	0.260	-0.104	0.027	0.091	0.065	-0.132	-0.072	1

Table 4.2: Correlation Matrix

4.2 Ownership and Firm Performance

4.2.1 State Ownership

Table 4.3 describes the results of the relationship between the firm performance and the state ownership concentration using a fixed-effect model. The results show no significant relationships between state ownership and firm performance. When looking at the enterprises with state shares, we can see that the state is involved in industries such as (1) gas and petroleum, (2) water collection, treatment and supply, (3) iron mining and (4) administration of financial markets. Moreover, there are only 12 enterprises where the state detains some shares. As stated by Ring & Perry (1985)

the reason might be due to a weak competition in the markets cited above. If there is a weak competition in the market, the negative (or positive outcomes) will not transpire on the firm performance. If the total outcome is negative, the enterprise will simply increase the price to absorb the poor management and lead therefore to a normal firm performance. It is very hard to dissect anything in monopoly markets.

Another reason might be that the positive outcomes of state ownership might cancel the negative outcomes at every amount of percentage of ownership. As stated by Ramaswamy (2001), the state can affect negatively a company for several reasons that include (1) a different salary between SOE's CEOs and FOE's CEOs leading to worst SOE's manager, (2) lack of consequences for failure feeling, (3) lack of monitoring from the state and (4) subsidization of poor enterprises. On the other hand, those negative effects can be cancelled out by several positive ones like the ability to easily raise loans, the propension of state to modify laws to be friendly with the enterprise involved and the general efforts the government to help the enterprise continue to employ people.

Either it is a presence of a weak market or a cancellation of positive and negative outcomes, the state ownership has no effect on the firm performance. This conclusion is in line with the conclusion of Hagemejer et al. (2014) who found no differences in firm performance when studying privatization.

	Dependent variable: Tobin's Q		
	(1)	(2)	(3)
tobin, t-1	0.760***	0.760***	0.762***
	(0.024)	(0.024)	(0.023)
state	-0.185	-0.185	-0.145
	(0.775)	(0.775)	(0.775)
state2	-0.003	0.001	-0.033
	(1.297)	(1.296)	(1.296)
size	-0.209	-0.207	-0.170
	(0.141)	(0.140)	(0.137)
size2	0.018	0.018	0.014
	(0.014)	(0.014)	(0.013)
lev	-1.145***	-1.110***	-1.087***
	(0.336)	(0.305)	(0.305)
lev2	0.687**	0.663**	0.639**
	(0.300)	(0.284)	(0.283)
capint	-0.048***	-0.048***	-0.045***
	(0.013)	(0.013)	(0.013)
capint2	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)
profit	0.150	0.143	
	(0.118)	(0.115)	
liquidity	-0.003		
	(0.012)		
industry	*included*	*included*	*included*
year	*included*	*included*	*included*
Observations	806	806	806
R^2	0.636	0.636	0.635
Adjusted R^2	0.629	0.630	0.629
Residual Std. Error	0.409 (df = 790)	0.408 (df = 791)	0.409 (df = 792)

Note: *p**p***p<0.01

Table 4.3: The table reports the results of State Ownership over a three-year time frame from 2014 to 2016 from listed Polish companies. Tobin's Q is estimated as a ratio of Market Value over Book Value, the firm's size as the logarithm of sales, the leverage as the ratio of Total Debt on the Book Value of Assets, the liquidity as the ratio of (Current Assets – Stocks) on Current Liabilities, the profitability as the ratio of the EBIT on the Operating Revenue, the capital intensity as the ratio of Total Assets on Sales and state ownership as a percentage of shares held in an enterprise.

4.2.2 Family Ownership

Table 4.4 illustrates the results of the relationship between family ownership and firm performance using a fixed-effect model. The results illustrate a non-linear relationship as expected from the hypotheses. Column (1) presents the baseline model including and columns (2) and (3) present reduced model where the liquidity was deleted in column (2) and the profitability in column (3). All models are controlled by fixing the year and the industry.

The family ownership variable is positive and significant with a value of 0.32. On the other hand, its square is negative with a value of -0.37 depicting an inverted U-Shape relationship. The inflection point is at approximately 44% implying that the firm performance begins to decrease right after this point.

Figure 4.1 shows a concave relationship between family ownership and firm performance, which is in line with the study of Anderson & Reeb (2003). Family ownership can have a positive impact through several mechanisms. As highlighted by Lee (2006), family ownership has unique characteristics such as a high level of trust and commitment resulting in an increase in firm performance. The stewardship theory mentioned in the literature review section is also a good explanation of why family ownership could have a positive impact. But as mentioned by Sciascia & Mazzola (2008), family ownership can also hinder the firm performance due to an entrenchment effect. In our case, at 44%, some family drawbacks take the advantage on the positive influences. At high percentages, nepotism behaviours show up: families begin to ask excess salaries or emit special dividends which may harm the performance. In addition, these behaviours will increase the conflicts among shareholders who will, furthermore, hamper the firm performance.

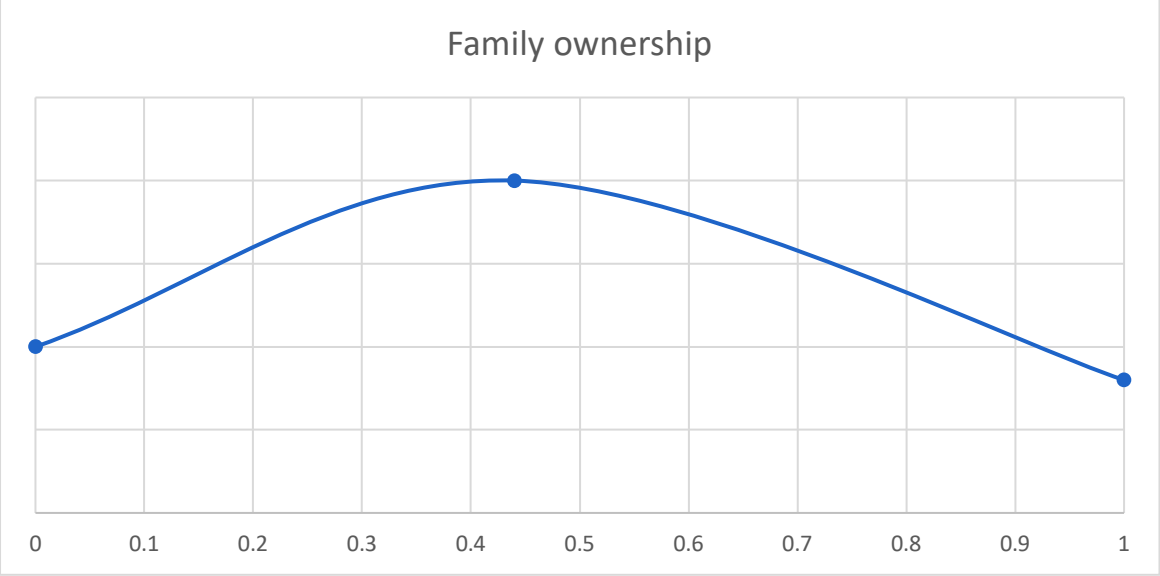


Figure 4.1: Impact of family ownership on firm performance

	Dependent variable: Tobin's Q		
	(1)	(2)	(3)
tobin, t-1	0.761***	0.761***	0.763***
	(0.023)	(0.023)	(0.023)
fam	0.322*	0.322*	0.306*
	(0.168)	(0.168)	(0.168)
fam2	-0.375*	-0.374*	-0.354*
	(0.203)	(0.203)	(0.202)
size	-0.185	-0.184	-0.148
	(0.133)	(0.133)	(0.130)
size2	0.016	0.016	0.012
	(0.013)	(0.013)	(0.013)
lev	-1.144***	-1.110***	-1.088***
	(0.335)	(0.305)	(0.305)
lev2	0.698**	0.675**	0.650**
	(0.300)	(0.284)	(0.283)
capint	-0.049***	-0.049***	-0.045***
	(0.013)	(0.013)	(0.012)
capint2	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)
profit	0.157	0.151	
	(0.118)	(0.115)	
liquidity	-0.003		
	(0.012)		
industry	*included*	*included*	*included*
year	*included*	*included*	*included*
Observations	806	806	806
R^2	0.637	0.637	0.636
Adjusted R^2	0.630	0.631	0.631
Residual Std. Error	0.408 (df = 790)	0.408 (df = 791)	0.408 (df = 792)

Note: *p **p ***p<0.01

Table 4.4: The table reports the results of Family Ownership over a three-year time frame from 2014 to 2016 from listed Polish companies. Tobin's Q is estimated as a ratio of Market Value over Book Value, the firm's size as the logarithm of sales, the leverage as the ratio of Total Debt on the Book Value of Assets, the liquidity as the ratio of (Current Assets – Stocks) on Current Liabilities, the profitability as the ratio of the EBIT on the Operating Revenue, the capital intensity as the ratio of Total Assets on Sales and family ownership as a percentage of shares held in an enterprise

4.2.3 Foreign Ownership

Table 4.5 reports the estimated results of the relationship between foreign ownership and firm performance. Columns (1), (2) and (3) presented in the table below show the results of a quadratic $(variable + variable^2)$ study of foreign ownership. After controlling for the endogeneity using the Fixed-effects, the coefficients were found not statistically significant. Hence, the model doesn't show at 5% the bell-shape relationship that was expected and hypothesized in chapter 2.4, section 3.

Interestingly, when the ownership variable was elevated to the third power, the coefficients of the ownership variables became strongly significant for all FO, FO^2 and FO^3, suggesting a cubic relationship. The elevation to the third power has never been done in the literature and might open the research in a new path where the relationship might be more complex than before leading to new ways of interpreting the ownership influence.

$$Tobin_{it} = \alpha + \theta Tobin_{it-1} + \beta_1 FO + \beta_2 FO^2 + \beta_3 FO^3 + \beta_4 Control\ Variables + \varepsilon_{it}$$

Columns (4), (5) and (6) show that foreign ownership is positive and significant with a value of 0.84, its square is negative and significant with a value of -2.81 while its cube is positive and significant with a value of 2.336. Figure 4.2 demonstrates a cubic S-shaped relationship with a local minimum at 60.2% and a local maximum at 20%.

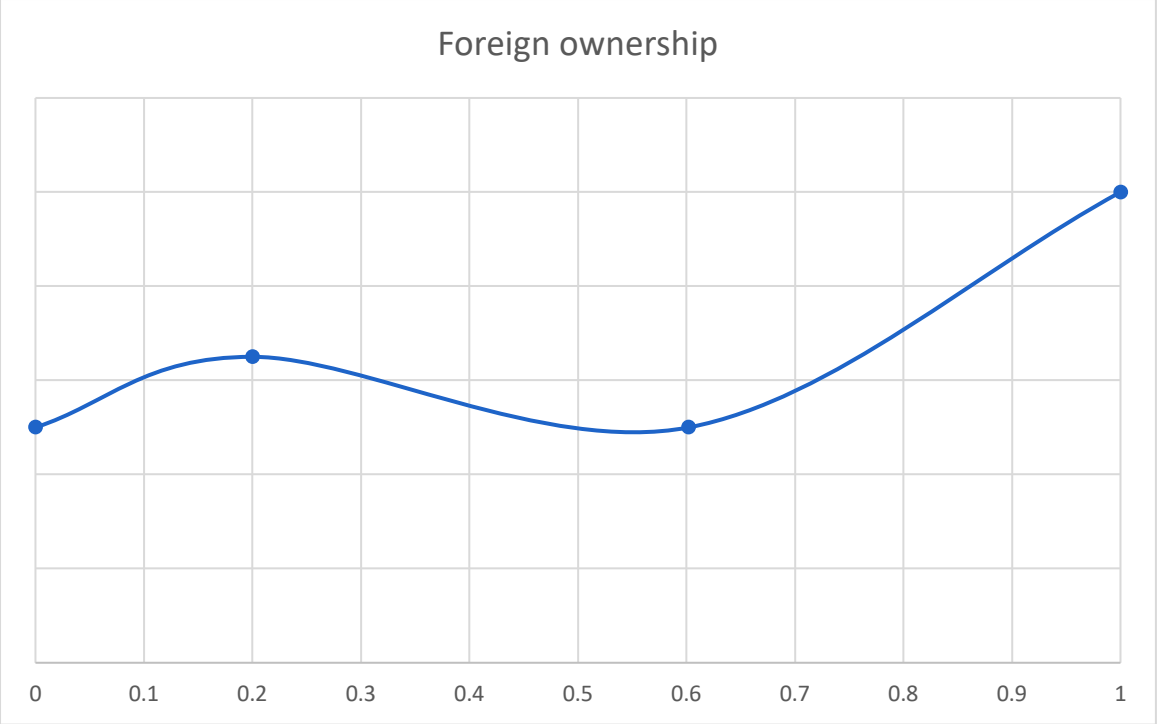


Figure 4.2: impact of foreign ownership on firm performance

The positive impact of the first order foreign variable imply that when foreign ownership is lower than 20%, the positive effects of this kind of ownership prevail leading to an increase in the firm performance. The experience of foreigners, their ability to monitor adequately the managers and their worldwide connections will help the enterprise outperform. But between

20% and 60%, block owners arise which may lead to some negative effects. As stated in the agency theory (chapter 2.1), conflicts may arise between shareholders due to different utilities functions. These conflicts will drive the enterprise to a Pareto inefficient state and will therefore harm the performance. Moreover, there is still not enough concentrated ownership to activate the positive effects of highly concentrated ownership. The information asymmetry will begin to fall around 60%, which will prevent the agent to maximize his utility function, hence increasing the firm's efficiency and its performance. At 60%, in addition to the reduction in information asymmetry, another positive effect may lead to better performance. There is a possibility that firms are now managed-owned by the same shareholder or that a manager close to the shareholder is in function. This will drastically reduce the information asymmetry as well as the monitoring need. These effects, combined, may explain why foreign ownership has a cubic relationship.

	Dependent variable:					
	tobin					
	(1)	(2)	(3)	(4)	(5)	(6)
tobin, t-1	0.757***	0.759***	0.759***	0.756***	0.759***	0.759***
	(0.024)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
foreign	-0.023	-0.031	-0.031	0.847**	0.771*	0.769*
	(0.192)	(0.192)	(0.192)	(0.430)	(0.427)	(0.426)
foreign2	0.196	0.211	0.211	-2.813**	-2.566*	-2.558*
	(0.254)	(0.254)	(0.254)	(1.355)	(1.344)	(1.341)
foreign3				2.336**	2.158**	2.153**
				(1.033)	(1.026)	(1.023)
size	-0.199	-0.171	-0.171	-0.215	-0.178	-0.178
	(0.133)	(0.130)	(0.130)	(0.133)	(0.130)	(0.130)
size2	0.016	0.013	0.013	0.018	0.014	0.014
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
lev	-1.102***	-1.049***	-1.047***	-1.094***	-1.028***	-1.041***
	(0.335)	(0.331)	(0.304)	(0.334)	(0.330)	(0.303)
lev2	0.647**	0.602**	0.600**	0.628**	0.574*	0.582**
	(0.299)	(0.296)	(0.283)	(0.299)	(0.296)	(0.282)
capint	-0.049***	-0.046***	-0.046***	-0.049***	-0.045***	-0.045***
	(0.013)	(0.012)	(0.012)	(0.013)	(0.012)	(0.012)
capint2	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
liquidity	-0.003	-0.0002		-0.003	0.001	
	(0.012)	(0.012)		(0.012)	(0.012)	
profit	0.127			0.161		
	(0.118)			(0.118)		
industry	*included*	*included*	*included*	*included*	*included*	*included*
year	*included*	*included*	*included*	*included*	*included*	*included*
Observations	806	806	806	806	806	806
R^2	0.638	0.637	0.637	0.640	0.639	0.639
Adjusted R^2	0.631	0.631	0.631	0.633	0.632	0.633
Residual Std. Error	0.408 (df = 790)	0.408 (df = 791)	0.408 (df = 792)	0.407 (df = 789)	0.407 (df = 790)	0.407 (df = 791)
Note:						*p**p***p<0.01

Table 4.5: The table reports the results of foreign ownership over a three-year time frame from 2014 to 2016 from listed Polish companies. Tobin's Q is estimated as a ratio of Market Value over Book Value, the firm's size as the logarithm of sales, the leverage as the ratio of Total Debt on the Book Value of Assets, the liquidity as the ratio of (Current Assets – Stocks) on Current Liabilities, the profitability as the ratio of the EBIT on the Operating Revenue, the capital intensity as the ratio of Total Assets on Sales and the foreign ownership as a percentage of shares held in an enterprise

4.3 Control Variables

We discuss in this section the impact of the control variables on the firm performance. Table 4.6 summarizes the impact of the control variables including (1) the firm size (*size*), (2) the leverage (*lev*), (3) the capital intensity (*capint*), (4) the firm profitability (*profit*) and the firm liquidity (*liquidity*). Concerning the firm size, the leverage and the capital intensity, they have all a square variable to control for non-linear relationships. In all the models, the profitability is the least explanatory variable and the liquidity is not explaining much either: their p-value is very high. As for the leverage, we can see a significant negative relationship and a significant positive relationship for its square. A negative first order leverage variable is in line with several studies such as Phung & Hoang (2013) but it is very difficult to explain how the second order leverage variable can be positive firm performance without harming it due to the cost of bearing a debt. The other significant control variable is the capital intensity which is slightly negative for its first order and slightly positive for its second order.

When looking at the profitability and liquidity, we can see that they are never significant. This is in line with the expectations from the correlation matrix. These variables are too correlated to the dependent variable to have an impact on it.

The firm size has an interesting impact because it has none when studying the specific models and has a little significant impact when studying the complete models. Its coefficient is slightly negative, which is understandable because the bigger the firm is the [explain]. In fact, when looking at and trying several models, I saw that a firm size one period lag variable showed more significant values for the firm size and its square variable. But as it had no impact on the variables of interest and the firm size itself is not of special concern for this study, those alternative models won't be illustrated here.

Control Variable Analyses

	Dependent variable: tobin		
	(1)	(2)	(3)
size	-0.209	-0.185	-0.215
	(0.141)	(0.133)	(0.133)
size2	0.018	0.016	0.018
	(0.014)	(0.013)	(0.013)
lev	-1.145***	-1.144***	-1.094***
	(0.336)	(0.335)	(0.334)
lev2	0.687**	0.698**	0.628**
	(0.300)	(0.300)	(0.299)
capint	-0.048***	-0.049***	-0.049***
	(0.013)	(0.013)	(0.013)
capint2	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)
profit	0.150	0.157	0.161
	(0.118)	(0.118)	(0.118)
liquidity	-0.003	-0.003	-0.003
	(0.012)	(0.012)	(0.012)
Observations	806	806	806

Note: *p**p***p<0.01

Table 4.6: The table reports the influence of the control variables on firm performance over a three-year time frame from 2014 to 2016 from listed Polish companies. The firm's size is estimated as the logarithm of sales, the leverage as the ratio of Total Debt on the Book Value of Assets, the liquidity as the ratio of (Current Assets – Stocks) on Current Liabilities, the profitability as the ratio of the EBIT on the Operating Revenue, the capital intensity as the ratio of Total Assets on Sales.

4.4 Complete Model

Table 4.7 shows the combined relationship between state, family and foreign ownership and firm performance. The results show a concave significant relationship between family ownership and firm performance. State ownership and its square have a negative effect on the firm performance but as their coefficients have high p-values (i.e. insignificant), we cannot draw conclusions from the different models. When looking at the last three models, we can see that only foreign ownership is significant and is S shaped. These results confirm the previous results showing an inverted U-shape for the family and a cubic, S-shape, for foreign ownership. The signs of the control variables do not differ from Table 4.6 except for the size variable. The latter is not significant when studying specific ownership relations but become slightly significant when looking at the complete models. Interestingly, both in the quadratic and the cubic models, is the size variable significant.

We can summarize the three ownership tendencies in the following figure:

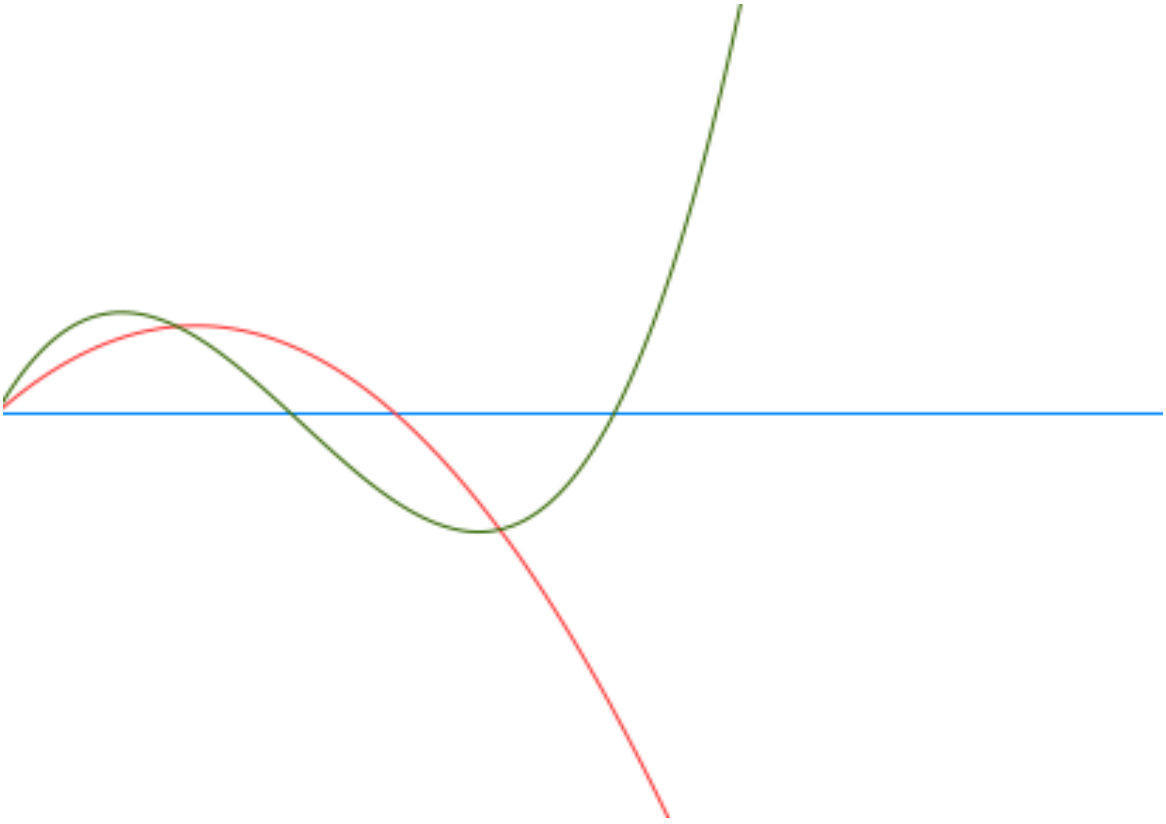


*Figure 4.3: Illustrates the influence of the combined ownership on firm performance, where the **blue line** is the state ownership, the **red line** is family ownership and the **green line** is foreign ownership.*

Complete Models

	Dependent variable:					
	tobin					
	(1)	(2)	(3)	(4)	(5)	(6)
tobin, t-1	0.753***	0.753***	0.755***	0.754***	0.754***	0.757***
	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
fam	0.428**	0.427**	0.416**	0.104	0.108	0.128
	(0.173)	(0.173)	(0.173)	(0.371)	(0.370)	(0.370)
fam2	-0.458**	-0.456**	-0.441**	0.511	0.498	0.416
	(0.206)	(0.206)	(0.205)	(1.089)	(1.087)	(1.087)
fam3				-0.709	-0.698	-0.624
				(0.823)	(0.822)	(0.821)
state	-0.127	-0.127	-0.085	0.415	0.451	0.597
	(0.773)	(0.773)	(0.773)	(1.999)	(1.995)	(1.994)
state2	-0.039	-0.034	-0.071	-2.581	-2.732	-3.171
	(1.292)	(1.292)	(1.292)	(8.131)	(8.111)	(8.112)
state3				2.577	2.731	3.114
				(7.946)	(7.925)	(7.928)
foreign	-0.056	-0.056	-0.061	0.736*	0.739*	0.652
	(0.195)	(0.195)	(0.195)	(0.436)	(0.436)	(0.432)
foreign2	0.289	0.288	0.301	-2.429*	-2.439*	-2.148
	(0.257)	(0.257)	(0.257)	(1.371)	(1.370)	(1.357)
foreign3				2.088**	2.096**	1.885*
				(1.042)	(1.041)	(1.032)
size	-0.247*	-0.244*	-0.207	-0.267*	-0.264*	-0.217
	(0.142)	(0.141)	(0.138)	(0.142)	(0.141)	(0.138)
size2	0.022	0.022	0.019	0.024*	0.024*	0.020
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
lev	-1.154***	-1.108***	-1.084***	-1.121***	-1.079***	-1.052***
	(0.336)	(0.306)	(0.305)	(0.337)	(0.307)	(0.306)
lev2	0.682**	0.650**	0.625**	0.644**	0.615**	0.587**
	(0.299)	(0.284)	(0.283)	(0.300)	(0.285)	(0.284)
capint	-0.046***	-0.046***	-0.043***	-0.045***	-0.045***	-0.041***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
capint2	0.002**	0.002**	0.002**	0.002**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
profit	0.148	0.139		0.183	0.175	
	(0.118)	(0.115)		(0.119)	(0.116)	
liquidity	-0.004			-0.004		
	(0.012)			(0.012)		
industry	*included*	*included*	*included*	*included*	*included*	*included*
year	*included*	*included*	*included*	*included*	*included*	*included*

Observations		806	806	806	806	806	806
R^2		0.641	0.641	0.640	0.643	0.643	0.642
Adjusted R^2		0.632	0.632	0.632	0.633	0.633	0.633
Residual Error	Std.	0.407 (df = 786)	0.407 (df = 787)	0.407 (df = 788)	0.407 (df = 783)	0.406 (df = 784)	0.407 (df = 785)
Note:							$^{*}p^{**}p^{***}p<0.01$

Table 4.7: The table reports a results summary over a three-year time frame from 2014 to 2016 from listed Polish companies. Tobin's Q is estimated as a ratio of Market Value over Book Value, the firm's size as the logarithm of sales, the leverage as the ratio of Total Debt on the Book Value of Assets, the liquidity as the ratio of (Current Assets – Stocks) on Current Liabilities, the profitability as the ratio of the EBIT on the Operating Revenue, the capital intensity as the ratio of Total Assets on Sales and the three types of ownership as a percentage of shares held in an enterprise.

5 Conclusion

5.1 Major Findings

This dissertation explores the influence of state, family and foreign ownership on the firm performance. The sample includes a balanced panel data of 403 listed enterprises in Poland from 2014 to 2016. Based on the agency theory and the stewardship theory, this dissertation posed several hypotheses:

1. State ownership has a U-shape relationship with firm performance
2. Family ownership is slightly better than the other form of ownership given the stewardship theory, but problems arise when there is a high concentration resulting in a plummeting in the firm performance.
3. Foreign ownership has approximately the same shape as family ownership: an inverted U-shape.

Given the results from the fixed-effect model, we reject the hypothesis of a U-shape relationship with state ownership. This dissertation suggests two reasons why state ownership has no effect on firm performance. It can be argued that at every level of ownership concentration, the positive effects such as easy access to funding, low regulation, political help, are cancelled by the negative effects such as social goals, poor monitoring. Another possibility is simply that markets where state-owned enterprises operate are so inefficient (due to monopolies for example) that the negative effects are absorbed by an increase in prices or a huge help from the state. Given our sample, it has been established that both reasons may have an impact on companies in Poland.

Furthermore, it has been confirmed that family ownership has an inverted U-shape influence on firm performance. The stewardship effect increases up to 44% where it begins to decrease. It has been stated that at this inflexion point, new kinds of behaviours such as nepotism take the step on stewards' behaviour which will decrease the firm performance.

Regarding foreign ownership, this study opens a new path of studying ownership structures. Indeed, our results showed a non-linear cubic relationship. This S-shape relation is overall positive with a downturn between 20% and 60%. Foreign ownership can have many advantages such as the transfer of technologies and knowledge, helping raise liquidity, good monitoring of the management team and "transfer" of experience. But as the concentration rises, we will witness a conflict increase between the shareholders, leading to a decrease in the firm performance. As the concentration continues to rise, the conflicts diminish up to 60% where firm performance begins to rise again.

5.2 Implications

The results from this dissertation have three important implications for policy makers. First, the absence of significant relationship between state ownership and firm performance might push the state to continue its privatization, although it has already been widely done. Policy makers should at least encourage non-state ownership and more specifically family and foreign ownership.

Secondly, even if the state should encourage other type of ownership, it must deal with a possible problem of weak institutions. The family ownership shape shows that at high concentration, the firm performance falls down due to excessive nepotism. A strong institution and laws to prevent that kind of behaviour must be implemented.

Finally, the results of foreign ownership might imply that there is a weak protection of shareholders. The policy makers might try to have better protection for small shareholders against large shareholders. This could prevent the drawback between 20% and 60% of foreign ownership, leading to a linear positive relationship.

6 Appendix

FTSE Classification of Markets

FTSE Annual Country Classification Review

September 2017

1. Classification of Markets

A formal review of country classification within the FTSE global equity indexes is conducted on an annual basis each September using a comprehensive, transparent and consistent methodology. This annual review incorporates ongoing country classification research and classifies stock markets as Developed, Advanced Emerging, Secondary Emerging or Frontier within the FTSE global equity indexes.

2. FTSE Watch List

In order to ensure that the potential, as well as confirmed, movement of markets between classifications is completely transparent to investors, a Watch List of markets being considered for reclassification is maintained.

The following markets were on the Watch List following the interim review in March 2017:

- **China A-share:** possible inclusion as Secondary Emerging
- **Kuwait:** possible inclusion as Secondary Emerging
- **Mongolia:** possible inclusion as Frontier
- **Nigeria:** possible reclassification from Frontier to Standalone
- **Poland:** possible reclassification from Advanced Emerging to Developed
- **Romania:** possible reclassification from Frontier to Secondary Emerging
- **Saudi Arabia:** possible inclusion as Secondary Emerging

Argentina and Kazakhstan were on the September 2016 Watch List and at the interim review in March 2017 were designated as Frontier markets within the FTSE Country Classification scheme in conjunction with the FTSE Frontier Index Series annual review in September 2017.

Figure 6.1: FTSE Review

FTSE QUALITY OF MARKETS CRITERIA (EUROPE Emerging) as at September 2017											
CRITERIA	**COUNTRY NAMES**										
	DEV WATCH	**Poland***	**ADV EMG**	**Czech Republic**	**Greece**	**Hungary**	**Turkey**	**SEC EMG**	**Russia**	**SEC EMG WATCH**	**Romania**
World Bank GNI Per Capita Rating, 2015		High		High	High	High	Upper Middle		High		Upper Middle
Credit Worthiness		Investment		Investment	Highly Speculative	Investment	Speculative		Speculative		Investment
Market and Regulatory Environment											
Formal stock market regulatory authorities actively monitor market (e.g., SEC, FSA, SFC)	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass	X	Pass
Fair and non-prejudicial treatment of minority shareholders	X	Pass	X	Pass	Pass	Pass	Pass		Pass		Pass
No or selective incidence of foreign ownership restrictions	X	Pass	X	Pass	Pass	Pass	Pass		Restricted		Pass
No objection to or significant restrictions or penalties applied to the investment of capital or the repatriation of capital and income	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass	X	Pass
Free and well-developed equity market	X	Pass	X	Pass	Pass	Pass	Pass		Restricted		Not Met
Free and well-developed foreign exchange market	X	Pass	X	Pass	Pass	Pass	Pass		Pass		Restricted
No or simple registration process for foreign investors	X	Pass	X	Pass	Pass	Pass	Pass		Restricted		Restricted
Custody and Settlement											
Settlement - Rare incidence of failed trades	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass	X	Pass
Custody-Sufficient competition to ensure high quality custodian services	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass		Pass
Clearing & Settlement - T+2 / T+ 3	X	T+2	X	T+2	T+2	T+2	T+2	X	T+2	X	T+2
Settlement - Free delivery available	X	Pass		Pass	Pass	Pass	Pass		Pass		Restricted
Custody - Omnibus and segregated account facilities available to international investors	X	Pass	X	Pass	Restricted	Pass	Restricted		Pass		Not Met
Dealing Landscape											
Brokerage - Sufficient competition to ensure high quality broker services	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass		Pass
Liquidity - Sufficient broad market liquidity to support sizeable global investment	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass		Not Met
Transaction costs - implicit and explicit costs to be reasonable and competitive	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass		Pass
Stock Lending is permitted	X	Pass		Restricted	Restricted	Restricted	Pass		Not Met		Restricted
Short sales permitted	X	Pass		Restricted	Pass	Pass	Pass		Pass		Restricted
Off-exchange transactions permitted	X	Pass		Pass	Restricted	Pass	Pass		Pass		Not Met
Efficient trading mechanism	X	Pass		Pass	Pass	Pass	Pass		Pass		Pass
Transparency - market depth information / visibility and timely trade reporting process	X	Pass	X	Pass	Pass	Pass	Pass	X	Pass	X	Pass
Derivatives											
Developed Derivatives Market	X	Pass		Not Met	Pass	Pass	Restricted		Pass		Restricted

Shading indicates a change from March 2017

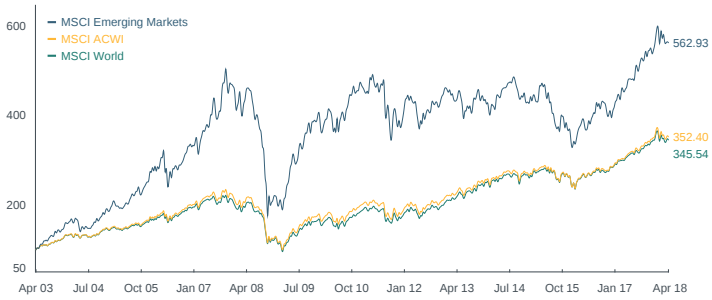
*Poland to be promoted to Developed market status from September 2018

Figure 6.2: FTSE classification

MSCI EMERGING MARKETS INDEX (USD)

The MSCI Emerging Markets Index captures large and mid cap representation across 24 Emerging Markets (EM) countries*. With 845 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

CUMULATIVE INDEX PERFORMANCE - NET RETURNS (USD) (APR 2003 – APR 2018)



ANNUAL PERFORMANCE (%)

Year	MSCI Emerging Markets	MSCI ACWI	MSCI World
2017	37.28	23.97	22.40
2016	11.19	7.86	7.51
2015	-14.92	-2.36	-0.87
2014	-2.19	4.16	4.94
2013	-2.60	22.80	26.68
2012	18.22	16.13	15.83
2011	-18.42	-7.35	-5.54
2010	18.88	12.67	11.76
2009	78.51	34.63	29.99
2008	-53.33	-42.19	-40.71
2007	39.42	11.66	9.04
2006	32.14	20.95	20.07
2005	34.00	10.84	9.49
2004	25.55	15.23	14.72

INDEX PERFORMANCE — NET RETURNS (%) (APR 30, 2018)

	1 Mo	3 Mo	1 Yr	YTD	ANNUALIZED 3 Yr	5 Yr	10 Yr	Since Dec 29, 2000
MSCI Emerging Markets	-0.44	-6.80	21.71	0.97	6.00	4.74	2.17	10.05
MSCI ACWI	0.95	-5.36	14.16	-0.02	7.43	8.80	5.10	5.33
MSCI World	1.15	-5.15	13.22	-0.15	7.55	9.28	5.48	5.13

FUNDAMENTALS (APR 30, 2018)

	Div Yld (%)	P/E	P/E Fwd	P/BV
MSCI Emerging Markets	2.33	14.52	11.90	1.76
MSCI ACWI	2.40	18.91	14.95	2.26
MSCI World	2.41	19.72	15.49	2.35

INDEX RISK AND RETURN CHARACTERISTICS (APR 30, 2018)

	Turnover (%) [1]	ANNUALIZED STD DEV (%) [2] 3 Yr	5 Yr	10 Yr	SHARPE RATIO [2, 3] 3 Yr	5 Yr	10 Yr	Since Dec 29, 2000	MAXIMUM DRAWDOWN (%)	Period YYYY-MM-DD
MSCI Emerging Markets	3.78	15.96	14.98	22.34	0.40	0.35	0.19	0.48	65.25	2007-10-29—2008-10-27
MSCI ACWI	2.60	10.80	10.30	16.64	0.65	0.82	0.35	0.31	58.38	2007-10-31—2009-03-09
MSCI World	2.49	10.58	10.14	16.21	0.67	0.88	0.38	0.30	57.82	2007-10-31—2009-03-09

[1] Last 12 months [2] Based on monthly net returns data [3] Based on ICE LIBOR 1M

* EM countries include: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Russia, Qatar, South Africa, Taiwan, Thailand, Turkey and United Arab Emirates.

The MSCI Emerging Markets Index was launched on Jan 01, 2001. Data prior to the launch date is back-tested data (i.e. calculations of how the index might have performed over that time period had the index existed). There are frequently material differences between back-tested performance and actual results. Past performance -- whether actual or back-tested -- is no indication or guarantee of future performance.

MSCI

MSCI EMERGING MARKETS INDEX

Figure 6.3: MSCI Emerging Markets index

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