

**Corporate governance and financial performance of agri-food enterprises in
Russia: Three essays**

**Dissertation
zur Erlangung des
Doktorgrades der Agrarwissenschaften (Dr. agr.)**

der Naturwissenschaftlichen Fakultät III
Agrar- und Ernährungswissenschaften,
Geowissenschaften und Informatik
der Martin-Luther-Universität Halle-Wittenberg

vorgelegt von

Herrn Tleubayev, Alisher
Geb. am 13.03.1991 in Schymkent, Kasachstan

Gutachter:

Prof. Dr. Dr. h. c. Thomas Glauben

Prof. Dr. Jens-Peter Loy

Tag der Verteidigung:

30.05.2022

Table of Contents

| | |
|---|------------|
| <i>Table of Contents</i> | <i>i</i> |
| <i>List of Tables</i> | <i>iii</i> |
| <i>List of Figures</i> | <i>iv</i> |
| SUMMARY | v |
| ZUSAMMENFASSUNG | vi |
| 1. General Introduction | 1 |
| 1.1 Corporate farm enterprises and corporate governance | 1 |
| 1.1.1 <i>Internal Corporate Governance - Board of directors</i> | 2 |
| 1.1.2 <i>Internal Corporate Governance – Ownership structure</i> | 3 |
| 1.2 Overview of Russian agricultural development | 3 |
| 1.3 Problem Statement | 8 |
| 2. Board gender diversity and firm performance: Evidence from the Russian agri-food industry | 13 |
| 2.1 Introduction | 13 |
| 2.2 Literature Review | 16 |
| 2.3 Data and Methodology | 21 |
| 2.3.1 <i>Variables</i> | 23 |
| 2.3.2 <i>Endogeneity</i> | 24 |
| 2.4 Results and Discussion | 25 |
| 2.5 Conclusion | 33 |
| 3. Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? | 35 |
| 3.1 Introduction | 35 |
| 3.2 Review of literature and hypothesis development | 38 |
| 3.3 Methodology and Data | 44 |
| 3.3.1 <i>Model</i> | 44 |
| 3.3.2 <i>Variables</i> | 45 |
| 3.3.3 <i>Data</i> | 47 |
| 3.4 Results and discussion | 51 |
| 3.5 Conclusion | 58 |

| | |
|---|------------|
| 4. Business group affiliation and financial performance in the agricultural sector of transition economies: The case of Russian agroholdings | 61 |
| 4.1 Introduction | 61 |
| 4.2 Theoretical framework and review of the literature | 63 |
| 4.3 Methodology and Data | 67 |
| 4.3.1 Model..... | 67 |
| 4.3.2 Variables | 68 |
| 4.3.3 Data..... | 70 |
| 4.4 Results and discussion | 74 |
| 4.5 Conclusion..... | 84 |
| 5. Conclusions..... | 86 |
| References | 92 |
| Appendix..... | 108 |

List of Tables

| | |
|--|----|
| Table 2.1: Overview of the literature (chronological order)..... | 17 |
| Table 2.2: Variables and descriptions | 22 |
| Table 2.3: Descriptive statistics of key variables | 26 |
| Table 2.4: The impact of board gender diversity on firm performance (standard errors in parentheses) 28 | |
| Table 2.5: Robustness checks with <i>%_ExecutiveFemale</i> and <i>%_IndependentFemale</i> as alternative measures for gender diversity (standard errors in parentheses)..... | 30 |
| Table 2.6: Robustness checks with <i>D_1Female</i> , <i>D_2Female</i> and <i>D_3Female</i> as alternative measures for gender diversity (standard errors in parentheses) | 31 |
| | |
| Table 3.1: Overview of the literature on the relationship between ownership structure and firm performance | 40 |
| Table 3.2: Variables and descriptions | 46 |
| Table 3.3: Descriptive statistics of key variables | 48 |
| Table 3.4: The impact of ownership concentration on firm performance, RE model (standard errors in parentheses) | 53 |
| Table 3.5: The impact of ownership identity on firm performance, RE model (standard errors in parentheses) | 56 |
| | |
| Table 4.1: Variables and Descriptions..... | 68 |
| Table 4.2: Descriptive statistics of key variables | 72 |
| Table 4.3: Z-test for the statistical difference of the means of performance variables (agroholding affiliates VS independent firms)..... | 74 |
| Table 4.4: Agroholding affiliation (<i>agrh_mem</i>) and firm performance (ROA, ROS) (standard errors in parentheses) | 75 |
| Table 4.5: Agroholding affiliation (<i>agrh_mem</i>) and firm performance (ROA, ROS), system of simultaneous equations (standard errors in parentheses) | 76 |
| Table 4.6: Agroholding affiliation and firm performance, extended model with the interaction terms of explanatory variables (standard errors in parentheses)..... | 79 |

List of Tables in appendices

| | |
|--|-----|
| Table A.1: Correlation matrix of independent variables | 108 |
| Table A.2: Correlation matrix of independent variables | 109 |
| Table A.3: The impact of ownership concentration on firm performance (standard errors in parentheses) | 110 |
| Table A.4: The impact of ownership identity on firm performance, RE model with Driscoll-Kraay robust SE (standard errors in parentheses) | 111 |

| | |
|---|-----|
| Table A.5: The impact of ownership identity on firm performance, 2SLS model (standard errors in parentheses) | 111 |
| Table A.6: Correlation matrix of independent variables | 112 |
| Table A.7: Agrohholding affiliation (agrh_mem) and firm performance (ROA, ROS), Pooled OLS and FE models (standard errors in parentheses) | 113 |
| Table A.8: Breusch and Pagan Lagrangian multiplier test for Random Effects (Ho: Random Effects are insignificant; H-alternative: significant random effect) | 114 |
| Table A.9: Hausman test (Ho: RE is consistent and more efficient than FE; H-alternative: FE is consistent) | 114 |
| Table A.10: Agrohholding affiliation and firm performance, extended model with the interaction terms of explanatory variables; fixed effects model with clustered errors at the firm level (standard errors in parentheses) | 114 |
| Table A.11: Agrohholding affiliation and firm performance, extended model with a dummy variable for the effects of the events of 2014, RE models (standard errors in parentheses) | 116 |

List of Figures

| | |
|---|----|
| Figure 1.1: The structure of gross agricultural output by farm types..... | 7 |
| Figure 3.1: Ownership stakes of the largest (CR1) and three largest (CR3) shareholders..... | 49 |
| Figure 3.2: Ownership stakes and identities of the largest shareholders | 50 |
| Figure 3.3: Return on assets (ROA) and return on sales (ROS) dynamics..... | 50 |
| Figure 3.4: Total assets and total sales dynamics (billion Rubles) | 51 |
| Figure 4.1: The share of agri-food firms represented by each region in the sample | 72 |
| Figure 4.2: Dynamics of ROA and ROS from 2012 to 2017 | 73 |
| Figure 4.3: Dynamics of Total Assets and Annual Sales from 2012 to 2017 | 73 |
| Figure 4.4: The share of agrohholding members from 2012 to 2017..... | 74 |

List of Figures in appendices

| | |
|--|-----|
| Figure A.1: The share of corporate farms in the structure of the gross agricultural production in Russia from 1990 to 2018 | 109 |
|--|-----|

SUMMARY

This Ph.D. thesis focuses on the analysis of the corporate governance of Russian corporate agri-food enterprises. The overall objective of the thesis is to investigate how corporate governance mechanisms may affect the financial performances of the corporate agri-food companies in Russia.

The thesis consists of five chapters. The first chapter introduces the general background of the thesis and outlines its main research questions. The second chapter provides empirical findings on the relationship between board gender diversity and financial performance in the case of the 261 corporate enterprises from the Russian agri-food industry. The third and fourth chapters respectively, provide empirical evidences on how ownership structure and agroholding affiliation may impact the economic performance, in the case of a panel of 203 Russian agri-food enterprises from 2012 to 2017. Finally, general conclusions of the thesis are provided in chapter 5.

The findings of the second chapter suggest a strong positive connection between female representation in the board of directors and firm financial performance. Nevertheless, in line with the critical mass theory, such positive relationship is only observed in the boardrooms where female directors represent a certain critical minimum. For instance, corporate boards with only one female director do not have any significant impact on firm performance. Moreover, boards with three or more female directors have higher impact on financial performance compared to the boards with two or less female directors. Further analysis shows that female representation in the boardroom has a positive effect on financial performance, mainly due to their executive, rather than monitoring effects.

The results of the third chapter indicate that both ownership concentration and ownership identity might have a significant effect on firm financial performance. The chapter reveals a statistically significant, an inversed U-shaped relationship between ownership concentration and performance, with the average level of ownership concentration found to be on the descending range of the inversed U-shaped curve. This suggests that at this average level, ownership concentration has rather a negative impact on firm performance. With respect to ownership identity, the results indicate similar quadratic relationships between state and director ownership and financial performance. On average, ownership by directors was found to be on the ascending range of the inverse U-shaped curve and below the peak point, suggesting a potential for further performance improvements.

The fourth chapter investigates how and why agroholding affiliation might affect firm financial performance. Agroholdings are certain types of business groups, who are believed to be the main engine behind the recent success of the Russian agri-food industry. Moreover, they are also expected to play a key role in moving the sector towards the new targets. The results of the chapter suggest that agroholding affiliation has a strong positive impact on financial performance. A further analysis reveal that this positive effect might be attributed to agroholdings affiliates' better access to capital, efficient management and stimulating executive compensation system. Based on the findings, the chapter also provides empirical recommendations for policy makers and corporate executives involved in Russian agri-food industry.

Finally, the fifth chapter synthesizes the research results, outlines the contribution of the thesis to the international literature and provides general concluding remarks.

Keywords: corporate governance, board of directors, gender diversity, ownership structure, agri-food enterprises, agroholding, resource dependence theory, financial performance, Russia

ZUSAMMENFASSUNG

Diese Dissertation konzentriert sich auf die Analyse der Corporate Governance russischer Agrar- und Ernährungsunternehmen. Das allgemeine Ziel der Arbeit ist es zu untersuchen, wie sich

Corporate-Governance-Mechanismen auf die finanzielle Leistung der Agrar- und Lebensmittelunternehmen in Russland auswirken können.

Die Dissertation besteht aus fünf Kapiteln. Das erste Kapitel stellt den allgemeinen Hintergrund der Arbeit vor und skizziert die wichtigsten Forschungsfragen. Das zweite Kapitel enthält empirische Ergebnisse zum Zusammenhang zwischen der geschlechtsspezifischen Vielfalt des Vorstands eines Unternehmens und der finanziellen Leistung bei 261 Unternehmen aus der russischen Lebensmittelindustrie. Kapitel 3 und 4 liefern empirische Belege dafür, wie sich die Eigentümerstruktur und die Agroholding-Zugehörigkeit auf die Wirtschaftsleistung auswirken können, am Beispiel eines Panels bestehend aus 203 russischen Agrar- und Lebensmittelunternehmen von 2012 bis 2017. Schließlich werden im Kapitel 5 allgemeine Schlussfolgerungen der Arbeit gegeben.

Die Ergebnisse des zweiten Kapitels deuten auf einen starken positiven Zusammenhang zwischen der Vertretung von Frauen im Unternehmensvorstand und der finanziellen Leistung der Firma hin. In Übereinstimmung mit der Theorie der kritischen Masse wird eine solche positive Beziehung jedoch nur in den Sitzungssälen beobachtet, in denen Direktorinnen ein bestimmtes kritisches Minimum darstellen. Beispielsweise haben Vorstände mit nur einer Geschäftsführerin keinen wesentlichen Einfluss auf die Unternehmensleistung. Darüber hinaus haben Vorstände mit drei oder mehr Direktorinnen einen höheren Einfluss auf die finanzielle Leistung als Vorstände mit zwei oder weniger Direktorinnen. Weitere Analysen zeigen, dass sich die Vertretung von Frauen im Sitzungssaal positiv auf die finanzielle Leistung auswirkt, hauptsächlich aufgrund ihrer Auswirkungen auf die Geschäftsführung und nicht auf die Überwachung.

Die Ergebnisse des dritten Kapitels weisen darauf hin, dass sowohl die Eigentümerkonzentration als auch die Eigentümeridentität einen erheblichen Einfluss auf die finanzielle Leistung eines Unternehmens haben können. Das Kapitel zeigt eine statistisch signifikante, inverse U-förmige Beziehung zwischen Eigentumskonzentration und Leistung, wobei sich die durchschnittliche Eigentumskonzentration im absteigenden Bereich der inversen U-förmigen Kurve befindet. Dies deutet darauf hin, dass sich die Eigentumskonzentration auf diesem Durchschnittsniveau eher negativ auf die Unternehmensleistung auswirkt. In Bezug auf die Eigentümeridentität weisen die Ergebnisse auf ähnliche quadratische Beziehungen zwischen dem Eigentum des Staates und des Direktors und der finanziellen Leistung hin. Im Durchschnitt lag die Beteiligung der Direktoren

im aufsteigenden Bereich der inversen U-förmigen Kurve und unterhalb des Spitzenwerts, was auf ein Potenzial für weitere Leistungsverbesserungen hindeutet.

Im vierten Kapitel wird untersucht, wie und warum sich eine Agroholding-Zugehörigkeit auf die finanzielle Leistung eines Unternehmens auswirken kann. Agroholdings sind bestimmte Arten von Unternehmensgruppen, von denen angenommen wird, dass sie der Hauptmotor für den jüngsten Erfolg der russischen Agrar- und Lebensmittelindustrie sind. Darüber hinaus wird erwartet, dass sie eine Schlüsselrolle bei der Bewegung des Sektors in Richtung neuer Ziele spielen. Die Ergebnisse des Kapitels deuten darauf hin, dass sich eine Agrohöling-Zugehörigkeit stark positiv auf die finanzielle Leistung auswirkt. Eine weitere Analyse zeigt, dass dieser positive Effekt auf den besseren Zugang der verbundenen Unternehmen zum Kapital, effizientem Management zum stimulierenden Vergütungssystem für Führungskräfte zurückzuführen sein könnte. Basierend auf den Ergebnissen enthält das Kapitel auch empirische Empfehlungen für politische Entscheidungsträger und Führungskräfte in der russischen Agrar- und Lebensmittelindustrie.

Schließlich fasst das fünfte Kapitel die Forschungsergebnisse zusammen, skizziert den Beitrag der Arbeit zur internationalen Literatur und liefert allgemeine abschließende Bemerkungen.

Schlagwörter: Corporate Governance, Vorstand, Geschlechterdiversität, Eigentümerstruktur, Unternehmen des Agrar- und Lebensmittelsektors, Agroholding, resource dependence theorie, finanzielle Leistung, Russland

1. General Introduction

1.1 Corporate farm enterprises and corporate governance

Separation of ownership and control is regarded as a main difference between corporate farm enterprises and family farms. In a traditional family farm setting, there is no separation of ownership and control and farms are operated and managed by their owners. This gives the managers higher incentives to work more efficiently, since they are also the owners of the farms and therefore are the residual claimants of generated revenue. Assuming that the best interests of any farm owners is to maximize the values of their farms and farm revenues and that the owners and managers are represented in one person, in a traditional family farm setting the interests of the managers are perfectly aligned with the interests of the owners.

Corporate farm enterprises on the other hand are operated by the hired management, who are given the full authority to make decisions and operations on behalf of the farm owners (shareholders). Due to separation of ownership and control, the interests of the managers are no longer perfectly aligned with the interests of the owners, since the former do not have a direct claim on company assets or revenue. Hence, the farm managers might not represent the best interests of the owners and do not thrive to maximize the values and revenues of the managed farms. Instead, they might act according to their own interests and personal objectives while managing the farm and making important decisions.

Such misalignment of interests between the owners and managers of corporate farm enterprises may result to the agency conflict between the agents (managers) and the principals (owners) (Chaddad & Valentinov, 2017; Valentinov et al. 2015). Potential presence of the agency problem and corresponding costs is therefore believed to be one of the main drawbacks of corporate farm enterprises, as opposed to traditional family farms (Hermans et al., 2017). In this regards, corporate governance may act as an effective mechanism for mitigating the potential agency conflict in corporate farms and minimize the corresponding agency related costs.

According to the existing literature, corporate governance can be defined as a collection of instruments and processes through which - the control rights that shareholders and debt-holders assign to the management can be effectively controlled and the interests of the operators (managers) are better aligned with those of the owners (shareholders/debtors), thereby minimizing

the potential agency conflict, and increasing the likelihood that managers represent the best interests of the shareholders and strive for the maximization of the shareholders' wealth (Das & Dey, 2016; Shleifer & Vishny, 1997). Corporate governance instruments are generally characterized as internal and external governance mechanisms. While internal governance includes firm-level characteristics such as board of directors and ownership structure, external governance implies country-level specifics, like institutional environment, legal system and investor protection rights (Denis & McConnell, 2003). In this thesis, we concentrate specifically on internal governance mechanisms, since the scope and aim of the study is rather limited to a single-country analysis, and as such investigation of external governance mechanisms becomes irrelevant.

1.1.1 Internal Corporate Governance - Board of directors

The structure and composition of the board of directors is an essential part of an internal corporate governance system. Organizational architecture of a corporate firm implies the existence of the board of directors, which is designed to represent the interests of the shareholders. The primary role of the corporate board is to monitor and control the company management and to assure that the shareholders' interests, including maximization of their value, are best pursued by the management (Fama, 1980). Hence, boards have total control over management, starting from hiring new managers and setting managerial compensation levels to discharging them from their positions. In theory, board of directors might be regarded as an effective corporate governance mechanism. In practice however, their effectiveness may not be so obvious, for a number of reasons. Firstly, in some cases, executive managers, who are supposed to be controlled by the board of directors, might themselves be the part of the corporate board (in some cases they may even constitute the majority of the board). Secondly, it might also be the case that the CEO (chief executive officer) of the company is also the chair of the board of directors (Denis & McConnell, 2003). While both theoretical and empirical studies up to date fail to provide a one-sided answer on the potential effects of the board of directors on corporate performance (Fuzi et al. 2016; Terjesen et al. 2016), the bulk share of the existing literature emphasizes on the important roles of board characteristics (board size, board independence, board gender diversity and CEO duality) and executive compensation for strengthening the functioning role of corporate boards and improving their effectiveness as a good corporate governance mechanism.

1.1.2 Internal Corporate Governance – Ownership structure

The topic of ownership structure and its impact on corporate performance, as an important part of corporate governance mechanism, has been widely discussed among researchers for many years and continue to be a critical research agenda today (Iwasaki & Mizobata, 2019). In the existing corporate governance literature, there is a general agreement among scholars that the ownership structure of a company may have a significant effect on its performance. Researchers generally agree that company performance might, to a certain degree, be affected by the level of ownership concentration and/or ownership identity (Iwasaki et al. 2018; Wang & Shailer, 2015). However, the nature of this association is still unclear, with prior empirical studies proposing rather mixed evidence on the issue.

1.2 Overview of Russian agricultural development

During the Soviet period, the structure of agricultural production was dominated by two types of large farm enterprises: collective farms (kolkhozi) and state farms (sovkhozi). Dissolution of the Soviet Union and transition of Russia to a market economy resulted to the emergence of new types of agricultural producers: corporate farms (former collective and state farms), household farms and peasant (family) farms. It was generally expected that after its transition to a market economy, Russian agriculture would be gradually shifted towards newly emerged small-scale household and peasant farms (Spoor & Visser, 2004; Visser et al. 2014).

Indeed, during the first decade of transition period, the share of household farms in the structure of total agricultural production have increased substantially, from 26% in 1990 to 57% in 1998, together with a sharp decline in the share of corporate farms from 74% in 1990 to 40% in 1998 (Figure 1.1). The first years of transition led to the crash of the state revenue, as a result of which substantial government subsidies to the agricultural sector (in 1990 state subsidies to the agricultural sector were around 10% of the Soviet GDP) were almost entirely eliminated. This resulted to a significant drop in the levels of agricultural output during the first decade of transition period (Belyaeva, 2018; Liefert & Liefert, 2012). While Russian gross agricultural output has plummeted by nearly 60% from 1991 to 2000 (Svatoš et al. 2014), during the same period, production of livestock and grain dropped by around 56% and 44% respectively (RosStat, 2019). Such a remarkable decline in domestic agricultural output was substituted by an increasing import of agricultural products. During the 1990s the import of meat products grew by more than half,

from an average of 1,65 million metric tons in 1989-1991 to an average of 2.52 million metric tons in 1996-2000 and Russia became one of the largest importers of meat in the world. The sharpest increase was seen in the imports of poultry, which during the same time frame have skyrocketed by more than five times (Liefert & Liefert, 2012).

The second decade of transition illustrated a gradual decline of the share of household farms in the structure of gross agricultural output, from its all-time high at around 57% in 1998 to about 47% in 2010. Corporate farms in contrast, experienced although slighter, but still a certain recovery, from its all-time low at around 40% in 1998 to nearly 46% in 2009 (Figure 1.1). Agricultural output, on the other hand, demonstrated a significant rebound during the 2000s. While gross agricultural output improved by more than half between 1998 and 2009 (Svatoš et al., 2014), during the same period production of grain more than doubled and production of livestock rose by nearly 44% (RosStat, 2019). Such a remarkable rise in domestic agricultural production is believed to be stimulated by a substantial recovery in the levels of government support. In 2005, agricultural sector was given a high priority from Russian government at the federal level, as a result of which, between 2005 and 2010 total state subsidies into agriculture rose by more than three times (Sedik et al. 2017). Nevertheless, despite the notable rebound of the industry, import of agri-food products increased significantly and Russia remained as a large net importer of agri-food products during the 2000s. In the period between 2000 and 2008, the agri-food imports of Russia rose by nearly five times, from \$7 billion to \$33.3 billion (agri-food exports being around \$8.4 billion in 2008), making Russia the second largest importer of agri-food products among the countries with emerging economies, after China (Liefert & Liefert, 2012).

During the last decade of transition, the importance of agricultural sector has increased even further and government introduced a number of programs, such as the Food Security Doctrine of 2010 and the Agricultural Development Program of 2013-2020 to support its domestic agri-food production (Tleubayev et al. 2018). The ultimate aim of these programs was to stimulate the achievement of the self-sufficiency levels for most of the agri-food products and even more to become one of the largest global exporters for a number of agri-food products (Götz & Djuric, 2016). In the framework of such governmental programs, between 2012 and 2019, a total amount of nearly RUB 1.8 trillion were allocated into the agri-food sector (Wegren et al. 2019). As a result, in the past ten years, Russian agri-food industry illustrated a profound progress, with more than

twofold increase in country's gross agricultural output, from RUB 2.46 billion in 2010 to RUB 5.91 in 2019 (RosStat, 2020b). Total grain output increased by almost twofold, from 61 million tons in 2010 to 113.3 million tons in 2018 (RosStat, 2019). Remarkable growth can also be seen in the meat industry, with the production of poultry and pork rising by about 150% and 200% respectively between 2008 and 2017 (Wegren et al., 2019). During the same time period, country's agricultural exports jumped by approximately 130%, reaching to around \$21 billion in 2017 (Uzun et al. 2019). Large-scale corporate farms are believed to be the main recipients of government subsidies and hence are suggested to be the driving force behind an outstanding growth of the Russian agri-food sector of the past decade (Barsukova, 2016; Wegren & Elvestad, 2018). Indeed, large-scale corporate farms expanded significantly after 2010. Their share in the structure of total agri-food output increased substantially from around 45% in 2010 to more than 58% in 2019 (Figure 1.1). Large-scale corporate agri-food enterprises are also reported to operate around 80% of all arable land in Russia (Sedik et al., 2017). In addition, while Russia is regarded as one of the major agricultural importers in the world, its import of agri-food products dropped dramatically in the past ten years, from around \$43 billion in 2013 to about 29\$ billion in 2017 (Uzun et al., 2019). Such a sharp decrease in the agri-food imports was also to a great extent the result of the Russian embargo on the import of a range of agri-food products from a number of western countries introduced in the August of 2014 (Smutka et al. 2016).

Today, Russia is regarded as one of the key agricultural producers worldwide and plays an important role for the global food security. In 2017, Russia experienced a record harvest of nearly 86 million tons of wheat and increased its wheat exports to around 33 million tons, thereby becoming the largest wheat exporter in the world (FAOSTAT, 2017a, 2017b). Besides wheat, Russia is also among the largest exporters of beet pulp, sunflower oil, peas, oil cake, oil meal, flaxseed and barley globally (USDA, 2018a; Uzun et al., 2019). Modern Russian agriculture can be distinguished by the dominance and active expansion of large-scale, corporate agri-food enterprises (Davydova & Franks, 2015). For example, in 2019, large corporate farms produced more than 58% of country's total agri-food output and as of 2017, only 55 large-scale corporate farms collectively controlled approximately 10.5% of all cultivated land in Russia (around 12.6 million ha) (BEFL agency, 2018; RosStat, 2020a). Analogous situation can be discovered in the dairy and meat industries. In 2017, top 25 large corporate enterprises accounted for nearly half (46%) of the total meat output of the country (Kulistikova, 2018), whereas the top 20 and the top

10 corporate agri-food firms produced nearly 62% of all pork and 58% of all poultry, respectively (Dyatlovskaya, 2018a; USDA, 2018b). In the same year, top 20 corporate agri-food companies produced approximately 10% of all raw milk and top 50 corporate enterprises accounted for about 55% of all milk processing in the country (Dairynews, 2018a, 2018b).

In spite of the substantial growth of its agricultural sector during the last decade, Russia still remains as a net importer of agri-food products, having a negative trade balance of agri-food products of around \$7 billion as of 2017. Russian government seeks to further enhance the range and volume of exported agri-food products and aims to become a net exporter of agri-food products by 2022 (Kremlin, 2018). Furthermore, in 2018 Russian president introduced a decree, according to which the export of agri-food products should reach to \$45 billion by 2024, thereby moving Russia into the list of top 10 agri-food exporting countries globally (Dyatlovskaya, 2018b). For these purposes, government has been allocating unprecedented amounts of financial resources into the sector. Russian policy makers rely heavily on large-scale corporate farms for the realization of their ambitious goals and hence they were the primary receivers of governmental support (Barsukova, 2016; Wegren et al., 2019). For instance, over 40% of all state subsidies in 2015 were received by 248 large-scale agri-food enterprises, which only make around 1.2% out of total number of agri-food producers (Uzun et al., 2019). In this respect, it is very likely that large corporate farms would continue to dominate other types of agricultural producers in the structure of total agricultural output and that their importance for the whole agri-food system of the country would grow even further.

In spite of their continued dominance and increasing importance for Russian agriculture, literature on large corporate agri-food enterprises is scarce (Hermans et al., 2017). This thesis aims to contribute to the limited literature on large-scale corporate agri-food firms and seeks to identify the factors that might potentially improve their financial performance. Large-scale corporate agri-food enterprises play a crucial role for Russian agriculture and rural economy for the following reasons. Firstly, although agricultural employment accounts for a relatively small portion (7.5% in 2016) of total employment (RosStat, 2019), large-scale corporate agri-food companies have high social importance, especially in rural areas. As successors of former collective and state farms, large corporate agri-food companies, to a certain degree, still keep up with their former socialist roles and are considered not only as economic entities, but also as essential social units. In many

rural areas, these companies still remain as one of the most important social institutions, providing significant support to rural infrastructure, employment and cultural life (Belyaeva, 2018; Spoor & Visser, 2004). Secondly, corporate agri-food enterprises account for almost 60% of total agri-food production of the country as of 2019 (Figure 1.1). This figure might be even higher, since, in contrast to household plots, corporate farms have to pay income taxes and hence have certain financial stimulus to underreport their output levels (Liefert & Liefert, 2012). Financial insolvencies of large-scale corporate agri-food enterprises might therefore put the national food security and rural economy at a great risk. After all, economic failure by corporate agri-food firms is not so uncommon in Russia. As reported by Yastrebova (2005), nearly quarter of all bankruptcy cases in Russian agri-food sector account for corporate farms. Hence, it is very important to understand how large-scale corporate agri-food enterprises may secure better financial conditions, thereby maintaining their vital roles as important economic and social units.

The thesis focuses specifically on the role of corporate governance as an effective tool for improving firm financial performance. To the best of the author’s knowledge, no previous research has investigated this issue in the context of the Russian agri-food industry.

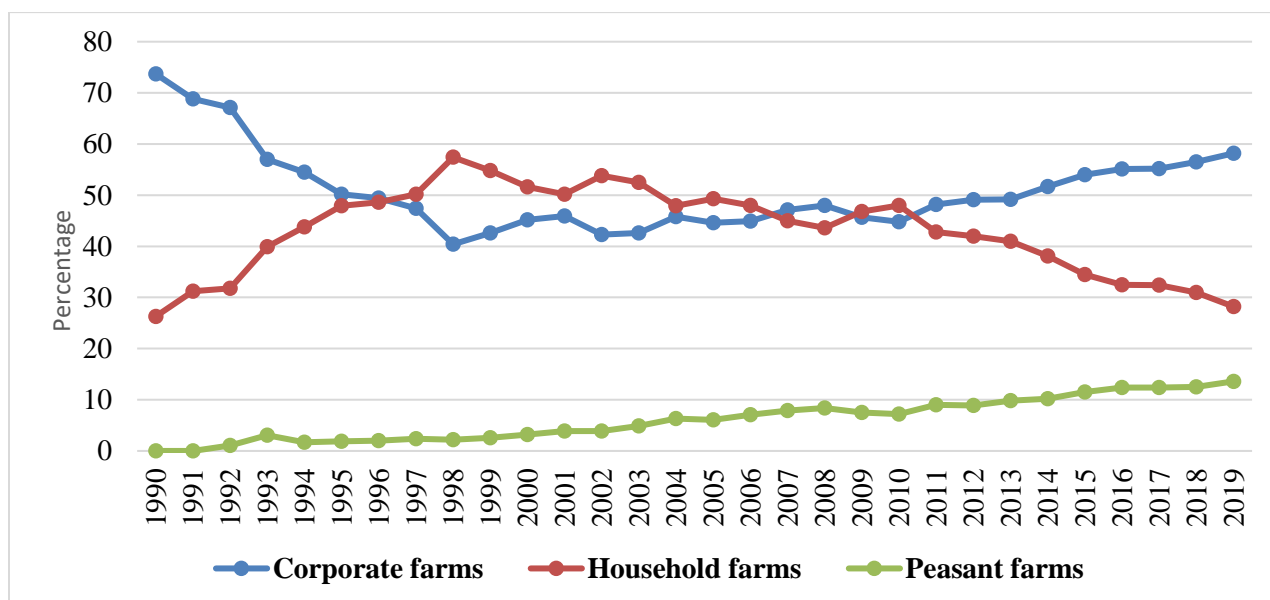


FIGURE 1.1: THE STRUCTURE OF GROSS AGRICULTURAL OUTPUT BY FARM TYPES

Source: Russian Statistical Agency (RosStat, 2020a)

1.3 Problem Statement

The thesis was accomplished in the framework of a research project “International Competence Center on Large Scale Agriculture (LaScala)” and focuses on Russian corporate agri-food enterprises. The overarching objective of the thesis is to study the corporate governance and financial performance relationship in the case of the corporate agri-food enterprises in Russia. The main research questions of the study are as follows.

1. How does board gender diversity affect the financial indicators of Russian agri-food enterprises?

Over the last few years, gender diversity in corporate boardrooms become one of the most debated topics in both academic and popular literature (McKinsey & Company, 2016; Nguyen et al. 2015a). Increasing number of countries are encouraging the representation of female directors in corporate boardrooms, with some countries like Belgium, Netherlands and Norway even introducing affirmative measures, such as quotas (Marinova et al. 2016). The main arguments behind growing attention towards board gender diversity can be generalized as ethical and economic. While the former proposes maintaining board gender diversity as an important part of sustaining social equality (Brammer et al. 2007), the latter is based on the arguments that higher female representation in the boardroom might significantly enhance firm performance (Campbell & Mínguez-Vera, 2008).

Indeed, growing body of literature investigate the firm-level economic impacts of gender diverse corporate boards. Nevertheless, empirical evidence on the nexus between board gender diversity and firm performance provide rather mixed and controversial results. While some authors reveal the link between board gender diversity and firm performance as positive (Campbell & Mínguez-Vera, 2008; Carter et al. 2003; Liu et al. 2014), others observe a negative connection (Adams & Ferreira, 2009; Ahern & Dittmar, 2012), and yet others do not find any relations at all (Randøy et al. 2006; Rose, 2007).

Theoretical explanations on the potential effects of higher board gender diversity on firm performance can be explained through agency and resource dependence theories, which are the two major theories used for studying this issue.

From the perspective of an agency theory, higher gender diversity could improve the monitoring function of the board and reduce the potential agency problem, thereby having a positive effect on corporate performance (Fama & Jensen, 1983; Jensen & Meckling, 1976). Existing studies suggest that women directors are more active on the board (Virtanen, 2012), have better monitoring skills (Adams et al. 2011), demand more audit efforts and CEO accountability (Adams & Ferreira, 2009) and are more prone to raising important questions and discuss problems (Ingley & van der Walt, 2005), compared to their male counterparts. Nevertheless, other studies point out that higher female representation does not automatically enhance the monitoring abilities of the board, especially if female directors are marginalized (Carter et al., 2003) and if the company already has a strong corporate governance system. In the latter case, higher female representation in the boardroom may even hinder the firm performance, as a result of unnecessary over-monitoring (Adams & Ferreira, 2009).

Resource dependence theory suggests that board gender diversity may contribute to company's vital resources by enhancing the connection between a company and its external environment, thereby improving the overall firm performance (Goodstein et al. 1994; Pfeffer, 1973). Prior research propose that women directors may advance the human capital of the board by delivering further insights about female workers, customers and business partners (Daily et al. 1999). Moreover, since most of the purchasing decisions in households are made by women, they lean to have a better perception of the consumer market (Post & Byron, 2015). However, higher heterogeneity of the corporate boards may also have certain drawbacks, such as higher possibilities of conflicts (Richard et al. 2004), difficulties in reaching to a common agreement and delayed decision-making (Hambrick et al. 1996), in which cases higher gender diversity in the boardroom may in fact worsen the firm performance.

So, based on the existing literature, the true nature of board gender diversity – firm performance nexus cannot be predicted a priori and rather depends on a particular empirical setting. To the best of the author's knowledge, there is no single study that investigates this nexus in the case of Russian agri-food enterprises. Hence, it remains unclear whether board gender diversity may enhance the financial performances of Russian agri-food firms. This study aims to fill this gap.

2. What is the relationship between the ownership structure of Russian agri-food firms and their economic performance?

Specific organizational structure of corporate firms implies the separation of ownership and control, where companies are operated by professional management, rather than the shareholders. This raises the issue of agency conflict, where managers might not represent the best interests of the shareholders. The issue of agency conflict might be even more pronounced in companies with widely-dispersed ownership structure. Due to their relatively small size, it might be more difficult and burdensome for the shareholders of widely-dispersed firms to verify the actions of the managers. Hence, they might be less capable for implementing a proper control over management, thereby increasing the likelihood and magnitude of the potential agency problems (Balsmeier & Czarnitzki, 2017; Jensen & Meckling, 1976). On the other hand, if ownership is concentrated, thanks to their large size, shareholders would have both willingness and capability to have a proper discipline and control over the management, thereby minimizing the potential agency costs (Shleifer & Vishny, 1997). This may in turn improve the overall performance of the company. Indeed, a number of empirical evidences observe a significant positive effect of concentrated ownership on firm performance (Alimehmeti & Paletta, 2012; Lee, 2008).

However, while concentrated ownership may mitigate the agency conflict and related costs, it may also lead to yet another issue - principal-principal problem, a conflict between controlling and minority shareholders. In this case, due to their controlling power, large shareholders might act in favor of their personal interests at the expense of the minority shareholders and/or involve in potentially inefficient endeavors (Claessens et al. 2000; Morck et al. 1988), thereby hampering the overall firm performance. This view is also supported by a number of empirical studies, which observe a significant negative link between concentrated ownership and performance (Lepore et al. 2017; Setia-Atmaja, 2009).

Ownership identity is another important element of ownership structure, which could potentially affect corporate performance (Kumar & Zattoni, 2019). From the perspective of an agency problem, not only the size of the shareholder, but also the identity of the controlling shareholder is important. Different types of shareholders (i.e. individuals, managers, institutional investors, business groups, government and etc.) may have different incentives and capabilities and therefore their attitudes towards management control and supervision might significantly differ from each other (Iwasaki et al., 2018; Lee, 2008). Potential effects of the ownership structure on corporate performance might thus substantially vary, depending on the identity of the controlling

shareholder. For instance, compared to outside individuals, equity ownership by company management might significantly minimize the agency problems and improve firm performance, since the latter would be among the claimants of the residual income and therefore would have more incentives to work and strive for the financial prosperity of the company (Jensen & Meckling, 1976). On the other hand, however, if management ownership becomes too concentrated, it may also result to managerial entrenchment, a situation in which managers might abuse their ownership control to extort the company resources for their personal interests (Lins, 2003; Morck et al., 1988), thereby worsening the overall corporate performance.

Again, existing international literature fails to provide conclusive evidence on the link between ownership structure and financial performance, with the true nature of the link depending on specific empirical context. Coming to the regional literature, as far as an author can tell, there is no study that investigates the nexus between ownership structure and financial performance. Hence, to date, the question on the potential effects of the ownership structure on the financial indicators of Russian agri-food enterprises remains open. This thesis aims to close this gap in the literature.

3. Does agroholding affiliation improve the financial performances of Russian agri-food firms?

Agroholdings are certain types of business groups, which have emerged in a number of post-communist countries, including Russia, at the end of 1990s and have been considerably growing since then (Rada, Liefert, & Liefert, 2017; Visser et al., 2014). They are vertically integrated groups, who control the whole process of the value chain, including the production of inputs, production and processing of final agri-food products and distribution of these products to the market (Davydova & Franks, 2015; Matyukha, 2017). This enables them to minimize the dependence and related uncertainties from other interdependent organizations such as input suppliers, processors, distributors and etc. (Hockmann et al. 2011; Rada et al., 2017). An agroholding form of agri-food production might be a good way to advance the linkage between a company and its external environment, thereby improving its access to vital external resources. Prior research observes that agroholdings have better access to the outside capital and modern technology and employ innovative and advanced techniques (Hahlbrock & Hockmann, 2011; Visser et al., 2014). They also have sufficient resources to attract qualified workforce and to

maintain adequate quality and standards control by implementing the best international standards and practices (FAO, 2009). Furthermore, in addition to external resources, agroholdings as business groups have internal markets for resources which other organizational forms do not have. For instance, agroholding affiliates have an access to the intra-group labor, capital and trade markets and can also benefit from the within-group transfer of technology (Belenzon, Berkovitz, & Rios, 2013; Wan, 2005).

Today, agroholdings are regarded as a successful model for the organization of agri-food production and are believed to be the main drivers of the recent progress of Russian agri-food industry. Nevertheless, in spite of the substantial growth and increasing importance of agroholdings for the country's agri-food industry, current literature on agroholdings is still relatively immature and fails to provide clear empirical evidence on the superiority of agroholdings over other forms of agri-food production. While some scholars revealed the superiority of agroholding members over independent firms in terms of productivity and efficiency (Epshtein, Hahlbrock, & Wandel, 2013; Hahlbrock & Hockmann, 2011), other researchers observed rather contradicting results (Hockmann et al., 2009; Uzun et al. 2012). Furthermore, the bulk majority of the prior research focuses on the production performance of agroholding affiliates, with the studies concentrating on financial performance being non-existent. Taking into consideration that almost the quarter of all bankruptcy cases in Russian agriculture accounts to corporate farms (Yastrebova, 2005), understanding how agroholding affiliation might affect not only production, but also the financial performance of the corporate agri-food enterprises in Russia is of high importance. This thesis aims to fill this gap in the literature.

The thesis is organized as follows. It consists of three main, separate and non-consecutive chapters (chapter 2, 3 and 4). The second chapter offers empirical evidence on the roles of the board of directors in general and board gender diversity in particular for mitigating the potential agency conflict and improving performance of Russian agri-food firms. The third chapter provides an empirical analysis of the ownership structure of the Russian corporate agri-food enterprises. It investigates whether the ownership structure might be an effective corporate governance mechanism that may potentially enhance firm financial performance. The fourth chapter empirically investigates the impact of a certain ownership type, known as agroholding, on the

financial performances of Russian corporate agri-food companies. Finally, the main findings and contributions of the study are summarized in the last chapter.

2. Board gender diversity and firm performance: Evidence from the Russian agri-food industry¹

2.1 Introduction

Globally, the organization of food production experienced significant changes during the last couple of decades. An increased role of industrial, large-scale farming lead to the emergence of new agribusiness models that 1) operate at a significantly larger scale compared to traditional farms, 2) have integrated production and processing, and 3) have corporate-style organizational structures in place (Boehlje, 1999; Petrick et al., 2013). The size of these agri-food enterprises can reach up to 500,000 hectares (ha)—and in some cases even more (Hermans et al., 2017). In some

¹ This chapter was published as the following open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020): Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International food and agribusiness management review*, 23(1), 35-53. <https://doi.org/10.22434/IFAMR2019.0011>; This chapter benefitted from the comments by the anonymous referees of *International food and agribusiness management review*.

countries of the former Soviet Union, Latin America, and Eastern Europe, large-scale agri-food enterprises are getting even larger due to growing competition over land and improved access to international capital markets (Chaddad, 2014; Deininger and Byerlee, 2011).

The role of large-scale agri-food production in tackling the global food security problem is very crucial. On the one hand enhancing large scale farming is important for boosting agricultural production, especially because of the increasing gap between the demand and supply of food worldwide, as suggested by Collier (2008) and Collier and Dercon (2014). On the other hand, because of their enormous size and their high share of total agri-food production, bankruptcy of such large-scale agri-food enterprises raises the issue of food security even further. The role of Russia is very important in both cases. While Russia is already one of the world's largest exporters of crops like wheat, barley, and sunflower seeds, it has a huge potential to further increase its list of exported agri-food products. The government of Russia is heavily promoting domestic agri-food production with a goal of achieving self-sufficiency levels for a number of food products—and also to become one of the largest exporters of those products globally (Götz and Djuric, 2016). Furthermore, the high concentration of agri-food production in the hands of a few large enterprises in Russia means the food security issue is in question. For instance, 12.6 million ha of land, or 10.5% of all cultivated land in Russia, is operated by 55 of the largest agri-food companies (BEFL Agency, 2018). A similar situation is observed in the meat and dairy sectors, with the top 25 meat producers and the top 20 milk producers accounting for 43% of all meat and 9.7% of all milk production, respectively (Agroinvestor, 2017; Dairynews, 2018). Defaults of such huge enterprises could thus damage domestic as well as global food security, especially if such cases were widespread. In fact, a significant share of agro-holdings in Russia are in situations of financial difficulty or bankruptcy (Spoor et al., 2012), with 20% of all bankruptcy cases in Russia being corporate farms (Yastrebova, 2005). Such corporate defaults in the agri-food industry can also be traced in the Ukraine, the second largest agricultural producer after Russia among post-communist countries (Gagalyuk, 2017). Therefore, not only is the emergence of large scale agri-food companies important for food security—but their economic sustainability as well.

In this respect, it's important to study the factors that could improve the performance of large-scale agri-food enterprises, and thus maintain their economic sustainability. We focus primarily on the roles of boards of directors in improving firm performance. The roles of the boards are

especially crucial for large-scale agri-food production, where companies are mainly operated by hired managers who are not the residual claimants of the income. This opens the door for potential agency conflict between the owner(s) and the manager(s) of the company. According to Eisenhardt (1989), agency conflict can arise either because the goals of the owner and the manager are not the same, or because it is difficult and costly for the owner to verify what the manager is actually doing. As a result, it can lead to inefficient and poor management of firms, which in turn may negatively influence firm performance. The role of the board of directors is especially important in this regard, as one of the primary duties of the board is to monitor executive management and ensure that shareholders' interests are best pursued by management (Fama, 1980). Well-functioning boards of directors can thus play an extremely important role in minimizing the agency conflict issue and improving company performance (Hillman and Dalziel, 2003).

While earlier studies on corporate governance emphasize the importance of board size, board independence, director ownership, and executive compensation on board functioning and firm performance, a new strand of research is investigating the role of board diversity. Board gender diversity, in particular, has become one of the most debated issues in both popular and academic literature during the last couple of years (McKinsey & Company, 2016; Terjesen et al., 2016). In Europe, for example, governments are paying more attention to increased female representation in the boardroom and top management positions (Terjesen et al., 2016; Reguera-Alvarado et al., 2017).

Existing literature suggests that female directors can bring additional value to the firm, as female executives tend to be more attentive in making crucial corporate decisions (Huang and Kisgen, 2013; Levi et al., 2014) and are more diligent monitors (Adams and Ferreira, 2009). They can also bring different views and experiences to the board, and contributing to better decision making of the board (Hillman et al., 2007). While many national corporate governance codes stimulate female representation on boards, some countries, like Norway and Spain, even mandate gender quotas for public companies (Terjesen et al., 2016).

However, the literature on the relationship between board gender diversity and firm performance remains inconclusive, and mostly focuses on the US and other developed economies. While Carter et al. (2003) and Campbell and Mínguez-Vera (2008) observe the positive impact between the share of female directors and firm performance, other studies like Adams and Ferreira (2009) and

Ahern and Dittmar (2012) have quite opposite results, while others do not observe a significant relationship at all (Carter et al., 2010; Rose, 2007; Randøy et al., 2006).

The current study attempts to investigate the relationship between board gender diversity and firm performance in the case of Russian agri-food enterprises and thereby aims to fill several gaps in the existing literature: First of all, we provide a new empirical evidence to rather inconclusive literature on the relationship between board gender diversity and firm performance. Secondly, we enlarge the literature beyond developed economies, with well-established corporate governance culture, and focus on a post-communist transition country: Russia, which has quite a short market economy history and relatively under-developed corporate governance (Li et al., 2012). This has resulted in a large number of corporate bankruptcies, especially in the agri-food industry (Yastrebova, 2005). Moreover, Russia is one of the largest agricultural producers worldwide, playing an important role in global food security, making this study even more relevant. Thirdly, we conduct a pioneering analysis in the context of large-scale agri-food production, which plays a crucial role in the national food security of Russia. Fourthly, we follow the recommendations of Terjesen et al. (2016) and distinguish the effects of female representation as executive and monitoring effects. Lastly, we analyze the empirical evidence on critical mass theory impacts in the context of the board gender diversity–firm performance relationship.

The remainder of the paper is organized as follows: Section 2.2 provides an overview of the literature on the board gender diversity and firm performance relationship. This study's data and methodology is then described in section 2.3, followed by the empirical results together with a discussion in section 2.4. Finally, our conclusion is presented in section 2.5.

2.2 Literature Review

A growing body of literature emphasizes the importance of gender diversity in corporate boardrooms and among top management positions (Campbell and Mínguez-Vera, 2008; Carter et al., 2003; Catalyst, 2007; Liu et al., 2014; McKinsey & Company, 2007; Nguyen et al., 2015; Terjesen et al., 2016). While many European countries encourage increased female representation within corporate governance, some countries are even implementing affirmative actions, such as quotas. Female representation in the boardrooms of large companies in countries like Norway, Belgium, and Netherlands, for instance, must not be lower than 40%, 33%, and 30%, respectively

(Marinova et al., 2016). The arguments behind greater gender diversity can be categorized into two broader groups: ethical and economic. The former suggests that excluding females from the boardrooms because of their gender is immoral and that firms should balance gender diversity to maintain equality in society (Brammer et al., 2007). The latter highlights economic motivation, or the so-called “business case”, which is based on the arguments that female representation among corporate boards might improve the financial performance of the company (Campbell and Mínguez-Vera, 2008).

The empirical evidence on the relationship between board gender diversity and firm performance is inconclusive and remains rather controversial. While some scholars observe the relationship between gender diversity and firm performance as positive, others find a negative relationship, and others still do not detect any links at all (Table 2.1).

TABLE 2.1: OVERVIEW OF THE LITERATURE (CHRONOLOGICAL ORDER)

| Author(s), year | Gender diversity | Performance | Data | Main result |
|------------------------------------|----------------------------|---------------------|---|-----------------------|
| Marinova et al., 2016 | Female ratio | Tobin's Q | 186 firms, Denmark and Netherlands (2007) | no relationship |
| Terjesen et al., 2016 | Female dummy, Female ratio | Tobin's Q, ROA | 3876 firms, 47 countries (2010) | positive relationship |
| Nguyen et al., 2015 | Female ratio, Blau Index | Tobin's Q, ROA | 120 firms, Vietnam (2008-2011) | positive relationship |
| Liu et al., 2014 | Female dummy, Female ratio | ROA, ROS | 2000 firms, China (1999-2011) | positive relationship |
| Ahern and Dittmar, 2012 | Female ratio | Tobin's Q | 248 firms, Norway (2001-2009) | negative relationship |
| Bøhren and Strøm, 2010 | Female ratio | Tobin's Q, ROA, ROS | 203 firms, Norway (1989-2002) | negative relationship |
| Carter et al., 2010 | Number of females | Tobin's Q, ROA | 641 firms, US (1998-2002) | no relationship |
| Lückerath-Rovers, 2013 | Female ratio | ROE, ROS, ROIC | 99 firms, Netherlands, (2005-2007) | positive relationship |
| Renée B. Adams and Ferreira, 2009 | Female dummy, Female ratio | Tobin's Q, ROA | 1939 firms, US (1996-2003) | negative relationship |
| Miller and del Carmen Triana, 2009 | Blau Index | ROI, ROS | 326 firms, US (2003) | no relationship |

| | | | | |
|---------------------------------|--|--------------------|--|-----------------------|
| Campbell and Mínguez-Vera, 2008 | Female dummy, Female ratio, Blau Index | Tobin's Q | 68 firms, Spain (1995-2000) | positive relationship |
| Nguyen and Faff, 2007 | Female dummy, Female ratio | Tobin's Q, ROA | 793 firms, Australia (2000-2001) | positive relationship |
| Rose, 2007 | Female ratio | Tobin's Q | 100 firms, Denmark (1998-2001) | no relationship |
| Randøy et al., 2006 | Female ratio | ROA, equity value | 459 firms, Denmark, Norway and Sweden (2005) | no relationship |
| Carter et al., 2003 | Female dummy, Female ratio | Tobin's Q, ROA | 638 firms, US (1997) | positive relationship |
| Singh et al., 2001 | Female ratio | ROA | 100 firms, UK (1999-2000) | positive relationship |
| Shrader et al., 1997 | Female ratio | ROS, ROA, ROI, ROE | 200 firms, US (1992) | negative relationship |

Source: compiled by authors

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020): Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International food and agribusiness management review*, 23(1), 35-53

Carter et al. (2003) study the relationship between board gender diversity and firm value among a sample of US firms. They observe a positive relationship between board gender diversity and firm value, measured as Tobin's Q. Focusing on a sample of Spanish firms, Campbell and Mínguez-Vera (2008) find a positive link between the percentage of female directors in the boardroom and firm financial performance. Liu et al. (2014) observe that not only the percentage, but also the absolute number of female directors in the boardroom are important for determining a firm's financial performance. According to their results, one-female boardrooms do not have any effect on return on sales (ROS). However, they found that having boardrooms with two and three or more female directors can improve ROS by 0.02% and 0.06%, respectively.

Contrarily, Ahern and Dittmar (2012) and Bøhren and Strøm (2010) discovered that the fraction of female directors in the boardroom is negatively linked to a firm's financial performance (measured as Tobin's Q and return on assets (ROA)) in the case of the sample of firms in Norway. Adams and Ferreira (2009) observe similar results for their sample of US firms.

Another stream of research does not find any links between boardroom gender diversity and firm performance. Rose (2007) and Randøy et al. (2006) find no evidence of a relationship between the fraction of female directors on boards and firms' financial performance in the case of Norwegian

firms. A similar result was obtained by Carter et al. (2010), who looked at US firms, finding that an additional female board of director does not improve a firm's financial performance.

Agency theory and resource dependence theory are the dominant theories used to explain the relationship between board gender diversity and firm performance, as well as the reasons behind the rather inconclusive empirical results.

Agency theory emphasizes the importance of the monitoring function of boards of directors, as it plays a crucial role in minimizing the principal-agent conflict, which in turn can improve firm performance (Fama and Jensen, 1983; Jensen and Meckling, 1976). Recent empirical research provides evidence that higher gender diversity could potentially improve the monitoring functions of a board. Female directors tend to be more active on the board compared to male directors (Virtanen, 2012); have better monitoring abilities (Adams et al., 2011); and demand more audit efforts and CEO responsibility (Adams and Ferreira, 2009; Gul et al., 2008). Other studies show that female directors are more inclined to ask questions and debate issues compared to their male counterparts (Bilimoria and Wheeler, 2000; Ingle and van der Walt, 2005). At the same time, Carter et al., (2003) argue that female representation in boardrooms does not necessarily strengthen monitoring functions of a board, particularly if the female directors are marginalized. Moreover, improved monitoring by boards of directors does not always lead to better firm performance; that rather depends on the quality of a firm's governance. Board gender diversity can add value to firms with weak corporate governance, as it enhances additional monitoring (Adams and Ferreira, 2009). This view is supported by Gul et al., (2011), who claim that having higher gender diversity in the boardroom enables firms to partially remedy their poor corporate governance and thus improve performance. However, board gender diversity can diminish the performance of firms with strong corporate governance due to unnecessary over-monitoring (Adams and Ferreira, 2009).

Resource dependence theory is another widely used theory by scholars to explain the relationship between board gender diversity and firm performance. It argues that board gender diversity can contribute to a firm's vital resources and improve the linkage between a firm and its external environment (Goodstein et al., 1994; Pfeffer, 1973). Namely, female directors can contribute to a board's human capital by bringing additional insights, particularly about female employees, customers, and business partners (Daily et al., 1999). Women also tend to have better understanding of the consumer market, as most of the household purchasing decisions are made

by them (Arfken et al., 2004; Post and Byron, 2015). In addition, gender diversity may bring more creativity and innovation to a board (Campbell and Mínguez-Vera, 2008), improve information processing (Dezsö and Ross, 2012) and provide better problem solving (Marinova et al., 2016). Furthermore, as gender equality becomes a generally accepted social norm, gender diversity in the boardroom may improve the public image, and thus the performance of the firm (Cox et al., 1991; Smith et al., 2006). However, heterogeneity in the boardroom does not necessarily improve its effectiveness. In contrast, increased board diversity may increase the possibility of conflicts (Joshi et al., 2006; Richard et al., 2004) and make it more difficult to reach a consensus on important matters—and therefore slow the decision-making process (Hambrick et al., 1996).

While both theories argue that there is a relationship between board gender diversity and firm performance, the nature of this link is not straightforward and depends on various factors (Carter et al., 2003; Carter et al., 2010; Rose, 2007; Smith et al., 2006).

Besides gender diversity in the boardroom, the profiles of directors may also impact the effectiveness of the board and firm performance (Bennouri, Chtioui, Nagati, & Nekhili, 2018). Compared to their male counterparts, female directors considerably differ in terms of demographic attributes (Ahern & Dittmar, 2012), experience and expertise (Singh et al., 2008), and personal characteristics such as risk perception (Croson & Gneezy, 2009). Female directors are found to be better educated (Singh et al., 2008; Nekhili and Gatfaoui 2013), are more likely to hold advanced and business degrees (Hillman & Dalziel, 2003; Nekhili & Gatfaoui, 2013), are more likely to have strength in marketing and sales (Groysberg & Bell, 2013) and deliver international diversity to the boardroom (Singh et al., 2008). Better educated directors can better grasp, analyze and offer solutions to complex problems (Johnson et al., 2013) and thus improve firm performance (Bennouri et al., 2018; Kim & Lim, 2010). Not only the level, but also the type of education is important for the diversity and effective functioning of the board. (Ruigrok et al., 2007) reveal that business-related degrees facilitate the access of minorities to top management positions. In fact, the attributes of female directors (education, experience etc.) are found to have a mediating effect on companies' strategic decisions and performance (Güner et al., 2008; Johnson et al., 2013), which might be one of the reasons behind mixed empirical results on board gender diversity and firm performance nexus. (Ahern & Dittmar, 2012) observe that the negative effect of female directors on Tobin's Q becomes insignificant after controlling for board of directors' age and

experience. The nature of the link between female directors and firm performance might differ, depending on whether the female directors have relevant industry experience (Kor and Sundaramurthy 2009; Tian et al., 2011), experience as a CEO (Fahlenbrach et al., 2010) and financial expertise (An & Jin, 2004; Stearns & Mizruchi, 1993). The age of the directors might also have different impact on board functioning and thus on firm performance. While younger directors may bring more technical knowledge (Bantel & Jackson, 1989), better cognitive resources (Bantel & Jackson, 1989) and are more likely to initiate strategic and innovative decisions (Ahn & Walker, 2007), older directors may bring valuable expertise and experience to the board (Johnson et al., 2013). National diversity among board members might also affect the functioning of the board and thus impact the corporate performance (Bennouri et al., 2018). On the one hand, foreign directors may enhance the effectiveness of the board, by bringing new skills, broader networks and better understanding of the international markets (Ruigrok et al., 2007; Ben-Amar et al. 2013). On the other hand, foreign directors may hinder the board functioning, since they are less familiar with regional legislation, accounting and governance standards and business norms (Masulis et al., 2012) and their presence might reduce the communication quality within the board (Anderson, Reeb, Upadhyay, & Zhao, 2011).

2.3 Data and Methodology

In this study, we use a unique cross-sectional data of 261 randomly selected, publicly reported agri-food companies in Russia for the year of 2016. All the companies in the sample are involved in the production (i.e. grain, vegetable oil, livestock and etc.) and/or processing (dairy products, meat products and etc.) of the agri-food products and represent the sub-sample of all federal districts of Russia.

The main sources of data are the quarterly and annual reports as well as financial statements of the enterprises, which are downloaded from the publicly accessible database of the “Interfax - Corporate Information Disclosure Center²” agency. It is one of the five agencies authorized to disclose information on the Russian securities market. Using the above mentioned reports and

² More information available here: <https://www.e-disclosure.ru/>

statements, we manually collected accounting, corporate governance, and firm-specific data needed for our analysis.

See Table 2.2 for a description of all variables used in the study.

Our main regression model is as follows:

$$\text{Firm Performance} = \alpha_0 + \alpha_1 \text{Board Gender Diversity} + \alpha_2 \text{Control Variables} + \varepsilon \quad (1)$$

Firm performance, board gender diversity, as well as control variables used in this study, are explained in detail in the following sub-section.

TABLE 2.2: VARIABLES AND DESCRIPTIONS

| Variables | Description |
|---------------------------------------|---|
| Panel A: Dependent variables | |
| ROA | Net Income / Total Assets |
| ROS | Net Income / Sales |
| Panel B: Explanatory variables | |
| %_Female | Percentage of female directors |
| %_ExecutiveFemale | Percentage of female executive directors (Executive female directors / total female directors) |
| %_IndependentFemale | Percentage of female independent directors (Independent female directors / total female directors) |
| D_1Female | Dummy variable, equal to 1 if board has 1 female director, 0 otherwise |
| D_2Female | Dummy variable, equal to 1 if board has 2 female director, 0 otherwise |
| D_3Female | Dummy variable, equal to 1 if board has 3 or more females directors, 0 otherwise |
| Panel C: Control variables | |
| Board characteristics | |
| BoardSize | Natural logarithm of the total number of directors in the boardroom |
| %_Independent | Percentage of independent directors |
| D_CEO_Bonus | Dummy variable, equal to 1 if CEO receives performance bonus, 0 otherwise |
| %_DirectorOwnership | Share of the board of directors in the ownership structure of the firm |
| %_CEO_Ownership | Share of the CEO in the ownership structure of the firm |
| Firm characteristics | |
| FirmSize | Natural logarithm of firm's sales |
| FirmAge | Natural logarithm of the number of years since the firm was first registered by the state |

| | |
|-----------------------------------|---|
| D_Industry | Dummy variable, equal to 1 if the firm is a food processor, 0 if the firm is an agricultural producer |
| Leverage | Total debt / total assets |
| Lagged dependent variables | |
| Lag_ROA | 1-year lag of the return on asset |
| Lag_ROS | 1-year lag of the return on sale |
| Instrumental variable | |
| %_FemaleOwnership | Share of female individuals in the ownership structure |

Source: compiled by authors

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020): Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International food and agribusiness management review*, 23(1), 35-53

2.3.1 Variables

2.3.1.1 Firm performance

There are two main ways of measuring firm performance generally accepted in the literature: market value-based ratios (Tobin's Q) and accounting-based ratios (ROA, ROE, ROS). In this study, we focus only on accounting-based ratios, as most of the firms under study were not listed on stock exchanges and, thus, market value variables were not available. To improve the robustness of our analysis, we employ two performance measures: ROA (return on assets, *ROA*) and ROS (return on sales, *ROS*). These ratios are widely used to measure firms' financial performance within the corporate governance literature (Adams and Ferreira, 2009; Liu et al., 2014; Shrader et al., 1997). Both ROA and ROS were manually calculated using accounting data extracted from financial statements.

2.3.1.2 Board gender diversity

This study employs three different ways for measuring board gender diversity.

Firstly, in line with previous studies, we define board gender diversity as the percentage of female directors (*%_Female*) on the corporate boards. Secondly, we use the percentages of independent (*%_IndependentFemale*) and executive (*%_ExecutiveFemale*) female directors in the boardroom as an indicator of board gender diversity. By doing so, we can distinguish the impact of female

representation in the boardroom on executive and monitoring effects. Finally, to further improve the robustness of the results, we follow the work of Liu et al. (2014) and employ an alternative proxy for board gender diversity, which consists of three dummy variables. The dummy variables *D_1Female*, *D_2Female* and *D_3Female* are designed to distinguish between firms which have one, two, and three or more female directors on their corporate boards, respectively. This allows us to also understand whether the absolute number of female directors in the boardroom matters or not.

2.3.1.3 Control variables

Following prior research, we also include variables to control for board and firm-level characteristics that can potentially impact firm performance. At the board level, we control for board size (*BoardSize*), percentage of independent directors (*%_Independent*), CEO performance bonus (*D_CEO_Bonus*), the shares of director (*%_DirectorOwnership*), and CEO ownership (*%_CEO_Ownership*). Previous studies suggest a positive link between the percentage of independent directors (Black and Kim, 2012; Dahya and McConnell, 2007); executive compensation (Mehran, 1995); ownership by directors and executive management (McConnell and Servaes, 1990; Morck et al., 1988); and firm performance. Large board size on the other hand may create additional coordination costs—and thus might be burdensome for the firms (Jensen, 1993; Yermack, 1996). As for firm characteristics, we control for firm size “*FirmSize*” (Marinova et al., 2016); firm age “*FirmAge*” (Reddy et al., 2008); industry “*D_Industry*” (Nguyen et al., 2015); and leverage “*Leverage*” (Chen et al., 2003). Furthermore, in line with the work of Nguyen et al., (2015) we added one-year lagged performance measures (*Lagged_ROA*, *Lagged_ROS*) as control variables.

2.3.2 Endogeneity

Adams and Ferreira (2009) suggest the possibility of an endogeneity problem when studying the relationship between board gender diversity and firm performance, which can take place due to several reasons. Firstly, there might be omitted and unobserved firm characteristics that may affect the appointment of female directors to the board. Secondly, there might be a reverse causality between firm performance and board gender diversity. This implies that either board gender diversity may lead to higher firm performance, or that high performing firms may tend to have more gender diverse boards. Using OLS model in such cases might lead to biased results. To

address this issue, we follow the studies of Campbell and Mínguez-Vera (2008), Carter et al. (2003), and Marinova et al. (2016) and employ a two-stage least-square (2SLS) method in our analysis. In order to make a comparison, we also present the results of the OLS regression.

Following Carter et al. (2003), we estimate a two-stage least-squares (2SLS) model as a system of two simultaneous equations given below.

$$\text{Board Gender Diversity} = \beta_0 + \sum \beta z + v \quad (2)$$

$$\text{Firm Performance} = \alpha_0 + \alpha_1 \text{Board Gender Diversity} + \sum \alpha x + \mu z + \varepsilon \quad (3)$$

where x represents a vector of control variables and z is an instrumental variable.

Applying the 2SLS method requires an instrumental variable that is correlated with board gender diversity but does not have direct impact on firm performance. However, finding a valid instrument, particularly in the context of corporate governance, is very difficult, as most variables that correlate with board gender diversity are often other governance factors that are already included in the regression to explain firm performance (Adams and Ferreira, 2009). We assume that the percentage of female directors on the board depends on the proportion of female shareholders. As boards of directors are elected by companies' shareholders, there is a possibility that shareholders with higher female representation are more likely to elect female directors into boardrooms. Following this logic, we use the share of female individuals (*%_FemaleOwnership*) in the ownership structure of the company as an instrumental variable. Validity of the chosen instrument is confirmed by the Wald test, where we rejected the null hypothesis that the instrument is weak.

2.4 Results and Discussion

The descriptive statistics of the key variables used in the study are reported in Table 2.3. On average, the corporate boards in our sample have 29% female directors, of which 15% are executive and 14% are independent directors. Around 27%, 29%, and 28% of companies have one,

two, and three or more female directors on their corporate boards, respectively, and only 16% of the companies have no female representation in their boardrooms.

An average boardroom from our sample consists of about six directors, of which about 28.3% are independent directors. The CEOs of nearly one-third of all the firms receive performance-related bonus payments. Of the total shares of the firms, nearly 24% and 17% on average are owned by the boards of directors and CEOs, respectively. The average age of a firm in our sample is 19 years old, has annual sales of 1.9 billion Rubles (approximately 31.2 million USD), and a debt-to-asset ratio of 45%. The average values of the return on assets and return on sales are 5.1% and 6.5%, respectively.

TABLE 2.3: DESCRIPTIVE STATISTICS OF KEY VARIABLES

| Variables | Obs | Mean | Std | Min | Max |
|---------------------|------------|-------------|------------|------------|------------|
| ROA | 261 | 5.1% | 0.07 | -0.22 | 0.23 |
| ROS | 261 | 6.5% | 0.18 | -1.36 | 0.64 |
| %_Female | 261 | 29.5% | 0.19 | 0 | 0.86 |
| %_ExecutiveFemale | 261 | 15.1% | 0.18 | 0 | 0.78 |
| %_IndependentFemale | 261 | 14.4% | 0.17 | 0 | 0.8 |
| D_1Female | 261 | 27.4% | 0.45 | 0 | 1 |
| D_2Female | 261 | 28.5% | 0.45 | 0 | 1 |
| D_3Female | 261 | 28.1% | 0.45 | 0 | 1 |
| BoardSize | 261 | 1.79 | 0.26 | 1.61 | 2.71 |
| %_Independent | 261 | 28.3% | 0.27 | 0 | 0.86 |
| D_CEO_Bonus | 261 | 33.1% | 0.47 | 0 | 1 |
| %_DirectorOwnership | 261 | 23.8% | 0.32 | 0 | 1 |
| %_CEO_Ownership | 261 | 14.6% | 0.26 | 0 | 1 |
| FirmSize | 261 | 12.82 | 1.71 | 8.20 | 18.25 |
| FirmAge | 261 | 2.83 | 0.44 | 0.69 | 3.26 |
| Leverage | 261 | 45.5% | 0.30 | 0.01 | 0.99 |

Source: compiled by authors

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020): Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International food and agribusiness management review*, 23(1), 35-53

To assess the possible presence of multicollinearity in the regression, we estimate the correlations among all independent variables (Table A.1). As a general rule, a regression model might have a multicollinearity issue if the absolute terms of correlation coefficients are 0.7 or above (Liu et al., 2014). According to Table A.1, the highest correlation (0.69) is observed between *%_Female* and *D_3Female*. This high correlation level is not an issue, however, since the two variables are alternative measures of gender diversity, and therefore are not simultaneously used in the regression analysis.

Table 2.4 illustrates the results of the OLS and 2SLS regressions on the relationship between board gender diversity, measured by the percentage of female directors (*%_Female*) in the boardroom, and firm performance, measured by the return on assets (*ROA*) and return on sales (*ROS*). In both cases the percentage of female directors in the boardroom has a significant positive impact ($p < 0.05$) on the ROA and ROS. According to the 2SLS model, for example, keeping all other factors fixed, a 1% increase in the percentage of women in the boardroom leads to 0.18% and 0.59% growth in the ROA and ROS, respectively. This result is in agreement with the findings of Singh et al. (2001) in the case of the UK market, Carter et al. (2003) in the case of the US market, and Nguyen and Faff (2007) in the case of an Australian market. However, these findings contrast those of Bøhren and Strøm (2010) in the case of Norwegian market.

With respect to control variables, we observe a strong positive relationship ($p < 0.01$) between the share of independent directors (*%_Independent*) on a board and firm performance (Table 2.4). The result is in line with the general consensus among researchers on the significant positive connection between board independence and firm performance (Rosenstein and Wyatt, 1990; Dahya and McConnell, 2007; Black and Kim, 2012). Moreover, corporate governance codes of many countries recommend that a certain share of the board be composed of independent directors. In the case of Russia, the number of independent directors in the boardroom needs to be at least one-third of the board size (CG code, 2014).

Previous studies suggest a negative link between board size and firm performance, mainly due to the ineffectiveness of coordination and decision making of large boards (Guest, 2009; Eisenberg et al., 1998; Yermack, 1996). However, our findings do not demonstrate any significant impact of the total number of directors in the boardroom (*BoardSize*) on firm performance (Table 2.4). This may imply that, on average, Russian agro-holdings assign the optimal number of directors to their

boards (Beiner et al., 2004). Furthermore, this might also be the result of relative homogeneity of board size among our sample, with nearly 85% of all firms having five or seven directors on their boards. The proportion of total debt to total assets (*Leverage*) has a strong negative effect ($p < 0.01$) on firm performance (Table 2.4). Jiraporn et al. (2012) suggest that debt financing might be a substitute for poor corporate governance due to additional monitoring by debt providers, which in turn may improve firm performance. On the other hand, González (2013) argues that the relationship between debt financing and firm performance depends on two factors: the cost of debt and the role of debt to push managers to make value maximizing decisions. The net effect of debt financing therefore depends on which of those factors prevail over the other. Regarding Russia, a relatively high cost of debt compared to other developed economies may be one of the possible explanations for the negative link between financial leverage and firm performance. Ownership structure overall does not have any considerable impact on firm performance. While we observe a significant positive connection between CEO ownership (*%_CEO_Ownership*) and firm performance with the OLS models, this relationship disappears when we run the 2SLS regression (Table 2.4). Similarly, the effects of CEO compensation schemes, in the form of performance-related bonus payments (*D_CEO_Bonus*) on firm performance are non-existent overall (Table 2.4).

TABLE 2.4: THE IMPACT OF BOARD GENDER DIVERSITY ON FIRM PERFORMANCE (STANDARD ERRORS IN PARENTHESES)

| VARIABLES | OLS | | 2SLS | |
|---------------------|-----------------------|----------------------|-----------------------|----------------------|
| | (1) ROA | (2) ROS | (3) ROA | (4) ROS |
| %_Female | 0.0413** (0.0169) | 0.123** (0.0517) | 0.181** (0.0833) | 0.588** (0.258) |
| %_Independent | 0.0458*** (0.0125) | 0.173*** (0.0382) | 0.0606*** (0.0162) | 0.221*** (0.0502) |
| BoardSize | 0.0119 (0.0123) | -0.00782 (0.0377) | -0.00791 (0.0178) | -0.0726 (0.0549) |
| D_CEO_Bonus | 0.0151** (0.00680) | 0.0255 (0.0208) | 0.00924 (0.00823) | 0.00522 (0.0258) |
| %_DirectorOwnership | -0.00877 (0.0137) | 0.00612 (0.0419) | -0.00810 (0.0151) | 0.00661 (0.0471) |
| %_CEO_Ownership | 0.0457*** | 0.128** | 0.0374* | 0.100 |

| | | | | |
|--------------|------------|------------|------------|-----------|
| | (0.0173) | (0.0529) | (0.0196) | (0.0614) |
| FirmSize | 0.00248 | 0.0191*** | 0.00340 | 0.0215*** |
| | (0.00213) | (0.00639) | (0.00241) | (0.00730) |
| FirmAge | -0.00318 | -0.0203 | -0.00520 | -0.0263 |
| | (0.00804) | (0.0245) | (0.00894) | (0.0278) |
| D_Industry | -0.0150* | -0.0993*** | -0.0235** | -0.126*** |
| | (0.00784) | (0.0234) | (0.00996) | (0.0299) |
| Leverage | -0.0455*** | -0.142*** | -0.0402*** | -0.119*** |
| | (0.0126) | (0.0358) | (0.0142) | (0.0422) |
| Lag_ROA | 0.310*** | | 0.297*** | |
| | (0.0339) | | (0.0381) | |
| Lag_ROS | | 0.0437*** | | 0.0411*** |
| | | (0.0102) | | (0.0115) |
| Constant | -0.0225 | -0.117 | -0.0327 | -0.153 |
| | (0.0415) | (0.127) | (0.0461) | (0.144) |
| Observations | 261 | 261 | 261 | 261 |
| R-squared | 0.543 | 0.349 | 0.417 | 0.138 |

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

Source: compiled by authors

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020): Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International food and agribusiness management review*, 23(1), 35-53

To further understand how female representation in the boardroom affects firm performance, we breakdown the percentage of female directors into executive directors and independent directors. We then re-run our main regression model (equation 1) by replacing the board gender diversity measure with the percentage of female executive directors (*%_ExecutiveFemale*) and independent directors (*%_IndependentFemale*).

The estimates of this regression analysis are illustrated in Table 2.5.³ Results suggest that female directors improve firm performance not through monitoring, but mainly through the executive channel. Similar to the findings of Liu et al. (2014), a strong positive link between the percentage

³ As the share of female individuals in the ownership structure (*%_FemaleOwnership*) is not a proper instrument for the percentage of female executive and independent directors, as well as for the absolute number of female directors in the boardroom, we do not report the results of the 2SLS model in Table 2.5, or hereafter.

of female executive directors (*%_ExecutiveFemale*) and both performance measures (ROA and ROS) is observed.

TABLE 2.5: ROBUSTNESS CHECKS WITH *%_EXECUTIVEFEMALE* AND *%_INDEPENDENTFEMALE* AS ALTERNATIVE MEASURES FOR GENDER DIVERSITY (STANDARD ERRORS IN PARENTHESES)

| VARIABLES | (1) ROA | (2) ROS |
|----------------------------|------------------------|------------------------|
| <i>%_ExecutiveFemale</i> | 0.0507** (0.0209) | 0.167*** (0.0639) |
| <i>%_IndependentFemale</i> | 0.0225 (0.0203) | 0.0747 (0.0620) |
| <i>%_Independent</i> | 0.0472*** (0.0126) | 0.179*** (0.0385) |
| BoardSize | 0.0118 (0.0123) | -0.0102 (0.0377) |
| D_CEO_Bonus | 0.0154** (0.00680) | 0.0262 (0.0208) |
| <i>%_DirectorOwnership</i> | -0.0110 (0.0138) | -0.000806 (0.0422) |
| <i>%_CEOOwnership</i> | 0.0419** (0.0177) | 0.115** (0.0540) |
| FirmSize | 0.00221 (0.00214) | 0.0184*** (0.00641) |
| FirmAge | -0.00407 (0.00811) | -0.0235 (0.0247) |
| D_Industry | -0.0148* (0.00785) | -0.0996*** (0.0234) |
| Leverage | -0.0437*** (0.0127) | -0.137*** (0.0361) |
| Lag_ROA | 0.312*** (0.0340) | |
| Lag_ROS | | 0.0442*** (0.0102) |
| Constant | -0.0156 (0.0421) | -0.0948 (0.128) |
| Observations | 261 | 261 |
| R-squared | 0.543 | 0.353 |

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

Source: compiled by authors

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020): Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International food and agribusiness management review*, 23(1), 35-53

In our next step, we aim to understand whether the absolute number of female directors in the boardroom matters for the board gender diversity–firm performance relationship. In other words, do three female directors in a fifteen-member boardroom have the same impact on the firm performance as one female director in a five-member boardroom does?

To answer this question we re-run our main regression (equation 1) by substituting the percentage of female directors with three dummy variables (Table 2.6). The dummy variables *D_1Female*, *D_2Female* and *D_3Female* represent firms with one, two, and three or more female directors in the boardroom, respectively.

TABLE 2.6: ROBUSTNESS CHECKS WITH *D_1FEMALE*, *D_2FEMALE* AND *D_3FEMALE* AS ALTERNATIVE MEASURES FOR GENDER DIVERSITY (STANDARD ERRORS IN PARENTHESES)

| VARIABLES | (1) ROA | (2) ROS |
|-----------------------|------------------------|------------------------|
| D_1Female | 0.0103 (0.00959) | 0.0363 (0.0292) |
| D_2Female | 0.0199** (0.00956) | 0.0764*** (0.0290) |
| D_3Female | 0.0341*** (0.0106) | 0.105*** (0.0323) |
| _Independent | 0.0462*** (0.0124) | 0.175*** (0.0379) |
| Ln_BoardSize | -0.00598 (0.0142) | -0.0602 (0.0433) |
| CEO_performance_bonus | 0.0141** (0.00676) | 0.0216 (0.0206) |
| _DirectorOwnership | -0.00681 (0.0136) | 0.0107 (0.0416) |
| _ExecutiveOwnership | 0.0431** (0.0172) | 0.119** (0.0527) |
| Ln_Sales | 0.00240 (0.00212) | 0.0190*** (0.00633) |
| D_Industry | -0.0155** (0.00778) | -0.101*** (0.0231) |
| Ln_FirmAge | -0.00298 (0.00799) | -0.0193 (0.0243) |
| Leverage | -0.0445*** (0.0126) | -0.138*** (0.0358) |
| ROAt1 | 0.307*** (0.0340) | |
| ROSt1 | | 0.0426*** (0.0101) |
| Constant | 0.00425 (0.0431) | -0.0493 (0.132) |

| | | |
|--------------|-------|-------|
| Observations | 261 | 261 |
| R-squared | 0.553 | 0.367 |

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

Source: compiled by authors

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020): Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International food and agribusiness management review*, 23(1), 35-53

According to the results, there is no significant relationship between a board with only one female director and firm performance. However, as the number of female directors increases, the relationship becomes significant and the impact of female directors on the firm performance becomes stronger. For instance, firms with two and three or more female directors on the board have a 0.08% and 0.1% higher ROS on average, respectively.

Taken together, the current study addresses several important issues for both policymakers and managers or executives in Russia. A strong positive impact of female directors on firm performance suggests that policy makers in Russia should consider prioritizing the issue of board gender diversity at the national level, particularly among large-scale agri-food producers. By doing so, policymakers can contribute to enhancing the economic sustainability of large-scale agri-food enterprises, who in turn play significant roles in sustaining national food security. Higher board gender diversity could improve firm performance (Gul et al., 2011) by enhancing additional monitoring (Adams and Ferreira, 2009), especially given the current state of relatively under-developed corporate governance in Russia (Li et al., 2012). While Russian corporate governance code already recommends that at least one-third of the corporate boards be composed of independent directors (CG code, 2014), similar recommendations could be suggested in terms of board gender diversity. In this regard, it is also important to remember that our findings are in line with critical mass theory, which suggests that a certain critical amount should be reached so that a significant change in performance can take place (Torchia et al., 2011). In the context of board gender diversity, one female director in the boardroom is rather regarded as a token—as an absolute minority who has very limited ability to make a significant contribution to firm performance. However, as the number of female directors increases and the critical mass builds up, their impact becomes more strong and significant. Therefore, a policy recommendation should not only enhance female representation on corporate boards, but also make sure that those women

do not become tokens. Around 43% of the companies in our sample have no or only one female director in the boardroom, suggesting a great potential for further improvement.

From the practical side, our research reveals that the positive effect of female directors on firm performance comes mainly through their executive channels (due to their executive power and management skills), rather than their monitoring channels (due to their independent status). This suggests that company owners (shareholders) should not only employ more female directors to their boards, but also make sure that these female directors are assigned to executive positions. Moreover, current research does not observe any link between the total board size and company performance. Company owners (shareholders), therefore, have flexibility in employing additional female directors without worrying about the total board size.

In spite of the above-mentioned contributions, this paper has several limitations which could be addressed by future research. First, the cross-sectional data used in this study does not allow us to capture the dynamic factors due to its limited time span. Future studies therefore should focus on panel data with longer time spans. Second, while our analysis focuses solely on gender diversity in the boardroom, future research should also consider other variables that could improve board diversity, such as age, ethnicity, education, and work experience.

2.5 Conclusion

This article contributes to the literature on board diversity by providing novel empirical evidence on the impact of female boards of directors on firm performance in the case of the Russian agri-food industry. We focus on Russia, as it is one of the most important players in the global food security. It is already one of the largest exporters of various crops worldwide, with strong potential and plans to further extend its list of exported agri-food products. Moreover, we focus particularly on large-scale agri-food enterprises, as they have significant shares of the total agri-food production in Russia—and thus play an important role in sustaining national food security. It is therefore very crucial to understand the factors that could improve the performances of these large scale agri-food enterprises, which could in turn contribute to the national, as well as global food security.

We concentrate specifically on board gender diversity as a potential means for improving corporate

boards, which has become an important issue in many developed countries and developing countries as well. A growing body of research argues that female directors may bring additional value to boardrooms, which in turn might lead to better firm performance.

A two-stage least squares (2SLS) regression model is applied to test the relationship between the female representation on corporate boards and firm performance among a sample of Russian agri-food enterprises. The results reveal a strong positive effect of the percentage of female directors in the boardroom on firm performance in terms of both return on assets (ROA) and return on sales (ROS). This implies that Russian agri-food sector can have economic benefits from higher board gender diversity. Russian policy makers therefore may want to consider advocating higher female representation in the boards of agri-food enterprises. In addition, in line with critical mass theory, we observe that the absolute number of female directors also matters. In contrast to corporate boards with two or more female directors, boards with only one female director do not have any significant impact on firm performance. Moreover, the effect of three or more female board members on firm performance is stronger compared to a boardroom with only two female directors. Policy makers therefore should not only consider advocating female representation in the corporate boards of the agri-food enterprises, but also make sure that those female directors do not become a mere tokens. Moreover, we found that the impact of female directors on firm performance comes mainly through their executive, rather than monitoring effects. This result may have practical implications for company shareholders, who are responsible for the election of the boards of directors and who may want to consider appointing more executive, rather than independent females to the boards.

To conclude, while our study strongly supports the business case for enhancing gender diversity in the boardroom, it is also important to note that gender equality is also a subject of social justice, which can be a separate argument in and of itself.

3. Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter?⁴

3.1 Introduction

Russia is one of the world's primary agricultural producers and plays a crucial role in global food security. It is one of the largest global producers of agricultural commodities, such as wheat, barley, sunflower seeds, potatoes, milk, eggs and poultry. Russia is also one of the largest exporters of crops like sunflower seeds, wheat and barley worldwide (USDA 2018a; Uzun et al. 2019). Moreover, Russia still has enormous potential to boost its agricultural production further and increase the volume and diversity of its exported products. It possesses a huge area of agricultural land of more than 200 million ha and has a supportive climate for agriculture, with its high levels of rainfall and abundance of chernozem (black earth) soil (FAO 2001; 2017). In addition to its favorable natural conditions, the Russian government is increasingly supporting its domestic agri-food production, with an ultimate aim of fostering the list of exported agri-food products (Wegren

⁴ This chapter was published as the following open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668. <https://doi.org/10.22434/IFAMR2019.0184>; This chapter benefitted from the comments by the anonymous referees of *International food and agribusiness management review*.

et al. 2019). On the one hand, the government has been supporting local production through extensive agricultural subsidization programs. On the other hand, they have been protecting local producers from international competition by restricting agricultural imports through various instruments like import taxes, non-tariff barriers and even an import ban, which was introduced in August 2014 against a number of western countries (Bobojonov et al. 2016; Liefert et al. 2019).

Nowadays, agricultural production in Russia is evidently dominated by large-scale corporate farms (Davydova & Franks, 2015). While the share of corporate farms in the structure of gross agricultural production decreased during the first decade after the collapse of the Soviet Union, this trend has reversed since the end of 1990s (Wegren, 2018). As a result, the share of corporate farms in total agricultural production has increased by around 36%, from 40.4% in 1998 to 55.1% in 2018 (Figure A.1).

Russian agriculture can be characterized not only by the dominance of corporate farms, but also by a high level of concentration of agri-food production in the hands of a small number of large-scale corporate farms. For instance, 12.6 million ha of land, or 10.5% of all cultivated land in Russia, is operated by 55 of the largest agri-food companies (BEFL Agency 2018). A similar situation is observed in the meat and dairy sectors. While the top 25 companies account for almost half (46%) of the total meat production in the country (Agroinvestor 2018b), around 60% of all pork (62%) and poultry (58%) are produced by the top 20 and the top 10 largest companies, respectively (Agroinvestor, 2018a; USDA, 2018b). In the dairy industry, the top 20 companies produce almost 10% of all raw milk, whereas around 55% of milk is processed by the top 50 companies (Dairynews 2018a; 2018b).

Moreover, the Russian corporate system in general is represented by high levels of ownership concentration. According to Iwasaki et al. (2018), in 2015, for approximately 60% of the corporate companies in Russia, the ownership stakes of the largest shareholders exceeded 50%. Russian agri-food production is therefore dominated by a small number of large-scale corporate farms, which in turn are controlled by very few shareholders. The sustainability of such a model, whereby the agri-food production is dominated by relatively small number of large-scale corporate farms, which in turn are characterized by highly concentrated ownership, is under question (Deininger and Byerlee 2012; Hermans et al. 2017). Financial insolvencies by such key players might put the national as well as the global food security at risk. In fact, around 22% of all bankruptcy cases in

Russian agriculture are accounted for by corporate farms (Yastrebova 2005). It is therefore vital to understand the extent to which the level of ownership concentration in corporate farms affects their financial performance. Moreover, it is also vital to identify whether the ownership identity of the largest shareholders also matters or not, i.e. whether certain types of shareholders are more efficient in taking control of their companies or not. Identifying how ownership structure could contribute to the success of Russian agri-food enterprises is also important for state policy, private investments and other important decisions that might potentially impact the development of the sector. In this study, we focus primarily on three types of ownership identities⁵ that seem to be most relevant in the Russian context (Davydova & Franks, 2015; Iwasaki et al., 2018): managerial ownership, state ownership and business group (agroholding) ownership, each one representing an ownership identity and ownership share of the largest shareholder.

Indeed there are studies in the corporate governance literature that investigate the relationship between ownership structure and firm performance (e.g. García-Meca and Sánchez-Ballesta 2011; Balsmeier and Czarnitzki 2017). However, these works focus mainly on developed economies with well-functioning corporate governance systems (Kumar and Zattoni 2019). In the case of a transition country like Russia, such studies are scarce (e.g. Filatotchev et al. 2001). In addition, almost all of the previous research use data from publicly listed companies, making the results of their analyses representative of only a certain share of firms that are active on the stock markets (Balsmeier and Czarnitzki 2017). Moreover, to the best of our knowledge, studies that focus primarily on agri-food companies are non-existent. Even in the case of non-agri-food enterprises, the corporate governance literature on the relationship between ownership structure and performance is not conclusive. Previous research provides contradicting results, especially in the case of ownership concentration.

While some researchers observe a positive linear relation between ownership concentration and firm performance (Lee 2008; Nguyen et al. 2015), others find a negative linear connection (Lepore et al., 2017; Setia-Atmaja, 2009), and yet others reveal a non-linear relationship (García-Meca and Sánchez-Ballesta 2011; Balsmeier and Czarnitzki 2017). In any of the cases, the nature of the relationship cannot be a priori theoretically predicted (Sánchez-Ballesta and García-Meca 2007)

⁵ The ownership structure of Russian agri-food enterprises is not limited to these three ownership types. There are also agri-food firms owned by other types of shareholders, such as individuals, financial companies and other private entities. However, in this study we specifically focus on state, managerial and agroholding owned companies.

and is dependent on a particular empirical context. Therefore, one should probably consider the ownership structure–performance nexus as a matter of empirical research.

This article aims to fill several gaps in the literature: First of all, we provide new empirical evidence to rather ambiguous literature on the relationship between ownership structure and firm performance. Secondly, we expand the literature beyond developed countries with well-settled corporate governance systems and concentrate on a former communist transition country, Russia, which has a short history of a market economy and comparatively less developed corporate governance (Li et al. 2012). In addition, Russia is one of the largest agri-food producers in the world, and plays a vital role in the global food security, which makes this research even more relevant. Lastly, we provide a pioneering study in the context of large-scale corporate agri-food production, which plays an important role in the domestic food security of Russia.

The remainder of the paper is organized as follows: Section 3.2 provides a conceptual framework and reviews the literature on the ownership structure and firm performance relationship. Methodology and data employed in this study are then described in section 3.3, which is followed by the description and discussion of the empirical results in section 3.4. Finally, the concluding remarks are presented in section 3.5.

3.2 Review of literature and hypothesis development

The subject of ownership structure and its impact on firm performance has been widely debated among scholars for decades and remains an important research agenda today (Iwasaki and Mizobata 2019). There is a general consensus among researchers that ownership structure, in the form of ownership concentration and ownership identity, might have a significant effect on firm performance. Nevertheless, the nature of this relationship remains unclear, with prior literature suggesting rather mixed results on the matter. While some scholars reveal the link between ownership structure and performance as positive, others find a negative association and yet others observe a more complex, non-linear relationship (Table 3.1).

Agency theory is the main underlying theory that is widely used in the existing literature for explaining the nexus between ownership concentration and firm performance (Paniagua et al. 2018). According to this theory, low ownership concentration is associated with the principal-

agent problem, a conflict between the shareholders (principals) and managers (agents) of the company (Berle and Means 1932; Jensen and Meckling 1976). Agency conflict arises when managers pursue desires and goals different from the shareholders' (i.e. profit maximization) and therefore do not represent their best interests, as it is difficult and burdensome for the shareholders to verify what the managers are actually doing (Eisenhardt 1989). The smaller the ownership shares of the largest shareholders, the less capable they are of having proper control over management (Balsmeier & Czarnitzki, 2017).

In contrast, if the ownership shares of the largest shareholders are big enough, they would have both sufficient incentives and the ability to monitor and discipline management, thereby minimizing the agency costs (Shleifer and Vishny 1986; 1997). Based on the argument that higher ownership shares lead to better monitoring of the managers and lower the agency related costs, one might expect a positive link between ownership concentration and performance. Indeed, such a positive relationship is observed in a number of empirical studies (Alimehmeti & Paletta, 2012; Lee, 2008). However, whilst alleviating the agency conflict between shareholders and managers, concentrated ownership may lead to the principal-principal problem, a conflict between the controlling and minority shareholders. In companies with concentrated ownership, controlling shareholders may act on their own benefits at the cost of the minority shareholders (expropriation hypothesis) (Barclay and Holderness 1989; Claessens et al. 2000) or take part in potentially inefficient activities (Morck et al. 1988), thereby hindering the overall performance of the firm. Such risks might be even more exacerbated in transition countries with less developed institutions and relatively weak external control mechanisms (La Porta et al. 1999). Companies with concentrated ownership are also less capable in raising new capital, since they have to rely only on the resources of the controlling shareholder (Wang and Shailer 2015) and hence these companies may miss important investment opportunities (Balsmeier & Czarnitzki, 2017). They may also face higher costs of capital for raising external finance, due to high risk premiums resulting from the potentially high risk of expropriation by controlling shareholders (Carney and Gedajlovic 2002). These negative effects of concentrated ownership may as well hinder firm performance. A number of empirical studies (Lepore et al., 2017; Setia-Atmaja, 2009) reveal a negative impact of ownership concentration on firm performance. The literature therefore suggests two opposing theoretical predictions on the relationship between ownership concentration and firm performance.

Nevertheless, recent literature has frequently observed a non-linear relation between ownership concentration and performance (Balsmeier & Czarnitzki, 2017; García-Meca & Sánchez-Ballesta, 2011). The studies argue that the impact of concentrated ownership on firm performance might not be straightforwardly positive or negative, but rather a combination of both, with a true nature of the effect being dependent on the actual level of ownership concentration. Up to a certain critical point, increased ownership concentration might positively impact firm performance due to a better monitoring of management and the resulting reduction in agency costs (Berle and Means 1932; Jensen and Meckling 1976). However, after this critical point, the benefits of improved monitoring might be offset by the negative effects of concentrated ownership (i.e. expropriation of minority shareholders, missed investment opportunities, etc.), thereby hindering the overall firm performance (Machek and Kubíček 2018). This concept is supported by a number of empirical studies. Thomsen and Pedersen (2000) analyzed the data of 435 of the largest European companies and observed a bell-shape link between ownership concentration and financial performance. Another study by Balsmeier and Czarnitzki (2017) revealed an inverted U-shaped relationship between ownership concentration and performance in the case of the firms from a number of Central and Eastern European transition countries. Similar quadratic relationships were observed in the case of Korean (Lee 2008), Chinese (Gul et al. 2010), Spanish (García-Meca and Sánchez-Ballesta, 2011) and Czech (Machek and Kubíček 2018) listed companies. Taking into account the above-mentioned findings, we expect to observe a similar non-linear relationship between ownership concentration and performance in the case of this sample of Russian agri-food enterprises. We therefore propose the following hypothesis:

***Hypothesis 1:** There is an inverted U-shaped association between ownership concentration and firm performance.*

TABLE 3.1: OVERVIEW OF THE LITERATURE ON THE RELATIONSHIP BETWEEN OWNERSHIP STRUCTURE AND FIRM PERFORMANCE

| Author(s), Year | Ownership structure | Performance | Data (n, country, years) | Observed relationship |
|---------------------------|----------------------------|--------------------|--|----------------------------------|
| Machek and Kubíček (2018) | Ownership concentration | ROA, ROE | 3810 non-agri-food firms, Czech Rep. (2007-2015) | inverted U-shape |

| | | | | |
|---|---------------------------------------|---------------------------|--|------------------|
| Lepore et al. (2017) | Ownership concentration | Tobin's Q, ROA, ROS | 565 non-agri-food firms, France, Germany (2013) | negative |
| Nakano and Nguyen (2013) | Ownership identity (foreign own.) | Tobin's Q, ROA | 198, non-agri-food firms, Japan (1998-2011) | positive |
| Alfaraih et al. (2012) | Ownership identity (state own.) | Tobin's Q, ROA | 134 non-agri-food firms, Kuwait (2010) | negative |
| Alimehmeti and Paletta (2012) | Ownership concentration | ROA | 200 non-agri-food firms, Italy (2006-2009) | positive |
| Fauzi and Locke (2012) | Ownership identity (managerial own.) | ROA | 79 non-agri-food firms, New Zealand (2007-2011) | positive |
| García-Meca and Sánchez-Ballesta (2011) | Ownership concentration | Tobin's Q | 76 non-agri-food firms, Spain (1999-2002) | inverted U-shape |
| Hahlbrock and Hockmann (2011) | Ownership identity (agroholding own) | Total factor productivity | 76 agri-food firms, Russia (2001-2007) | positive |
| Le and Chizema (2011) | Ownership identity (state own.) | Tobin's Q, ROA, ROS | 1205 non-agri-food firms, China (2004-2005) | positive |
| Hockmann et al. (2009) | Ownership identity (agroholding own.) | Labor productivity | 268 agri-food firms, Russia (2001-2003) | no relation |
| Setia-Atmaja (2009) | Ownership concentration | Tobin's Q | 316 non-agri-food firms, Australia (2000-2005) | negative |
| Lee (2008) | Ownership concentration | Tobin's Q, ROA | 579 non-agri-food firms, South Korea (2000-2006) | inverted U-shape |
| Bonardo et al. (2007) | Ownership identity (managerial own.) | ROA, ROE | 66 non-agri-food firms, Italy (1995-1999) | inverted U-shape |
| Hockmann et al. (2005) | Ownership identity (agroholding own.) | Economic efficiency | 100 agri-food firms, Russia (2001-2003) | negative |
| Anderson and Reeb (2003) | Ownership identity (family own.) | Tobin's Q, ROA | 500, non-agri-food firms, USA (1992) | positive |
| Lins (2003) | Ownership identity (managerial own.) | Tobin's Q | 1433 non-agri-food firms, 18 emerging countries | negative |
| Sun et al. (2002) | Ownership identity (state own.) | Tobin's Q, ROE | 472 non-agri-food firms, China (1994-1997) | negative |

Source: Compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

Another important component of ownership structure that could potentially impact firm performance is ownership identity (Kumar and Zattoni 2019). In the context of the agency problem, it is not only important how much equity a controlling shareholder owns, but also who the controlling shareholder is—an individual, manager, financial institution, government, business group, etc. Different types of shareholders may have different abilities and incentives to properly monitor management decisions and thereby reduce agency costs (Lee, 2008).

Managerial ownership seems to be the most controversial among different ownership types, since it has contradictory impacts on firm performance. On the one hand, managerial ownership aligns the interests of managers with those of shareholders. Since managers become one of the residual claimants of the income, they have a financial motivation to maximize the profits of the company and thus improve its performance (Jensen & Meckling, 1976). On the other hand, managerial ownership may engender entrenchment of managers, a situation when managers might use their ownership control to extract the corporate resources for their private benefits (Morck et al. 1988; Lins 2003). Moreover, manager-owned companies may face financing constraints, since they cannot take advantage of equity financing and have to rely on debt only as a source of finances (Thomsen & Pedersen, 2000). The overall impact of managerial ownership on performance therefore depends on which of the two effects interest alignment versus managerial entrenchment prevails. Up to a certain level of managerial ownership, an interest alignment effect may endure, which may significantly improve firm performance. However, if managerial ownership exceeds this level, managerial entrenchment may result, thereby offsetting the positive effects of interest alignment and hindering firm performance. Based on these arguments, we propose that, in the case of this sample of Russian agri-food firms, performance might be a non-linear function of managerial ownership. This leads us to the following hypothesis:

Hypothesis 2a: *There is an inverted U-shaped association between managerial ownership and performance.*

There is much more unanimity among researchers about the impact of state ownership on firm performance. Government ownership is generally regarded as inefficient, mainly because bureaucrats responsible for the governance of state-owned companies face a lack of financial incentives, since they do not have any claims in residual income (Vickers and Yarrow 1991). State firms also have high levels of bureaucracy, which are viewed as significantly slowing down the

decision making process and hindering the overall performance of a company (Sun et al. 2002). In addition, politicians may interfere in the governance of state firms (Shleifer and Vishny 1994) and may dictate their own conditions regarding key issues like price policies, human resources policies, etc. (Shapiro and Willig 1990; Krueger 1990). Moreover, government enterprises are more prone to the so-called “soft budget constraint” syndrome, introduced by Kornai (1986). State companies may not be motivated enough to generate profit, since there is always a third party in the face of the government who can provide financial support in the case of company losses. This is especially true in the case of the Russian agri-food sector, where some of the large enterprises might play significant roles for the national food security—and therefore they’re considered “too big to fail”. On the other hand, since governments are generally relatively wealthy, state-owned companies have relative advantages in issues such as access to credit, liquidity and cost of capital (Thomsen & Pedersen, 2000). Previous literature predominantly suggests that there is a negative relationship between state ownership and firm performance. Nevertheless, we expect that this might not be true in the case of Russian agri-food companies and propose that certain levels of state ownership may actually improve performance. The Russian agri-food sector is highly subsidized, and under current institutional settings in the country, one could expect that, due to their political connections, state-owned firms may have better access to government subsidies. They may also have better chances of obtaining different types of government support, such as winning public tenders, obtaining various permissions, certificates, etc. Based on the previous literature and above arguments, we therefore hypothesize that:

***Hypothesis 2b:** There is an inverted U-shaped association between state ownership and performance.*

Business groups are another type of shareholders that can potentially affect firm performance. In the context of Russian agri-food industry, such business groups are known as agroholdings and they generally hold considerable ownership shares in member companies (Matyukha 2017). They are also typically connected with their member firms through business ties, e.g., via vertical and/or horizontal integration (Davydova & Franks, 2015). Business groups therefore have both incentives and the potential to take an active role in the corporate governance of their affiliates (Iwasaki et al. 2018). Furthermore, members of the business groups can benefit from the intra-group transfer of technology and have access to internal capital, labor and trade markets (Wan 2005; Belenzon et

al. 2013). These benefits are even more pronounced in transition economies with relatively under-developed factor markets and institutions (Toulan 2002). Matyukha et al. (2015) name the deficiencies in the institutional settings and market infrastructures as one of the key reasons for the existence and further evolution of agroholdings in Russia. Moreover, with the help of modern technologies, agroholdings are able to minimize the monitoring costs of the hired labor and sustain increasing returns to scale (Gagalyuk, 2017). One of the main drawbacks of business groups are the difficulties in coordination, potential for unfair intra-group distribution of resources and manipulation of transfer prices in favor of the controlling shareholders (Holmes et al. 2018). Existing literature on agroholdings is still immature, with empirical studies providing rather mixed results on the effects of agroholding affiliation on firm performance. Hahlbrock and Hockmann (2011) have studied the effects of agroholding membership on farm efficiency in the Belgorod region of Russia, and revealed that, on average, affiliated farms perform better in terms of efficiency compared to non-affiliated farms. On the other hand, a similar study by Hockmann et al. (2005) revealed that agroholding members have lower economic efficiency compared to independent farms. Based on the contradicting empirical evidence, we propose that agroholding ownership, similar to managerial and state ownership, might have a non-linear impact on the performances of this sample of Russian agri-food firms. We therefore hypothesize that:

***Hypothesis 2c:** There is an inverted U-shaped association between agroholding ownership and performance.*

3.3 Methodology and Data

3.3.1 Model

Our baseline regression model is expressed as follows:

$$\text{Firm Performance} = \alpha_0 + \alpha_1 \text{Ownership Structure} + \alpha_2 \text{Control Variables} + \varepsilon \quad (1)$$

Fixed effects and random effects are the two models that are most widely used in the context of panel data analysis. Using random effects models is relevant when the data represents a sub-sample of the population (Greene 2012) and if there is a low variation in the explanatory variables over

time (Wooldridge 2002), as is the case with ownership variables. Therefore, the nature of the data used in this study suggests that a random effects model is more suitable for our analysis. In order to use a random effects model, the assumption of no correlation between the individual effects and explanatory variables should be held (Wooldridge 2002). We used the Hausman test to check the validity of this assumption. The Hausman test could not reject the null hypothesis of “no significant correlation between individual effects and regressors”, even at the 10% significance level, pointing to the appropriateness of the random effects model for our data.

De Hoyos and Sarafidis (2006) argue that panel-data models are likely to encounter an issue of cross-sectional dependence in the error terms. Such likelihood is especially high for panels where the number of time periods (T) is smaller than the number of cross-sectional observations (N). To overcome this issue, we re-ran our model using Driscoll-Kraay robust standard errors suggested by Hoechle (2007). In addition to the cross-sectional dependence, Driscoll-Kraay standard errors are also robust to heteroscedasticity and autocorrelation (Hoechle 2007).

One of the potential issues that can arise when studying the relationship between ownership structure and performance is the presence of endogeneity, in which case the OLS regression might lead to biased results. To account for potential endogeneity, we follow the studies of Carter et al. (2003), Campbell and Mínguez-Vera (2008), and Marinova et al. (2016) and employ a 2SLS (two-stage least squares) method. Running a 2SLS model requires an instrumental variable that is correlated with ownership structure but does not correlate with an error term. However, most variables that correlate with ownership structure are often other governance factors that are already included in the model. This makes the finding of a valid instrument, especially in the framework of corporate governance, a very difficult task (Adams and Ferreira 2009). Faced with such an issue, we follow the studies by Caramanis and Lennox (2008) and García-Meca and Sánchez-Ballesta (2011) and treat the first lags of the ownership structure variables as instrumental variables.

Firm performance, ownership structure and control variables used in this study are described in Table 3.2 and explained in detail in the following sub-section.

3.3.2 Variables

3.3.2.1 Firm performance

The literature suggests two main measures of firm performance: market-value-based indicators (e.g. Tobin’s Q) and accounting-based-indicators (e.g. return on assets, return on sales). Due to the unavailability of market-based variables for our sample, this study focuses only on accounting-based ratios. For the robustness of regression results, we employ two measures of performance: return on assets (*ROA*) and return on sales (*ROS*). Both measures are widely used in the corporate governance literature as a proxy for firm performance (Adams and Ferreira 2009; Liu et al. 2014).

3.3.2.2 Ownership structure

Ownership structure is composed of two different components: ownership concentration and ownership identity.

In line with the previous studies (Lee 2008; Nguyen et al. 2015b), we define the ownership concentration as the percentage of shares owned by the largest shareholder (*CR1*) and the percentage of shares owned by the three largest shareholders (*CR3*).

Ownership identity is represented by three different shareholder types that seem to be most relevant in the Russian context (Davydova & Franks, 2015; Iwasaki et al., 2018), namely: managerial ownership (*SHARE_DIR*), state ownership (*SHARE_GOV*) and agroholding ownership (*SHARE_AGHL*).

3.3.2.3 Control variables

Besides ownership structure, firm performance can also be explained by other factors. We control for such factors and include board- and firm-level characteristics in our regression model.

TABLE 3.2: VARIABLES AND DESCRIPTIONS

| Variables | Description |
|---------------------------------------|---|
| Panel A: Dependent variables | |
| ROA | Net income / total assets |
| ROS | Net income / sales |
| Panel B: Explanatory variables | |
| CR1 | Percentage of shares held by the largest shareholder |
| CR3 | Percentage of shares held by largest three shareholders |
| SHARE_DIR | Percentage of shares held by the largest shareholder, if the largest shareholder is an executive director |

| | |
|------------|--|
| SHARE_GOV | Percentage of shares held by the largest shareholder, if the largest shareholder is the state |
| SHARE_AGHL | Percentage of shares held by the largest shareholder, if the largest shareholder is an agroholding |

Panel C: Control variables

| | |
|------------------------------|--|
| Board characteristics | |
| BSIZE | The total number of directors in the boardroom |
| BOD_IND | Percentage of independent directors in the boardroom |
| BOD_DIV | Percentage of female directors in the boardroom |
| Firm characteristics | |
| FAGE | The number of years since the firm was first registered by the state |
| FSIZE | Natural logarithm of the firm's total assets |
| LEVERAGE | Total debt / total assets |

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

At the board level, we control for the board size (Yermack, 1996), measured as a total number of directors (*BSIZE*); board independence (Black and Kim, 2012), measured by the percentage of independent directors (*BOD_IND*); and board diversity (Liu et al. 2014), indicated by the percentage of female directors (*BOD_DIV*) in the boardroom.

With respect to firm-level characteristics, we control for firm size (*FSIZE*), measured by the natural logarithm of the total assets (Marinova et al. 2016); firm age (*FAGE*), measured by the number of years since the company was first officially registered by the state (Reddy et al. 2008); and leverage (*LEVERAGE*), measured as a ratio of total debts to total assets (Schorr & Lips, 2019).

3.3.3 Data

The empirical analysis in this study is based on a unique panel data of 203 corporate agri-food companies in Russia for the years between 2012 and 2017. All the enterprises in the sample are involved in the production and/or processing of agri-food products and represent a sub-sample of the entire agri-food production of Russia. The sample was selected using the convenience sample technique, which implies the research sample to be selected based on its ease of availability and accessibility (Etikan et al., 2016; Henry, 1990). Due to the unavailability of publicly accessible data for most of Russia's corporate agri-food enterprises, our sample therefore includes only those companies for which the data on the variables of interest were publicly available.

The main sources of data are the quarterly and annual reports as well as the financial statements of the companies that were obtained from the publicly accessible database of the “Interfax –Corporate Information Disclosure Center (CIDC)⁶” agency. Interfax – CIDC is one of the five Russian agencies that are authorized to disclose information on the country’s securities market. Using these reports and statements, we manually collected a large array of variables, including the ownership stakes and identities of the largest shareholders, the size and composition of the corporate boardrooms and the companies’ financial figures, among others.

TABLE 3.3: DESCRIPTIVE STATISTICS OF KEY VARIABLES

| Variables | Obs | Mean | Std | Min | Max |
|-------------------|------------|-------------|------------|------------|------------|
| <i>ROA</i> | 1218 | 4.7% | 0.1 | -0.85 | 0.84 |
| <i>ROS</i> | 1218 | 5.75% | 0.27 | -2.26 | 2.93 |
| <i>CR1</i> | 1218 | 61% | 0.27 | 0.06 | 1 |
| <i>CR3</i> | 1218 | 76.8% | 0.21 | 0.06 | 1 |
| <i>SHARE_DIR</i> | 1218 | 18.38% | 0.28 | 0 | 1 |
| <i>SHARE_GOV</i> | 1218 | 3.84% | 0.18 | 0 | 1 |
| <i>SHARE_AGHL</i> | 1218 | 23.45% | 0.36 | 0 | 1 |
| <i>BSIZE</i> | 1218 | 6 | 1.68 | 3 | 15 |
| <i>BOD_IND</i> | 1218 | 50.8% | 0.38 | 0 | 1.8 |
| <i>BOD_DIV</i> | 1218 | 29.27% | 0.22 | 0 | 1 |
| <i>FAGE</i> | 1218 | 16 | 6.16 | 0 | 25 |
| <i>FSIZE</i> | 1218 | 12.92 | 1.57 | 7.25 | 18.87 |
| <i>LEVERAGE</i> | 1218 | 47.4% | 0.31 | 0.006 | 1.83 |

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

Descriptive statistics of the key variables used in the study are reported in Table 3.3. On average, companies in the sample have a high ownership concentration, with the top-1 (*CR1*) and the top-3 (*CR3*) largest shareholders possessing approximately 61% and 77% of all ownership stakes, respectively. Among the top-1 largest shareholders are agroholdings (*SHARE_AGHL*), executive directors (*SHARE_DIR*) and the state (*SHARE_GOV*), with the ownership stakes on average being

⁶ More information available here: <https://www.e-disclosure.ru/>

around 23%, 19% and 4%, respectively. In addition to already high levels, ownership concentration has been steadily growing since 2012. From 2012 to 2017, both CR1 and CR3 have increased by nearly 8% and 4% respectively (Figure 3.1).

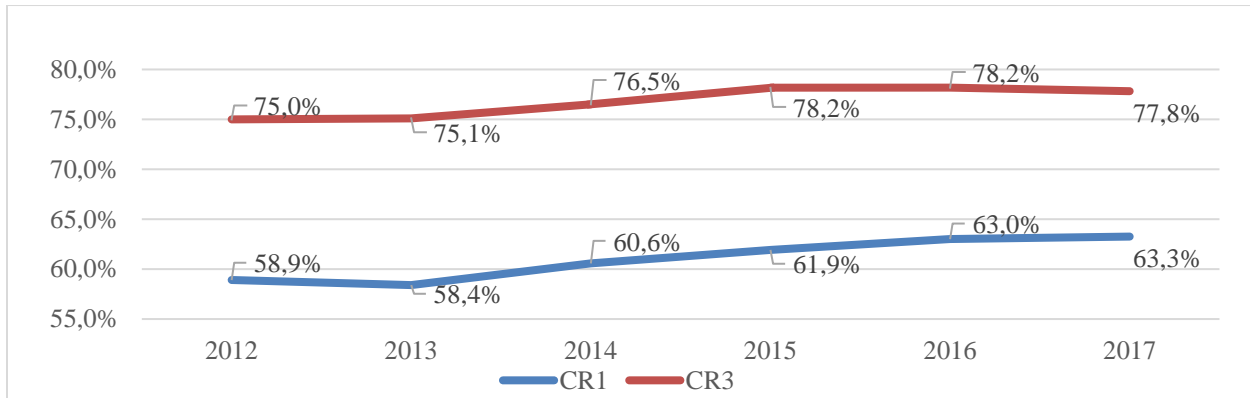


FIGURE 3.1: OWNERSHIP STAKES OF THE LARGEST (CR1) AND THREE LARGEST (CR3) SHAREHOLDERS

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

Among the top-1 shareholders, the ownership stakes of the agroholdings also increased substantially from 2012 to 2017, by nearly 14%, whereas the ownership stake of the government dropped by almost 37% within the same time period (Figure 3.2).

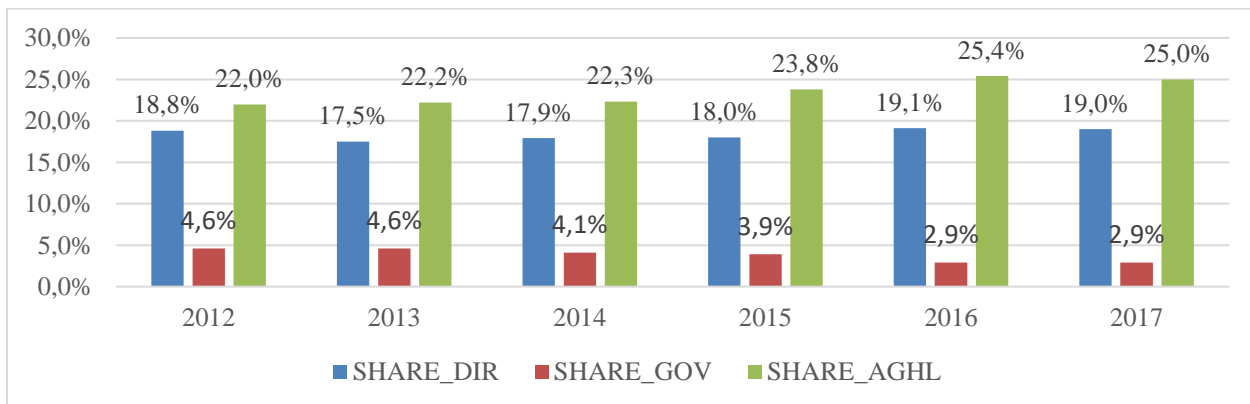


FIGURE 3.2: OWNERSHIP STAKES AND IDENTITIES OF THE LARGEST SHAREHOLDERS

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

On average, a boardroom in our sample consists of six directors, of which about 51% and 29% are independent directors and female directors, respectively (Table 3.3). Furthermore, on average, a firm in the sample is 16 years old, has total assets in the value of 2.3 billion Rubles (approximately 35.7 million USD), and a debt-to-asset ratio of around 47% (Table 3.3). The average values of the return on assets and return on sales are 4.7% and 5.8% respectively (Table 3.3). Both indicators have experienced a substantial growth from 2012 to 2015, with *ROA* and *ROS* rising by around 133% and 94%, respectively. However, since 2015, those figures have been sharply decreasing and in just two years they returned back to the levels of 2012 (Figure 3.3).

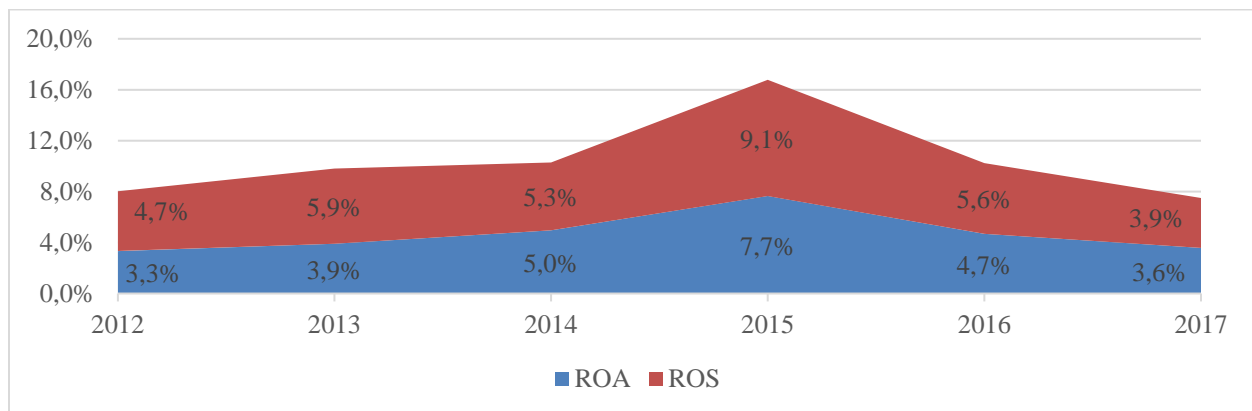


FIGURE 3.3: RETURN ON ASSETS (ROA) AND RETURN ON SALES (ROS) DYNAMICS

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

Another thing to mention is that the companies' sizes, both in terms of average total assets and total sales, have skyrocketed from 2012 to 2017. While total assets of the companies grew by nearly 68%, total sales rose by about 80% during the mentioned time period (Figure 3.4).

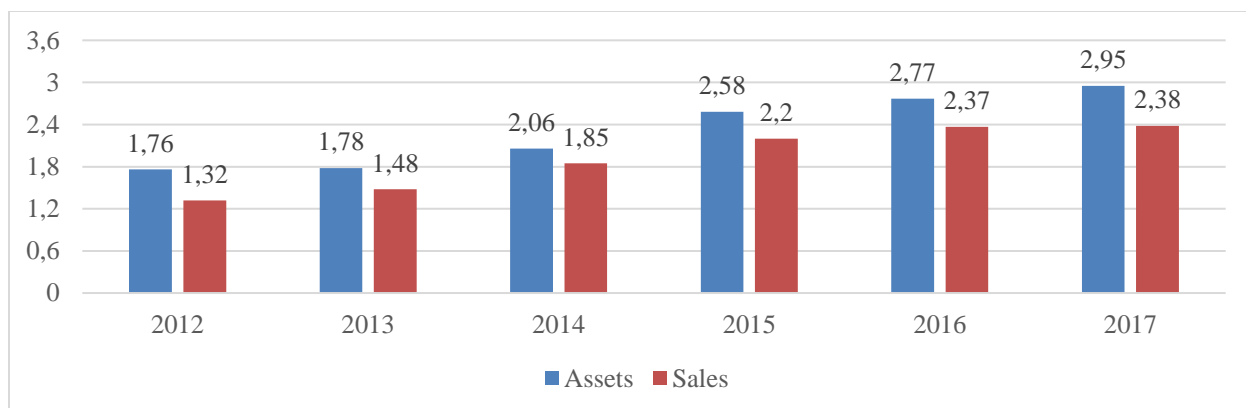


FIGURE 3.4: TOTAL ASSETS AND TOTAL SALES DYNAMICS (BILLION RUBLES)

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

To test for the potential presence of multicollinearity in the model, we estimated the correlations among all independent variables (Table A.2). The rule of thumb suggests a multicollinearity problem if variables, in their absolute terms, are correlated with a coefficient of 0.7 or above (Liu et al. 2014). The highest correlation (0.74) within our correlation matrix is observed between *CR1* and *CR3*. However, this high correlation level is not an issue, since *CR1* and *CR3* are two alternative measures for ownership concentration and therefore are not simultaneously used in the model.

3.4 Results and discussion

Table 3.4 illustrates the results of the random effects (RE) regression with *ROA* and *ROS* as dependent variables. We observe a significant quadratic (inverse U-shaped) relationship between ownership concentration (*CR1*) and both the *ROA* and *ROS*, with the turning points being around 50%. Below this turning point, a 1% growth in the ownership concentration (*CR1*) increases the *ROA* and *ROS* by 0.13% and 0.35% respectively. However, after the peak point of about 50%⁷,

⁷ The turning points of the quadratic relationship are identified using the “utest” STATA command suggested by Lind and Mehlum (2019). The same test also supported the statistical significance of a non-linear relationship between

ownership concentration has an opposite effect, with a 1% increase in *CRI* leading to a decrease in *ROA* and *ROS* by 0.13% and 0.35% respectively. The results are robust and similar for *CR3*, an alternative measure of the ownership concentration, which also exhibits an inverse U-shaped relationship with a turning point of almost 59%. This result may be interpreted as evidence for a classical principal-agent problem. The ability and willingness of controlling shareholders to monitor and discipline the company management increases together with increased ownership share in the company. This reduces the agency conflict and related costs and has a positive impact on firm performance. However, an inversed U-shaped relationship suggests that firm performance is worsened when ownership concentration becomes too high. Balsmeier and Czarnitzki (2017) argue that low firm performance at high levels of ownership concentration illustrates high private benefits of control and weak investor protection systems, which may lead to an exploitation of minority shareholders. In this respect, on the one hand, it might be the case that controlling shareholders face high private benefits of control and do not want to share these benefits with potential investors. As a result, firms lose potential sources of external capital and therefore miss important investment opportunities, which reflects negatively on their performance. On the other hand, poor legal systems in general and weak investor protection rights in particular might result in an exploitation of the minority shareholders, which may in turn have a negative influence on overall firm performance. The average level of *CRI* in our sample is nearly 61%, which is higher than the turning point and lays on the descending range of the inverted U-shape. Moreover, we observe an increasing trend in the levels of ownership concentration from 2012 onwards (Figure 3.1). This means that, on average, corporate agri-food companies in Russia are performing below their potential. As argued above, this might be the result of forgone investment opportunities and exploitation of the minority shareholders. In this regard, corporate management and ownership of Russian agri-food enterprises should consider bringing the ownership concentration levels to the optimum range of around 50%. This would allow firms to raise new investments, which they could use to finance new projects or modernize their existing activities. It might also considerably reduce the exploitation of minority shareholders. Taken together, these factors may have a positive impact on performance and substantially improve the production potential of the Russian agri-food industry. This concerns not only domestic but global food security as well, since Russia plays a

ownership concentration and performance variables at a 5% confidence level.

crucial role in the world's agri-food market. Moreover, the results of this study might be interesting for Russian policy makers. In particular, they may want to consider developing programs that could incentivize the reduction of ownership concentration levels among the agri-food companies. In this regard, it would be extremely important that the government undertakes measures for improving the investor protection system in the country.

TABLE 3.4: THE IMPACT OF OWNERSHIP CONCENTRATION ON FIRM PERFORMANCE, RE MODEL (STANDARD ERRORS IN PARENTHESES)

| Variables | (1) ROA | (2) ROA | (3) ROS | (4) ROS |
|-----------------------|------------------------|------------------------|------------------------|------------------------|
| CR1 | 0.1325* (0.0694) | | 0.3544* (0.1833) | |
| CR1_sqr | -0.1331** (0.0562) | | -0.3485** (0.1482) | |
| CR3 | | 0.1725** (0.0859) | | 0.3876* (0.2280) |
| CR3_sqr | | -0.1474** (0.0643) | | -0.3382** (0.1706) |
| BSIZE | -0.0043* (0.0023) | -0.0034 (0.0023) | -0.0012 (0.0061) | 0.0007 (0.0060) |
| BOD_IND | 0.0239** (0.0097) | 0.0231** (0.0098) | 0.0713*** (0.0256) | 0.0686*** (0.0258) |
| BOD_DIV | 0.0479*** (0.0153) | 0.0482*** (0.0154) | 0.0897** (0.0407) | 0.0911** (0.0409) |
| FAGE | -0.0009 (0.0006) | -0.0008 (0.0006) | -0.0031** (0.0016) | -0.003* (0.0016) |
| FSIZE | 0.0122*** (0.0025) | 0.0115*** (0.0025) | 0.0420*** (0.0066) | 0.0407*** (0.0066) |
| LEVERAGE | -0.1409*** (0.0123) | -0.1401*** (0.0124) | -0.2301*** (0.0323) | -0.2276*** (0.0326) |
| _cons | -0.0516 (0.0416) | -0.0674 (0.0464) | -0.4428*** (0.1085) | -0.4618*** (0.1218) |
| R-squared | 0.2008 | 0.1962 | 0.1333 | 0.1292 |
| Extreme points | 0.4975 | 0.585 | 0.5085 | 0.5731 |

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

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International food and agribusiness management review*, 24(4), 649-668.

To overcome the issue of cross-sectional dependence in the error terms, we re-ran our model using the Driscoll-Kraay robust standard errors suggested by Hoechle (2007) (Table A.3). The results suggest that statistical significance of an inverse U-shaped relationship between ownership concentration (both *CR1* and *CR3*) and performance (both *ROA* and *ROS*) is robust to the cross-sectional dependence.

Table A.3 also presents the results of a 2SLS regression, which accounts for the potential endogeneity in the model. Overall, the results of the 2SLS analysis are similar to those of the RE model, with an exception that the relationship between *CR3* and *ROS* is not significant in the former case.

With regard to control variables, we detect a strong positive link between board independence (*BOD_IND*), board diversity (*BOD_DIV*) and firm performance (both *ROA* and *ROS*) (Table 3.4). The positive impact of board independence on performance is generally recognized within the corporate governance literature (Dahya and McConnell 2007; Black and Kim 2012). Furthermore, many countries, through their corporate governance codes, recommend that a certain portion of the corporate boards be composed of independent directors. In the case of Russia, the national corporate governance code advises that at least one-third of the corporate boards should be represented by independent directors (CG code, 2014). The mean value of almost 51% of the *BOD_IND* suggests that, on average, Russian agri-food companies follow the recommendations advised by their national corporate governance code.

While there is less unanimity among researchers on the nature of the relationship between board gender diversity and performance, a growing body of literature emphasizes the importance of gender diverse boardrooms on overall firm performance (Liu et al. 2014; Tleubayev et al. 2019). Many European countries are encouraging greater female representation in the corporate boardrooms, with some countries like Norway, Belgium and the Netherlands even imposing affirmative actions, like certain quotas for female directors (Marinova et al. 2016).

The ratio of total debt to total assets (*Leverage*) has a strong negative impact on both *ROA* and *ROS* (Table 3.4). Additional monitoring provided by the debt issuers might be a substitute for poor corporate governance, which in turn might positively impact firm performance (Lopez-Valeiras et al. 2016). On the other hand, González (2013) suggests that if the cost of debt is too high, it might

outweigh the positive effects of any additional monitoring by debt issuers, therefore having an overall negative impact on performance. Relatively high costs of debt in Russia, compared to developed economies, might be one of the possible reasons why we observed a negative effect of leverage on performance.

Apart from ownership concentration, the identities of the largest shareholders might also impact a firm's performance. Indeed, we observe statistically significant relationships between ownership concentration distinguished by different types of shareholders (executive directors, government and agroholdings) and performance variables (Table 3.5).

The results of the RE model illustrated in Table 3.5 suggest a significant non-linear association between ownership concentration in the hands of the executive directors (*SHARE_DIR*) and firm performance (both *ROA* and *ROS*). Ownership by executive directors (*SHARE_DIR*) first increases the firm performance, with each additional percentage owned by this type of shareholders leading to an increase in the levels of *ROA* and *ROS* by 0.08% and 0.29%, respectively. This effect can be explained by the interest alignment hypothesis, which suggests that managerial ownership improves the financial incentives of managers to maximize firm performance, since managers become the residual claimants of the company income (Jensen and Meckling 1976). However, after the certain extreme point, managers might abuse their ownership control and extract the corporate resources for their personal benefits, which could ultimately outweigh the benefits of the interest alignment effect (Morck et al. 1988; Lins 2003). In our case, the extreme point was found to be around 34% and 38% for *ROA* and *ROS*, respectively (Table 3.5). After this turning point, the previous positive relationship reverses, with each 1% increase in the *SHARE_DIR* leading to a 0.11% and 0.38% decrease in *ROA* and *ROS*, respectively. These results are also robust to the cross-sectional dependence and endogeneity (Tables A.4 and A.5). An average *SHARE_DIR* in our sample is around 18%, which is significantly below the turning point of 34%. This suggests that, on average, Russian agri-food companies can still benefit from the interest alignment effect of managerial ownership. Company owners can therefore consider allocating certain shares of their stocks for their management, in the framework of various bonus or compensation options. This could potentially improve the financial performance of the firms and increase the shareholder values.

**TABLE 3.5: THE IMPACT OF OWNERSHIP IDENTITY ON FIRM PERFORMANCE, RE MODEL
(STANDARD ERRORS IN PARENTHESES)**

| Variables | ROA | | | | ROS | | | |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Quadratic | | Linear | | Quadratic | | Linear | |
| | (1) | (2) | (3) | (4) | (1) | (2) | (3) | (4) |
| SHARE_DIR | 0.08* | | | | 0.29** | | | |
| | (0.04) | | | | (0.11) | | | |
| SHARE_DIR_sqr | -0.11** | | | | -0.38*** | | | |
| | (0.05) | | | | (0.14) | | | |
| SHARE_GOV | | 0.22** | | | | 0.03 | | |
| | | (0.10) | | | | (0.27) | | |
| SHARE_GOV_sqr | | -0.28** | | | | -0.18 | | |
| | | (0.11) | | | | (0.29) | | |
| SHARE_AGHL | | | 0.05 | 0.02** | | | 0.03 | 0.06** |
| | | | (0.05) | (0.01) | | | (0.13) | (0.03) |
| SHARE_AGHL_sqr | | | -0.02 | | | | 0.03 | |
| | | | (0.05) | | | | (0.14) | |
| FAGE | -0.00 | -0.00* | -0.00 | -0.00 | -0.00** | -0.00** | -0.00** | -0.00** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| FSIZE | 0.01*** | 0.01*** | 0.01*** | 0.00*** | 0.04*** | 0.04*** | 0.03*** | 0.03*** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.01) |
| LEVERAGE | -0.14*** | -0.14*** | -0.14*** | -0.15*** | -0.23*** | -0.24*** | -0.23*** | -0.23*** |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.03) | (0.03) | (0.03) | (0.03) |
| BFSIZE | -0.00* | -0.00* | -0.00 | -0.00 | -0.00 | 0.00 | 0.00 | 0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| BOD_IND | 0.02** | 0.02** | 0.03*** | 0.03*** | 0.07** | 0.06** | 0.07*** | 0.07*** |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.03) | (0.03) | (0.02) | (0.02) |
| BOD_DIV | 0.05*** | 0.05*** | 0.05*** | 0.05*** | 0.09** | 0.10** | 0.10** | 0.10** |
| | (0.01) | (0.01) | (0.02) | (0.02) | (0.04) | (0.04) | (0.04) | (0.04) |
| _cons | -0.02 | -0.01 | 0.01 | -0.01 | -0.36*** | -0.33*** | -0.31*** | -0.31*** |
| | (0.04) | (0.04) | (0.04) | (0.04) | (0.09) | (0.09) | (0.10) | (0.10) |
| R-squared | 0.2 | 0.20 | 0.19 | 0.19 | 0.13 | 0.13 | 0.13 | 0.13 |
| Extreme point | 0.34 | 0.39 | | | 0.38 | | | |

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

Source: compiled by the authors.

Retrieved from the published open-access article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia Meca, E., Glauben, T. (2021): Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? International food and agribusiness management review, 24(4), 649-668.

Concentrated ownership in the hands of the government has a similar, non-linear impact on one of

the performance variables, *ROA*, with the turning point being around 39% (Table 3.5). Below this peak point, a 1% increase in government ownership (*SHARE_GOV*) increases the *ROA* by 0.22%. However, after the extreme point of 39%, each additional percentage increase in the *SHARE_GOV* decreases the *ROA* by 0.28%. The relationship is not significant in the case of the *ROS*, another indicator of the firm performance. Tables A.4 and A.5 indicate that the above mentioned results are also robust to the cross-sectional dependence and endogeneity. In spite of a general unanimity among academics on the negative impact of state ownership on firm performance (e.g. Sun et al. 2002), our results suggest that, at least up to a certain extreme point, government ownership might actually improve firm performance. At this point, it is worth remembering that the Russian agri-food sector is massively supported by the government (Wegren et al. 2019). Taking into account high levels of corruption in Russia (Weill 2011), one could assume that firms connected to the state have higher chances of receiving government subsidies and other types of government support (i.e. winning public tenders, obtaining various permissions, certificates, etc.). This could partially explain the positive effect of up to 39% of government ownership on the performance of the agri-food companies in our sample. An average state ownership (around 4%) is substantially below the observed peak point.

Coming to our last ownership identity variable, ownership concentration by agrohholdings (*SHARE_AGHL*), we could not observe any significant quadratic relationship between the *SHARE_AGHL* and performance (Table 3.5). Instead, the results of the regression analysis illustrate a statistically significant and positive linear impact of the *SHARE_AGHL* on both the *ROA* and *ROS*. Agrohholdings seem to be more efficient owners, with a 1% increase in the *SHARE_AGHL* leading to 0.02% and 0.06% increase in the levels of the *ROA* and *ROS*, respectively. The results are robust to the cross-sectional dependence and endogeneity (Tables A.4 and A.5).

Financial efficiency of agrohholding affiliates over stand-alone firms might be explained by the following factors: Agrohholdings are well equipped with storage facilities (Gagalyuk et al. 2018); have better access to outside capital (Matyukha et al. 2015); can benefit from the within-group transfer of technology and have an access to intra-group capital, labor and trade markets (Wan 2005; Belenzon et al. 2013). In addition, most of the agrohholdings are vertically integrated, thereby having an access to raw commodities base at lower transaction costs (Hermans et al., 2017).

Indeed, an empirical study by Hahlbrock and Hockmann (2011) suggests that agroholding affiliated farms in Russia have higher adoption of new technologies and therefore are more efficient compared to independent farms. Moreover, Russian agroholdings operate in the most favorable regions in terms of both agro-climatic and logistics conditions (Federation 2009; Rada et al. 2017), which gives them comparative advantages over stand-alone firms. They are also mainly export-oriented companies (Liefert et al. 2013), which enables them to get higher commodity prices. Furthermore, Matyukha et al. (2015) argue that the opportunity of connecting individual production units provides Russian agroholdings with a strong positioning in local and regional markets. Discussions on the efficiency of agroholdings and whether agroholdings would remain as a model for the organization of agricultural production are still ongoing (Matyukha et al. 2015; Hermans et al. 2017; Gagalyuk and Valentinov 2019). Nevertheless, the results of this study illustrate that, at least among the large-scale corporate farms of Russia, agroholding affiliated farms perform better in terms of financial performance compared to stand-alone farms. We therefore support the findings of Matyukha et al. (2015), and also assume that agroholdings will probably remain as one of the dominant business forms for agricultural production in Russia.

Although this work provides a number of contributions to the literature, it certainly has several limitations which should be addressed by future studies. Firstly, our sample selection was data-driven, meaning that the sample includes only those companies for which the necessary data was available. Moreover, the sample size of 203 companies is relatively low and may not fully reflect the corporate agri-food sector of the country. These factors may lead to a potential selectivity bias; future studies should therefore focus on a larger sample. Secondly, in this study we analyze the effects of ownership structure on financial performance. Future research should also consider this relationship in terms of production performance (i.e. productivity and technical efficiency) and firm market value (Tobin's Q).

3.5 Conclusion

This study contributes to the literatures on corporate governance and agribusiness by providing novel empirical evidence on the impact of ownership structure on firm performance in the case of the Russian agri-food sector. We put into question the sustainability of the current structure of agri-food production in Russia, a country which plays an important role in agri-food production

worldwide. Today, the bulk share of Russia's agri-food production is evidently dominated by a relatively small number of corporate enterprises, which in turn are controlled by very few shareholders. Financial insolvencies by such key producers might put the food security at risk, not only at the national, but also at the global level.

The results of this study suggest an inversed U-shaped relationship between ownership concentration and performance, with a turning point being at around 50%. This provides evidence for a classical agency problem and suggests that both monitoring and expropriation effects of concentrated ownership are present in the Russian agri-food context. Whichever of these two effects prevail depends on the level of ownership concentration. An average ownership concentration value of 61% among our sample suggests that the Russian agri-food sector is located in the non-optimum ownership concentration region, meaning that these firms are performing below their potential. We propose that a reduction of ownership concentration to an optimum range of around 50% could provide investment opportunities and reduce the exploitation of minority shareholders within Russian agri-food firms, which in turn may have a significant positive impact on their performance. Considering the increasingly important role of Russia in global food security, the results of this study could be of high importance for decision makers, not only at the corporate, but also the government level. Corporate management and ownership should therefore acknowledge the importance of bringing ownership concentration levels to an optimum range. At this point, they could perhaps consider attracting new investors by opening up the sale of certain shares of company stocks. They could thereby reduce ownership concentration levels and introduce new investment opportunities to their firms. In addition to the corporate sector, policy makers at the government level may also want to consider developing measures that could potentially stimulate the reduction of ownership concentration levels in agri-food companies. In this respect, undertaking actions for the improvement of the investor protection system should perhaps be an inalienable part of these measures.

We also observe similar, non-linear relationships between the ownership concentrations in the hands of the executive directors and the government and firm performance. In both cases, the average values of the ownership concentration are far below the peak points. This suggests that Russian agri-food companies can benefit from the distribution of certain number of their stocks to the executive directors.

Lastly, the ownership concentration by agroholdings has a strong positive, linear impact on performance. Agroholdings are relatively new and rapidly emerging models for the organization of agri-food production in Russia, particularly because of their role as a substitute for the poor institutional setting and market infrastructure in the country. Discussions on the superiority of agroholdings as a model for the organization of agri-food production and on the future existence of agroholdings in Russia are still ongoing. Nevertheless, based on the current evidence, agroholding affiliates seem to have better performance compared to independent companies. In this regard, further, more in-depth research is needed to allow us to understand which particular attributes of agroholding affiliated firms make them better performers compared to stand-alone firms.

4. Business group affiliation and financial performance in the agricultural sector of transition economies: The case of Russian agroholdings⁸

4.1 Introduction

Russia's agricultural sector has shown remarkable progress over the last decade. While the country's gross agricultural output has more than doubled, from RUB 2.46 billion in 2010 to RUB 5.11 billion in 2017 (RosStat, 2018), its agricultural exports jumped by around 130%, from USD 9 billion in 2010 to USD 21 billion in 2017 (Uzun et al. 2019). In 2017, Russia produced a record amount of around 86 million tons of wheat, of which 33 million tons were exported, making Russia the largest wheat exporter in the world (FAOSTAT, 2017c, 2017b). Substantial progress can also be seen in the production of poultry and pork. Between 2008 and 2017, the production of poultry increased by more than 150%, whereas the production of pork nearly doubled (Wegren et al. 2019). While Russia is regarded as one of the largest agri-food importers in the world, remarkable growth in its domestic agricultural production over the last decade resulted in a significant decrease in the imports of agri-food products. Agri-food imports dropped by about 67%, from around USD 43 billion in 2013 (all-time high since the fall of the communist regime) to nearly USD 29 billion in 2017, thereby narrowing the negative trade balance for agri-food products (Uzun et al. 2019). This profound decline in the imports of agri-food products was mainly caused by an import embargo on a range of agri-food products that was introduced by Russia in August of 2014 against a number of western countries (Smutka et al. 2016; Bobojonov et al. 2018). Today, Russia is the largest exporter of wheat and beet pulp and among the top three exporters of sunflower oil, peas, oil cakes, oil meal, flaxseed and barley worldwide (USDA 2018a; Uzun et al. 2019). With the aim of becoming net exporters of agri-food products by 2022⁹, Russian policy makers are striving to further increase both the volume and variety of exported agri-food products (Kremlin, 2018). In 2018, the Russian president decreed growing the country's agri-food exports to USD 45 billion by

⁸ This chapter is accepted for publication as the following article: Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2022): Business group affiliation and financial performance in the agricultural sector of transition economies: The case of Russian agroholdings, *Journal of East European Management Studies*, 27(2). This chapter benefitted from the comments by the anonymous referees of the *Journal of East European Management Studies*.

⁹ As of 2017, Russia has been a net importer of agri-food products, with a negative trade balance of around USD 8 billion.

2024 and moving Russia into the top ten agri-food exporting countries¹⁰ (Dyatlovskaya, 2018b). To achieve these ambitious goals, the Russian government has been pouring an extraordinary amount of financial resources into its agri-food sector, with the total amount of money being allocated to the sector reaching nearly RUB 1.8 trillion between 2012 and 2019 (Wegren et al. 2019).

Large scale agri-food enterprises in general and agroholdings in particular are believed to be the driving force behind such profound progress in Russia's agriculture sector and are considered to be the main engine for reaching the ambitious government goals set for the agri-food industry (Liefert and Liefert 2015; Wegren and Elvestad 2018). According to Epshtein et al. (2013), "Agroholdings are business groups, i.e. collections of legally independent firms that operate in horizontally and/or vertically related stages of the food chain and/or in totally unrelated industries and which are bound together by equity ties". In Russia, agroholdings represent a severe concentration of agricultural land, resources and production, having strong economic power, with less than a quarter of farms accounting for 93% of all profits (Wegren, 2018). Furthermore, the top five agroholdings operate nearly 3.7 million hectares of agricultural land (BEFL agency, 2019) and the top 18 agroholdings produce almost half of the country's total animal feed (Kulistikova, 2017). The same can be observed for the meat industry, with around 60% of all pork and about 55% of all poultry production accounting for the top 20 and top ten agroholdings, respectively (Dyatlovskaya, 2018a; USDA, 2018b). Since the government relies heavily on agroholdings to reach its production and export targets, they were the primary recipients of financial support from the state. For example, in 2015, only 248 large scale agri-food enterprises (1.2% out of the total number), which included agroholdings, received more than 40% of all subsidies (Uzun et al. 2019). Apart from major amounts of government support, agroholdings also received significant financial investments from domestic and foreign investors. More than USD 3 billion in foreign investments and around RUB 1 trillion in domestic investments was made in Russian agriculture between 2012 and 2016, with most of these resources being directed towards agroholdings (Wegren, 2018).

In spite of the substantial growth and increasing importance of agroholdings for the country's agri-food industry, the current literature on agroholdings is still relatively immature and has several gaps to be filled. Firstly, the vast majority of prior research investigates the effects of agroholdings

¹⁰ Russia was ranked as the 23rd largest agri-food exporter in 2017 in USD value of exported agri-food products (Knoema, 2017).

on production performance, such as efficiency and productivity (e.g. Hahlbrock and Hockmann 2011), with studies on the financial performance of agroholdings being non-existent. The exception is a paper by Epshtein et al. (2013), where in addition to productivity and efficiency analysis, they also compared the average profitability ratios of agroholding affiliates compared to stand-alone firms. However, the analysis of the financial performance in this study was rather limited to a descriptive examination and did not involve comprehensive econometric estimations. It is worth mentioning that corporate farms in Russia account for almost a quarter of all bankruptcy cases (Yastrebova, 2005). It is therefore vital to understand how agroholding affiliation can affect not only production, but also the financial performance of corporate agri-food enterprises in Russia. Secondly, even within the available literature, there is no consensus among scholars about whether agroholding affiliation improves or hinders firm performance. While some scholars have revealed a productivity and efficiency premium for agroholding members over independent firms (Hahlbrock and Hockmann 2011; Epshtein et al. 2013), other researchers have observed rather contradicting results (Hockmann et al. 2009; Uzun et al. 2012). The current literature therefore fails to shed light on the potential political economy implications of the Russian government's increasing reliance on agroholdings in recent years. Based on a panel dataset of Russian corporate agri-food enterprises, this study therefore aims to fill this gap in the literature and attempts to understand the impacts of agroholding affiliation on firms' financial performance. Moreover, this paper tries to identify the characteristics of agroholding affiliates that make them more or less financially efficient compared to independent firms.

The remainder of this article is organised as follows: In section 4.2, we provide a theoretical framework and an overview of the literature on agroholdings and their performance. In section 4.3, we then describe the methodology and data employed in the study. This is followed by section 4.4, where we describe and discuss the results of our empirical analysis. Finally, we present our concluding remarks in section 4.5.

4.2 Theoretical framework and review of the literature

Agroholdings are certain types of business groups that have emerged in a number of post-communist countries, including Russia, at the end of the 1990s and have been growing considerably since then (Visser et al. 2014; Rada et al. 2017). In this study, we attempt to investigate agroholdings through the prism of Resource Dependence Theory (RDT hereafter),

introduced by Pfeffer and Salancik (1978). It is one of the most widely used theories among scholars to explain the emergence and evolution of business groups (Hillman et al. 2009). According to RDT, enterprises can be regarded as non-autonomous, open systems, which are constrained by their external environment and are interdependent with other companies. Uncertainties regarding both the external environment and the actions of other organisations with which the companies are interdependent leads to an ambiguity concerning the survival and future success of the company (Pfeffer 1987; Hillman et al. 2009), which leads to the formation of various new organisational forms and structures (Dentoni et al. 2020). As suggested by Pfeffer and Salancik (1978), companies can undertake various actions to manage environmental dependencies and minimise uncertainties, which may give companies economic and strategic advantages over competitors and substantially reduce their transaction costs. Such actions include, but are not limited to, mergers, vertical integrations, joint ventures and business groups. In this study, we propose that RDT can be a good framework for explaining the emergence and further growth of agroholdings in Russia. Agroholdings are vertically integrated groups that control the whole process of the value chain, including the production of inputs, the production and processing of the end agri-food products, and the distribution of these products to the market (Davydova & Franks, 2015; Matyukha, 2017). This enables them to minimise the dependence and related uncertainties from other interdependent organisations such as input suppliers, processors, distributors, etc. (Hockmann et al. 2011; Rada et al. 2017). Such uncertainties are even higher in transition economies with characteristics of under-developed factor markets and severe institutional turbulence (Gagalyuk & Valentinov, 2019). Indeed, Matyukha et al. (2015) suggest that, to a great extent, the existence and evolution of agroholdings in Russia is the result of deficiencies in market infrastructure and institutional settings in the country. A study by Gagalyuk & Valentinov (2019) argue that the rise of agroholdings might have very little to do with their superior efficiency, and may rather be better explained by the resilience that agroholdings create for their member enterprises against external institutional turbulences. In transitional economies with turbulent institutional settings, agri-food companies might face serious existential risks associated with existing legal system weaknesses and imperfections of production factor markets. This entails potential threat of their access to key external resources that are vital for the functioning of their companies, such as capital, land and labour. Joining larger business groups, such as agroholdings, allows agri-food enterprises to face these major challenges and, to a certain

extent, secure their access to those vital resources. This view supports our hypothesis that the phenomenon of agroholdings might be well explained by RDT. Summing up, agroholdings create a sort of enclave, where they are protected against external turbulences and uncertainties, especially with regards to access to vital external resources. This helps them survive, grow and maybe even outperform other forms of agri-food production in transition economies with imperfect market conditions, institutions and highly unpredictable business settings.

While RDT provides a good theoretical justification for the emergence of agroholdings, it can also serve as a framework for explaining the potential advantages of agroholdings over other forms of agri-food production. One of the main arguments of RDT is that organisations are highly dependent on the external environment and resources, such as raw materials, labour, capital, etc. (Hillman et al. 2009). An agroholding form of agri-food production might be a good way to advance the linkage between a company and its external environment, thereby improving access to vital external resources. Indeed, prior research observes that agroholdings have better access to outside capital and modern technologies and employ innovative and advanced techniques (Hahlbrock and Hockmann 2011; Visser et al. 2014). They also have sufficient resources to attract a qualified workforce and maintain adequate quality and standards control by implementing the best international standards and practices (FAO, 2009). Moreover, agroholdings are believed to have strong political and business connections and therefore have better access to substantial government subsidies (Matyukha et al. 2015). In addition, the vast majority of agroholdings seem to operate in the regions of South and Central Black Earth, which are the most favourable regions of Russia from the point of view of agro-climatic conditions (FAO, 2009; Grouiez, 2018). Furthermore, in addition to external resources, agroholdings as business groups have internal markets for resources that other organisational forms do not have. For instance, agroholding affiliates have access to intra-group labour, capital and trade markets and can also benefit from the within-group transfer of technology (Wan 2005; Belenzon et al. 2013). By looking at the agroholdings through the prism of RDT, we therefore propose that agroholding affiliation might improve firm performance. Nevertheless, existing empirical evidence reveals both positive and negative effects of agroholding affiliation on firm performance (Hahlbrock and Hockmann 2011; Visser et al. 2014; Matyukha et al. 2015).

On the one side, some researchers observe performance premiums of agroholding affiliates over stand-alone firms. Rylko et al. (2008) suggest that Russian agroholdings have higher labour and

land productivity compared to other types of agri-food producers. Hahlbrock and Hockmann (2011) investigated the productivity and efficiency effects of agroholding affiliation for a sample of Russian agri-food enterprises operating in the Belgorod region. They observe that, on average, agroholding members have higher scale efficiency compared to independent farms. Moreover, holding affiliates illustrated a higher adoption of modern technology, allowing them to significantly improve their total factor productivity during the analysed time period, compared to only minor improvements achieved by stand-alone firms. Another study by Hockmann et al. (2011) suggests that the existence of internal trade markets in agroholdings lowers the price uncertainties of their affiliates, which substantially decreases their external transaction costs. This, together with a more intense risk management system implemented by agroholdings, substantially decreases the production variation in holding members compared to non-affiliated firms. Similar research by Epshtein et al. (2013) reveals that, due to the higher adoption of modern production technologies, tougher corporate control and attracted outside financing among agroholdings, their affiliates illustrate significantly higher levels of efficiency as opposed to independent companies in Russia's Belgorod region. Davydova and Franks (2015) suggest that, resulting from their vertical and/or horizontal integration, agroholdings benefit highly from the economies of scope, which might give a considerable economic advantage to agroholdings over other forms of agri-food production organisation.

On the other hand, some scholars reveal a negative effect of agroholding affiliation or do not observe any significant impacts of agroholding membership on enterprise performance. Hockmann et al. (2005) investigated the efficiency levels of more than 100 large-scale agri-food companies, including agroholdings, in the Belgorod region of Russia. In spite of the restructuring and higher adoption of modern technology, agroholdings demonstrate significantly lower levels of efficiency compared to other forms of agri-food enterprises. Similar results were discovered by Hockmann et al. (2009) in the case of the Oreol and Belgorod regions. A study by Uzun et al. (2012) looked at the inefficiencies of Russian grain producing agroholdings. According to their findings, despite more investment and technologies in agroholdings and their significantly higher use of fertilisers (260% higher compared to other agri-food companies), grain yields of agroholdings were only 13% higher compared to non-agroholding companies. A later study by Matyukha et al. (2015) did not reveal any evidence on the economic advantages of agroholding affiliates compared to stand-alone farms in the Belgorod region of Russia. A similar study by

Gataulina et al. (2014) and Guriev and Rachinsky (2004) neither observed a marked difference in the average productivity levels between Russian agroholdings and independent farms.

4.3 Methodology and Data

4.3.1 Model

Our baseline regression model is expressed as follows:

$$\text{Firm Performance} = \alpha_0 + \alpha_1 \text{Agroholding Membership} + \alpha_2 \text{Control Variables} + \varepsilon \quad (1)$$

The econometrics literature suggests three main models when dealing with a longitudinal data analysis: pooled OLS, fixed effects and random effects models. The results of the F-test and Breusch and Pagan Lagrangian multiplier test (Tables A.7 and A.8) correspondingly suggest the significance of fixed and random effects in our model. Furthermore, the results of the Hausman test imply that the random effects model is preferable over the fixed effects model (Table A.9). The test fails to reject the null hypothesis that the random effects model is consistent and more efficient than the fixed effects model at the 5% significance level. Hence, in this study we employ a random effects model to conduct our regression analyses¹¹. Moreover, the nature of the data used in this study points to the appropriateness of the chosen model for the following reasons. Firstly, using a random effects model is recommended if the data represents a sub-sample of the population (Greene, 2012). Secondly, a random effects model is preferred if the independent variables have a low variation over time (Wooldridge, 2002).

Cross-sectional dependence in the error terms is the main issue that panel data models may encounter, especially if the number of time periods (T) in the panel is less than the number of cross-sectional observations (N) (De Hoyos & Sarafidis, 2006). To tackle this issue, in addition to the random effects regression, we also run our baseline model using the Driscoll-Kraay (DK) robust standard errors, as suggested by Hoechle (2007). The results of the model with DK standard errors are robust to the cross-sectional dependence, as well as to heteroscedasticity and autocorrelation (Hoechle, 2007).

¹¹ Nevertheless, we also estimate both pooled OLS and fixed effects models, the results of which are illustrated in Table A.7.

Another issue that may potentially arise when studying the effect of agroholding membership on firm performance is the presence of endogeneity. Based on the existing literature (Carter et al. 2003; Campbell and Mínguez-Vera 2008; Marinova et al. 2016), we employ a 2SLS (two-stage least squares) method to account for potential endogeneity in our model. An instrumental variable is required to run a 2SLS model, which should be correlated with the explanatory variable of interest, but should not correlate with the error term. Following studies by Caramanis and Lennox (2008) and García-Meca and Sánchez-Ballesta (2011), we treat the first lag of the explanatory variable as an instrumental variable.

Firm performance, agroholding membership and control variables used in this study are described in Table 4.1 and explained in detail in the following sub-section.

4.3.2 Variables

4.3.2.1 Firm performance

Market value based measures (e.g. Tobin's Q) and accounting based measures (e.g. returns on assets) are the main indicators of firm performance used in the financial literature (Terjesen et al. 2016; Yi and Ifft 2019). Market based variables are not available for the companies within our sample. Therefore, in this study, we focus on two accounting based measures: Return on Assets (ROA) and Return on Sales (ROS), as has been suggested by previous studies (Andrieş et al. 2020; Liu et al. 2014; Tleubayev et al. 2020).

4.3.2.2 Agroholding membership

While there is no official definition for an agroholding, there is a consensus among scholars that an agroholding is a type of business group that consists of a number of agri-food companies whose controlling package of shares are possessed by the holding enterprise (Visser et al. 2012; Hermans et al. 2017). Our interpretation of agroholding membership relies on this explanation and we define agroholding members as enterprises whose controlling package of shares (more than 50%) belong to a holding company. The dummy variable for agroholding membership (*agrh_mem*) therefore takes the value of 1 if the holding company owns more than 50% of its shares and 0 otherwise.

TABLE 4.1: VARIABLES AND DESCRIPTIONS

| Variables | Description |
|-------------------------------------|--------------------|
| Panel A: Dependent variables | |

| | |
|-----|---------------------------|
| ROA | Net Income / Total Assets |
| ROS | Net Income / Sales |

Panel B: Explanatory variables

| | |
|----------|--|
| agrh_mem | Dummy variable, which is equal to 1 if more than 50% of the firm is owned by a holding company and 0 otherwise |
|----------|--|

Panel C: Control variables

Board characteristics

| | |
|-----------|---|
| bsize | The total number of directors in the boardroom |
| bod_ind | Percentage of independent directors in the boardroom |
| bod_div | Percentage of female directors in the boardroom |
| exec_comp | Dummy variable, which is equal to 1 if a firm implements performance based executive compensation and 0 otherwise |

Firm characteristics

| | |
|----------|--|
| fage | The number of years since the firm was first registered by the state |
| fsize | Natural logarithm of the firm's total assets |
| leverage | Total debt / Total assets |
| opex | Operating expenses / Sales |

Source: Compiled by authors

4.3.2.3 Control variables

There are also many different factors besides agroholding affiliation that could potentially impact firm performance. To control for such factors, we include a number of board- and firm-related control variables in our regression model.

At the board level, we control for the size of the board (*bsize*), independence of the board (*bod_ind*), diversity of the board (*bod_div*) and executive compensation (*exec_comp*). A positive link between independence of the board (e.g. Black and Kim 2012), diversity of the board (e.g. Terjesen et al. 2016), executive compensation (e.g. Ozkan 2011) and firm performance can be observed in previous research. The size of the board, on the other hand, might be oppressive for an enterprise, require additional coordination costs and therefore may hamper the overall firm performance (e.g. Yermack 1996).

At the firm level, we follow the existing studies and control for the size of the firm (*fsize*) (e.g. Skąła & Weill 2018), age of the firm (*fage*) (e.g. Reddy et al. 2008), leverage (*leverage*) (e.g. García-Meca and Sánchez-Ballesta 2011) and operating expense ratio (*opex*) (e.g. Wang 2010).

4.3.3 Data

This study employs a firm-level panel data set of 203 corporate agri-food enterprises from 27 administrative regions in Russia for the years from 2012 to 2017. These companies are involved in the production and/or processing of the agri-food products and represent a sub-sample of Russian agri-food production. The sample was selected using the convenience sampling technique, which implies that the research sample be selected based on its ease of availability and accessibility (Etikan et al. 2016; Henry 1990). Due to the unavailability of publicly accessible, longitudinal data¹² for most of Russia's corporate agri-food enterprises, our sample, therefore, includes those 203 companies for which panel data for the variables of interest were publicly available.

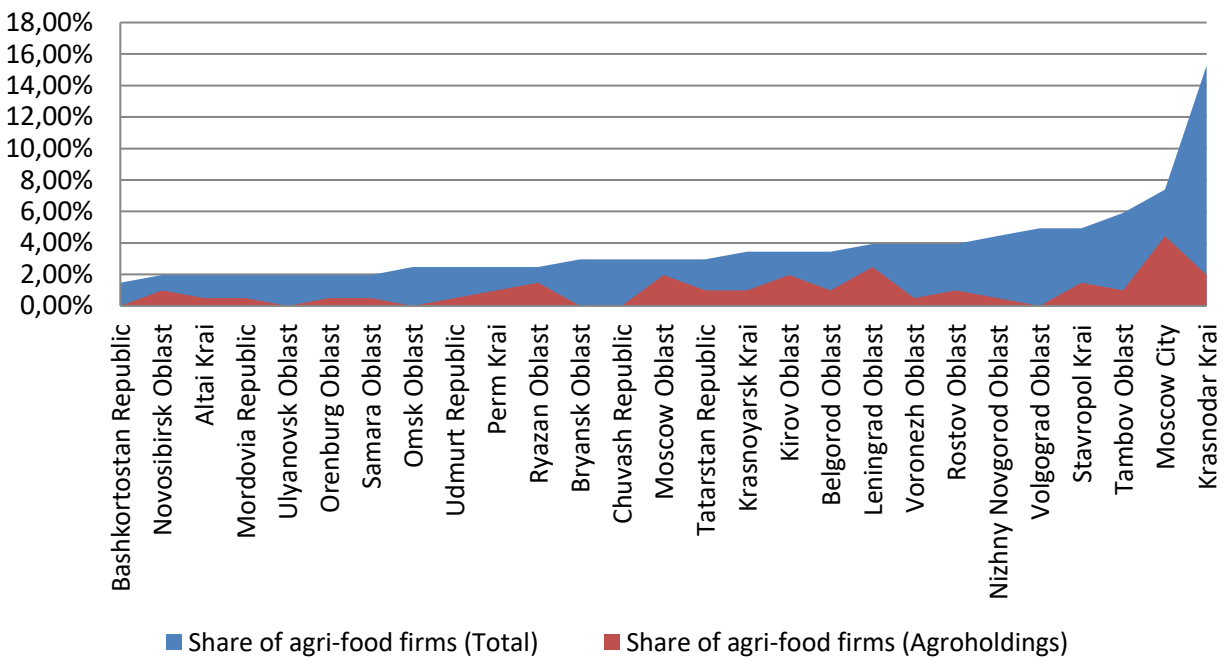
If one considers that larger companies usually tend to better disclose information about their corporate governance and financial indicators, our sample selection method might have resulted in the sample consisting of relatively larger firms. Furthermore, one of our main research questions is on the effects of agroholding affiliation on financial performance and agroholding enterprises are generally large in size (Davydova & Franks, 2015; Hermans et al., 2017). Indeed, according to the Ruslana database¹³, there are around 3600 joint stock, corporate agri-food enterprises in Russia. As of 2017, the average size of these firms was around RUB 771 million and RUB 813 million in terms of annual sales and total assets, respectively. Thus, our sample is representative of a rather larger-sized sub-sample of the population with average annual sales and total assets in 2017 being around RUB 2.3 billion and RUB 2.9 billion, respectively. Nevertheless, in terms of financial performance, our sample illustrates more or less similar results compared to the general population. While the population of Russian agri-food enterprises illustrated an ROA of 5% and ROS of 5.3% as of 2017, the ROA and ROS of the firms in our sample were about 4.6% and 4.9% during the same year, respectively.

¹² Given the generally small number of empirical studies, as well as the prevalence of cross-sectional analyses among those scarce studies on the relationship between agroholding affiliation and financial performance, we wanted to use panel data to get more in-depth insights and verify existing theories on the topic.

¹³ More information available here: <https://ruslana.bvdep.com/>

Quarterly and annual reports and financial statements of the enterprises are the main sources of the data used in this study. These documents are publicly available from the database of the “Interfax - Corporate Information Disclosure Center (CIDC)¹⁴” agency, which is one of the five agencies authorized to disclose information on the securities market of Russia. Using the above-mentioned reports and statements, we manually collected a number of variables, including the ownership structure of the enterprises, the size and characteristics of the corporate boardrooms and firms’ financial indicators, among others. Noteworthy, the main subject of our analysis is not an agroholding as a whole, but an agroholding-affiliated enterprise. We aim to investigate whether agroholding affiliation has a positive effect on firm performance and, if so, what the possible firm-level explanations and implications for that are. Therefore, the main sources of our data are the stand-alone reports and financial statements of individual agroholding-affiliated firms.

Krasnodar Krai, Moscow City, Tambov Oblast and Stavropol Krai have the highest number of agri-food enterprises among our sample, collectively accounting for around one-third of the total firms used in the study (Figure 4.1). In five regions, such as Kirov Oblast, Ryazan Oblast, Moscow city, Moscow Oblast and Leningrad Oblast, the share of agroholdings exceeds those of the stand-alone enterprises (Figure 4.1).



¹⁴More information available here: <https://www.e-disclosure.ru/>

FIGURE 4.1: THE SHARE OF AGRI-FOOD FIRMS REPRESENTED BY EACH REGION IN THE SAMPLE

Source: Compiled by the authors.

Table 4.2 illustrates the descriptive statistics of the key variables used in the study. On average, nearly 28% of the companies in the sample belong to agroholdings.

TABLE 4.2: DESCRIPTIVE STATISTICS OF KEY VARIABLES

| Variables | Obs | Mean | Std | Min | Max |
|------------------|------------|-------------|------------|------------|------------|
| <i>ROA</i> | 1218 | 4.7% | 0.10 | -0.85 | 0.84 |
| <i>ROS</i> | 1218 | 5.7% | 0.27 | -2.26 | 2.93 |
| <i>agrh_mem</i> | 1218 | 27.7% | 0.45 | 0 | 1 |
| <i>bsize</i> | 1218 | 6 | 1.68 | 3 | 15 |
| <i>bod_ind</i> | 1218 | 50.8% | 0.38 | 0 | 1.8 |
| <i>bod_div</i> | 1218 | 29.27% | 0.22 | 0 | 1 |
| <i>exec_comp</i> | 1218 | 35.8% | 0.47 | 0 | 1 |
| <i>fage</i> | 1218 | 16 | 6.16 | 0 | 25 |
| <i>fsize</i> | 1218 | 12.92 | 1.57 | 7.25 | 18.87 |
| <i>leverage</i> | 1218 | 47.4% | 0.31 | 0.006 | 1.83 |
| <i>opex</i> | 1218 | 0.85 | 0.27 | 0.043 | 5.17 |

Source: Compiled by the authors.

While an average boardroom in the sample consists of six directors, around 51% and 29% of them are independent directors and female directors, respectively. Nearly 36% of the firms employ performance-based compensation programs for their executive management. Moreover, the firms are 16 years old on average, have total assets worth about RUB 2.3 billion (USD 35.7 million) and have a ratio of total debts to total assets at around 47%. The average ratio of operating expenses is about 0.85. Finally, the values of the Return on Assets (ROA) and Return on Sales (ROS) are around 4.7% and 5.7% on average, respectively. Both of these performance measures increased significantly from 2012 to 2015, with the levels of ROA doubling and the levels of ROS growing by nearly 73%. Nevertheless, both the ROA and ROS have been decreasing since 2015, with the levels returning back to about 4.9% and 4.6%, respectively, by 2017 (Figure 4.2).

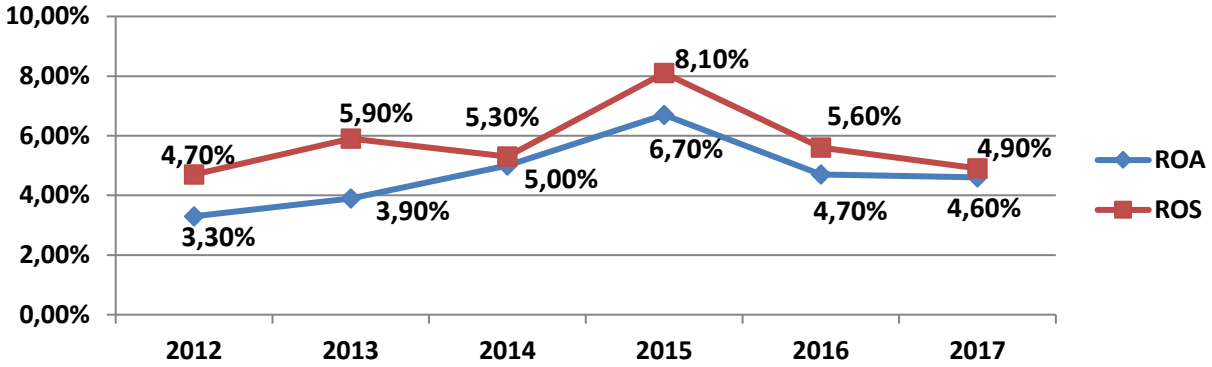


FIGURE 4.2: DYNAMICS OF ROA AND ROS FROM 2012 TO 2017

Source: Compiled by the authors.

If we look at the company size dynamics year over year, we can observe a significant growth in size from 2012 to 2017 in terms of both total assets and annual sales (Figure 4.3). While firms' total assets, on average, increased by almost 65% from 2012 to 2017, the average sales of the companies have risen by approximately 74% during the same period.

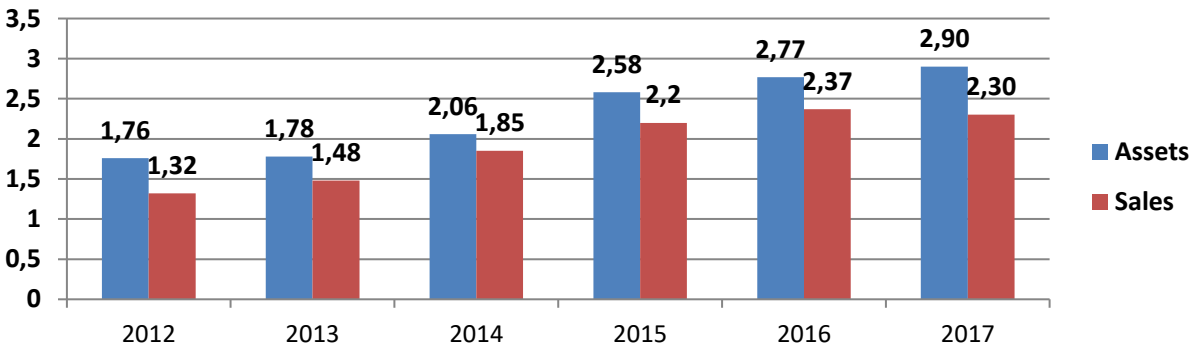


FIGURE 4.3: DYNAMICS OF TOTAL ASSETS AND ANNUAL SALES FROM 2012 TO 2017

Source: Compiled by the authors.

Furthermore, we can observe a positive dynamic in the number of firms that are affiliated to agroholdings. Figure 4.4 illustrates that the share of companies that belong to agroholdings have increased from 26% in 2012 to 29% in 2017.

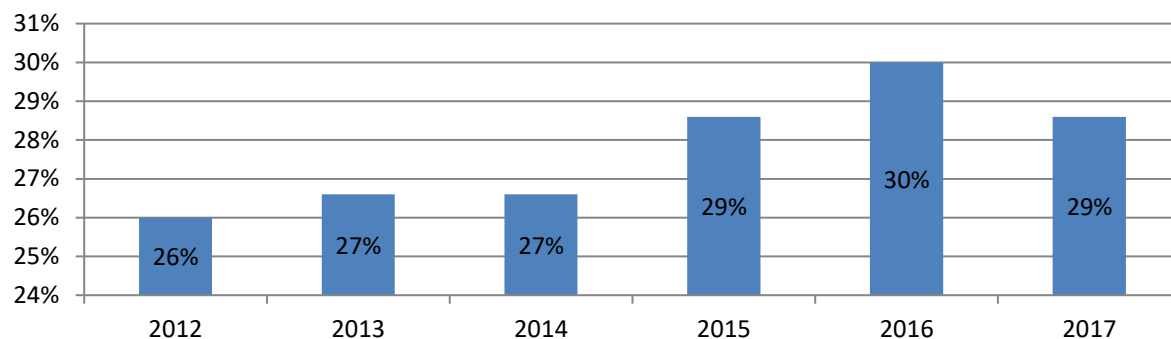


FIGURE 4.4: THE SHARE OF AGROHOLDING MEMBERS FROM 2012 TO 2017

Source: Compiled by the authors.

Finally, Table A.6 illustrates the correlation coefficients among all independent variables. High correlation among the variables, usually a level of 0.7 or above as suggested by Liu et al. (2014), points out that the data has an issue of multicollinearity. However, since the highest correlation observed among the independent variables was only 0.36, we conclude that multicollinearity is not an issue in our sample.

4.4 Results and discussion

In order to answer our main research question of whether agroholding membership has an effect on financial performance, we first proceed with the comparison of the averages of performance variables for holding affiliates versus independent firms.

TABLE 4.3: Z-TEST FOR THE STATISTICAL DIFFERENCE OF THE MEANS OF PERFORMANCE VARIABLES (AGROHOLDING AFFILIATES VS INDEPENDENT FIRMS)

| Performance measures | Whole | Agroholding | Independent | Difference | Z-score |
|------------------------|--------------------|--------------------|------------------|------------|----------------|
| | sample (N=1218) | members (N=338) | firms (N=880) | | |
| Return on Assets (ROA) | 4,69% | 5,63% | 4,34% | 1,29% | 2,24** |
| Return on Sales (ROS) | 5,75% | 9,58% | 4,29% | 5,29% | 3,46*** |

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

Source: Compiled by the authors.

Table 4.3 presents the results of this analysis. In the case of both measures (ROA and ROS), agroholding members, on average, perform better than the entire sample and illustrate significantly higher levels of performance compared to independent firms. While agroholding members, on average, have a 1.3% higher ratio of ROA compared to non-member companies, the difference in the ratios of ROS is even higher, around 5.3%.

As the next step, we run the Random Effects (RE) regression analysis with ROA and ROS as dependent variables and a dummy for agroholding membership (*agrh_mem*) as the main explanatory variable. The results of this analysis are illustrated in the first and second columns of Table 4.4. We observe a significantly positive impact of agroholding membership (*agrh_mem*) on financial performance (in terms of both ROA and ROS). As was the case with our previous analysis, agroholding affiliation has a stronger effect on ROS compared to ROA. Returns on assets and returns on sales that agroholding affiliates generate are by 2.3% and 3.8% higher compared to stand-alone enterprises. The results of the regressions with DK robust standard errors (columns 3 and 4) and 2SLS models (columns 5 and 6) present similar results, therefore suggesting that the findings are robust to a potential cross-sectional dependence and endogeneity (Table 4.4). Furthermore, we also test for the presence of a reciprocal causation between each of the performance variables (ROA and ROS) and *leverage*. While companies' leverage ratios may influence their financial performance on the one hand, on the other hand, leverage itself might depend on firm profitability. Hence, to account for the potential presence of reciprocal causation between performance variables and leverage, we also estimate our model using the system of simultaneous equations (Maddala, 1983) (Table 4.5).

TABLE 4.4: AGROHOLDING AFFILIATION (*AGRH_MEM*) AND FIRM PERFORMANCE (ROA, ROS) (STANDARD ERRORS IN PARENTHESES)

| Variables | Random Effects (RE) | | DK robust standard errors | | 2SLS | |
|-----------------|-----------------------|---------------------|---------------------------|-----------------------|----------------------|----------------------|
| | (1) ROA | (2) ROS | (3) ROA | (4) ROS | (5) ROA | (6) ROS |
| agrh_mem | 0.0230*** (0.0083) | 0.0379* (0.0206) | 0.0230* (0.0094) | 0.0379*** (0.0312) | 0.0303** (0.0154) | 0.0869** (0.0382) |
| fage | -0.0016 (0.0006) | -0.0050 (0.0014) | -0.0016 (0.0006) | -0.0050 (0.0018) | -0.0016 (0.0006) | -0.0052 (0.0015) |

| | | | | | | |
|------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| fsize | 0.0047* (0.0026) | 0.0251*** (0.0063) | 0.0047 (0.0040) | 0.0251*** (0.0069) | 0.0040 (0.0029) | 0.0201*** (0.0071) |
| leverage | -0.1267*** (0.0122) | -0.1911*** (0.0298) | -0.1267*** (0.0159) | -0.1911*** (0.0367) | -0.1264*** (0.0122) | -0.1895*** (0.0299) |
| opex | -0.1166*** (0.0109) | -0.3203*** (0.0291) | -0.1166** (0.0354) | -0.3203** (0.0889) | -0.1164*** (0.0109) | -0.3189*** (0.0292) |
| bsize | -0.0016 (0.0022) | 0.0042 (0.0053) | -0.0016 (0.0027) | 0.0042 (0.0053) | -0.0014 (0.0022) | 0.0061 (0.0054) |
| bod_ind | 0.0247*** (0.0095) | 0.0745*** (0.0234) | 0.0247* (0.0107) | 0.0745** (0.0294) | 0.0250*** (0.0095) | 0.0758*** (0.0235) |
| bod_div | 0.0564*** (0.0150) | 0.1260*** (0.0376) | 0.0564** (0.0177) | 0.1260*** (0.0382) | 0.0571*** (0.0151) | 0.1317*** (0.0379) |
| exec_comp | 0.0027 (0.0049) | -0.0017 (0.0137) | 0.0027 (0.0062) | -0.0017 (0.0139) | 0.0025 (0.0049) | -0.0033 (0.0138) |
| _cons | 0.1448 (0.0392) | 0.0660 (0.0957) | 0.1448 (0.0956) | 0.0660 (0.1169) | 0.1504 (0.0405) | 0.1054 (0.0994) |
| R-squared | 0.255 | 0.223 | 0.255 | 0.223 | 0.253 | 0.218 |
| N | 1218 | 1218 | 1218 | 1218 | 1218 | 1218 |

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

Source: Compiled by the authors.

Indeed, the results of the analysis suggest a significant two-sided relationship (Table 4.5). On the one side, one can observe a significant negative effect of *leverage* on both ROA and ROS. On the other side, ROA and ROS themselves have a significant negative impact on *leverage*. Nevertheless, the relationship between agrohholding affiliation (*agrhmem*) and both performance variables (ROA and ROS) remain positive and statistically significant, underpinning the robustness of our results.

TABLE 4.5: AGROHOLDING AFFILIATION (*AGR_H_MEM*) AND FIRM PERFORMANCE (ROA, ROS), SYSTEM OF SIMULTANEOUS EQUATIONS (STANDARD ERRORS IN PARENTHESES)

| Variables | (1) ROA | (2) ROS |
|-----------|---------|---------|
| ROA <- | | |

| | | |
|-----------------------|------------------------|------------------------|
| leverage | -0.2643*** (0.0727) | -0.4094*** (0.1176) |
| agrhmem | 0.0185** (0.0098) | 0.0424** (0.0204) |
| age | -0.0057*** (0.0010) | -0.0111*** (0.0018) |
| lnassets | -0.0121*** (0.0043) | -0.0023 (0.0079) |
| oper | -0.1645*** (0.0195) | -0.4110*** (0.0373) |
| boardsize | 0.0054** (0.0027) | 0.0129** (0.0054) |
| outdir_per | 0.0720*** (0.0145) | 0.1567*** (0.0276) |
| femdir_tot_per | 0.0464** (0.0182) | 0.1096*** (0.0379) |
| perf_bonus | 0.0057 (0.0083) | 0.0021 (0.0172) |
| _cons | 0.2196*** (0.0483) | 0.2160** (0.0981) |
| <hr/> | | |
| leverage <- | | |
| ROA / ROS | -0.6966*** (0.1107) | -0.7371*** (0.1206) |
| _cons | 0.6009*** (0.0185) | 0.5166*** (0.0115) |
| N | 1218 | 1218 |

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

Source: Compiled by the authors.

Having revealed that agroholding affiliation significantly improves financial performance, we proceed further and try to explore which characteristics of agroholding affiliates make them more financially efficient compared to unaffiliated companies. For this reason, we re-run our baseline regression model by including the interaction terms between the agroholding affiliation variable

(*agrh_mem*) on the one side and all firm and board specific variables on the other side. Table 4.6 presents the results of this regression.

To begin with, the ratio of total debts to total assets (*leverage*) has a significant negative impact on both ROA and ROS (Table 4.6). According to RDT, organisations are highly dependent on the external environment and resources, such as access to loans. An agroholding form of agri-food production might be a good way to facilitate access to both external and within-group loans, which might give agroholding affiliates economic advantages over stand-alone enterprises. With respect to external finances, Lopez-Valeiras et al. (2016) suggest that additional monitoring by debt providers might improve the corporate governance and thus the overall performance of the company. Furthermore, as suggested by Koç et al. (2019), an increase in agricultural credits may have a significant positive impact on agricultural value-added and thereby on overall farm performance. However, the true impact of leverage depends on the actual cost of debt. If it is too high, the positive impact of leverage might be outweighed, and it may in fact worsen firm performance (González, 2013). In Russia, the cost of debt is relatively high and access to debt capital is more difficult compared to other developed economies (Iakovleva et al. 2013). This might be one of the main reasons for an overall negative impact of leverage on financial performance observed in this study. Nevertheless, an interaction term between agroholding affiliation (*agrh_mem*) and leverage (*leverage*), *agrh_memXleverage*, has a significantly positive effect on both ROA and ROS. This implies that the negative effect of *leverage* on financial performance is significantly lower if a company belongs to an agroholding. While a 1% increase in *leverage* decreases the ROA and ROS of non-affiliated firms by 0.14% and 0.22%, respectively, the same level of increase in the leverage of agroholding members leads to about a 0.07% decrease in both ROA and ROS. Better access to capital might be one of the possible reasons for such differing effects of leverage on the performances of affiliated and unaffiliated firms. The economies of size of agroholdings and their affiliation to a holding company serve as a valuable collateral base, which not only eases access to external financing, but it also provides an opportunity to secure better financing conditions (i.e. lower interest rates on bank loans) (Rada et al. 2017; Gagalyuk 2017). Thus, it might well be the case that, overall, banks prefer agroholdings to stand-alone enterprises. Moreover, in addition to external financing, agroholding members have access to internal capital markets (Matyukha 2017), which might be even more important in the case of Russia, which has a relatively poor system of financial intermediation (Connolly 2011).

The cost of internal capital is also believed to be substantially lower compared to the cost of external debt, such as a bank loan (Dewaelheyns & Van Hulle 2008). Summing up, we follow the findings of previous studies (Hahlbrock and Hockmann 2011; Visser et al. 2014), and, in line with RDT, suppose that agroholding affiliates have better access to capital. As opposed to independent firms, agroholding members face lower costs of debt in general, thanks to their position of securing better conditions for external debt and due to their access to relatively cheaper within-group loans. These factors substantially reduce the negative impact of leverage on the financial performance of agroholding members and to some extent explain their financial premium over independent firms. Looking at the issue through the RDT perspective, the results suggest that the unique structure of agroholdings allows them to secure better access to perhaps one of the most vital resources – capital, which in turn makes them financially more better off compared to non-affiliated companies. Having better access to financing and facing a relatively lower cost of debt, agroholding affiliates are also in a better position to access modern technologies and implement advanced and innovative farming and food production techniques. As the prior literature suggests (Epshtein et al. 2013; Hahlbrock & Hockmann 2011; Visser et al. 2014), in general, agroholdings have better access to advanced and innovative technologies, which might explain their production and financial efficiency over stand-alone agri-food companies to a certain extent.

TABLE 4.6: AGROHOLDING AFFILIATION AND FIRM PERFORMANCE, EXTENDED MODEL WITH THE INTERACTION TERMS OF EXPLANATORY VARIABLES (STANDARD ERRORS IN PARENTHESES)

| Variables | Random Effects (RE) ¹⁵ | | DK Robust Standard Errors | |
|------------------|-----------------------------------|------------------------|---------------------------|------------------------|
| | (1) ROA | (2) ROS | (3) ROA | (4) ROS |
| agr_h_mem | 0.1539** (0.0780) | 0.2376 (0.1921) | 0.1539** (0.0878) | 0.2376** (0.2122) |
| fage | -0.0020 (0.0007) | -0.0053 (0.0017) | -0.0020 (0.0008) | -0.0053 (0.0019) |
| fsize | 0.0082** (0.0032) | 0.0313*** (0.0076) | 0.0082* (0.0038) | 0.0313*** (0.0085) |
| leverage | -0.1416*** (0.0136) | -0.2176*** (0.0333) | -0.1416*** (0.0167) | -0.2176*** (0.0363) |

¹⁵ The results are robust for fixed effects model (Table A.10).

| | | | | |
|----------------------------|------------------------|------------------------|------------------------|------------------------|
| opex | -0.2038*** (0.0215) | -0.5491*** (0.0577) | -0.2038*** (0.0344) | -0.5491*** (0.1016) |
| bsize | -0.0008 (0.0024) | 0.0049 (0.0056) | -0.0008 (0.0026) | 0.0049 (0.0058) |
| bod_ind | 0.0283** (0.0113) | 0.0805*** (0.0280) | 0.0283* (0.0116) | 0.0805** (0.0285) |
| bod_div | 0.0866** (0.0372) | 0.3099*** (0.0988) | 0.0866* (0.0416) | 0.3099** (0.0994) |
| exec_comp | 0.0037 (0.0048) | 0.0010 (0.0136) | 0.0037 (0.0064) | 0.0010 (0.0150) |
| agr_h_memXfage | 0.0005 (0.0013) | -0.0004 (0.0032) | 0.0005 (0.0016) | -0.0004 (0.0036) |
| agr_h_memXfsize | -0.0097* (0.0055) | -0.00211* (0.0013) | -0.0097* (0.0058) | -0.0211*** (0.0040) |
| agr_h_memXleverage | 0.0698*** (0.0209) | 0.1465*** (0.0555) | 0.0698*** (0.0267) | 0.1465** (0.0620) |
| agr_h_memXopex | 0.1792*** (0.0371) | 0.4891*** (0.1016) | 0.1792*** (0.0381) | 0.4891*** (0.1084) |
| agr_h_memXbsize | -0.0070 (0.0065) | -0.0018 (0.0163) | -0.0070* (0.0070) | -0.0018 (0.0171) |
| agr_h_memXbod_ind | -0.0177 (0.0195) | -0.0238 (0.0492) | -0.0177* (0.0202) | -0.0238 (0.0511) |
| agr_h_memXbod_div | -0.0313 (0.0291) | 0.0510 (0.0754) | -0.0313 (0.0293) | 0.0510 (0.0757) |
| agr_h_memXexec_comp | 0.0286** (0.0136) | 0.0571* (0.0338) | 0.0286* (0.0157) | 0.0571** (0.0401) |
| R-squared | 0.271 | 0.230 | 0.271 | 0.230 |
| N | 1218 | 1218 | 1218 | 1218 |

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

Source: Compiled by the authors.

Secondly, an operating expense ratio (*opex*) has a strong negative effect on financial performance (Table 4.6). In line with the financial literature (example Ahrendsen & Katchova 2012; Gungel 2005), we interpret an operating expense ratio as a measure of management efficiency. An

operating ratio illustrates to what extent the management of the companies is efficient at maintaining low costs while at the same time maintaining certain revenue levels. The lower the levels of *opex*, the more efficient the executive management is. Correspondingly, higher values of *opex* indicate managerial inefficiency. Labour, particularly high-quality labour, is also one of the key resources that companies highly depend on for their successful functioning, according to the RDT. In the case of corporate enterprises, where there is a separation of ownership and control, the role of management is of particular importance. It is crucial that corporate firms have access to high quality managers who can represent the best interests of the shareholders and strive to maximise company values. The results of the analysis illustrate that managerial inefficiency has a significant negative impact on financial performance, with a 1% increase in the *opex* leading to a 0.20% and 0.55% decrease in the levels of ROA and ROS, respectively. However, a strong positive link between *agrh_memXopex* (an interaction term between *agrh_mem* and *opex*) and financial performance, suggest that the magnitude of this negative effect is substantially lower, around 0.02% and 0.06% for ROA and ROS, respectively, if a company is affiliated with an agroholding. We therefore presume that, in general, the management of agroholding affiliates are more efficient than independent firms or, at least, the inefficiency of agroholding affiliates' managers is reduced by managerial expertise provided by agroholdings' mother companies (Ostapchuk et al. 2021). This finding supports previous research that suggests that agroholdings have superior management (Visser et al. 2014), adopt modern management practices (Hockmann et al. 2009) and put greater emphasis on managerial training (Rada et al. 2017). From the perspective of RDT, the agroholding form of agri-food production seems to provide better access to high quality labour, measured in terms of managerial efficiency. Hence, the results of this study allow us to presume that agroholding members have enough resources to attract qualified management personnel and/or train efficient managers by themselves, which makes them financially better off compared to stand-alone enterprises. Moreover, a positive effect of *agrh_memXopex*, as opposed to a negative effect of *opex* for the whole sample on financial performance, implies that agroholding members use better production technologies, such as more expensive and high-quality inputs, which are transformed into better performance results.

Furthermore, based on the data on hand, we can observe that a substantially higher share of agroholding affiliates, around 45%, employ performance-based executive compensation programs, as opposed to about 32% of stand-alone firms. Knowing that their efforts actually count

and that their income depends directly on the company performance, managers would be more likely to work harder and more efficiently for the good of the company. This may also minimise the potential agency conflict between the owners and managers of the firm, since the latter would better value their position and try not to risk their top positions in the company. It is therefore less likely that such managers would engage in the expropriation of company assets for their own benefit, putting personal interests above the interests of the company and its shareholders (Florackis 2008; Sajid et al. 2012). While the analysis does not reveal a significant impact of performance based executive compensation (*exec_comp*) on financial performance, there seems to be a strong positive relationship between *agrh_memXexec_comp* (an interaction term between *agrh_mem* and *exec_comp*) and both ROA and ROS. Among agroholding affiliates, the ROA and ROS of the firms with performance-based executive compensation are around 3% and 5.7% higher on average than the firms who don't employ such compensation programs. Again, from the perspective of RDT, agroholding affiliates seem to have better access to external resources, including capital and managerial expertise, which allows them to adopt stimulating compensation schemes. To sum up, the above results indicate that agroholding affiliates have more efficient management, better production technologies and stimulating executive compensation systems compared to independent firms, which to a certain degree explains the financial advantages of the former over the latter. Again, if we look at the results through the lens of RDT, the financial efficiency of agroholding affiliates might, to some extent, be attributed to their better access to external resources. With better access to resources, agroholdings possess enough means to adopt better production technologies, recruit and train efficient managers and implement and maintain best international standards and practices, including modern management techniques and stimulating compensation programs, among others.

It is also worth mentioning that, as opposed to the positive effect of the size of the whole sample on performance, the impact of the size of agroholding members (*agrh_memXfsize*) on performance is rather negative (Table 4.6). This implies a still suboptimal size of agroholding members, under-utilising their economies of scale, suggesting that the motivation for being large holdings may be broader than just the economies of size. Being large, for instance, may help when it comes to protection under the conditions of insecure property rights. This is in line with the arguments of Gagalyuk & Valentinov (2019), who claim that agroholdings are more resilient and that they provide member firms with a safe haven in the turbulent transition environment.

In addition to firm-level characteristics, factors of institutional environments, such as political connectedness of agroholdings and public policies, might also affect their economic performances. Prior research suggests that agroholdings have strong political connections (Hermans et al. 2017) and that they are highly supported by the government at both the regional and federal levels (Hockmann et al. 2009; Matyukha et al. 2015), with a significant portion of government investments and subsidies directed towards agroholdings (Wegren 2018). For instance, in 2016, almost 91% of all subsidised credits (RUB 33.6 billion) allocated for the advancement of the beef cattle sector were received by Bryans Meat Packers, a member company of the Miratorg agroholding (Uzun et al. 2019). Recent empirical evidence by Tleubayev et al. (2020) suggests that the extent of state ownership within Russian agri-food enterprises has a positive impact on financial performance, provided, however, that the level of state ownership concentration is below the certain threshold value. Hence, at least to some extent, agroholdings' political connections and strong state support might create favourable conditions for their advantageous economic positions. Furthermore, in 2014, the Russian economy was highly affected by several macroeconomic events, such as an introduction of a food import ban on a number of agri-food items from the list of western countries, a drop in world oil prices and a significant devaluation of national currency (Ruble). In this respect, it is interesting to identify how these events affected the performances of agri-food enterprises in the country and whether agroholding firms reacted differently to these shocks vis-à-vis their non-agroholding counterparts. To capture these effects, we re-ran our baseline regression model and introduced a dummy variable for the years after 2014. Table A.11 illustrates the results of this model. In the case of both ROA and ROS, the events of 2014 (*d_2014*) seem to have positively influenced the performances of agri-food firms in general (Table A.11: Columns 1 and 2). However, a statistically insignificant effect of the interaction term between *d_2014* and agroholding affiliation (*agrh_memXd_2014*) suggests that the events of 2014 did not affect the performances of agroholding affiliates in particular (Table A.11: Columns 3 and 4).

Although this article adds a number of contributions to the literature, it surely has several limitations, which need to be addressed by future research. Firstly, the selection of the sample in this study was data-driven, meaning that the sample covers only those firms for which the required data was available. This has made the sample be composed of mainly larger-sized firms compared to the average size of the companies in the population. Hence, the results of this study should be interpreted with caution and might not be generalisable to a general population. Upcoming works

should therefore concentrate on a broader sample that represents the whole population, including relatively smaller firms. Secondly, the paper suggests that agroholding affiliates have higher financial performance compared to independent firms, which, everything else being equal, might be attributed to a number of features of agroholdings that are stated above in the article. Nevertheless, there is a need for further qualitative studies, which could shed more light on what exactly agroholding affiliates do differently and how exactly they could achieve those features as opposed to stand-alone firms. Furthermore, prior studies suggest that factors of institutional settings, such as political connections or regional power configurations, may have an impact on the performance and development of agroholdings (Matyukha et al. 2015). Although it is very difficult to trace and find evidence on the formal connections of most of the agroholdings to certain politicians, future studies should try to incorporate this factor into their analyses.

4.5 Conclusion

Agroholdings have played a crucial role in the remarkable progress achieved by the Russian agri-food industry during the last decade and are expected to be the driving force for reaching the ambitious future goals set for the industry by the government. Nevertheless, the existing literature on agroholdings is still relatively scarce and it fails to provide clear evidence on whether agroholdings are more successful in terms of economic efficiency as opposed to non-agroholding enterprises and, hence, the potential political economy implications of the government's reliance on agroholdings remains unknown. This study employs firm-level data on Russian corporate agri-food enterprises and provides new empirical evidence on the effects of agroholding affiliation on firm performance.

In addition to an empirical contribution, this paper is also one of the pioneering attempts to provide a theoretical justification for the emergence of agroholdings through the prism of Resource Dependence Theory. Based on the arguments of Resource Dependence Theory, this study proposes that agroholding affiliation allows agri-food firms to have better access to vital external resources, including access to capital, high-qualified personnel and best management practices, which in turn improves their financial performance. Indeed, the results of the random effects model indicate a significant positive impact of agroholding affiliation on firm financial performance, in terms of both ROA and ROS. A further extension of the model, with the interaction terms of the explanatory variables suggests that the positive impact of agroholding affiliation may be attributed to the

following factors. Firstly, agroholding members are in a better position to secure favourable financing terms for outside capital and also have access to internal capital markets, which usually offer lower borrowing costs compared to external financing. This makes the overall cost of borrowing lower for the affiliated firms. Moreover, agroholding affiliates seem to put a greater emphasis on company management. They offer better performance evaluation programs to their executive management and have more efficient management compared to stand-alone enterprises. The findings of this study might be of interest for both policy makers and managers or executives in Russia. For the policy makers, this paper provides additional evidence that agroholdings are perhaps better equipped than other forms at keeping up with existing institutional conditions and that they may indeed be the driving force behind the further growth of the agri-food sector towards the stated goals. Nevertheless, this does not mean that the government support should be directed exclusively towards agroholdings. Instead, agroholdings' financial advantages, at the background of mixed evidence of their productivity premiums, should urge policy makers to address such imbalances by providing an equal access to resources for "other forms" of agri-food producers. These areas include better access to capital, labour and production technologies, as well as improving the qualifications of the managers.

From the practical side, the results of this paper suggest that the top management and the boards of directors of corporate agri-food enterprises should pay more attention to improving managerial quality. A special focus should perhaps be given to management efficiency, since it may substantially improve firm financial performance. Implementing modern management practices and adopting continuous management training programs might be one of the ways for doing so. In this regard, there is a need for deeper qualitative studies which could provide more details on the management practices of agroholdings and help to understand how they maintain higher management efficiency. In addition, the boards of directors may also consider improving executive compensation systems within their companies. Offering stimulating compensation programs in which top executives' incomes depend directly on the company performance might minimise potential agency conflict and significantly improve the financial performance of firms.

5. Conclusions

Russia is one of the key players in the agri-food markets worldwide and plays a strategic role for the global food security. While Russia is regarded as one of the major agri-food importers on earth, it is also among the top exporters of key agricultural commodities like wheat, sunflower seed, barley and worldwide. The country's agricultural sector illustrated a remarkable progress during the past decade. During this time frame, its gross agricultural output increased by more than two times, together with a nearly 130% growth in its agricultural exports. In 2017, Russia exported a record amount of around 33 million tons of wheat, becoming the largest wheat exporter in the world. Moreover, in addition to an increasing export, Russia has also increased its presence in the domestic agri-food market. The import of agri-food products to Russia dropped dramatically in the last ten years, from around \$43 billion in 2013 to about 29\$ billion in 2017, thereby significantly narrowing the negative trade balance in the agri-food products. Such a sharp decrease in the agri-food imports was, to a certain extent, the result of the Russian embargo on the import of a range of agri-food products from a number of western countries introduced in the August of 2014. Hence, during the last decade, Russia has not only become a more self-sufficient producer of the agri-food products, but could also become one of the important producers and exporters of a number of key agricultural commodities worldwide.

Russian government views a high potential from the agri-food sector and puts a great emphasis on the industry for diversifying its oil dependent economy. Policy makers in Russia have been heavily supporting its domestic agri-food production in the framework of several national programs, such as the Food Security Doctrine of 2010 and Agricultural Development Program of 2013-2020. Such support programs include an allocation of extraordinary amounts of financial resources into the

agri-food sector, as well as the restriction of agri-food imports using different techniques, starting from imposing tariffs and non-tariff barriers, to a complete ban on the import of certain agri-food products. By doing so, Russian government strive to further increase both the volume and variety of exported agri-food products, and aim to become among the top 10 agri-food exporting countries of the world.

Nowadays, Russian agri-food sector is evidently dominated by large-scale corporate agri-food enterprises, which collectively account for nearly 60% of the country's gross agri-food output. Furthermore, as of 2017, the largest 55 corporate agri-food enterprises alone controlled almost 11% of all cultivated land in Russia. The large-scale corporate agri-food enterprises are believed to be the driving force behind the profound improvement of the agri-food sector, accounting for the bulk share of the growth of both output and export volumes. Furthermore, for the realization of the further goals set to the industry, Russian policy makers rely heavily on these enterprises, and hence they are presumed to be the main recipients of the substantial governmental subsidies. For instance, as of 2015, 248 large-scale agri-food enterprises, which only make about 1.2% of the total number of agri-food producers received more than 40% of all government subsidies. Hence, large-scale agri-food enterprises represent a significant importance not only for the Russian agri-food industry and its economy, but also for the global food security, because of the strategic role that Russia plays in the global agricultural market.

Nevertheless, in spite of their continued dominance and increasing importance for Russian agriculture, literature on large corporate agri-food enterprises is scarce. This thesis contributes to the limited literature on large-scale corporate agri-food firms and identifies the factors that may potentially improve their financial performance. The thesis focuses specifically on the roles of corporate governance mechanisms as effective instruments for improving firm performance. To the best of our knowledge, no previous research has investigated this issue in the context of the Russian agri-food industry. Hence, the main contribution of the thesis is that it provides pioneering empirical evidence on the relationship between various corporate governance mechanisms and firm financial performance, in the case of the Russian agri-food companies. Moreover, the thesis utilizes a unique hand-collected data, which to the best of the author's knowledge, have not been used previously in the literature.

In comparison to a traditional family farm setting, where farms are owned and operated by the same individual(s), corporate farm enterprises are operated by hired management, who are not the residual claimants of the generated profit and hence have less incentive for maximizing the enterprise income. This might lead to a potential agency conflict between the owners and the managers of these enterprises. Corporate governance may act as an effective mechanism that could better align the interests of the managers with those of the owners and thereby minimize the potential agency conflict and the resulted costs. This may in turn have a positive impact on the firm performance. While studying the corporate governance, this thesis focuses specifically on the roles of internal corporate governance mechanisms, such as board of directors and ownership structure, for enhancing firm financial performance.

The study is threefold. We first shed light on the roles of the board of directors for firm performance in the context of the Russian agri-food sector. We focus primarily on the roles of the female directors and gender diversity in corporate boardrooms. According to the agency and the resource dependence theories, female directors might respectively, strengthen the monitoring function of the boardrooms and improve the link between the company and its vital external resources, thereby improving the overall firm performance. For instance, while the agency theory argues that female directors tend to be more active on the board and demand more audit efforts and CEO responsibility, resource dependence theory suggests that female directors can bring additional insights to the board, particularly about female employees, customers, business partners and etc. Indeed, the findings of this thesis suggest a strong positive relation between board gender diversity, measured as the percentage of female directors in the boardroom and firm financial performance. A further analysis reveals that boards with three or more female directors have greater effect on financial performance, compared to the boards with two or less female directors and boards with only one female director do not have any significant impact on financial performance. These findings are in line with the critical mass theory, which suggests that a minimum critical amount should be reached so that a substantial change in performance can take place. In the context of board gender diversity, one female director in the board is rather regarded as a token—as an absolute minority who has very limited ability to make a significant contribution on firm performance. However, as the number of female directors increases and the critical mass builds up, their effect becomes stronger and more significant. We further observe that the positive impact of female directors on firm financial performance attributes mainly to their executive roles

(due to their executive power and management skills), rather than to their monitoring roles (due to their independent status). The above results could be of high importance both for policymakers as well as for managers and executives, involved in the Russian agri-food sector. Russian policy makers may consider prioritizing the gender representation in the corporate boardrooms of Russian agri-food enterprises. This could contribute to the improvement of the economic sustainability of these enterprises and hence, have a positive impact for domestic agri-food market and national food security. Nevertheless, it is also worth to remember that the positive impact of female directors on firm performance could only be observed if female directors build up a certain critical mass. Hence, it is not only important that the corporate boards are represented by female directors, but it is also important that these female directors would not just become mere tokens. To overcome this issue, Russian policy makers, through the national corporate governance code, might recommend a certain minimum share of the board of directors to be composed of female directors. This could for example, be similar to the recommendations of the corporate governance code of Russia that independent directors should represent at least one-third of the corporate boards. Similar recommendations could also be provided in terms of female representation in the boardrooms. From the practical side, while employing more female directors, the company ownership (shareholders) should make sure that these female directors are assigned to the executive positions, since the positive impact of female directors on firm performance comes mainly through their executive channels, rather than monitoring channels.

The next step of the thesis analyzes the potential effects of firm ownership structure on its financial performance in the context of the Russian agri-food industry. Corporate governance literature suggests that the level of ownership concentration and ownership identity might play a crucial role in determining the performance of the company. According to the agency theory, in companies with lower ownership concentration, due to their relatively small ownership stakes, shareholders might be less capable for implementing a proper control over management. This raises the likelihood and the magnitude of potential agency conflicts between the managers and the owners of the company and increases related costs. In contrast, in companies with higher ownership concentration, shareholders are big enough and have both the incentives and the abilities to monitor and supervise the company management, thereby minimizing the agency costs and improving firm performance (monitoring effect). However, while mitigating the potential principal-agent problem, ownership concentration might result to yet another principal-principal issue, when the controlling

shareholders may act on their own benefits at the expense of the minority shareholders, thereby worsening the overall performance of the company (expropriation effect). The results of this study reveal an inversed U-shaped, quadratic relationship between ownership concentration and financial performance, with a turning point being at around 50%. Our findings therefore provide an evidence for the existence of both the monitoring and expropriation effects of concentrated ownership, whichever of these two effects prevail depending on the actual level of ownership concentration. An average level of ownership concentration of about 61% in our sample lies on the descending range of the inversed U-shaped curve and indicates the prevalence of the expropriation effects of concentrated ownership. In the context of the agency problem, not only the level ownership concentration, but also the identity of the largest shareholder is important, since different types of shareholders might have different incentives and abilities for monitoring the company management. In this thesis, we analyze the impacts of three different types of shareholders, namely the government, executive directors and agroholdings on firm performance. Our findings reveal similar, quadratic relationships between the ownership concentrations in the hands of the executive directors and the government and firm financial performance. In both of these cases, the average values of the ownership concentrations are far below the turning points and lie on the ascending ranges of the inversed U-shaped curves. Lastly, the ownership concentration by agroholdings has a strong positive, linear impact on financial performance. The results of this study could be of high importance for decision makers at both corporate and government levels. At the corporate level, the top management and the company ownership of Russian agri-food enterprises should consider decreasing the levels of ownership concentration and bringing them to an optimum range. They could possibly consider attracting new investors by opening up a sale of the certain share of their company stocks. By doing so, companies can decrease the degrees of their ownership concentration to a desired level and at the same time bring up additional investments to their firms. These measures should in turn have a significant positive impact on the financial performances of these enterprises.

In the final step of the thesis, we analyze the potential impact of agroholding affiliation on firm financial performance and attempt to understand what factors make agroholding affiliates more or less superior compared to stand-alone enterprises. According to the resource dependence theory, agroholding form of agri-food production advances the link between the company and its external environment. It improves an access to the vital external resources such as raw materials, labor,

capital and technology that are vital for successful functioning of any enterprise. Indeed, the results of this study indicate a strong positive effect of agroholding affiliation on financial performance. This positive effect of agroholding affiliation can generally be attributed to their better access to capital and more efficient management systems. Compared to independent enterprises, agroholding affiliates face lower costs of debt in general, thanks to their position to secure better conditions for outside debt and due to their access to relatively cheaper, within-group loans. These factors significantly reduce the negative effects of leverage on the financial performance of agroholding affiliates and to a certain extent explain their financial superiority over stand-alone enterprises. In addition, agroholding affiliates have more efficient management and stimulating executive compensation systems, compared to independent enterprises. With better access to vital resources like capital, agroholdings possess enough means to implement and maintain the best international standards and practices, including modern management techniques and stimulating compensation programs among others, which in turn have a positive impact on the overall firm performance. The results of this study may be of high interest for the managers and/or executives of Russian agri-food enterprises and Russian policy makers. From the practical side, the findings of this research indicate that the top management and corporate board of Russian agri-food enterprises should pay more importance towards enhancing the managerial quality and management efficiency, since it may significantly improve the financial performance of the firms. One of the possible ways for reaching this might be through the implementation of modern management practices and adopting continuous management training programs. Furthermore, it is also important that the company boards pay attention on the enhancement of the executive compensation systems. Proposing appealing compensation schemes, where the top executives' salaries directly depend on the financial performances of firms might reduce the potential agency conflicts and have a significant positive impact on enterprise performance. From the policy perspective, the results of this study suggest an additional evidence that agroholdings, under existing institutional conditions, are perhaps better equipped compared to the other forms of agri-food production and that they might indeed be the main engine for the further growth of the industry en route the set targets. This however does not mean that the state support should be addressed solely towards agroholdings. Instead, the financial superiority of agroholdings should push government decision makers to focus on such imbalances by administering better access to capital, technology and skills to all players in the market, including the standalone firms.

References

- Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), 291–309.
- Adams, R. B., Gray, S., & Nowland, J. (2011). Does Gender Matter in the Boardroom? Evidence from the Market Reaction to Mandatory New Director Announcements. *SSRN Electronic Journal*.
- Agroinvestor. (2017, September 4). Leaders of the meat industry. Top 25 largest meat producers (Lidery myasnoy otrasli. Top-25 krupneyshikh proizvoditeley myasa). Retrieved from <http://www.agroinvestor.ru/rating/article/28459-lidery-myasnoy-industrii-top-25-krupneyshikh-proizvoditeley-myasa/>
- Agroinvestor. (2018a). 10 largest companies produced 58% of broiler meat in the country (10 krupneyshikh kompaniy vypustili 58% myasa broylerov v strane).
- Agroinvestor. (2018b). Top 25 Russian meat producers. Market leaders will continue to consolidate (Top-25 krupneyshikh proizvoditeley myasa v Rossii. Lidery rynka prodolzhat konsolidatsiyu).
- Ahern, K. R., & Dittmar, A. K. (2012). The Changing of the Boards: The Impact on Firm Valuation of Mandated Female Board Representation. *The Quarterly Journal of Economics*, 127(1), 137–197.
- Ahn, S., & Walker, M. D. (2007). Corporate governance and the spinoff decision. *Journal of Corporate Finance*, 13(1), 76–93.
- Ahrendsen, B. L., & Katchova, A. L. (2012). Financial ratio analysis using ARMS data. *Agricultural Finance Review*, 72(2), 262–272.
- Alfaraih, M., Alanezi, F., & Almujaed, H. (2012). The Influence of Institutional and Government Ownership on Firm Performance: Evidence from Kuwait. *International Business Research*.
- Alimehmeti, G., & Paletta, A. (2012). Ownership Concentration and Effects Over Firm Performance : Evidences From Italy. *European Scientific Journal*, 8(22).
- An, S., & Jin, H. S. (2004). Interlocking of Newspaper Companies with Financial Institutions and Leading Advertisers. *Journalism & Mass Communication Quarterly*, 81(3), 578–600.
- Anderson, R. C., & Reeb, D. M. (2003). Founding-Family Ownership and Firm Performance: Evidence from the S&P 500. *Journal of Finance*.

- Anderson, R. C., Reeb, D. M., Upadhyay, A., & Zhao, W. (2011). The Economics of Director Heterogeneity. *Financial Management*, 40(1), 5–38.
- Andrieş, A. M., Mehdiian, S., & Stoica, O. (2020). Gender Diversity, Banks' Performance, and Stability across Central and Eastern European Countries. *JEEMS Journal of East European Management Studies*.
- Arfken, D. E., Bellar, S. L., & Helms, M. M. (2004). The Ultimate Glass Ceiling Revisited: The Presence of Women on Corporate Boards. *Journal of Business Ethics*, 50(2), 177–186.
- Balsmeier, B., & Czarnitzki, D. (2017). Ownership Concentration, Institutional Development and Firm Performance in Central and Eastern Europe. *Managerial and Decision Economics*, 38(2), 178–192.
- Bantel, K. A., & Jackson, S. E. (1989). Top management and innovations in banking: Does the composition of the top team make a difference? *Strategic Management Journal*, 10(S1), 107–124.
- Barclay, M. J., & Holderness, C. G. (1989). Private benefits from control of public corporations. *Journal of Financial Economics*, 25(2), 371–395.
- Barsukova, S. (2016). The dilemma “farmers - agricultural holdings” in the context of import substitution. *Obshchestvennyye Nauki i Sovremennost'*, 5, 63–74.
- BEFL agency. (2018). *The largest owners of agricultural land in Russia for 2018 (Krupneyshiye zemlevladel'tsy Rossii v 2018 godu)*.
- BEFL agency. (2019). BEFL published a rating of the largest owners of agricultural land in Russia for May 2019 (BEFL opublikoval reyting krupneyshikh vladel'tsev sel'skokhozyaystvennoy zemli v Rossii na may 2019 goda).
- Beiner, S., Drobetz, W., Schmid, F., & Zimmermann, H. (2004). Is Board Size an Independent Corporate Governance Mechanism? *Kyklos*, 57(3), 327–356.
- Belenzon, S., Berkovitz, T., & Rios, L. A. (2013). Capital Markets and Firm Organization: How Financial Development Shapes European Corporate Groups. *Management Science*, 59(6), 1326–1343.
- Belyaeva, M. (2018). *A comprehensive analysis of current state and development perspectives of Russian grain sector: Production efficiency and climate change impact*. Studies on the Agricultural and Food Sector in Transition Economies.
- Ben-Amar, W., Francoeur, C., Hafsi, T., & Labelle, R. (2013). What Makes Better Boards? A Closer Look at Diversity and Ownership. *British Journal of Management*, 24(1), 85–101.
- Bennouri, M., Chtioui, T., Nagati, H., & Nekhili, M. (2018). Female board directorship and firm performance: What really matters? *Journal of Banking & Finance*, 88, 267–291.
- Berle, A. A., & Means, G. C. (1932). *The Modern Corporation and Private Property*. New York: Macmillan.
- Bilimoria, D., & Wheeler, J. V. (2000). *Women in Management: Current Research Issues (Vol. 2)*.

- Black, B., & Kim, W. (2012). The effect of board structure on firm value: A multiple identification strategies approach using Korean data. *Journal of Financial Economics*, 104(1), 203–226.
- Bobojonov, I., Götz, L., & Tleubayev, A. (2018). Business and investment climate in the agricultural sector of Russia after the food sanctions: results of a survey of Russian and German companies (Geschäfts- und Investitionsklima im Agrarsektor Russlands nach den Lebensmittelsanktionen: Ergebnisse einer. *Russland-Analysen*, 361, 9–14.
- Bobojonov, I., Teuber, R., Hasanov, S., Urutyan, V., & Glauen, T. (2016). Farmers' export market participation decisions in transition economies: a comparative study between Armenia and Uzbekistan. *Development Studies Research*, 3(1), 25–35.
- Boehlje, M. (1999). Structural Changes in the Agricultural Industries: How Do We Measure, Analyze and Understand Them? *American Journal of Agricultural Economics*, 81(5), 1028.
- Bøhren, Ø., & Strøm, R. Ø. (2010). Governance and Politics: Regulating Independence and Diversity in the Board Room. *Journal of Business Finance & Accounting*, 37(9–10), 1281–1308.
- Bonardo, D., Paleari, S., & Vismara, S. (2007). The non-linear relationship between managerial ownership and firm performance. *Corporate Ownership & Control*, 4(4), 18–29.
- Brammer, S., Millington, A., & Pavelin, S. (2007). Gender and Ethnic Diversity Among UK Corporate Boards. *Corporate Governance: An International Review*, 15(2), 393–403.
- Campbell, K., & Mínguez-Vera, A. (2008). Gender Diversity in the Boardroom and Firm Financial Performance. *Journal of Business Ethics*, 83(3), 435–451.
- Caramanis, C., & Lennox, C. (2008). Audit effort and earnings management. *Journal of Accounting and Economics*, 45(1), 116–138.
- Carney, M., & Gedajlovic, E. (2002). The Coupling of Ownership and Control and the Allocation of Financial Resources: Evidence from Hong Kong. *Journal of Management Studies*, 39(1), 123–146.
- Carter, D. A., D'Souza, F., Simkins, B. J., & Simpson, W. G. (2010). The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. *Corporate Governance: An International Review*, 18(5), 396–414.
- Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate Governance, Board Diversity, and Firm Value. *The Financial Review*, 38(1), 33–53.
- Catalyst. (2007). The Bottom Line: Corporate Performance and Women's Representation on Boards | Catalyst.
- CG code. (2014). CORPORATE GOVERNANCE CODE (Russia).
- Chaddad, F. (2014). BrasilAgro: Organizational Architecture for a High-Performance Farming Corporation. *American Journal of Agricultural Economics*, 96(2), 578–588. Retrieved from <https://academic.oup.com/ajae/article-lookup/doi/10.1093/ajae/aat106>
- Chaddad, F., & Valentinov, V. (2017). Agency costs and organizational architecture of large

- corporate farms: evidence from Brazil. *International Food and Agribusiness Management Review*, 20(2), 201–220.
- Chen, C. R., Guo, W., & Mande, V. (2003). Managerial ownership and firm valuation: Evidence from Japanese firms. *Pacific-Basin Finance Journal*, 11(3), 267–283.
- Claessens, S., Djankov, S., & Lang, L. H. . (2000). The separation of ownership and control in East Asian Corporations. *Journal of Financial Economics*, 58(1–2), 81–112.
- Collier, P. (2008). The Politics of Hunger: How Illusion and Greed Fan the Food Crisis. *Foreign Affairs*.
- Collier, P., & Dercon, S. (2014). African Agriculture in 50 Years: Smallholders in a Rapidly Changing World? *World Development*, 63, 92–101.
- Connolly, R. (2011). Financial Constraints on the Modernization of the Russian Economy. *Eurasian Geography and Economics*, 52(3), 428–459.
- Cox, T. H., Lobel, S. A., & McLeod, P. L. (1991). Effects of Ethnic Group Cultural Differences on Cooperative and Competitive Behavior On a Group Task. *Academy of Management Journal*, 34(4), 827–847.
- Croson, R., & Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic Literature*, 47(2), 448–474.
- Dahya, J., & McConnell, J. J. (2007). Board Composition, Corporate Performance, and the Cadbury Committee Recommendation. *Journal of Financial and Quantitative Analysis*, 42(03), 535.
- Daily, C. M., Certo, S. T., & Dalton, D. R. (1999). A Decade of Corporate Women: Some Progress in the Boardroom, None in the Executive Suite. *Strategic Management Journal*, 20, 93–99.
- Dairynews. (2018a). The top 50 largest dairy plants of the Russian Federation includes nine new enterprises (V top-50 krupneyshikh molochnykh zavodov RF voshli devyat' novykh predpriyatiy). Retrieved from <http://www.dairynews.ru/news/v-top-50-krupneyshikh-molochnykh-zavodov-rf-voshli.html>
- Dairynews. (2018b, May 21). Top 50 Russian milk producers increased milk production by 13.7% in 2017 (TOP-50 proizvoditeley moloka v Rossii v 2017 godu uvelichili proizvodstvo moloka na 13,7%). Retrieved from <http://www.dairynews.ru/news/top-50-proizvoditeley-moloka-rossii-v-2017-godu-uv.html>
- Das, A., & Dey, S. (2016). Role of corporate governance on firm performance: a study on large Indian corporations after implementation of Companies' Act 2013. *Asian Journal of Business Ethics*.
- Davydova, I., & Franks, J. (2015). The Rise and Rise of Large Farms: Why Agroholdings Dominate Russia's Agricultural Sector (Vozrozhdeniye krupnykh khozyaystv v Rossii: pochemu agrokholdingi dominiruyut v rossiyskom agrarnom sektore). *Mir Rossii (Mup Poccuu)*, 24(3), 133–159.

- De Hoyos, R. E., & Sarafidis, V. (2006). Testing for Cross-Sectional Dependence in Panel-Data Models. *The Stata Journal: Promoting Communications on Statistics and Stata*, 6(4), 482–496.
- Deininger, K., & Byerlee, D. (2011). Rising global interest in farmland: can it yield sustainable and equitable benefits? *World Bank Publications*.
- Deininger, K., & Byerlee, D. (2012). The Rise of Large Farms in Land Abundant Countries: Do They Have a Future? *The World Bank*.
- Denis, D. K., & McConnell, J. J. (2003). International Corporate Governance. *The Journal of Financial and Quantitative Analysis*, 38(1), 1.
- Dentoni, D., Bijman, J., Bossle, M. B., Gondwe, S., Isubikalu, P., Ji, C., ... Vieira, L. (2020). New organizational forms in emerging economies: bridging the gap between agribusiness management and international development. *Journal of Agribusiness in Developing and Emerging Economies*.
- Dewaelheyns, N., & Van Hulle, C. (2008). Internal Capital Markets and Capital Structure: Bank Versus Internal Debt. *European Financial Management*, 16(3), 345–373.
- Dezsö, C. L., & Ross, D. G. (2012). Does female representation in top management improve firm performance? A panel data investigation. *Strategic Management Journal*, 33(9), 1072–1089.
- Dyatlovskaya. (2018a). 10 largest companies produced 58% of broiler meat in the country (10 krupneyshikh kompaniy vypustili 58% myasa broylera v strane). *Agroinvestor*.
- Dyatlovskaya. (2018b). Vladimir Putin: in 2018, agricultural exports will exceed \$ 23 billion (Vladimir Putin: v 2018 godu eksport agroproduktcii prevysit \$23 mlrd).
- Eisenberg, T., Sundgren, S., & Wells, M. T. (1998). Larger board size and decreasing firm value in small firms. *Journal of Financial Economics*, 48(1), 35–54.
- Eisenhardt, K. M. (1989). Agency Theory: An Assessment and Review. *Academy of Management Review*, 14(1), 57–74.
- Epshtein, D., Hahlbrock, K., & Wandel, J. (2013). Why are agroholdings so pervasive in Russia's Belgorod oblast? Evidence from case studies and farm-level data. *Post-Communist Economies*, 25(1), 59–81.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of Convenience Sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4.
- Fahlenbrach, R., Low, A., & Stulz, R. M. (2010). Why do firms appoint CEOs as outside directors? *Journal of Financial Economics*, 97(1), 12–32.
- Fama, E. F. (1980). Agency Problems and the Theory of the Firm. *Journal of Political Economy*, 88(2), 288–307.
- Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *The Journal of Law and Economics*, 26(2), 301–325.

- FAO. (2001). Mineral Soils conditioned by a Steppic Climate.
- FAO. (2009). *Russian Federation: Analysis of the Agribusiness Sector in Southern Russia*.
- FAO. (2017). FAOSTAT. Russian Federation Country Indicators.
- FAOSTAT. (2017a). Cereal Yields.
- FAOSTAT. (2017b). Top 10 Country, Export Quantity of Wheat.
- FAOSTAT. (2017c). Top 10 Country, Production of Wheat.
- Fauzi, F., & Locke, S. (2012). Board structure, ownership structure and firm performance: A study of New Zealand listed-firms. *Asian Academy of Management Journal of Accounting and Finance*.
- Federation, R. (2009). *Analysis of the Agribusiness Sector in Southern Russia. REPORT SERIES—№, 111*.
- Filatotchev, I., Kapelyushnikov, R., Dyomina, N., & Aukutsionek, S. (2001). The effects of ownership concentration on investment and performance in privatized firms in Russia. *Managerial and Decision Economics*, 22(6), 299–313.
- Florackis, C. (2008). Agency costs and corporate governance mechanisms: evidence for UK firms. *International Journal of Managerial Finance*, 4(1), 37–59.
- Fuzi, S. F. S., Halim, S. A. A., & Julizaerma, M. K. (2016). Board Independence and Firm Performance. *Procedia Economics and Finance*.
- Gagalyuk, T. (2017). Strategic role of corporate transparency: the case of Ukrainian agroholdings. *International Food and Agribusiness Management Review*, 20(2), 257–278.
- Gagalyuk, T., & Valentinov, V. (2019). Agroholdings, turbulence, and resilience: The case of Ukraine. *Journal of East European Management Studies*, 24(3), 482–494.
- Gagalyuk, T., Valentinov, V., & Schaft, F. (2018). The Corporate Social Responsibility of Ukrainian Agroholdings: the Stakeholder Approach Revisited. *Systemic Practice and Action Research*, 31(6), 675–698.
- García-Meca, E., & Sánchez-Ballesta, J. P. (2011). Ownership structure and forecast accuracy in Spain. *Journal of International Accounting, Auditing and Taxation*, 20(2), 73–82.
- García-Meca, E., & Sánchez-Ballesta, J. P. (2011). Firm value and ownership structure in the Spanish capital market. *Corporate Governance: The International Journal of Business in Society*, 11(1), 41–53.
- Gataulina, E., Hockmann, H., & Stokov, A. (2014). Production Risk, Technology and Market Access in Different Organisational Forms: Evidence from Tatarstan and Oryol. *Quarterly Journal of International Agriculture*, 53(4), 293–318.
- González, V. M. (2013). Leverage and corporate performance: International evidence. *International Review of Economics & Finance*, 25, 169–184.
- Goodstein, J., Gautam, K., & Boeker, W. (1994). The effects of board size and diversity on

- strategic change. *Strategic Management Journal*, 15(3), 241–250.
- Götz, L., & Djuric, I. (2016). Russia wants to become the largest agricultural exporter (Russland will größter Agrarexporteur werden). *BWagrar*.
- Greene, W. (2012). *Econometric analysis, Sixth edn.* Pearson.
- Grouiez, P. (2018). Understanding Agro-Holdings in Russia: A Commonsian Analysis. *Journal of Economic Issues*, 52(4), 1010–1035.
- Groysberg, B., & Bell, D. (2013). Dysfunction in the Boardroom. *Harvard Business Review*, 91(6), 89–97.
- Guest, P. M. (2009). The impact of board size on firm performance: evidence from the UK. *The European Journal of Finance*, 15(4), 385–404.
- Gul, F. A., Kim, J. B., & Qiu, A. A. (2010). Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China. *Journal of Financial Economics*, 95(3), 425–442.
- Gul, F. A., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices? *Journal of Accounting and Economics*, 51(3), 314–338.
- Gul, F. A., Srinidhi, B., & Tsui, J. S. L. (2008). Board Diversity and the Demand for Higher Audit Effort. *SSRN Electronic Journal*.
- Güner, A. B., Malmendier, U., & Tate, G. (2008). Financial expertise of directors. *Journal of Financial Economics*, 88(2), 323–354.
- Gunsel, N. (2005). Financial ratios and the probabilistic prediction of bank failure in North Cyprus. *Editorial Advisory Board*, 18(2), 191–200.
- Guriev, S., & Rachinsky, A. (2004). Russian oligarchs: A quantitative assessment. *Beyond Transition*, 15(1), 4–5.
- Hahlbrock, K., & Hockmann, H. (2011). Does Group Affiliation Increase Productivity And Efficiency In Russia's Agriculture? Evidence From Agroholdings In The Belgorod Oblast. In EAAE 2011 Conference 'Change for Agriculture, Food and Natural Resources.
- Hambrick, D. C., Cho, T. S., & Chen, M. J. (1996). The Influence of Top Management Team Heterogeneity on Firms' Competitive Moves. *Administrative Science Quarterly*, 41(4), 659.
- Henry, G. T. (1990). *Practical Sampling: Applied Social and Research Method Series. Volume 21. The SAGE Handbook of Applied Social Research Methods.*
- Hermans, F. L. P., Chaddad, F. R., Gagalyuk, T., Senesi, S., & Balmann, A. (2017). The emergence and proliferation of agroholdings and mega farms in a global context. *International Food and Agribusiness Management Review*, 20(2), 175–186.
- Hillman, A. J., & Dalziel, T. (2003). Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspectives. *Academy of Management Review*, 28(3), 383–396.
- Hillman, A. J., Shropshire, C., & Cannella, A. A. (2007). Organizational Predictors of Women

- on Corporate Boards. *Academy of Management Journal*, 50(4), 941–952.
- Hillman, A. J., Withers, M. C., & Collins, B. J. (2009). Resource Dependence Theory: A Review. *Journal of Management*, 35(6), 1404–1427.
- Hockmann, H., Bokusheva, R., & Bezlepkina, I. (2009). Agroholdings membership: does that make a difference in performance? *Quarterly Journal of International Agriculture*, 48(1), 25–46.
- Hockmann, H., Gataulina, E., & Hahlbrock, K. (2011). RISK, TECHNICAL EFFICIENCY AND MARKET TRANSACTION COSTS IN DIFFERENT ORGANISATIONAL FORMS: EVIDENCE FROM THE OBLAST TATARSTAN.
- Hockmann, H., Wandel, J., & Nedoborovskyy, A. (2005). Agroholdings in Russia: Breaking the Vicious Circle?
- Hoechle, D. (2007). Robust Standard Errors for Panel Regressions with Cross-Sectional Dependence. *The Stata Journal: Promoting Communications on Statistics and Stata*, 7(3), 281–312.
- Holmes, R. M., Hoskisson, R. E., Kim, H., Wan, W. P., & Holcomb, T. R. (2018). International strategy and business groups: A review and future research agenda. *Journal of World Business*, 53(2), 134–150.
- Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of Financial Economics*, 108(3), 822–839.
- Iakovleva, T., Solesvik, M., & Trifilova, A. (2013). Financial availability and government support for women entrepreneurs in transitional economies. *Journal of Small Business and Enterprise Development*, 20(2), 314–340.
- Ingle, C., & van der Walt, N. (2005). Do Board Processes Influence Director and Board Performance? Statutory and performance implications. *Corporate Governance: An International Review*, 13(5), 632–653.
- Iwasaki, I., & Mizobata, S. (2019). Ownership Concentration and Firm Performance in European Emerging Economies: A Meta-Analysis. *Emerging Markets Finance and Trade*, 1–36.
- Iwasaki, I., Mizobata, S., & Muravyev, A. (2018). Ownership dynamics and firm performance in an emerging economy: a meta-analysis of the Russian literature. *Post-Communist Economies*, 30(3), 290–333.
- Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems. *The Journal of Finance*, 48(3), 831–880.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Jiraporn, P., Kim, J. C., Kim, Y. S., & Kitsabunnarat, P. (2012). Capital structure and corporate governance quality: Evidence from the Institutional Shareholder Services (ISS). *International Review of Economics & Finance*, 22(1), 208–221.

- Johnson, S. G., Schnatterly, K., & Hill, A. D. (2013). Board Composition Beyond Independence. *Journal of Management*, 39(1), 232–262.
- Joshi, A., Liao, H., & Jackson, S. E. (2006). Cross-Level Effects of Workplace Diversity on Sales Performance and Pay. *Academy of Management Journal*, 49(3), 459–481.
- Kim, H., & Lim, C. (2010). Diversity, outside directors and firm valuation: Korean evidence. *Journal of Business Research*, 63(3), 284–291.
- Knoema. (2017). World Exports and Imports of Agricultural products.
- Koç, A. A., Yu, T. E., Kıymaz, T., & Sharma, B. P. (2019). Effects of government supports and credits on Turkish agriculture: A spatial panel analysis. *Journal of Agribusiness in Developing and Emerging Economies*.
- Kor, Y. Y., & Sundaramurthy, C. (2009). Experience-Based Human Capital and Social Capital of Outside Directors. *Journal of Management*, 35(4), 981–1006.
- KORNAI, J. (1986). The Soft Budget Constraint. *Kyklos*, 39(1), 3–30.
- Kremlin. (2018). President’s Address to the Federal Assembly (Poslaniye Prezidenta Federal’nomu Sobraniyu).
- Krueger, A. O. (1990). Government Failures in Development. *Journal of Economic Perspectives*, 4(3), 9–23.
- Kulistikova. (2017). *Top 20 by feed: market leaders in 2016 produced 49% of all animal feed in the country (Top-20 po kormam: lidery rynka v 2016 godu proizveli 49% vsekh kombikormov v strane)*. *Agroinvestor*.
- Kulistikova. (2018). Top 25 Russian meat producers. Market leaders will continue to consolidate (Top-25 krupneyshikh rossiyskikh proizvoditeley myasa. Lidery rynka prodolzhat konsolidatsiyu). *Agroinvestor*.
- Kumar, P., & Zattoni, A. (2019). Farewell editorial: Exiting editors’ perspective on current and future challenges in corporate governance research. *Corporate Governance: An International Review*, 27(1), 2–11.
- La Porta, R., Lopez-De-Silanes, F., & Shleifer, A. (1999). Corporate Ownership Around the World. *The Journal of Finance*, 54(2), 471–517.
- Le, T., & Chizema, A. (2011). STATE OWNERSHIP AND FIRM PERFORMANCE: EVIDENCE FROM CHINESE LISTED FIRMS. *Organizations & Markets in Emerging Economies*, 2(2).
- Lee, S. (2008). Ownership structure and financial performance: Evidence from panel data of South Korea. No. 2008-17. *Working Paper*.
- Lepore, L., Paolone, F., Pisano, S., & Alvino, F. (2017). A cross-country comparison of the relationship between ownership concentration and firm performance: does judicial system efficiency matter? *Corporate Governance: The International Journal of Business in Society*, 17(2), 321–340.

- Levi, M., Li, K., & Zhang, F. (2014). Director gender and mergers and acquisitions. *Journal of Corporate Finance*, 28, 185–200.
- Li, W. X., Chen, C. C. S., & French, J. J. (2012). The relationship between liquidity, corporate governance, and firm valuation: Evidence from Russia. *Emerging Markets Review*, 13(4), 465–477.
- Liefert, O., Liefert, W., & Luebehusen, E. (2013). Rising grain exports by the former Soviet Union region: causes and outlook. *Electronic Outlook Report from the Economic Research Service*, (No. WHS-13A-01).
- Liefert, W. M., & Liefert, O. (2012). Russian agriculture during transition: Performance, global impact, and outlook. *Applied Economic Perspectives and Policy*.
- Liefert, W. M., & Liefert, O. (2015). Russia's Economic Crisis and its Agricultural and Food Economy. *Choices*.
- Liefert, W. M., Liefert, O., Seeley, R., & Lee, T. (2019). The effect of Russia's economic crisis and import ban on its agricultural and food sector. *Journal of Eurasian Studies*, 187936651984018.
- Lind, J., & Mehlum, H. (2019). UTEST: Stata module to test for a U-shaped relationship. Retrieved from <https://econpapers.repec.org/software/bocbocode/s456874.htm>
- Lins, K. V. (2003). Equity Ownership and Firm Value in Emerging Markets. *The Journal of Financial and Quantitative Analysis*, 38(1), 159.
- Liu, Y., Wei, Z., & Xie, F. (2014). Do women directors improve firm performance in China? *Journal of Corporate Finance*, 28, 169–184.
- Lopez-Valeiras, E., Gomez-Conde, J., & Fernandez-Rodriguez, T. (2016). Firm Size and Financial Performance: Intermediate Effects of Indebtedness. *Agribusiness*, 32(4), 454–465.
- Lückerath-Rovers, M. (2013). Women on boards and firm performance. *Journal of Management & Governance*, 17(2), 491–509.
- Machek, O., & Kubíček, A. (2018). *Journal of International Studies*. *Journal of International Studies* (Vol. 11).
- Maddala, G. S. (1983). *Limited-dependent and qualitative variables in econometrics*. *Limited-dependent and qualitative variables in econometrics*.
- Marinova, J., Plantenga, J., & Remery, C. (2016). Gender diversity and firm performance: evidence from Dutch and Danish boardrooms. *The International Journal of Human Resource Management*, 27(15), 1777–1790.
- Masulis, R. W., Wang, C., & Xie, F. (2012). Globalizing the boardroom—The effects of foreign directors on corporate governance and firm performance. *Journal of Accounting and Economics*, 53(3), 527–554.
- Matyukha, A. (2017). *Business groups in agriculture impact of ownership structures on performance : the case of Russia's agrohholdings*. No. 85. Studies on the Agricultural and Food Sector in Transition Economies.

- Matyukha, A., Voigt, P., & Wolz, A. (2015). Agro-holdings in Russia, Ukraine and Kazakhstan: temporary phenomenon or permanent business form? Farm-level evidence from Moscow and Belgorod regions. *Post-Communist Economies*, 27(3), 370–394.
- McConnell, J. J., & Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, 27(2), 595–612.
- McKinsey & Company. (2007). Women Matter. Gender diversity, a corporate performance driver. Retrieved from <https://www.mckinsey.com/~media/McKinsey/Business Functions/Organization/Our Insights/Gender diversity a corporate performance driver/Gender diversity a corporate performance driver.ashx>
- McKinsey & Company. (2016). *Women Matter 2016*. Retrieved from <https://www.mckinsey.com/~media/mckinsey/featured insights/women matter/reinventing the workplace for greater gender diversity/women-matter-2016-reinventing-the-workplace-to-unlock-the-potential-of-gender-diversity.ashx>
- Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics*, 38(2), 163–184.
- Miller, T., & del Carmen Triana, M. (2009). Demographic Diversity in the Boardroom: Mediators of the Board Diversity-Firm Performance Relationship. *Journal of Management Studies*, 46(5), 755–786.
- Morck, R., Shleifer, A., & Vishny, R. W. (1988). Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, 20, 293–315.
- Nakano, M., & Nguyen, P. (2013). Foreign ownership and firm performance: Evidence from Japan's electronics industry. *Applied Financial Economics*.
- Nekhili, M., & Gatfaoui, H. (2013). Are Demographic Attributes and Firm Characteristics Drivers of Gender Diversity? Investigating Women's Positions on French Boards of Directors. *Journal of Business Ethics*, 118(2), 227–249.
- Nguyen, H., & Faff, R. (2007). IMPACT OF BOARD SIZE AND BOARD DIVERSITY ON FIRM VALUE: AUSTRALIAN EVIDENCE. *Corporate Ownership & Control*, 4(2).
- Nguyen, T., Locke, S., & Reddy, K. (2015a). Does boardroom gender diversity matter? Evidence from a transitional economy. *International Review of Economics & Finance*, 37, 184–202.
- Nguyen, T., Locke, S., & Reddy, K. (2015b). Ownership concentration and corporate performance from a dynamic perspective: Does national governance quality matter? *International Review of Financial Analysis*, 41, 148–161.
- Ostapchuk, I., Gagalyuk, T., Epshtein, D., & Dibirov, A. (2021). What drives the acquisition behavior of agroholdings? Performance analysis of agricultural acquisition targets in Northwest Russia and Ukraine. *International Food and Agribusiness Management Review*, 0(0), 1–22.
- Ozkan, N. (2011). CEO Compensation and Firm Performance: an Empirical Investigation of UK Panel Data. *European Financial Management*, 17(2), 260–285.

- Paniagua, J., Rivelles, R., & Sapena, J. (2018). Corporate governance and financial performance: The role of ownership and board structure. *Journal of Business Research*, 89, 229–234.
- Petrick, M., Wandel, J., & Karsten, K. (2013). Rediscovering the Virgin Lands: Agricultural Investment and Rural Livelihoods in a Eurasian Frontier Area. *World Development*, 43, 164–179.
- Pfeffer, J. (1973). Size, Composition, and Function of Hospital Boards of Directors: A Study of Organization-Environment Linkage. *Administrative Science Quarterly*, 18(3), 349.
- Pfeffer, J. (1987). *A resource dependence perspective on interorganizational relations*. Intercorporate relations: The structural analysis of business.
- Pfeffer, J., & Salancik, G. R. (1978). The External Control of Organizations: A Resource Dependence Perspective. *New York: Harper & Row*.
- Post, C., & Byron, K. (2015). Women on Boards and Firm Financial Performance: A Meta-Analysis. *Academy of Management Journal*, 58(5), 1546–1571.
- Rada, N., Liefert, W., & Liefert, O. (2017). *Productivity Growth and the Revival of Russian Agriculture*. Retrieved from www.ers.usda.gov
- Randøy, T., Thomsen, S., & Oxelheim, L. (2006). A Nordic perspective on corporate board diversity. *Age*, 390(0.5428).
- Reddy, K., Locke, S., Scrimgeour, F., & Gunasekarage, A. (2008). Corporate governance practices of small cap companies and their financial performance: an empirical study in New Zealand. *International Journal of Business Governance and Ethics*, 4(1), 51.
- Reguera-Alvarado, N., de Fuentes, P., & Laffarga, J. (2017). Does Board Gender Diversity Influence Financial Performance? Evidence from Spain. *Journal of Business Ethics*, 141(2), 337–350.
- Richard, O. C., Barnett, T., Dwyer, S., & Chadwick, K. (2004). Cultural Diversity in Management, Firm Performance, and the Moderating Role of Entrepreneurial Orientation Dimensions. *Academy of Management Journal*, 47(2), 255–266.
- Rose, C. (2007). Does female board representation influence firm performance? The Danish evidence. *Corporate Governance: An International Review*, 15(2), 404–413.
- Rosenstein, S., & Wyatt, J. G. (1990). Outside directors, board independence, and shareholder wealth. *Journal of Financial Economics*, 26(2), 175–191.
- RosStat. (2018). Total Agricultural Production by Farm Type 1990 - 2018.
- RosStat. (2019). *Russian Statistical Yearbook 2019*.
- RosStat. (2020a). The structure of agricultural production by Farm Type 1990 - 2019.
- RosStat. (2020b). Total Agricultural Production by Farm Type 1990 - 2020.
- Ruigrok, W., Peck, S., & Tacheva, S. (2007). Nationality and Gender Diversity on Swiss Corporate Boards. *Corporate Governance: An International Review*, 15(4), 546–557.

- Rylko, D., Khramova, I., Uzun, V., & Jolly, R. (2008). Agroholdings: Russia's New Agricultural Operators. *Russia's Agriculture in Transition: Factor Markets and Constraints on Growth*, Z. Lerman (Ed.), 95–133.
- Sajid, G., Muhammad, S., Nasir, R., & Farman, A. (2012). Agency cost, corporate governance and ownership structure: the case of Pakistan.
- Sánchez-Ballesta, J. P., & García-Meca, E. (2007). A Meta-Analytic Vision of the Effect of Ownership Structure on Firm Performance. *Corporate Governance: An International Review*, 15(5), 879–892.
- Schorr, A., & Lips, M. (2019). The optimal capital structure of Swiss dairy farms. *Agricultural Finance Review*, 79(3), 323–337.
- Sedik, D., Lerman, Z., Shagaida, N., Uzun, V., & Yanbykh, R. (2017). Agricultural and rural policies in Russia. In *Handbook of International Food and Agricultural Policies (In 3 Volumes)*.
- Setia-Atmaja, L. Y. (2009). Governance Mechanisms and Firm Value: The Impact of Ownership Concentration and Dividends. *Corporate Governance: An International Review*, 17(6), 694–709.
- Shapiro, C., & Willig, R. (1990). *Economic rationales for the scope of privatization*.
- Shleifer, A., & Vishny, R. W. (1986). Large Shareholders and Corporate Control. *Journal of Political Economy*, 94(3, Part 1), 461–488.
- Shleifer, A., & Vishny, R. W. (1994). Politicians and Firms. *The Quarterly Journal of Economics*, 109(4), 995–1025.
- Shleifer, A., & Vishny, R. W. (1997). A Survey of Corporate Governance. *Journal of Finance*, 52, 737–783.
- Shrader, C. B., Blackburn, V. B., & Iles, P. (1997). Women In Management And Firm Financial Performance: An Exploratory Study. *Journal of Managerial Issues*.
- Singh, V., Terjesen, S., & Vinnicombe, S. (2008). Newly appointed directors in the boardroom:: How do women and men differ? *European Management Journal*, 26(1), 48–58.
- Singh, V., Vinnicombe, S., & Johnson, P. (2001). Women Directors on Top UK Boards. *Corporate Governance*, 9(3), 206–216.
- Skala, D., & Weill, L. (2018). Does CEO gender matter for bank risk? *Economic Systems*.
- Smith, N., Smith, V., & Verner, M. (2006). Do women in top management affect firm performance? A panel study of 2,500 Danish firms. *International Journal of Productivity and Performance Management*, 55(7), 569–593.
- Smutka, L., Spicka, J., Ishchukova, N., & Selby, R. (2016). Foreign trade in agricultural products in the Czech Republic. *Agricultural Economics (Zemědělská Ekonomika)*, 62(11), 493–506.
- Spoor, M., & Visser, O. (2004). Restructuring postponed? Large Russian farm enterprises “Coping with the market.” *Journal of Peasant Studies*.

- Spoor, M., Visser, O., & Mamonova, N. (2012). RUSSIAN AGROHOLDINGS + FINANCIAL CAPITAL + LAND GRABBING ≡ GLOBAL “BREAD BASKET”? In *IAMO Forum 2012: 'Land use in transition: Between abandonment and land grabbing.'*
- Stearns, L. B., & Mizruchi, M. S. (1993). Board Composition and Corporate Financing: The Impact of Financial Institution Representation on Borrowing. *Academy of Management Journal*, 36(3), 603–618.
- Sun, Q., Tong, W. H. S., & Tong, J. (2002). How Does Government Ownership Affect Firm Performance? Evidence from China's Privatization Experience. *Journal of Business Finance & Accounting*, 29(1-2), 1–27.
- Svatoš, M., Smutka, L., & Ishchukova, N. (2014). The position of agriculture in the Russian Federation-the last two decades development overview. *Agricultural Economics*, 60(11), 489–502.
- Terjesen, S., Couto, E. B., & Francisco, P. M. (2016). Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. *Journal of Management & Governance*, 20(3), 447–483.
- Thomsen, S., & Pedersen, T. (2000). Ownership structure and economic performance in the largest european companies. *Strategic Management Journal*, 21(6), 689–705.
- Tian, J. J., Halebian, J. J., & Rajagopalan, N. (2011). The effects of board human and social capital on investor reactions to new CEO selection. *Strategic Management Journal*, 32(7), 731–747.
- Tleubayev, A., Bobojonov, I., Gagalyuk, T., Garcia-Meca, E., & Glauben, T. (2021). Corporate governance and firm performance within the Russian agri-food sector: does ownership structure matter? *International Food and Agribusiness Management Review*, 24(4), 649–668.
- Tleubayev, A., Bobojonov, I., Gagalyuk, T., & Glauben, T. (2020). Board gender diversity and firm performance: evidence from the Russian agri-food industry. *International Food and Agribusiness Management Review*, 23(1), 35–53.
- Tleubayev, A., Jaghdani, T. J., Gotz, L., & Svanidze, M. (2018). The effects of trade policy on domestic dairy market: the case of Russian food import ban on regional cheese market integration in Russia. In No. 277373. *International Association of Agricultural Economists*, 2018.
- Torchia, M., Calabrò, A., & Huse, M. (2011). Women Directors on Corporate Boards: From Tokenism to Critical Mass. *Journal of Business Ethics*, 102(2), 299–317.
- Toulan, O. N. (2002). The impact of market liberalization on vertical scope: the case of Argentina. *Strategic Management Journal*, 23(6), 551–560.
- USDA. (2018a). *Russia: Agricultural Economy and Policy Report. USDA GAIN Report (RS1819)*. Retrieved from <https://www.fas.usda.gov/data/russia-agricultural-economy-and-policy-report>
- USDA. (2018b). “*Russia: Livestock and Products Annual*”. *USDA GAIN Report (RS1828)*.

Retrieved from <https://www.fas.usda.gov/data/russia-livestock-and-products-annual-2>

- Uzun, V., Shagaida, N., & Lerman, Z. (2019). Russian agriculture: Growth and institutional challenges. *Land Use Policy*, 83, 475–487.
- Uzun, V. Y., Shagaida, N. I., & Saraykin, V. A. (2012). Agroholdingi Rossii i ikh rol' v proizvodstve zerna. *Issledovaniya Po Politike Perekhoda Selskogo Khozyaistva*, (2012–2), 2012–2.
- Valentinov, V., Hielscher, S., & Pies, I. (2015). Nonprofit organizations, institutional economics, and systems thinking. *Economic Systems*, 39(3), 491–501.
- Vickers, J., & Yarrow, G. (1991). Economic Perspectives on Privatization. *Journal of Economic Perspectives*, 5(2), 111–132.
- Virtanen, A. (2012). Women on the boards of listed companies: Evidence from Finland. *Journal of Management & Governance*, 16(4), 571–593.
- Visser, O., Mamonova, N., & Spoor, M. (2012). Oligarchs, megafarms and land reserves: understanding land grabbing in Russia. *The Journal of Peasant Studies*, 39(3–4), 899–931.
- Visser, O., Spoor, M., & Mamonova, N. (2014). Is Russia the Emerging Global 'Breadbasket'? Re-cultivation, Agroholdings and Grain Production. *Europe-Asia Studies*, 66(10), 1589–1610.
- Wan, W. P. (2005). Country Resource Environments, Firm Capabilities, and Corporate Diversification Strategies*. *Journal of Management Studies*, 42(1), 161–182.
- Wang, G. Y. (2010). The Impacts of Free Cash Flows and Agency Costs on Firm Performance. *Journal of Service Science and Management*, 3(4), 408–418.
- Wang, K., & Shailer, G. (2015). Ownership concentration and firm performance in emerging markets: a meta-analysis. *Journal of Economic Surveys*, 29(2), 199–229.
- Wegren, S. K. (2018). The “left behind”: Smallholders in contemporary Russian agriculture. *Journal of Agrarian Change*, 18(4), 913–925.
- Wegren, S. K., & Elvestad, C. (2018). Russia's food self-sufficiency and food security: an assessment. *Post-Communist Economies*, 1–23.
- Wegren, S. K., Nikulin, A. M., & Trotsuk, I. (2019). Russian agriculture during Putin's fourth term: a SWOT analysis. *Post-Communist Economies*, 31(4), 419–450.
- Weill, L. (2011). How corruption affects bank lending in Russia. *Economic Systems*, 35(2), 230–243.
- Wooldridge, J. M. (2002). *Econometric Analysis of Cross Section and Panel Data*. The MIT Press.
- Yastrebova, O. (2005). Nonpayments, Bankruptcy and Government Support in Russian Agriculture. *Comparative Economic Studies*, 47(1), 167–180.
- Yermack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40(2), 185–211.

Yi, J., & Ifft, J. (2019). Labor-use efficiency and New York dairy farm financial performance. *Agricultural Finance Review*, 79(5), 646–665.

Appendix

TABLE A.1: CORRELATION MATRIX OF INDEPENDENT VARIABLES

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| 1 %_Female | 1.00 | | | | | | | | | | | | | | | | |
| 2 %_ExecutiveFemale | 0.58 | 1.00 | | | | | | | | | | | | | | | |
| 3 %_IndependentFemale | 0.51 | -0.40 | 1.00 | | | | | | | | | | | | | | |
| 4 D_1Female | -0.34 | -0.21 | -0.16 | 1.00 | | | | | | | | | | | | | |
| 5 D_2Female | 0.17 | 0.09 | 0.09 | -0.39 | 1.00 | | | | | | | | | | | | |
| 6 D_3Female | 0.69 | 0.41 | 0.33 | -0.38 | -0.36 | 1.00 | | | | | | | | | | | |
| 7 %_Independent | -0.12 | -0.19 | 0.07 | 0.10 | -0.10 | 0.01 | 1.00 | | | | | | | | | | |
| 8 BoardSize | 0.17 | 0.15 | 0.03 | -0.27 | -0.06 | 0.52 | 0.14 | 1.00 | | | | | | | | | |
| 9 D_CEO_Bonus | 0.10 | 0.07 | 0.03 | -0.02 | 0.02 | 0.10 | 0.11 | 0.04 | 1.00 | | | | | | | | |
| 10 %_DirectorOwnership | 0.09 | 0.32 | -0.23 | 0.01 | 0.08 | -0.01 | -0.08 | 0.01 | 0.00 | 1.00 | | | | | | | |
| 11 %_CEO_Ownership | 0.10 | 0.36 | -0.25 | 0.02 | 0.07 | 0.03 | -0.16 | -0.02 | 0.10 | 0.66 | 1.00 | | | | | | |
| 12 Leverage | -0.12 | -0.23 | 0.11 | 0.15 | -0.04 | -0.16 | 0.13 | -0.12 | -0.11 | -0.20 | -0.28 | 1.00 | | | | | |
| 13 FirmSize | -0.05 | -0.06 | 0.01 | 0.01 | -0.08 | 0.06 | 0.24 | 0.09 | 0.07 | -0.23 | -0.20 | 0.27 | 1.00 | | | | |
| 14 D_Industry | 0.07 | 0.02 | 0.05 | 0.00 | 0.02 | 0.01 | 0.14 | -0.04 | -0.04 | 0.01 | -0.20 | 0.30 | 0.32 | 1.00 | | | |
| 15 FirmAge | 0.03 | 0.03 | 0.00 | -0.03 | 0.01 | -0.01 | 0.02 | -0.06 | -0.11 | -0.12 | -0.25 | 0.17 | 0.02 | 0.41 | 1.00 | | |
| 16 Lag_ROA | 0.05 | 0.08 | -0.03 | -0.02 | 0.09 | 0.03 | 0.08 | 0.04 | 0.16 | 0.14 | 0.23 | -0.42 | 0.03 | -0.30 | -0.25 | 1.00 | |
| 17 Lag_ROS | 0.02 | -0.03 | 0.05 | -0.04 | 0.11 | -0.02 | 0.11 | 0.04 | -0.02 | -0.03 | 0.01 | 0.01 | -0.01 | -0.01 | 0.00 | 0.22 | 1.00 |

Source: compiled by authors

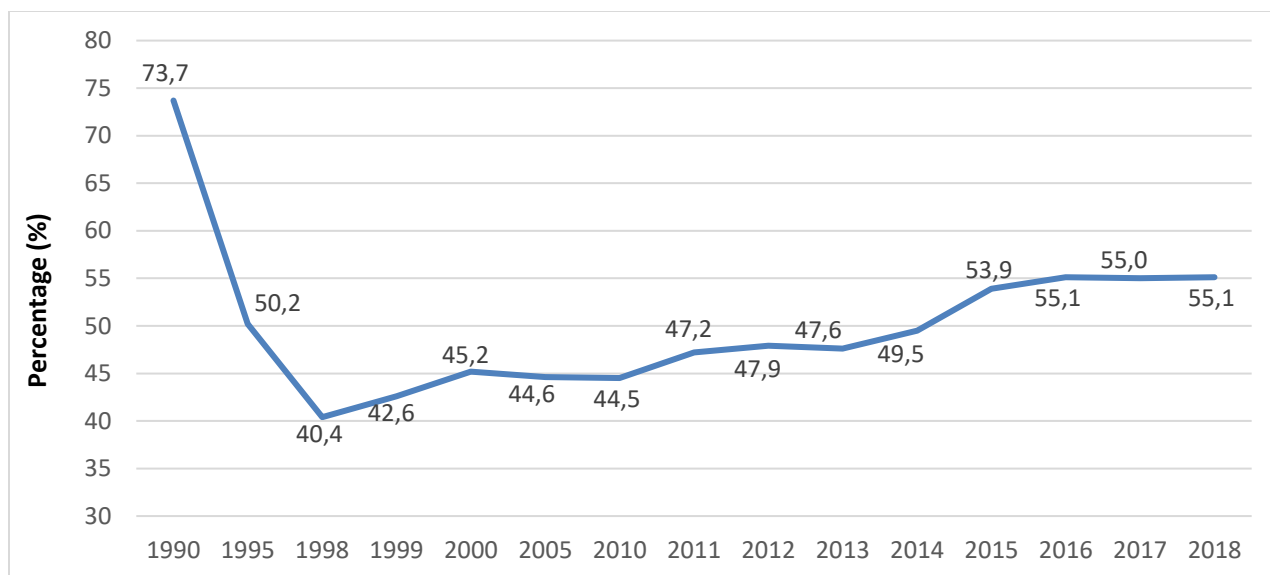


FIGURE A.1: THE SHARE OF CORPORATE FARMS IN THE STRUCTURE OF THE GROSS AGRICULTURAL PRODUCTION IN RUSSIA FROM 1990 TO 2018

Source: own illustration, data: Rosstat

TABLE A.2: CORRELATION MATRIX OF INDEPENDENT VARIABLES

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| 1 CR1 | 1.00 | | | | | | | | | | |
| 2 CR3 | 0.74 | 1.00 | | | | | | | | | |
| 3 SHARE_DIR | 0.00 | -0.04 | 1.00 | | | | | | | | |
| 4 SHARE_GOV | 0.19 | 0.16 | -0.14 | 1.00 | | | | | | | |
| 5 SHARE_AGHL | 0.33 | 0.31 | -0.38 | -0.14 | 1.00 | | | | | | |
| 6 BSIZE | -0.36 | -0.32 | -0.12 | -0.01 | -0.12 | 1.00 | | | | | |
| 7 BOD_IND | -0.18 | -0.23 | 0.31 | -0.20 | -0.11 | 0.11 | 1.00 | | | | |
| 8 BOD_DIV | -0.11 | -0.05 | 0.06 | 0.08 | -0.10 | 0.04 | 0.05 | 1.00 | | | |
| 9 FSIZE | 0.24 | 0.25 | -0.31 | -0.01 | 0.40 | 0.06 | -0.14 | -0.11 | 1.00 | | |
| 10 FAGE | -0.05 | -0.02 | -0.09 | -0.16 | 0.04 | -0.02 | -0.14 | 0.04 | -0.07 | 1.00 | |
| 11 LEVERAGE | 0.16 | 0.19 | -0.20 | -0.10 | 0.13 | -0.09 | -0.23 | -0.01 | 0.20 | 0.20 | 1.00 |

Source: compiled by authors

TABLE A.3: THE IMPACT OF OWNERSHIP CONCENTRATION ON FIRM PERFORMANCE
(STANDARD ERRORS IN PARENTHESES)

| Variables | RE model wiith Driscoll-Kraay robust SE | | | | 2SLS regression | | | |
|------------------|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | (1) ROA | (2) ROA | (3) ROS | (4) ROS | (1) ROA | (2) ROA | (3) ROS | (4) ROS |
| CR1 | 0.13** (0.04) | | 0.35* (0.22) | | 0.13* (0.07) | | 0.36* (0.2) | |
| CR1_sqr | -0.13*** (0.03) | | -0.35** (0.19) | | -0.14** (0.06) | | -0.35** (0.15) | |
| CR3 | | 0.17*** (0.02) | | 0.39*** (0.08) | | 0.17* (0.10) | | 0.38 (0.26) |
| CR3_sqr | | -0.15*** (0.02) | | -0.34*** (0.07) | | -0.14* (0.07) | | -0.32 (0.19) |
| BSIZE | -0.00** (0.00) | -0.00* (0.00) | -0.00 (0.00) | 0.00 (0.00) | -0.00* (0.00) | -0.00 (0.00) | -0.00 (0.01) | 0.00 (0.00) |
| BOD_IND | 0.02 (0.01) | 0.02 (0.01) | 0.07* (0.03) | 0.07** (0.03) | 0.02** (0.01) | 0.02** (0.01) | 0.07*** (0.03) | 0.07*** (0.03) |
| BOD_DIV | 0.05** (0.01) | 0.05** (0.01) | 0.09*** (0.02) | 0.09*** (0.02) | 0.05*** (0.01) | 0.05*** (0.01) | 0.09** (0.04) | 0.09** (0.04) |
| FAGE | -0.00 (0.00) | -0.00 (0.00) | -0.00** (0.00) | -0.00** (0.00) | -0.00 (0.00) | -0.00 (0.00) | -0.00** (0.00) | -0.00* (0.00) |
| FSIZE | 0.01** (0.00) | 0.01** (0.00) | 0.04*** (0.01) | 0.04*** (0.01) | 0.01*** (0.00) | 0.01*** (0.00) | 0.04*** (0.01) | 0.04*** (0.00) |
| LEVERAGE | -0.14*** (0.00) | -0.14*** (0.01) | -0.23*** (0.03) | -0.23*** (0.03) | -0.14*** (0.01) | -0.14*** (0.01) | -0.23*** (0.03) | -0.23*** (0.03) |
| _cons | -0.05 (0.08) | -0.07 (0.08) | -0.44* (0.18) | -0.46** (0.12) | -0.05 (0.04) | -0.11* (0.06) | -0.45*** (0.11) | -0.47*** (0.13) |
| R-squared | 0.20 | 0.20 | 0.13 | 0.13 | 0.20 | 0.20 | 0.13 | 0.13 |

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

Source: compiled by authors

TABLE A.4: THE IMPACT OF OWNERSHIP IDENTITY ON FIRM PERFORMANCE, RE MODEL WITH DRISCOLL-KRAAY ROBUST SE (STANDARD ERRORS IN PARENTHESES)

| Variables | ROA | | | ROS | | |
|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|---------------------|
| | (1) | (2) | (3) | (1) | (2) | (3) |
| SHARE_DIR | 0.077*** (0.018) | | | 0.289** (0.102) | | |
| SHARE_DIR_sqr | -0.112*** (0.007) | | | -0.381** (0.107) | | |
| SHARE_GOV | | 0.219** (0.059) | | | 0.034 (0.134) | |
| SHARE_GOV_sqr | | -0.283** (0.085) | | | -0.181 (0.196) | |
| SHARE_AGHL | | | 0.034* (0.015) | | | 0.057** (0.016) |
| FAGE | -0.001 (0.000) | -0.001* (0.000) | -0.000 (0.000) | -0.003** (0.001) | -0.004** (0.000) | -0.003** (0.001) |
| FSIZE | 0.011* (0.004) | 0.011** (0.004) | 0.008 (0.005) | 0.041*** (0.009) | 0.038*** (0.007) | 0.033** (0.008) |
| LEVERAGE | -0.142*** (0.01) | -0.144*** (0.009) | -0.144*** (0.011) | -0.228*** (0.030) | -0.242*** (0.033) | 0.236*** (0.029) |
| BSIZE | -0.004* (0.002) | -0.004* (0.002) | -0.002 (0.001) | -0.002 (0.005) | 0.001 (0.005) | 0.003 (0.006) |
| BOD_IND | 0.024* (0.012) | 0.022 (0.013) | 0.025 (0.013) | 0.066* (0.027) | 0.059* (0.024) | 0.074** (0.026) |
| BOD_DIV | 0.048** (0.014) | 0.05** (0.015) | 0.052*** (0.012) | 0.087*** (0.019) | 0.102*** (0.019) | 0.098*** (0.019) |
| _cons | -0.016 (0.092) | -0.015 (0.077) | 0.006 (0.086) | -0.366* (0.154) | -0.331** (0.114) | -0.312* (0.127) |
| R-squared | 0.196 | 0.204 | 0.188 | 0.134 | 0.132 | 0.126 |

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

Source: compiled by authors

TABLE A.5: THE IMPACT OF OWNERSHIP IDENTITY ON FIRM PERFORMANCE, 2SLS MODEL (STANDARD ERRORS IN PARENTHESES)

| Variables | ROA | | | ROS | | |
|---------------|------------------------|-----|-----|-----------------------|-----|-----|
| | (1) | (2) | (3) | (1) | (2) | (3) |
| SHARE_DIR | 0.1318** (0.0515) | | | 0.2813** (0.1312) | | |
| SHARE_DIR_sqr | -0.1852*** (0.0645) | | | -0.3863** (0.1642) | | |

| | | | | | | | | | |
|----------------------|------------|------------|------------|------------|------------|------------|----------|--|--|
| SHARE_GOV | | 0.2678* | | | 0.1316 | | | | |
| | | (0.141) | | | (0.3689) | | | | |
| SHARE_GOV_sqr | | -0.3444** | | | -0.2603 | | | | |
| | | (0.148) | | | (0.3872) | | | | |
| SHARE_AGHL | | | 0.0395** | | | | 0.0993** | | |
| | | | (0.0188) | | | | (0.0497) | | |
| FAGE | -0.001* | -0.0012** | -0.0009 | -0.0035** | -0.0036** | -0.0034** | | | |
| | (0.0006) | (0.0006) | (0.0006) | (0.0016) | (0.0016) | (0.0016) | | | |
| FSIZE | 0.0114*** | 0.0112*** | 0.0073** | 0.0402*** | 0.0388*** | 0.0295*** | | | |
| | (0.0026) | (0.0024) | (0.0031) | (0.0067) | (0.0064) | (0.0079) | | | |
| LEVERAGE | -0.1406*** | -0.1428*** | -0.1441*** | -0.2293*** | -0.2397*** | -0.2358*** | | | |
| | (0.0124) | (0.012) | (0.0125) | (0.0324) | (0.0323) | (0.0327) | | | |
| BSIZE | -0.0048** | -0.0037* | -0.0019 | -0.0019 | 0.0012 | 0.0048 | | | |
| | (0.0023) | (0.0022) | (0.0023) | (0.0059) | (0.0057) | (0.0059) | | | |
| BOD_IND | 0.0229** | 0.0214** | 0.0257*** | 0.0683** | 0.0628** | 0.0749*** | | | |
| | (0.0101) | (0.0098) | (0.0098) | (0.0265) | (0.0264) | (0.0259) | | | |
| BOD_DIV | 0.0468*** | 0.0493*** | 0.0522*** | 0.0876** | 0.0991** | 0.1011** | | | |
| | (0.0154) | (0.0151) | (0.0156) | (0.0406) | (0.0408) | (0.0413) | | | |
| _cons | -0.0173 | -0.0138 | 0.0108 | -0.3558*** | -0.3371*** | -0.2784*** | | | |
| | (0.0392) | (0.036) | (0.0404) | (0.1008) | (0.0956) | (0.1045) | | | |
| R-squared | 0.1976 | 0.2049 | 0.1872 | 0.1340 | 0.1317 | 0.1227 | | | |

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

Source: compiled by authors

TABLE A.6: CORRELATION MATRIX OF INDEPENDENT VARIABLES

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| 1 <i>agr_h_mem</i> | 1.000 | | | | | | | | |
| 2 <i>fage</i> | 0.031 | 1.000 | | | | | | | |
| 3 <i>fsize</i> | 0.363 | -0.074 | 1.000 | | | | | | |
| 4 <i>leverage</i> | 0.086 | 0.199 | 0.204 | 1.000 | | | | | |
| 5 <i>opex</i> | -0.079 | -0.095 | -0.143 | 0.089 | 1.000 | | | | |
| 6 <i>bsize</i> | -0.132 | -0.016 | 0.056 | -0.095 | 0.023 | 1.000 | | | |
| 7 <i>bod_ind</i> | -0.096 | -0.139 | -0.145 | -0.229 | 0.006 | 0.113 | 1.000 | | |
| 8 <i>bod_div</i> | -0.116 | 0.042 | -0.110 | -0.015 | 0.048 | 0.041 | 0.053 | 1.000 | |
| 9 <i>exec_comp</i> | 0.132 | -0.089 | 0.153 | -0.109 | -0.116 | -0.065 | -0.035 | -0.026 | 1.000 |

Source: Compiled by the authors.

TABLE A.7: AGROHOLDING AFFILIATION (AGRH_MEM) AND FIRM PERFORMANCE (ROA, ROS), POOLED OLS AND FE MODELS (STANDARD ERRORS IN PARENTHESES)

| Variables | Pooled OLS | | Fixed Effects (FE) | |
|------------------|------------------------|------------------------|-------------------------------------|-------------------------------------|
| | (1) ROA | (2) ROS | (1) ROA | (2) ROS |
| agrhmemb | 0.0133** (0.0062) | 0.0343** (0.0167) | 0.0613*** (0.0151) | 0.0612* (0.0435) |
| age | -0.0018*** (0.0004) | -0.0049*** (0.0011) | -0.0028* (0.0016) | -0.0123* (0.0046) |
| lnassets | 0.0048*** (0.0018) | 0.0243*** (0.0049) | 0.0183* (0.0109) | 0.1002*** (0.0315) |
| leverage | -0.1146*** (0.0089) | -0.1827*** (0.0239) | -0.2014*** (0.0256) | -0.2999*** (0.0737) |
| oper | -0.1019*** (0.0098) | -0.3132*** (0.0264) | -0.1322*** (0.0132) | -0.3276*** (0.0380) |
| boardsize | -0.0010 (0.0015) | 0.0029 (0.0041) | -0.0088 (0.0053) | 0.0213 (0.0154) |
| outdir_per | 0.0224*** (0.0071) | 0.0791*** (0.0190) | 0.0430** (0.0172) | 0.0521 (0.0494) |
| femdirtot_per | 0.0487*** (0.0116) | 0.1131*** (0.0311) | 0.0641*** (0.0242) | 0.1836*** (0.0696) |
| perf_bonus | 0.0056 (0.0052) | 0.0019 (0.0141) | 0.0002 (0.005) | -0.0067 (0.0143) |
| _cons | 0.1288*** (0.0288) | 0.0742 (0.0772) | 0.0573 (0.1318) | -0.8446** (0.3789) |
| R-squared | 0.257 | 0.223 | 0.227 | 0.167 |
| N | 1218 | 1218 | 1218 | 1218 |
| | | | F(202, 1006) ¹ = 3.32 | F(202, 1006) ¹ = 2.08 |
| | | | Prob > F = 0.0000 | Prob > F = 0.0000 |

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

¹ F-test for fixed effects (Ho: fixed effects are insignificant; H-alternative: significant fixed effect)

Source: Compiled by the authors.

TABLE A.8: BREUSCH AND PAGAN LAGRANGIAN MULTIPLIER TEST FOR RANDOM EFFECTS (H₀: RANDOM EFFECTS ARE INSIGNIFICANT; H-ALTERNATIVE: SIGNIFICANT RANDOM EFFECT)

| | Var | sd = sqrt (Var) | | Var | sd = sqrt (Var) |
|---|--------|--------------------|--|--------|--------------------|
| ROA | 0.0106 | 0.1029 | ROS | 0.0726 | 0.2695 |
| e | 0.0059 | 0.0769 | e | 0.0488 | 0.2211 |
| u | 0.0019 | 0.0437 | u | 0.0081 | 0.0898 |
| Test: Var (u) = 0 chibar 2 (01) = 158.99 Prob > chibar 2 = 0.0000 | | | Test: Var (u) = 0 chibar 2 (01) = 51.75 Prob > chibar 2 = 0.0000 | | |

Source: compiled by the authors.

TABLE A.9: HAUSMAN TEST (H₀: RE IS CONSISTENT AND MORE EFFICIENT THAN FE; H-ALTERNATIVE: FE IS CONSISTENT)

| | ROA | ROS |
|-----------|--------|--------|
| chi2 (9) | 16.48 | 13.12 |
| Prob>chi2 | 0.0575 | 0.1572 |

Source: Compiled by the authors.

TABLE A.10: AGROHOLDING AFFILIATION AND FIRM PERFORMANCE, EXTENDED MODEL WITH THE INTERACTION TERMS OF EXPLANATORY VARIABLES; FIXED EFFECTS MODEL WITH CLUSTERED ERRORS AT THE FIRM LEVEL (STANDARD ERRORS IN PARENTHESES)

| Variables | (1) ROA | (2) ROS |
|-----------------|------------------------|------------------------|
| agrh_mem | 0.4298** (0.1688) | 0.5107 (0.4807) |
| fage | -0.0026 (0.0016) | -0.0132* (0.0046) |
| fsize | 0.0218* (0.0113) | 0.1066*** (0.0322) |
| leverage | -0.2411*** (0.0265) | -0.3752*** (0.0757) |
| opex | -0.2523*** (0.0248) | -0.8117*** (0.0706) |

| | | |
|---------------------------|-----------------------|-----------------------|
| bsize | -0.0071 (0.0055) | 0.0278* (0.0156) |
| bod_ind | 0.0518*** (0.0194) | 0.1028* (0.0554) |
| bod_div | 0.1543*** (0.0471) | 0.6971*** (0.1339) |
| exec_comp | 0.0024 (0.0048) | 0.0012 (0.0138) |
| agrh_memXfage | -0.0007 (0.0021) | 0.0017 (0.0058) |
| agrh_memXfsize | -0.0315** (0.0135) | -0.0511 (0.0387) |
| agrh_memXleverage | 0.1178*** (0.0256) | 0.2301*** (0.0729) |
| agrh_memXopex | 0.2386*** (0.0407) | 0.9480*** (0.1161) |
| agrh_memXbsize | -0.0051 (0.0103) | -0.0065 (0.0294) |
| agrh_memXbod_ind | -0.0275 (0.0304) | -0.1245 (0.0867) |
| agrh_memXbod_div | -0.0017 (0.0387) | 0.0596 (0.1104) |
| agrh_memXexec_comp | 0.0775*** (0.0232) | 0.2575*** (0.0662) |
| _cons | 0.1235 (0.1372) | -0.4956 (0.3908) |
| R-squared | 0.250 | 0.188 |
| N | 1218 | 1218 |

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

Source: Compiled by the authors.

TABLE A.11: AGROHOLDING AFFILIATION AND FIRM PERFORMANCE, EXTENDED MODEL WITH A DUMMY VARIABLE FOR THE EFFECTS OF THE EVENTS OF 2014, RE MODELS (STANDARD ERRORS IN PARENTHESES)

| Variables | (1) ROA | (2) ROS | (3) ROA | (4) ROS |
|-------------------------|------------------------|------------------------|------------------------|------------------------|
| agr_h_mem | 0.0236*** (0.0083) | 0.0380* (0.0206) | 0.0213** (0.0099) | 0.0320* (0.0256) |
| fage | -0.0021*** (0.0006) | -0.0051*** (0.0015) | -0.0021*** (0.0006) | -0.0051*** (0.0015) |
| fsize | 0.0037 (0.0026) | 0.0249*** (0.0063) | 0.0038 (0.0026) | 0.0249*** (0.0063) |
| leverage | -0.1233*** (0.0122) | -0.1903*** (0.0301) | -0.1232*** (0.0122) | -0.1903*** (0.0301) |
| opex | -0.1157*** (0.0109) | -0.3203*** (0.0291) | -0.1157*** (0.0109) | -0.3202*** (0.0292) |
| bsize | -0.0014 (0.0022) | 0.0042 (0.0053) | -0.0014 (0.0022) | 0.0042 (0.0053) |
| bod_ind | 0.0240** (0.0095) | 0.0743*** (0.0234) | 0.0240** (0.0095) | 0.0745*** (0.0234) |
| bod_div | 0.0563*** (0.0150) | 0.1260*** (0.0376) | 0.0567*** (0.0150) | 0.1268*** (0.0377) |
| exec_comp | 0.0021 (0.0049) | -0.0018 (0.0137) | 0.0022 (0.0049) | -0.0017 (0.0137) |
| d_2014 | 0.0095* (0.0050) | 0.0027* (0.0013) | 0.0083 (0.0057) | -0.0049 (0.0016) |
| agr_h_memXd_2014 | | | 0.0042 (0.0102) | 0.0115 (0.0288) |
| _cons | 0.1569 (0.0397) | 0.0682 (0.0964) | 0.1567 (0.0396) | 0.0682 (0.0964) |
| R-squared | 0.257 | 0.223 | 0.258 | 0.223 |
| N | 1218 | 1218 | 1218 | 1218 |

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

Source: Compiled by the authors.

Alisher Tleubayev

Director, Science Department

Email: alisher.tleubayev@gmail.com
Address: mcr. 3, d. 19/1, rrd. 57, Almaty, Kazakhstan
Phone: 87074046523
Date of birth: Mar 13, 1991
Nationality: Kazakhstan
Link: <https://bit.ly/3vMp1mY>



RESEARCH INTERESTS

Agricultural Economics; Climate Change Adaptation; Gender Inequality

EXPERIENCE

Almaty, Kazakhstan
Aug 2020 - Present

Director, Science Department
Suleyman Demirel University

Halle (Saale), Germany
Dec 2016 - Jul 2020

Research Associate
Leibniz Institute of Agricultural Development in Transition Economies (IAMO)

Almaty, Kazakhstan
Dec 2020 - Present

Scholar in Residence
Gender Economics Research Center (GERC), Narxoz University

Almaty, Kazakhstan
Jan 2014 - Nov 2016

Lecturer / Vice Dean
Suleyman Demirel University

EDUCATION

Halle (Saale), Germany
Dec 2017 - Present

PhD Agricultural Economics
Martin Luther University Halle-Wittenberg (MLU)

Colchester, Essex, United Kingdom
Oct 2012 - Dec 2013

MSc. Financial Engineering and Risk Management
The University of Essex

Almaty, Kazakhstan
Sep 2008 - Jun 2012

BSc. Economics
Suleyman Demirel University

COMPUTER SKILLS

- Microsoft Office
- STATA
- EViews
- SPSS
- R
- MATLAB

LANGUAGES

Kazakh
Native

Russian
Advanced

English
Advanced

German
Intermediate

Turkish
Advanced

PROJECTS

1. Co-investigator in the International Research Project funded by German Federal Ministry of Food and Agriculture "**STARLAP: Analysis of the strategy of the Russian Federation for the expansion of agricultural production (2016-2017)**";
2. Co-investigator in the International Research Project funded by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) "**TAAST Development of a tool for analyses of agricultural sector of Tajikistan (04/2018-10/2018)**";
3. Co-investigator in the International Research Project funded by Leibniz Association, Germany "**LaScala International Competence Center on Large Scale Agriculture (2017-2020)**";
4. Co-investigator in the International Research Project funded by Open Society Foundation "**The impact of COVID-19 lockdown on gender inequality in the labor market of Kazakhstan (2020-2021)**";

HONORS & AWARDS

1. **DAAD (German Academic Exchange Service) Research Fellowship** (06/2016 - 07/2016);
2. "**Bolashak**" **scholarship** of the first president of Kazakhstan for MSc study at the University of Essex (10/2012 - 12/2013);
3. **CERGE-EI Career Integration Fellowship** (2021 - 2024);

PUBLICATIONS

International Peer-Reviewed Journals

1. Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T. (2020) **Board gender diversity and firm performance: evidence from the Russian agri-food industry**. *International Food and Agribusiness Management Review* 23 (1): 35-53, (Q2, WoS-indexed).
2. Tleubayev, A., Bobojonov, I., Gagalyuk, T., Meca, E.G., Glauben, T. (2020) **Corporate governance and firm performance within the Russian agri-food sector: Does ownership structure matter?** *International Food and Agribusiness Management Review* 24(4): 649-668, (Q2, WoS-indexed).
3. Tleubayev, A., Bobojonov, I., Gagalyuk, T., Glauben, T., **Business group affiliation and financial performance in the agricultural sector of transition economies: The case of Russian agroholdings**. *Journal of East European Management Studies*, Accepted for Publication, (Q3, WoS-indexed).
4. Tleubayev, A., Bobojonov, I., Götz, L., **The impact of agricultural policies on the technical efficiency of wheat producers in Kazakhstan and Russia: Evidence from a stochastic frontier approach**. *Journal of Agricultural and Applied Economics*, (R&R stage), (Q2, Scopus-indexed).
5. Tleubayev, A., Kozhakhmet, S., **Short and medium-term impact of the Covid-19 pandemic on the work outcomes of men and women: Empirical evidence from Central Asia**, *Forum for Social Economics*, Under Review, (Q2, Scopus-indexed).
6. Tleubayev, A., Jamali Jaghdani, T., Götz, L., Svanidze, M. (2021). **The relationship between trade policies and macroeconomic adjustments in the Russian cheese market integration**. *Journal of New Economy*, 22(3), 44-68.

Discussion papers and project reports

1. Bobojonov, I., Götz, L., Tleubayev, A. (2018) **Geschäfts- und Investitionsklima im Agrarsektor Russlands nach den Lebensmittelsanktionen: Ergebnisse einer Befragung russischer und deutscher Unternehmen.** *Russland-Analysen (361): 9-14.*
2. Götz, L., Jamali Jaghdani, T., Heigermoser, M., Tleubayev, A. (2018) **Entwicklungen in der russischen Agrarwirtschaft während des Importverbots für Agrargüter und Lebensmittel.** *Russland-Analysen (361): 2-9*
3. Tleubayev, A., Bobojonov, I., Götz, L., Hockmann, H., Glaben, T. (2017) **Determinants of productivity and efficiency of wheat production in Kazakhstan: A Stochastic Frontier Approach.** *IAMO Discussion Paper No. 160, Halle (Saale), Germany.*

Conference Proceedings

1. Tleubayev, A., Bobojonov, I. (2019) **Corporate governance and firm performance: Evidence from the agri-food industry of Russia.** *IISES International Academic Conference, Barcelona, Spain.*
2. Tleubayev, A., Jamali Jaghdani, T., Götz, L., Svanidze, M. (2018) **The effects of trade policy on domestic dairy market: the case of Russian food import ban on regional cheese market integration in Russia.** *The 30th International Conference of Agricultural Economists (ICAE), Vancouver, Canada.*
3. Tleubayev, A., Bobojonov, I. (2018) **The impacts of Russian food import ban on the financial performance and productivity of domestic agri-food enterprises in Russia.** *Baku Conference "Agriculture Trade and Foreign Investments for Sustainable Regional Integration in Caucasus and Central Asia", Baku, Azerbaijan.*
4. Tleubayev, A., Oshakbayev, D. (2017) **Kazakhstan: Assessing the EAEU membership.** *IAMO Forum 2017: Eurasian Food Economy between Globalization and Geopolitics, Halle(Saale), Germany.*

REVIEWED ACADEMIC ARTICLES

1. Agricultural Finance Review
2. Canadian Journal of Agricultural Economics

TAUGHT COURSES

Risk Management; Financial Modeling; Principles of Economics;
Microeconomics; Agricultural Economics

Almaty, Kazakhstan

25.10.2021

Alisher Tleubayev



Eidesstattliche Erklärung / *Declaration under Oath*

Ich erkläre an Eides statt, dass ich die Arbeit selbstständig und ohne fremde Hilfe verfasst, keine anderen als die von mir angegebenen Quellen und Hilfsmittel benutzt und die den benutzten Werken wörtlich oder inhaltlich entnommenen Stellen als solche kenntlich gemacht habe.

I declare under penalty of perjury that this thesis is my own work entirely and has been written without any help from other people. I used only the sources mentioned and included all the citations correctly both in word or content.

Almaty, Kazakhstan 25.10.2021
Datum / Date



Unterschrift des Antragstellers / *Signature of the applicant*