

Staffordshire University
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**Ownership Concentration and Firm Performance in
Transition Economies:
Evidence from Montenegro**

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ABSTRACT

The relationship between ownership concentration and firm performance has been the focal point of corporate governance literature and the subject of a rich empirical literature. However, the current literature is characterised by a lack of uniformity and consensus regarding the nature and direction of this relationship. This thesis aims to contribute to this literature by reviewing the diverse literature on this subject related to developed market economies and by investigating the relationship for small open transition economy, Montenegro.

The profound heterogeneity and inconclusiveness of the empirical research on this topic motivated us to undertake a Meta Regression Analysis (MRA) of the wide-ranging econometric studies on the subject in the first part of the thesis. To the best of our knowledge, this MRA is the first study to measure publication selection bias in the empirical literature and to correct for it in deriving quantitative insights into the nature of the relationship of interest. The primary finding of the MRA suggests that both the functional form used in the primary studies to specify the relationship between ownership concentration and firm performance (i.e. linear or non-linear) and the identity of the largest owner matter in assessing the presence of publication bias, authentic empirical effects and the heterogeneity of the findings in this empirical literature. We find that concentrated insider ownership has a positive effect and concentrated outsider ownership a negative effect on firm performance. Furthermore, the pattern of publication bias suggests that researchers have a strong incentive to conform to current prevailing theories.

In the second part of the thesis, we use primary data collected and organised by the author to analyse for the first time the impact of ownership concentration on firm performance in Montenegro. The results support the hypothesis that high ownership concentration enables effective monitoring by investors to protect their interests; i.e., in the specific circumstances of transition, ownership structure may be (temporarily) used as a viable substitute for the still-underdeveloped corporate governance framework.

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LIST OF ABBREVIATIONS

2SLS – **Two-Stage Least Squares**
3SLS – **Three-Stage Least Squares**
BEEPS – **Business Environment and Enterprise Performance Survey**
CAD – **Current Account Deficits**
CBM – **Central Bank of Montenegro**
CDA - **Central Depository Agency**
CEO – **Chief Executive Officer**
CG – **Corporate Governance**
CGS – **Corporate Governance Systems**
CIS – **Commonwealth of Independent States**
CSR – **Corporate Social Responsibility**
DF – **Degrees of Freedom**
EC – **European Commission**
EBRD - **European Bank for Reconstruction and Development**
ET – **Entrenchment Theory**
EU – **European Union**
EWMI – **East-West Management Institute**
FAT – **Funnel Asymmetry Test**
FYROM – **Former Yugoslav Republic of Macedonia**
FDI – **Foreign Direct Investment**
FE - **Fixed Effects**
GDP – **Gross Domestic Product**
GLS – **Generalized Least Squares**
GMM – **General Method of Moments**
HHI – **Herfindahl–Hirschman Index**
IAS – **International Accounting Standards**
IFRS – **International Financial Reporting Standards**
IMF – **International Monetary Fund**
IV – **Instrumental Variable Approach**
MA – **Meta Analysis**
MEBO – **Management and Employee Buyout**
MBO – **Management Buyout**
MRA – **Meta Regression Analysis**
MVP – **Mass Voucher Privatization**
NED – **Non-Executive Director**
NPM – **Net Profit Margin**
NT – **Neutrality Theory**
OLS – **Ordinary Least Squares**
OTC – **Over the Counter**
PBC – **Private Benefits of Control**
PET – **Precision Effect Test**
PFS – **The Partners for Financial Stability**
R&D – **Research and Development**
RE – **Random Effects**
ROA – **Return on Assets**

ROE – Return on Equity
ROSC – Report on the Observance of Standard and Codes
SEC – Securities and Exchange Commission
SEE – South-East Europe
SG – Sanchez-Ballesta and Garcia-Meca
SMEs – Small and Medium-sized Enterprises
TE – Transition Economies
UN – United Nations
VIF – Variance Inflation Factor
WLS – Weighted Least Squares

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PREFACE

The nature of the relationship between ownership concentration and firm performance is one of the most widely discussed in the corporate governance literature. There is also a rich empirical literature investigating the relationship under various corporate governance settings and different ownership types, using different model specifications, estimation methods and variables employed. This has inspired us to engage in a systemic quantitative investigation of this literature in order to contribute further understanding of this complex relationship. Furthermore, we are interested in pursuing the investigation of this relationship (its importance and magnitude) in the context of a small open transition economy with a poorly developed corporate governance framework following the process of privatisation, which induced rapid changes of ownership structures. For this purpose, we have prepared an original dataset containing information on 204 joint stock companies quoted on the Montenegrin stock exchanges (Nex and Montenegroberza) in order to estimate a dynamic panel model testing the relationship between ownership concentration and firm performance during the period following the Mass Voucher Privatisation programme. In the following paragraphs, we outline the structure of the thesis, highlighting the main research questions and justifying the methodologies applied in order to support our arguments.

In Chapter 1, we review recent developments in the theory of the firm, particularly in the areas of transaction cost, property rights, incomplete contracts and agency cost, informed by the seminal work of Coase and Williamson. These developments perceive the firm as a “nexus of incomplete contracts,” entered into by contracting parties who have bounded rationality and act in an environment of asymmetric information and uncertainty where information is costly. Under these conditions, the diverging goals of various parties and their pursuit of self-interest results in the agency problem. Although we briefly discuss the transaction cost literature (focused on *ex post* contract behaviour and institutional development that should treat the consequences of incomplete contracts between the principals and the agents) and the property rights theory (focused on the rights and obligations of the contracting parties), the focus of the chapter is on the Agency theory. We pay special attention to the behavioural assumptions concerning the principal as well as the agent (“contractual man”), which are reflected in the agent’s opportunism and self-interest and characterised by adverse selection and moral hazard. Furthermore, we investigate the

robustness of the theoretical assumption of the agency theory concerning the trade-off between risk and incentives, reflected in pay-for-performance contracts between risk-neutral principals (shareholders) and risk-averse agents (managers).

Agency theory is especially concerned with the *ex ante* economic incentives characteristic of contracting parties and whether those incentives may be adjusted in order to ameliorate the agency problem. However, reducing the agency problem comes with costs (monitoring cost, bonding cost and residual loss). The agency theory literature tries to assess how changes in the level of uncertainty affect the impact of incentives on the agent (managers). We also analyse the robustness of various corporate governance mechanisms that have been developed to deal with agency cost and discuss the extent to which they can be relied on to align the interests of owners and managers.

In Chapter 2, we turn to properties of ownership concentration as a supplementary (complementary) corporate governance mechanism in resolving owner-manager conflict. We review the theoretical basis of the question “*Whether ownership concentration affects firm performance in the context of developed economies*” by investigating the evidence on whether or not it leads to enhancement of management incentives to maximize firm value, i.e. to act in the best interest of owners. Therefore, we analyse the properties of Alignment, Entrenchment and Neutrality theories, which focus on the importance, direction and repercussions of the impact of ownership concentration on firm performance.

These theories are supported by wide ranging evidence to establish whether ownership concentration is a viable mechanism providing strong monitoring of managers by strategically oriented investors (owners), or whether it enhances moral hazard behaviour by managers pursuing their own interests that diverge from value maximization, or whether ownership structure is an endogenous outcome of shareholders’ decisions on what proportion of a company’s shares they wish to hold. In addition, in the penultimate section, we analyse the empirical literature in the context of transition economies where the implementation of various privatisation programmes resulted in a radical transfer of ownership rights, the emergence of different types of dominant owners, and a generally concentrated ownership structure (more so than in many developed market economies). In these countries, more often than not, massive change in ownership structure was rarely followed by equally significant changes in the corporate governance framework to efficiently deal with the problem of

expropriation of minority shareholders by large shareholders facilitated by poor investor protection regulations. Using qualitative review of the literature in transition economies, we explore which type of dominant owners can be considered the most efficient and, in particular, the robustness of the view that, in the post-privatisation period, private ownership performs better than state ownership.

Bearing in mind the diversity and richness of the theoretical frameworks and empirical research on this subject, that complement each other, the narrative review leads to a strong need for further clarification and quantitative generalization. If we pursue the underlying reasons for various conclusions regarding the relationship between ownership and performance, we note that there are strong reasons explaining differences in results and, hence, the non-unanimity of conclusions and all-round lack of consensus. Differences in results can, among other reasons, be due to: (i) differences in model specification and estimation techniques; (ii) differences in the corporate governance framework in which research is embedded; (iii) differences in variable specifications of the type of dominant ownership (insiders vs. outsiders) and also measures of firm performance (accounting vs. market based indicators); and, (iv) control for endogeneity.

Therefore, in order to provide a systematic and rigorous synthesis of the empirical work that was previously lacking, in Chapter 3 we supplement the narrative review with a Meta Regression Analysis (MRA), investigating the question of “*Whether, and how, ownership concentration affects firm performance in developed economies*”? MRA is “the systematic review and quantitative synthesis of empirical evidence of a given hypothesis, phenomenon, or effect; seeking to summarize and to explain the wide, often disparate, variation routinely found among reported econometric results” (Stanley et al., 2013, p. 391). Our investigation builds on the Meta Analysis conducted by Sanchez-Ballesta and Garcia-Meca (2007) by employing the methodology of MRA, which entails procedures for filtering out the influence of publication bias on estimates of authentic empirical effect.

After introducing the MRA procedures, explaining the sample characteristics, and explaining the moderator variables used in MRA in order to explain the heterogeneity of the results in the primary empirical literature, Chapter 3 begins with a full sample model specification, testing for the presence of authentic empirical effect and potential publication bias. Further investigation proceeds by dividing the overall sample into nine subsamples based on two

criteria or sources of heterogeneity in the literature. The first criterion is the type of dominant owner (Insiders vs. Outsiders); and secondly, the functional forms explaining the relationship between ownership concentration and firm performance (linear vs. nonlinear). We find evidence of persistent publication bias in all subsample MRAs. Moreover, the pattern of publication bias suggests that researchers have a strong incentive to conform to the prevailing theories (alignment or entrenchment). Our main finding indicates that concentrated insider ownership has a positive effect on firm performance, while concentrated outsider ownership has a negative effect. Conversely, the hypothesised non-linear inverted-U relationship is, at best, not proven in the case of concentrated insider ownership.

A strong motivation for pursuing the investigation of the relationship between ownership concentration and firm performance stems from the fact that this relationship has not been analysed in empirical studies for Montenegro, despite interesting characteristics such as its small size and the uniqueness of its privatisation programme. Therefore, in Chapter 4, we try to fill this gap in the empirical literature by answering the questions: “*Is there a causal relationship between ownership and performance in Montenegrin firms?*” and “*What type of ownership is considered 'superior' in terms of better corporate performance in Montenegro?*” Moreover, responding to these questions would also enable us to analyse whether there is a difference in the sign and significance of the relationship between countries with developed corporate governance systems (referring to the results of the Meta Regression presented in Chapter 3) and those with a poorly developed corporate governance setting, which is characteristic of transitional economies (TEs), including Montenegro. Using a panel database gathered by the author from a sample of 204 joint stock companies listed on the Montenegrin Stock exchanges over a five-year period (2004-2008), we analyse the evolution of ownership concentration (the share of the largest shareholder) and show changes in ownership concentration between different types of owners with special reference to the strategy undertaken by the state, privatisation funds and foreign owners. Concerning modelling strategy, we report on standard sampling and specification issues and introduce potential variables. In terms of the estimation strategy, we argue that the GMM estimator developed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998) is appropriate for the characteristics of our sample and variables of interest: (i) a relatively large N (204 companies) and small T (5 years); (ii) independent variables that are not strictly exogenous (stemming from reverse causality or unobserved heterogeneity, which may affect both firm performance and ownership concentration); and (iii) persistence effects

in the dependent variable (firm performance). The empirical results suggest *a significant, yet small, positive impact of ownership concentration on firm performance*. This would imply that in the context of the Montenegrin transition economy, ownership concentration might be considered as a viable supplement to the still underdeveloped or non-existent corporate governance mechanisms.

In our final Chapter 5, we summarise the main findings of this dissertation and outline the main contributions to knowledge of our research. The core findings are used to derive a number of policy recommendations in the area of corporate governance, aimed to enhance corporate governance practices in Montenegro. The main limitations of the research are also outlined, and, finally, some suggestions for further research are presented. In the context of the Montenegrin economy, we conclude that the robustness of the reported results, especially concerning the impact of different types of dominant owners on firm performance, should be reassessed once privatisation is fully completed and the restructuring plans of privatized firms have been fully implemented.

CHAPTER 1

AGENCY THEORY AND OWNERSHIP STRUCTURE

“The directors of such (joint stock) companies, however, being the managers rather of other people’s money than their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own.”

Adam Smith (1776)

“...by definition the agent has been selected for his specialized knowledge and the principal can never hope to completely check the agent's performance.”

Arrow (1968, p. 539)

1.1 Introduction

Economic theory regards a ‘contract’ as the fundamental elements on which the contracting parties, bound by its terms, base their behaviour. However, the self-interested behaviour of individuals (contracting parties) with different subjective needs may produce conflict of interest between the parties and lead to these individuals acting in ways that may be against each other’s interests (Padilla, 2001, p. 3), resulting in sub-optimal outcomes. Agency theory deals with the problem of identifying the costs of these conflicting interests (agency costs) and formulating mechanisms to alleviate it (Eisenhardt, 1989), to the extent possible. The relationship between owners and managers represents a classic case of the agency relationship. The owners are the principals, the managers are the agents, and the agency cost is the reduction in profits that could have been achieved if the principals (owners) had full information about the firm and full control over the firm's actions (Donaldson and Davies, 1991, p. 50). The agency relations and agency costs, which characterize the operation of modern corporations, also constitute the underlying basis of the corporate governance literature.

Corporate governance may be defined as a set of processes, rules and structures which regulate the distribution of rights and responsibilities among different stakeholders: shareholders, managers, board of directors, employees, investors, creditors, suppliers, customers, etc. (Ching et al., 2006). Although corporate governance relies on a set of theories such as agency theory, property rights theory, stakeholder theory, resource dependence theory, stewardship theory, and most importantly transaction cost theory (Abdullah and Valentine, 2009, p. 89), the primary focus of this chapter is on the ‘agency theory’ which highlights the cost of the divergence of interest and the mechanisms designed to reduce or eliminate it.

Although Adam Smith (1776) highlighted the inherent conflicts associated with governing a joint stock company (intra-stakeholders relationships illustrated in the opening quotation of this chapter), the concept of ‘corporate governance’ evolved in the last decade of 20th century as a result of developments in law, economics and social sciences that examined the conflicts arising in financial, labour and product markets and their legal implications. In the last twenty years corporate governance has received significant attention across the globe at both firm and national levels. The increased mobility of capital and the development of international

financial markets, global investor oriented firms, the emergence of mergers and acquisitions which have increased cross border competition, and most importantly a string of corporate scandals and the global financial crisis of 2008, have forced firms and countries to adopt internationally recognized and comparable standards of corporate governance. This has gradually reduced the differences between corporate governance systems around the world. Consequently, the relative importance and complexity of ownership concentration as a substitute to the prevailing (and to some extent ineffective) corporate governance mechanisms has increased. This has further increased the ambiguity of examining ownership concentration and its impact on firm performance.

In this Chapter, we explore the theoretical basis of the debate on agency theory and its various dimensions, briefly explaining the underlying agency problem and types of agency costs emerging from the owner-manager relationship (separation). In particular, we discuss the role of the transaction costs theory and the importance of contracts in regulating the above relationship. Section (1.2) is focused on the extensions to the theory of the firm. The main purpose of this Section is to provide a short overview of the theories of transaction cost and property rights in order to relate them to the agency theory. The illustration of structural theoretical principles formulated from the three theories highlights their conceptual differences while connecting them by using agency theory as a reference point of comparison, given that this theory holds a central place of research in this Chapter. However, we stress that the agency theory concentrated on the principal-agent conflict and actions that emerge from that conflict, after an incomplete contract is signed between contracting parties.

Section (1.3) integrates the earlier discussions and provides in more detail the properties of agency theory and agency problem that arise from the separation of ownership and control, with special reference to adverse selection and moral hazard behaviour of the agent and the analysis of incentive-risk trade-off, emerging from agent's risk tolerance and the agent's responsiveness to incentives. We analyse the robustness of the negative trade-off between risk and incentives, which assumes that incentives (for agents) will be subdued in uncertain environments. Section (1.4) interprets the structure of the agency cost and its components: monitoring costs, bonding costs and residual loss endured either by shareholders (monitoring costs) or by managers (bonding costs).

The penultimate Section (1.5) explains the conventional internal and external (firm level vs. market level) mechanisms of corporate governance such as: (i) the managerial labour market; (ii) hostile takeovers; (iii) leverage; (iv) non-executive board members, (v) executive compensation contracts. Section (1.6) concludes.

1.2 Agency theory, Transaction Cost theory and Property Rights theory

For a long period, economic theory developed without a complete and coherent theory of the firm. In the last century, starting with the seminal work of Coase (1937), economists felt the need to develop theories which would deal with the reasons for the very existence of firms, their limits in different types of markets in which they operate and their internal relations (Foss et al., 2006). Up until then, the firm was seen solely as a self-interested utility maximizing economic actor with a focus on production and costs. At the centre of Coase's work was the concept of transaction costs involved in a firm's normal economic activity. Transaction costs may be defined as "friction losses" or the resources lost to the parties involved in the process of economic activity (Braendle, 2011).

Much progress has been made in the theory of the firm since Coase (1937) especially in the areas such as property rights, uncertainty, asymmetric information, market failures and transaction costs. As Williamson has extensively argued, there are significant inter-linkages between the theory of transaction cost, the theory of property rights and the theory of agency cost, primarily based on the 'contract' (purportedly as an incentive alignment tool), and the transaction cost of enforcing this the contract after it is signed.¹

The incentive alignment strand of the theory focuses on *ex ante* properties of the contract. The transaction cost literature concentrates on *ex post* contract phase (when the contract is signed) and the institutional development that would deal with the consequences of

¹Williamson (1985) develops an intricate framework, referred to as the Cognitive Map of Contracts, to demonstrate Williamson the interrelationships between the three sets of theories. It describes the transaction cost economics approach to the analysis of economic organization in the firm. The core of the analysis is the contract, its purpose, and what it tries to accomplish. In the process of contract formation, the emphasis may be on either incentive alignment (property rights and agency theory) or on transaction cost features of the contract, after it is signed (transaction cost theory).

‘incomplete’ contracts – most contracts in the real world are ‘incomplete’ because, in the presence of uncertainty about future, it is not possible to predict all contingencies, thus creating room for opportunistic behaviour (Williamson, 1980, p. 29; and Foss and Klein, 2010, p. 2).

The transaction costs theory assumes that the parties involved in contracting have bounded rationality and, being self-interested, they are prone to opportunistic behaviour. According to Simon (1951), bounded rationality reflects the presence of contractual incompleteness, which induces a need for adaptive (corrective) decision-making. Opportunism is defined as self-interest seeking behaviour (Foss and Klein, 2010) with the implication that contracts will often need various types of safeguards in order to prevent their escalation. Transaction cost theory provides us with information about the institutional environment in which the contract is signed and implemented. Issues of incomplete contracts and opportunism are described in more detail in subsections to follow.

The property rights theory and its relation to theory of the firm was developed by Coase (1959, 1960), Alchian (1958, 1965 and 1969), Demsetz (1967 and 1969) and Alchian and Demsetz (1972 and 1973). This theory maintains that ownership rights should be analyzed through three types of rights: (i) the right to use the asset; (ii) the right to change the form and the substance of asset, and (iii) the right to appropriate returns from asset. Provided that these rights are clearly defined, the general assumption is that they will be exercised for the benefit of the owners of a property. According to Williamson (1980, p. 27), this outcome will be obtained if “(i) the legally sanctioned structure of property rights is respected, and (ii) human agents discharge their jobs in accordance with instructions.” Any less-than-efficient allocation of resources can then be attributed to contracts with ill-defined property rights or contracts which are incomplete due to uncertainty.

Concerning the property rights theory, it helps to explain the rights and obligations of the principals and their agents by explaining the basic economic incentive system that creates resource allocation among different entities. Libecap (1989) argues that property rights theory enlightens conflicting economic interests and bargaining strengths of those affected in the process of contract creation.

Agency theory, which will be analyzed at length in next subsections, is focused on the analysis of *ex ante* economic incentives characteristic of contracting parties. It is important to highlight the differences among these three theories which have a common thread - the conceptual framework of the firm (jointly considered as a nexus of incomplete contracts among entities involved in its actions). In Table 1.1 we outline and compare different dimensions of the three theories.

Table 1.1: Comparison of Agency theory, Property rights theory and Transaction cost theory

	Agency Theory	Property Rights Theory	Transaction cost theory
Unit of analysis	Principal agent contract	Institution	Transaction
Focal dimension	Incentives	Property rights	Various types of asset
Treatment of cost	Residual loss	Rent seeking, Externalities	Maladaptation, Hold up problem
Treatment of ² contract	Ex ante incentive alignment	Ex ante property rights allocation and ex post distributional conflicts	Choice of ex post governance mechanism
Strategic intent	Shareholder view	Stakeholder view	Shareholders view
Source of market friction	Information asymmetry	Externalities, vested interests, unclearly defined and difficulty to enforce property rights	Bounded rationality, uncertainty, information asymmetry, opportunism

Source: Kim and Mahoney (2005)

The first diverging point of the three theories is the unit of analysis. The agency theory is concerned with the contract between the principal and the agent; the property rights theory on the institutions that are focus on the effective enforcement of rights and responsibilities of contracting parties once the contract is signed, and the transactions cost theory with the transaction itself or the utilization of the contract (Kim and Mahoney, 2005, p. 232).

The second point of departure is the focal dimension of these theories. The agency theory is focused on the incentives of individuals (agents and principals) especially on how to align the agent's behaviour with the interests of the principal. The property rights theory is primarily concerned with whether property rights in a particular contract are clearly defined and are enforceable or not and assessing negative externalities in cases where property rights are not sufficiently secured or are enforced inefficiently. The major concern of the transaction cost theory is to resolve potential contracting problems in the process of bargaining that emerges when there is asset specificity (which is associated with the potential hold up problem) and opportunistic behaviour by individuals involved, making the contract incomplete.

²We have already highlighted differences in the (fourth) time dimension of the theories. In addition, due to lesser relevance do not analyse the aspect of theoretical orientation (not mentioned in Table 1.1), causing difference between theories. For further discussion on this dimension, see Kim and Mahoney (2005).

Regarding the treatment of cost, the third aspect, agency theory is focused on *ex ante* creation of proper incentive alignment mechanism that will ensure the agents' actions are in the best interest of the principal, as well as assuring efficient monitoring of the agents' actions. All this is implemented with the aim of diminishing the residual loss. In the case of property rights theory it is assumed that if property rights are insecure or less than efficiently assigned, this will trigger negative externalities from the stakeholders' point of view. Finally, according to transaction cost theory (in)complete contracts may result in inefficient economic outcomes, which in the setting of self-interested (opportunistic) contracting parties may cause *ex post* maladaptation and hold-up problems (Williamson, 1985). This is very much present when a transaction requires "one or both parties to make significant transaction-specific investments since such investments create quasi-rents that may be subject to hold-up" (Leiblein and Miller, 2003, p. 841).

Concerning the strategic intent (the fifth dimension), which takes into consideration the scope and number of interested parties in the process of contract formation, the agency theory takes into consideration primarily *ex ante* alignment of incentives between the principal and the agent, i.e. it reflects the perspective of shareholders. The property rights theory pays attention to the *ex post* contracting interests of various parties (stakeholders approach) with conflicts and interests triggered by the initial allocation of property rights. The transaction cost theory is also interested in shareholders perspective during the creation of (in)complete contract (transaction) under the conditions of bounded rationality and self-interested behaviour of contracting parties.

The sixth element of departure among these three theories is the source of market frictions (i.e. the sources of imperfections in the market). According to agency theory, market frictions are the consequence of the fact that there is no perfect mechanism that can fully align interests of the agent and the principal, i.e., monitoring costs, bonding costs or residual loss are higher than zero (more on these costs later). If there was a perfect mechanism, it would be possible to create a complete contract between individuals. Transaction cost theory argues that asset specificity and opportunistic behaviour of individuals create market frictions, whilst property rights theory assesses the negative externalities of unclearly defined property rights or unsecured property rights that cause market frictions.

To sum up, the recent developments in the theory of the firm maintain that the firm can be described as a nexus of contracts entered into by different entities. However, bounded rationality, opportunistic behaviour and uncertainty of the environment make these contracts incomplete. The outcome of the contracts' incompleteness is that parties, for situations that are not specified in the contract, must consent regarding the distribution of control rights, opening up the possibility of post-contract bargaining and potential hold ups. The agency theory addresses the issue of how to neutralize decreased efficiency arising from this situation by primarily analysing the behaviour of the principal and the agent within the firm. Efficient allocation of control rights analysed by the agency theory requires a special institutional design - the corporate governance framework.

1.3 Agency Theory³

Agency theory refers to a set of principles used in dealing with the outcome of dispersed ownership that allows for the separation of ownership and control and the consequent conflict between owners and managers. The theory has its roots in the work of Adam Smith (1776) who argued that if a group of persons that are not the owners manage a corporation, it is more likely that owners' objectives will be diluted rather than fulfilled due to self-interested behaviour of managers. Berle and Means (1932) who analysed in further detail the problems arising from dispersed ownership and the consequent separation of ownership and control. Although Adam Smith (1776) and later on Berle and Means (1932) pioneered the discussion linking the separation of ownership and control and corporate performance, Jensen and Meckling (1976) formally addressed the problem as "the agency problem"- a complex conflict of interest between owners and managers formed by the contractual arrangements between them.

The agency relationship was thoroughly analyzed by Jensen and Meckling (1976, p. 5) who perceives it "as a contract under which one or more persons (the principal) engages another person (the agent) to perform some services on their behalf, which implies delegating some decision-making authority to the agent." They claim that if both parties are utility maximizing units, "there is a good reason to believe that the agent will not always act in the best interests

³For a full discussion of the origin of the agency theory see Mitnick (2013).

of the principal.” The main purpose of agency theory is to assess the behaviour of both parties resulting from their conflict of interests, which occurs after they design a contract – and when it is found out that they have access to different levels of information and different risk preferences and that they operate in an uncertain environment. Moreover, the agency theory also deals with the resolution of the problem: how the contracting parties can try to design a contract in order to minimize the costs caused by their different goals, self-interested behaviour and asymmetric information in the contracting environment where the information is costly.

The main properties of the agency theory are explained in Table 1.2. As noted, the principal and the agent have different goals and risk preferences which put pressure on the principal to create an incentive arrangement to force or incentivize the agent to execute actions aimed to maximizing the principal's welfare and diminish the agent’s moral hazard behaviour.

Table 1.2: Agency theory characteristics

Key idea	Principal agent relationships should reflect efficient organization of information and risk bearing costs
Unit of analysis	Contract between principal and agent
Human assumptions	Self Interest, Bounded rationality, Risk aversion
Organizational assumptions	Partial goal conflict among participants. Efficiency as the effectiveness criterion. Information asymmetry between principal and agent
Information assumptions	Information is a purchasable commodity
Contracting problems	Agency (moral hazard and adverse selection). Risk sharing
Problem domain	Relationships in which the principal and agent have partly different goals and risk preference

Source: Eisenhardt, 1989, p. 59

In the next subsection we will explain various aspects of Table 1.2, in particular: the unit of analysis in the agency theory; the formulation of (in)complete contract between the agent and the principal, as well as the related assumption of self-interested behaviour on the part of the principal and (primarily) the agent, reflecting opportunism and bounded rationality. In subsection 1.3.2 we will discuss in more detail the contracting problems associated with the agent’s behaviour reflecting moral hazard and adverse selection. Aspects referring to the principal-agent risk tolerance and risk sharing will be part of the separate discussion in subsection 1.3.3 in the context of risk-incentives trade off paradigm.

1.3.1 Self Interest (Opportunism), Bounded Rationality and Incomplete Contracts

The behavioural assumption about the principal and the agent, according to the Williamson (1985) and other transaction cost authors, is that the contracting parties act with bounded (limited) rationality. The concept of bounded rationality as the cognitive assumption guiding economic actors (including contracting parties) was first developed by Simon (1947, 1961) who argued that bounded rationality prevents economic actors to make the best choice possible, being “*intendedly* rational but only *limitedly* so” (Simon, 1961, p. xxiv).

In the context of the principal-agent relationship, bounded rationality is reflected through the fact that the principal lacks perfect information regarding the agent’s behaviour. The main consequence of bounded rationality is that all contingencies cannot be fully accounted for, i.e., the contractual parties are not able to foresee all possible future outcomes. Consequently, they are unable to formulate a long-term outcome-contingent contracts – thus arises the issue of contractual incompleteness. Given that not all situations can be accounted for, both the principal and the agent must adapt and sign imperfect commitments—an imperfect contract which increases the possibility of opportunistic behaviour.

In short, there are at least three factors that prevent the development of a complete contract:

- i. Transaction cost of writing a contract. According to Hart and Holmstrom (1987, p. 3), the transaction cost of writing a contract increases because it is impossible to plan for and document all provisions that will take into account all possible obligations of the agent and how he should react in “every conceivable state of the world. It is impossible to create this kind of contract free of cost.
- ii. Cost of enforcing the contract
- iii. Bound rationality-or as Tirole (1999, p. 743) defines it “unforeseen contingences.”

The first two aspects are the focus of the property rights theory while the third aspect is linked more to the agency theory and transaction cost theory, i.e., the “contracting man” who does not have the ability to take into consideration all contract outcomes and unforeseen contingencies. The idea of bounded rationality is further expounded by Foss (2001) and Weber and Mayer (2011) who suggest that there are two types of “cognitive bounds on

rationality”): (i) processing limitations (bounds of the quantity of information that contracting parties are able to process), and (ii) perceptual limitations (restrictions on how these information are perceived by contracting parties).⁴

Once an incomplete contract is created, it increases the importance of ownership and the theory of ownership. As Grossman and Hart (1986) argue, the ownership of asset represents a residual right of control over asset, i.e., right to determine the use of asset in contingencies not governed by an explicit (incomplete) contract. The empirical literature following Williamson (1985) is very rich in creating states of optimal contract mechanisms for the principal. Differences in models usually are due to the risk sensitivity of the principal and agent.

An additional dimension of the transaction cost theory, and relevant to agency theory, is that that except for bounded rationality, the enforcement of incomplete contracts are prevented because of the opportunistic behaviour of the agent. As Hart (1989, p. 31) argues “not only does an incomplete contract contain gaps, errors, and omissions by reason of bounded rationality, but mere promise unsupported by credible commitments is not self-enforcing by reason of opportunism.”

Williamson (1985, p. 47) describes opportunism as “self-interest seeking with guile”. In more general terms, he describes opportunism as the “incomplete or distorted disclosure of information especially calculated to mislead, distort, disguise, obfuscate, or otherwise confuse”, which is present before contracting (adverse selection) and afterwards (moral hazard).⁵ This prevents the creation of a complete (efficient) contract between principal and agent, resulting in an inefficient outcome.⁶

Williamson (1985, p. 48) argues that the *ex post* opportunistic behaviour of the agent may be prevented (subdued) if the contract contains appropriate safeguards that are introduced in the contract *ex ante*. Alternatively, the neutralization of moral hazard behaviour or adverse selection would be possible only if the agent were fully honest (neutralize asymmetric

⁴For a full discussion of the perceptual limitations of contracting parties, see Simon, 1978 and Heimer, 1985.

⁵For a discussion of these two aspects of the agent’s behaviour see the next sub-section.

⁶For discussion of the critique of classical assumption that parties (principal and the agent) are self-interested utility maximizers, see Perrow (1986).

information) or if an external mechanism exists that activates full subordination to the principal. Given that these extremes are not in line with assumptions of market based economies, opportunism cannot be avoided (Williamson, 1999, p. 1099).

1.3.2 Adverse Selection and Moral Hazard

As noted in the previous subsection in the environment of the self-interested behaviour of the contracting parties and asymmetric information between them, it is highly unlikely that the agent will act in the best interest of the principal. This is the core assumption of the agency theory. In this subsection we will explain in more detail the elements that enhance the conflict between the principal and the agent and prevent the creation of complete contract between them: adverse selection and moral hazard behaviour of the agent.

Adverse selection (the agent having private information regarding costs or revenues that is undetectable/unavailable by/to principal) underlies the opportunistic behaviour of the agent (manager) in the process of the delegation of responsibilities to the agent (Barbagallo and Comuzzi, 2008, p. 7). Therefore, the core problem lies in the process of delegation which “generates asymmetry because agents can know private information (true ability, cost structure, technology or hidden knowledge),” (Mondello, 2012, p. 1). In terms of timing, adverse selection refers to the period before a contract is signed. This information asymmetry leads to sub-optimal results.

In the case that the principal fails to correctly assess the capacity and the ability of the agent, the agent’s (manager’s) moral hazard behaviour will appear after the contract is signed. Moral hazard (where the agent can take an action undetectable by the principal) represents the behaviour of the agent with a suboptimal (inefficient) outcome created in an environment where the agent does not bear the full consequences of her actions. Then, he has a tendency to act less carefully (riskier) than he otherwise would, leaving it to another party (principal) to bear the consequences of the agent’s (managerial) actions. In essence, moral hazard could be described as the problem (inefficiency) that is generated by the principal’s (owner’s) inability to observe agent’s (managerial) actions/ efforts after contracting.

1.3.3 The Role of Uncertainty in the Risk-Incentives Trade-off

The agency theory literature tries to assess how changes in the level of uncertainty affect the impact (strength) of incentives on the agent (managers). The general assumption of this literature (especially Holmstrom and Milgrom, 1987; Allen and Lueck, 1995; Lafontaine, 1992; Aggarwal and Samwick, 1999; Akerberg and Botticini, 2002; Laffont and Martimont, 2001; Grund and Sliwka, 2010; etc.) is that there is a negative trade-off between uncertainty and incentives provided to the agent (manager). An optimal incentive contract provides a negative trade-off between the level of uncertainty in the (firms) environment and the impact of the incentives. It is assumed that the principals (shareholders) are risk-neutral, but the agent is risk-averse, and the second assumption is that the agent reacts to incentives positively, i.e. incentives provided to the agent are used as “positive reinforces” for desired behaviour (expected by the principal).⁷ The most prominent consequence of the above assumption is that the principal can no longer structure the agent’s information rents to ensure efficient incentive compatibility. To incentivise a risk-averse agent to take on riskier projects, the principal needs to provide some additional risk premium. The impact of incentives (i.e. responsiveness of the agent to incentives) decreases with the agent’s level of risk aversion. In the extreme case when risk aversion converges to 0 it is possible to create optimal contract with efficient outcome. In the conditions of increased volatility of the performance measures, incentives become costlier to provide and so the optimal level of incentives should decrease.

This implies that when we look at managerial contracts, we should find a negative relationship between variation (volatility) in the firm performance indicator and the proportion of managerial pay that varies with the firm performance. In short, risk-neutral principals (shareholders) want their agents (managers) to take on riskier projects in anticipation of higher returns. On the other hand, given that the performance of projects undertaken by the risk-averse manager determines the manager’s level of compensation, the manager prefers a compensation structure that has less vulnerability to earnings volatility. Therefore, given a certain level of compensation, the manager will favour a higher percentage of fixed cash payment along with investment projects with a lower level of risk. As Rantakari (2008) argues: an increase in the instability of the firm performance measure increases the volatility of the agent’s pay for any given level of pay-for-performance.

⁷For full discussion on the agent motivation and sensitivity to incentives see Benabou and Tirole (2003).

At this point it is useful to briefly make a distinction between risk and uncertainty in the context of the agency problem and stress the agency theory assumption on how agents respond to incentives.

Mauboussin (2008, p. 36) provides a clear explanation on the difference between risk and uncertainty:

“So how should we think about risk and uncertainty? A logical starting place is Frank Knight’s distinction: Risk has an unknown outcome, but we know what the underlying outcome distribution looks like. Uncertainty also implies an unknown outcome, but we don’t know what the underlying distribution looks like. So games of chance like roulette or blackjack are risky, while the outcome of a war is uncertain. Knight said that objective probability is the basis for risk, while subjective probability underlies uncertainty.”

In order to describe the difference between risk and uncertainty more accurately Mauboussin (2008, p. 36) argues that risk is considered as “the possibility of suffering the loss” i.e. risk always has a notion of loss while “uncertain is not known or established” i.e. “something can be uncertain but does not necessarily incorporate the chance of loss”. The problem arises from the fact that risk-averse agents in everyday decisions have to translate investment opportunities (uncertainty) into probabilities (risk). An optimal incentive tool would be able to distinguish between controllable risks for which agents should be held accountable, and those uncontrollable risks for which agents should not be held accountable. However, this would assume a principal who is fully informed and who has the ability to create a complete contract. According to the agency theory and the transaction cost theory, neither is possible.

The fundamental assumption of the agency theory regarding the risk-incentives trade off in the contracting process has been challenged in theoretical and empirical literature. Both Prendergast (2002) and Shi (2011), for example, fail to find valid predictions of a negative trade-off between risk and incentives and introduce delegation of decision-making as a mechanism that subdues the negative trade-off. Incentives are more desirable in the more uncertain environment, based on the underlying assumption that the agent is risk neutral not risk averse. Prendergast argues that the classic literature on the agency theory fails to account

for the presence of the allocation of responsibilities to the agent (delegation), which changes the negative impact of uncertainty on incentives in the opposite direction.

Baker and Jorgensen (2003) distinguish two types of uncertainty, which they label volatility and noise, and on which the impact of the level of incentive depends. They argue that this division of volatility from noise is critical for explaining the ambiguity in findings of classic agency theory. According to Baker and Jorgensen (2003), noise is the uncertainty whose realization does not affect the agent's optimal action choice. His decision remains unaffected either because the agent (manager) cannot react to it, or because it does not affect his optimal actions. In contrast, volatility is the uncertainty that affects the agent's optimal action and on to which the agent is able to react. They argue that the classic agency theory solely takes into consideration volatility as a manifestation of uncertainty whilst neglecting noise. Holding for the possibility of delegation assumed in Prendergast (2002), they argue that when the agent has more pre-decision information and when the environment is uncertain, it is more valuable to give the agent stronger incentives. Similarly to Prendergast (2002), they find that an increase in volatility increases the impact of incentives on agents.

Similarly, Demsetz and Lehn (1985) discuss determinants of ownership structures and argue that in noisier environments incentives should be stronger, not weaker.⁸ According to them, with increased uncertainty in the firm's environment, increased ownership concentration can be expected (increased ownership concentration is a way the owners can increase their oversight on management and reduce the agency cost). The rationale behind the assumption is that the benefits from monitoring will be larger in unstable environment. Namely, in the case when the firm operates in a very stable environment managerial performance can be evaluated more easily. When the environment is more unpredictable, closer monitoring is necessary. So they expect ownership to be more concentrated for firms which face greater uncertainty, which is measured by the standard deviation of excess stock market returns. As a consequence, there is a positive relationship between the level of ownership concentration and the high levels of uncertainty existing in a firm's environment.

⁸At this point, we are not interested in four forces affecting (determining) ownership structure: (i) Value maximizing size; (ii) Control potential; (iii) Regulation; and (iv) Amenity potential that will be separately analyzed in Chapter 4.

In summary, given that the environment is uncertain, and the agents and the principals have to deal with risk and incentive (assess the risk and react to incentive), the theories and empirical evidence have produced divergent views on the perception of agent's risk tolerance (risk neutral vs. risk averse), and the agent's responsiveness to incentives (sensitive vs insensitive). It appears that the discussion of the variety of factors (such as the agents' tolerance to risk, different views on uncertainty, whether a part of uncertainty can be controlled or not, etc.) proposed in the literature only adds to the ambiguity of whether the conclusions of the agency theory on the trade-off between risk and incentives is robust or not.

1.4 Agency Cost and Its Components

The agency problem represents one of the core problems that the corporate governance framework tries to resolve through the design of mechanisms for effective corporate control. The agency cost is formalized within the contracting relations between the two sides. The contract and contractual relations are the essence of the company's activities, where contractual relations exist not only with employees but also with suppliers, customers, creditors, etc. Therefore, "it is important to recognize that most organizations are simply legal fictions which serve as a nexus for a set of contracting relationship among individuals" (Jensen and Meckling, 1976). In essence, the main aspects of the agency problem are conflicting interests between the principal and the agent as well as decentralized information that prevent the principal from having perfect information on the behaviour of the agent, to whom the control of the firm is delegated.

Reducing the agency problem relies upon two key concepts: (i) how to decrease the level of asymmetric information; and (ii) how to design proper incentives that would align the interests of the principal with those of the agent at minimal cost. The importance of asymmetric information is crucial prior to concluding the contract, while the creation of incentives continues after signing it. However, due to the nature of this contract, the main problem is how to force the manager to take actions that will be in the best interest of shareholders (firm's value maximization) bearing minimal cost (by both the principal and the agent). The contract represents an obvious mechanism for resolving the problem that arises from the imperfect alignment of interests and incomplete information issue. This mechanism relies on three pillars of the agency relationship: (i) distribution of decision rights between

managers and shareholders; (ii) the level of knowledge (skills) and information that managers and shareholders have; and (iii) usage of the incentive as a motivation mechanism.

Decision rights represent the right to have a particular control over a particular asset. There are two different types (Fama and Jensen, 1983): (i) decision right of a manager to initiate and perform a particular decision; and (ii) the decision of shareholders to ratify, monitor and reward or punish managers according to their performance. The level of knowledge, skills and information that the principal and the agent possess are critical for the creation of a perfect incentive-based contract that would align their interests. There are three types of information problems stemming mostly from the principal's lack of information: adverse selection, moral hazard behaviour of the agent, and non-verifiability (Laffont and Martimont, 2001, p. 12).

In order to avoid agency cost, one should be aware of the main properties of the principal agent relationship from the prospective of under-optimization of the contract often due to inevitable incurred costs of the principal or the agent. This dynamic can be summarized through the following points: (i) the more ambiguous the contractual environment, the greater the information advantage and the larger information superiority of the agent, the higher the information cost of the principal; (ii) the more complex the contracting process (inclusion of various autonomous bodies ex ante and ex post), the higher the information loss; (iii) the more risk averse the agent behaves, the more information cost the principal would bear; (iv) the more performance provisions are documented in the contract, the better the performance expectations of the firm; (v) the better the information obtained from the past agents, the better the performance conventional characteristics framed by the principal; (vi) the poorer the principal-agent communication channels, the greater the discrepancy between agent and principal interests; (vii) the greater the discrepancy between the agent and the principal, the greater the agency cost; (viii) the higher the cost of information, the more the principal will concentrate on satisfactory rather than optimal solutions.

In short, the agency problem is grounded in the existence of agency cost when the agent pursues the principal's goals and in which certain costs have to be realized. This cost is based on two concepts: information asymmetry that exists between the principal and the agent; and the incentive mechanism developed to decrease that asymmetry. Nonetheless, there is no perfect contract that could bring the agency cost to zero and that ensures that the agent will

make the decisions in the best interest of the principal without costs. The principal has to bear some costs (Jensen and Meckling, 1976, p. 5) due to numerous reasons. In addition, any principal agent contract will always induce three types of costs: (i) monitoring cost, (ii) bonding cost and (iii) residual loss. The scope of these costs will depend on the complexity of the contract and its ability to efficiently treat issues of asymmetric information and agents' incentives.

1.4.1 Monitoring costs

The monitoring cost can be explained as the extra expenditures (resources) paid by the principal in order to monitor, observe and finally control the agent. These expenses, borne by the principal, have the purpose of limiting the agent's behaviour not to depart from actions, which in the environment of complete contracts should be in the best interest of the principal. This cost arises when shareholders do not have full perspective of the manager's behaviour. Once the separation of ownership and control happens, monitoring that is imposed by shareholders will force agents (managers) to be accountable for the outcomes of their actions.

According to Jensen and Meckling (1976, p. 311), the monitoring cost includes (besides the cost of observing and measuring agent's performance) the costs of controlling managers' behaviour via budget restrictions, compensation policies and firm rules. There are various monitoring costs that occur, e.g., external auditing, cost of firing managers, cost of interviewing managers, cost of non-executive directors, etc. The principal will later recover some of these costs. For example, Fama and Jensen (1983) argue that while in the beginning the principal is paying the cost of monitoring by signing a compensation contract; the shareholder will adjust compensation covering these costs later.

Both, normative and positive agency theory are based on the hypothesis that incentive contracts are the first best solution to align the interest of the principal and the agent, while monitoring should be present to reduce the gap between the principal and the agent. Beatty and Zajac (1994, p. 317) point out that strong monitoring is appropriate in those corporations in which managerial compensation is only weakly connected to firm performance and recommended only when its benefits are higher than its value. On the contrary, Wright et al. (2002) argue that compensations of executives depend on the level of monitoring. Active

monitoring will induce a change of compensation through higher returns, while passive, insufficient monitoring will cause changes in compensation due to acquisition of the firm.

Monitoring costs will be mainly borne by the largest shareholder, given that shareholders have to be driven by certain incentive in order to bear the extra cost of monitoring. Large shareholders are interested in the firm's success (value maximization). The larger the shareholder's stake, the lower the free riding problem associated with monitoring. However, excessive monitoring cost can be counterproductive. Namely, according to Burkart et al. (1997), too much monitoring will constrain managerial initiative, i.e., excessive monitoring may prevent managers to search for firm-specific investments and to produce high short-term profit. Namely, managers will not have the direct incentive to show their performance by producing short-term profit in the case when this signal will not be appreciated and valued by shareholders.

The optimal level of monitoring, according to Himmelberg et al. (1999), is specific to each individual firm's contracting environment. Corporate governance mechanisms that are considered to reflect monitoring costs as identified by Pillai (2003, p. 1), include: (i) cost of audits; (ii) budget restrictions; (iii) compensation policies; and (iv) operating rules, etc. He argues, "Monitoring can also be imposed by legislative practices such as compliance with Stock exchange listing rules or (industry specific) corporate governance codes."

1.4.2 Bonding Costs

The second element of agency cost is bonding cost. There are two aspects of bonding costs. The first refers to expenditure that the principal (shareholder) incurs in order to align the interests of the agent with his own interests (Hoskisson et al., 2009, p. 57). This aspect of bonding cost is usually associated with a certain type of incentive scheme provided by the principal for the agent. In the context of the owner-manager relationship, this refers mainly to compensation schemes for managers. The second refers to the extra expense that the agent has to bear in order to prove that his decisions are "bonded" with the principal and that he/she will not take actions contrary to the interest of the principal. It is important to note that the agent (manager) initiates these costs. Examples of bonding costs include the introduction of

formal control systems (e.g. forming internal audit department) or enforcement of conditions for further disclosures in financial statements (Pillai, 2003).

1.4.3 Residual Loss

Residual loss can be defined as the reduction in welfare experienced by a principal due to the difference between interests of the principal and the agent. According to Jensen and Meckling (1976, p. 5), residual loss can be measured as “the dollar equivalent of the reduction in the welfare experienced by the principal” as a result of the divergence of interests between the agent and the principal. The difference between the value maximizing welfare (from the prospective of the principal) and the level of welfare achieved by the actions of the agent represents residual loss.

In the context of the firm, i.e., the owner-manager relationship, residual loss represents the loss that the owner will experience once he starts to dilute his ownership (Williamson, 1988, p. 572). The loss occurs due to asymmetric information, keeping in mind that shareholders are not in a position to foresee all possible actions of managers. If there is a definition of the “optimal” residual loss, it could be defined as a loss which emerges as a trade-off between monitoring and constraining management and enforcing contractual mechanisms (monitoring and bonding costs) designed to reduce the agency problem (McColgan, 2001).

1.5 Corporate Governance Mechanisms

One of the fundamental concerns of corporate governance is how to design efficient mechanisms of corporate control which will force managers to act in the best interest of shareholders. In this section we take a more comprehensive approach analysing different corporate governance mechanisms primarily from the perspective of how they can alleviate the agency problem.

The governance mechanism of each country is created by its political, economic and social history as well as by its legal framework. Corporate governance *per se*, in its narrower definition, has a function to assure better fulfillment of the principal’s (shareholder’s) interests. The level of accomplishment of this function characterizes a corporate governance

mechanism as efficient or inefficient. Corporate governance mechanisms are usually defined as structures developed “in publicly traded corporations as a response to agency conflicts between owners and managers, conflicts that result from the separation of ownership and control” (Gillan, 2006, p. 1). In a broader context, the corporate governance mechanism can be described as “a complex of elements actuating social and economic, legal and organizational relationships needed for achieving the objectives set for the parties of corporate (governance) property” (Ashurov, 2010, p. 1). If properly set, corporate governance mechanisms would enable all corporate governance stakeholders to perform their functions in order to maximize their own benefits while preserving the balance of interests between them.

The type of prevailing corporate governance systems in a country restrains choices of adopted corporate governance mechanisms. In the case of insider corporate governance systems⁹, the main conflict exists between large shareholders and minority shareholders. On the other hand, in the case of outsider systems, corporate governance mechanisms will try to diminish the conflict between weak shareholders and managers.

In the broader context, Denis (2001) argues that there are two preconditions for effective governance mechanism. Firstly, a chosen mechanism has to close the vacuum between managers and shareholders’ interests. Secondly, it is expected that the mechanism significantly affects corporate performance and firm value. Denis identifies four groups of mechanisms which include: (i) legal and regulatory mechanisms that exist outside the firm; (ii) internal control mechanisms present within a firm (the board of directors, executive compensation schemes and ownership concentration, non-executive ownership and leverage); (iii) market based external control mechanisms (e.g. corporate takeover market voluntary and hostile); and (iv) product market competition.

However, we follow a narrower and prevailing division based on the criteria of whether the mechanism is firm-based or market-based, or whether one is an internal or external mechanism (Gillan, 2006; Rezaee, 2007; Aljifri and Moustafa, 2007; Al-Malkawi and Pillai, 2012; etc). The most important internal corporate governance mechanisms are: (i) the board of directors; (ii) managerial incentive compensation; (iii) ownership concentration; (iv) dividend payouts; (v) financial leverage, and (vi) board size. The most important external

⁹The insider and outsider corporate governance system are discussed in the Appendix (2.1) to this chapter.

corporate governance mechanisms are: (i) market for corporate control (managerial labour market); (ii) the system of voluntary and hostile takeovers; (iii) product market competition; (iv) monitoring by security analysts; and (v) reputation.

We will begin with the review of two external disciplining mechanisms that have received the greatest deal of attention in empirical literature (managerial labour market and takeover mechanism). This will be followed by a discussion of three internal mechanisms (debt financing – leverage; executive compensation contracts; and nonexecutive directors).

1.5.1 Managerial Labour Markets

The managerial labour market, a disciplining corporate governance mechanism, is expected to prevent managerial opportunism and protect shareholders' interests by imposing constant pressure on managerial behaviour to avoid poor performance of the firm which would damage the manager's reputation in the labour market. (Renneboog and Trojanowski, 2003). This mechanism should be considered complementary to the rewarding and incentive based corporate governance instruments such as compensation contracts that should incentivise managers to achieve good firm performance. This market competition mechanism for managers is developed mostly in the “outsider corporate governance” systems. According to Brickley et al. (1999, p. 341), “career concerns force managers to perform well since poor performances generally leads to a fall in demand for their services.” Fama (1980) argues that the managerial labour market successfully controls managerial behaviour in achieving satisfactory levels of firm performance not through a fear of dismissal channel but rather by triggering managers to build up their reputation, which is independent of incentive compensation.

The impact of the managerial labour market may also be felt prior to and after changes in top management (Denis and Denis, 1995; Glunk and Heiltjes, 2003). Changes in top management composition should break organizational inertia, break the existing routines and initiate strategic changes in the company (Gordon et al., 2000; Dalton and Kesner, 1985; Virany et al., 1992, etc).

Of course, there is the counter argument that frequent changes at the top management have a disruptive effect on the organization by increasing instability leading to lower firm performance (Hambrick and Cannella, 1993). Furthermore, most studies find that the top management is only dismissed at a rather late stage when poor performance of the firm becomes evident with the publication of the company's financial accounts.

It has been argued that the effectiveness of this instrument may be better observed considered jointly with incentive-oriented mechanisms such as managerial remuneration or managerial compensation schemes, with which it is closely intercorrelated (Coughlan and Schmidt, 1985). Although in the empirical literature on both managerial disciplining and managerial compensation are treated separately, they are to a large extent complementary mechanisms used for managerial control (Coughlan and Schmidt, 1985; Renneboog and Trojanowski, 2003). According to Brookman and Thistle (2013, p. 252) "the most important determinant of managers' compensation is managerial skill followed by firm size and labour market opportunities, and that luck is not an important determinant of managerial compensation."

In short, it appears that the managerial labour market may have some relevance in aligning the interest of managers and owners.

1.5.2 Hostile Takeovers

Hostile takeovers are considered a very potent instrument for the disciplining of managers and aligning their behaviour with the interest of shareholders. According to Manne (1965) and Samuelson (1970), whose work represents a corner-stone of the literature on hostile takeovers, share prices reflect the quality of a firm's performance and that of its managers. If an outsider perceives that the company is underperforming, he/she will have an incentive to acquire the shares of the firm with the aim to run the firm more efficiently by replacing its inefficient managers. Therefore, in order to decrease the probability of hostile takeover bids, managers will, *ex ante*, increase the efficiency of the firm, thus acting in the interest of shareholders and reducing the agency problem between managers and owners (Grossman and Hart, 1980; Scharfstein, 1988).

The effectiveness of hostile takeovers has been the subject of a long-standing debate and empirical investigation in the literature on corporate governance. Only a limited number of empirical studies support the market-disciplining role of the corporate takeovers, arguing that corporate takeover targets only underperforming companies whose performance recovers after the takeover (Dullard, 2012). Recent, post-financial crisis empirical evidence diverges yet is inclined to suggest that hostile takeovers are “anything but a prerequisite for an efficient system of corporate governance” (Puchniak, 2008, p. 90).

The effectiveness of the hostile takeover threat as a corporate governance mechanism is based on two assumptions: (i) targets of the hostile takeover are underperforming firms; and (ii) these firms underperform because managers do not take actions and decisions that are in the best interest of shareholders. Both assumptions have been criticised in the literature. Much of the empirical evidence challenges the first assumption by finding no clear evidence that pre-takeover performance of targeted firms is worse than their post-takeover performance (Mandelker, 1974; Langetieg, 1978; Comment and Schwert, 1995; Martin and McConnell, 1991; Franks and Mayer, 1996; Agrawal and Jaffe, 2003; etc.).

On the second assumption, the plethora of empirical evidence provides mixed and inconclusive results. Some studies show that hostile takeovers do impose a discipline on incumbent managers who become more reluctant to take self-oriented actions and depart from the interests of shareholders (Grossman and Hart, 1980; Holmstrom and Kaplan, 2001; Scharfstein, 1986; Mikkelsen and Partch, 1997; etc). Similarly, Kini et al. (2004) argue that the corporate takeover market is an efficient “court of last resort” affecting managerial behaviour when internal mechanisms are ineffective and weak. On the other hand, the threat of takeover might generate short-term perspectives and incentivize the managers to let go of long-term profitability (Stein, 1988) which in turn may lead to suboptimal managerial behaviour. Another strand of the empirical literature argues that hostile takeovers are a reflection of self-interested behaviour by the managers of the acquiring company, at the expense of their own shareholders, who engage in takeover activities with the aim of empire-building (Marris, 1963, 1964).

It is important to mention that this corporate governance mechanism is more characteristic of the “outsider corporate governance” systems. Takeovers in Continental European countries are different to those in the US or the UK. According to Jenkinson and Ljungquist (1997),

hostile takeovers in Germany are rather rare due to significant ownership concentration. Holmstrom and Kaplan (2001) maintain that firms with poor performance (particularly those UK and USA) are more likely to be targets of takeovers and their managers are more likely to be fired. However, they state that in the 1990s due to the shift of managers' focus from long-term profitability to stock prices, corporate governance mechanisms evolved from hostile takeovers to incentive based schemes.¹⁰

In short, although the agency cost theory considers takeovers as an efficient external corporate governance instrument which should “redeploy corporate assets more efficiently and discipline incumbent managers,” (Burkart and Panunzi, 2006), the empirical evidence for this view is inconclusive

1.5.3 Debt financing – Leverage

The theory on how the capital structure of a firm is influenced by agency cost considerations was initiated by Jensen and Meckling (1976). Unlike other corporate governance instruments, leverage involves at least two agency conflicts: between managers and shareholders; and between shareholders and debt holders. In the context of our research, we will focus on how leverage can be utilized as a tool to align the interests of managers with those of shareholders. Debt financing is a common method of raising finance everywhere, especially in the continental European ownership structure given that the capital market in these countries is still underdeveloped in comparison to Anglo-Saxon countries. The debt financing market represents an implicit internal market mechanism for binding managers to work in the best interest of the firm (repayment of interest). According to Easterbrook (1984), the external capital market forces managers to work in the firm's best interest, i.e., value maximization. Debt is expected to reduce the agency cost of free cash flow by reducing the cash flow available for spending for managerial self-interest, (Jensen, 1986). By using debt, managers

¹⁰Changes in the anti-takeover legislation during the 1990s weakened, and limited the role of, the Anglo Saxon corporate governance systems as they introduced measures that elevated legal barriers to hostile takeovers. As a consequence, the structures of managerial incentive schemes as well as other corporate governance mechanisms were changed. In EU countries, takeover bids are regulated by the EU Directive on Takeover Bids (2004/25/EC) which harmonized the conditions for bids (irrevocability, disclosure, equal treatment) in all countries, yet though it failed the establishment of principles such as the equitable price. Although the main aim of the Directive was to encourage value-creating takeovers, according to recent empirical literature it made it more difficult to embark on takeovers, allowing the incumbent managers to be less disciplined and to engage in more entrenched behaviour (Wymeersch, 2008 and Humphery-Jenner, 2012).

pre-commit to distribute future cash flows. Liao et al. (2012) argue that a good corporate governance structure assures an optimal level of leverage.

There is a large body of empirical literature highlighting two views of the relationship between governance mechanisms and leverage: (i) that leverage enforces good governance; and (ii) that leverage is the outcome of good governance. The first view can be interpreted as a self-disciplining internal governance mechanism which mitigates the costs of the manager-shareholder agency conflict (Grossman and Hart, 1982; and Jensen, 1976 and 1986). Here, leverage restrains costly and ineffective managerial actions and increases firm value. In particular, creditor monitoring as well as a higher threat of bankruptcy may result in serious consequences such as dismissal and loss of reputation for managers (Farinha, 2003).

The second view maintains that the quality of corporate governance affects the scale of leverage. According to Berger et al. (1997), Cremers et al. (2004), Klock et al. (2005) and Florackis and Ozkan (2009), the quality of corporate governance determines a firm's cost of debt financing and, consequently, the choice of capital structure. Managers who are not subject to effective corporate governance mechanisms will continually take suboptimal decisions, making their companies less effective compared to those with better corporate governance mechanisms. Put differently, managers (who are, in essence, risk-averse) are less willing than shareholders (who are risk-neutral) to choose debt financing (usually because of job security concerns). Therefore, they will choose lower than the optimal level of leverage. Consequently, firms with poor corporate governance practices, where managers have stronger decision-making power, will have less than optimal leverage and slower rates of adjustment of the capital structure (Zheka, 2006).¹¹

The two views mirror each other, showing that leverage represents an effective internal governance mechanism that disciplines managers and forces them to avoid wasting the firm's assets (Jensen and Meckling, 1976; Jensen, 1986; Stulz, 1990; Zwiebel, 1996; Jiraporn and Gleason, 2007; and Nielsen, 2006).

¹¹Some authors, e.g. Zwiebel (1996) have argued that entrenched managers choose debt to further their own future empire-building, attempting to prevent ex post control changes, and will on average have higher leverage levels, though there is not wide support for this view.

1.5.4 Non-Executive Directors: Outsider Directors

The role of outsider directors as a corporate governance mechanism can be considered essential in the process of diminishing agency costs. The presence of outsider directors in the Board strengthens its independence. They are present as objective, reliable monitors that should independently monitor and discipline managers (Kumar and Singh, 2012). As Brennan (2006) argues, the board of directors may be considered as “the zenith” of the internal corporate governance mechanisms. McNulty and Pettigrew (1996) point out that the board of directors has three main functions as a corporate governance mechanism: (i) a monitoring function- control of managerial performance; (ii) a strategic function –enables the board to decide on strategic firm decisions, and finally (iii) a resource function –enables the board to decide about acquiring critical resources such as additional working capital or know how. It is expected that outsider directors strengthen these functions through unbiased, independent monitoring.¹² However, in the context of the principal-agent problem, the role and the effectiveness of outsider directors is subject to an extensive debate in empirical literature.

On the one hand, there are many studies that find the impact of the outside directors to firm performance is positive. According to Daily and Dalton (1992), Brickley et al. (1994), and Baysinger and Butler (1985), the existence of outside directors on the board improves the performance of the firm. Furthermore, according to Beasley (1996), the existence of outside directors on the board diminishes the chances of financial statement fraud, while Rosenstein and Wyatt (1990) find that the share price will increase on the day of the announcement that outside directors will be added to the board.

On the other hand, there is also a large number of studies reporting that the impact of outsider directors on firm performance is insignificant (Bhagat and Black, 2002; Hermalin and Weisbach, 2003; Fields and Keys, 2003; Yermack, 1996; Klein, 1998, Core et al., 1999, Bathala and Rao, 1995; Vafeas and Theodoru, 1998; Mehran, 1995, Harris and Raviv, 2010; Ferris et al., 2003; Kumar and Singh, 2012; Mura, 2007; etc). According to Morck et al. (1988) NEDs have to monitor the performance of management and consequently they should have a personal financial interest in the firm. In reality, they usually do not have strong

¹²Of course one may legitimately ask why would an experienced, highly skilled person with a very loose connection with the firm agree to take on this role? The explanation for NEDs' behaviour can be found in a variety of theories such as stewardship theory, corporate responsibility theory and cognitive theory. The discussion of these theories, however, are outside the scope of this research.

financial incentives (Hart, 1995) or, even worse, they may not have enough expertise to efficiently monitor executives (Jensen, 1983) which leads to the lack of evidence for the impact of NEDs on firm performance to be significant. Furthermore, according to Fernandes (2005), firms with zero NEDs have less agency problems between managers and shareholders and pay executives less.

Thus, as in the previous mechanisms of good governance expected to ameliorate the agency problem, the empirical support for this mechanism too is inconclusive.

1.5.5 Executive compensation contracts

Executive compensation contracts represent an internal incentive-based corporate governance mechanism targeted to align the interests of shareholders and management. Using compensation contracts, owners provide an extra incentive to managers to follow shareholders' interests, which should lead to improved corporate performance. Of course, management remuneration represents an extra cost for shareholders, so its value should be targeted at the level where benefits of aligning the interest of managers do not fall below the costs remuneration. Although it seems that executive compensation is a well-designed mechanism that rests on agency theory with a developed formula based on either accounting or stock market performance, recent scandals around executive pay packages make this a controversial corporate governance instrument.

The older empirical literature postulates the validity of agency theory; it regards, the executive pay package as a way for shareholders to align the interests of shareholders with managers, providing them with a straightforward incentive to raise shareholder value. Here, the CEO compensation represents a viable corporate governance instrument that positively affects firms' performance. According to Coughlan and Schmidt (1985) and Murphy (1985) executive compensation - salary and bonus changes – has a significant effect on shareholders' returns. Similarly, Gerhart (1990) finds a significant impact of bonus-based incentives on future profits. Using international comparison, Kaplan (1994) highlights that executive compensation seems to have a positive impact on firm performance in both Japan and the US, although Japanese managers receive lower levels of cash and share earnings compared to US managers. According to Overton (1991, p. 325), “incentive compensation has the potential to

motivate executives and focus their energies on behaviour that directly supports or fulfils organizational goals". In addition, part of the "traditional" empirical literature in the post Enron era still does not change its findings. According to Sigler (2011), the compensation of managers after the introduction of the Sarbanes-Oxley legislation positively affects firm performance, while the size of the company as well as the tenure of the manager mostly affects the level of executive compensation. Similar findings can be found in the numerous contributions by Brick et al. (2006), Danes et al. (2005), etc., consistently arguing the efficiency of the agency theory.

On the other hand, the modern empirical investigation challenges the optimal incentive contracting theory which argues that managers have been able to get self-targeted pay, using captured boards and remuneration committees. Recent scandals including Enron, WorldCom, Global Crossing, HealthSouth Corporation, Fannie Mae, etc., resulted in the perceptions that CEOs of public companies are overpaid and their boards provide poor oversight. According to Kaplan (2012) this perception combines three views: (1) CEOs are overpaid and their pay keeps increasing; (2) CEOs are not paid for performance; and (3) boards are not doing their jobs as monitors. Moreover, according to Bebchuk et al. (2002), the managerial power within the firm is influential enough to prevent boards from operating at arm's length when setting executive compensation arrangements. Instead, executives have power to influence their own pay and, in addition, they use this power to extract rent. At the same time, extraction of rent leads to the use of inefficient pay arrangements and providing suboptimal incentives which thereupon adversely affects the value of the firm. According to Bolton et al. (2005) there are two aspects of the evident flaws of compensation scheme practices: the first one refers to faulty compensation scheme design, and the second refers to the lack of accountability and the rather passive role of the Board in the monitoring process.

Bebchuk and Fried (2005) go a step further claiming that executives have been able to set their own pay using captured boards and remuneration committees, coining the phrase "pay without performance." They argue that the setting of executive salaries does not contribute to the reducing the principal-agent problem. Compensation schemes have been, over the years, have been decoupled from managers' contribution to company performance; i.e. changes in the value of companies is not followed by corresponding changes to managers' salaries. Furthermore, the asymmetric information between managers and shareholders, as well as the existence of weak board members, creates the opportunity for managers not only to fail to

reach targets to increase the value of the company but also to create perverse incentives and behaviour of managers. For example, according to Bebchuk and Fried (2005, p. 11), executives who expect to obtain shares through share compensation schemes have an incentive “to report misleading results, suppress bad news, and choose projects and strategies that are less transparent to the market.” Indeed, Turner (2009, p. 79) blames inadequate remuneration schemes in the financial sector for the outbreak of the financial crisis, claiming that “...there is a strong prima facie case that inappropriate incentive structures played a role in encouraging behaviour which contributed to the financial crisis.”

As a result of various scandals in the 1990s and early 2000s, the legal framework for corporate governance was amended in many countries, aiming at preventing the misuse of power by executives in important areas of corporate life. The 2003 Sarbanes-Oxley legislation in the U.S, as well as the so-called “say on pay” practice (Section 951) introduced by Dodd-Frank legislation (2010) are examples of these changes. The Sarbanes-Oxley Act of 2003 introduced structural changes in the governance of public companies, introducing additional disclosure requirements in public firms with the aim of improving the accuracy and reliability of information provided to shareholders. The most prominent requirement is the disclosure of information on granting executive options which have to be reported to the Securities and Exchange Commission (SEC) within two business days of the grant date. After obtaining this information, the Securities and Exchange Commission investigates whether the requirement has mitigated the stock price, influencing behaviour of corporate executives. This requirement should deter managers from behaviour that influences post-grant-date stock returns which, according to extensive empirical evidence, are on average positive (Yermack, 1997; Aboody and Kasznik, 2000; Chauvin and Shenoy, 2001; etc). According to provisions of the Dodd-Frank legislation, all public companies get an advisory shareholder vote on top executives’ compensations. Furthermore, the Dodd-Frank legislation imposes additional disclosure requirements regarding the compensation of the CEO, the ratio between the compensation of the CEO and employees, and whether the CEO or any other employee is permitted to purchase financial instruments that can be used for hedging purposes.

In short, recent empirical evidence strongly suggests that managerial compensation cannot ensure that managers will make the “right” decision from the perspective of long-term interests of the firm. Together with weaknesses of other corporate governance instruments discussed in this sub-section, it can be concluded that none of them may be able to resolve the

principal-agent unambiguously. In the presence of uncertainty and opportunistic behaviour, the agency problem continues to dominate the shareholder-managers relationships and to draw the attention of policy makers.

1.5.6 Ownership Concentration and Corporate Governance Mechanisms

The presence of agency conflicts between owners and managers has eventually led to the development of governance mechanisms at a legal level in most countries, aiming to ensure that managers act in the best interest of owners. However, apart from the legal provisions, ownership concentration (which exists in most countries of the world¹³) has been identified as the most commonly used instrument for efficient monitoring of managers, usually used when other instruments are lacking or are underdeveloped.

Although it is assumed that ownership concentration would ensure efficient monitoring of managers, yet in different corporate governance settings across different countries ownership concentration varies in efficiency as a monitoring instrument of managers. For example, the efficiency of ownership concentration is weakened when there is significant free riding (where large shareholders pay the full cost of monitoring but gain only a part of the return from enhanced monitoring, proportional to the share of concentrated owner, and minority shareholders enjoy the rest of the gain without exercising any effort in monitoring or paying for it). Another aspect is that the identity of large owners matters in the sense that managerial ownership may be a viable source of incentive alignment and behavioural change of managers.

Similarly, in the context of weak institutional settings (such as a lack of financial transparency, ineffective law enforcement, shallow capital market, weak protection of investors, etc.) and underdeveloped corporate governance mechanisms (characteristic of, for example, transition economies), ownership concentration can be (miss)used for extraction of the private benefits of control by large shareholders at the expense of minority shareholders.

¹³As La Porta et al. (1999, p. 471) argue, using data from 27 developed economies, that with exception of a few cases, large companies are not widely held (which is assumed by Berle and Means, 1932) by dispersed shareholders. Instead, modern corporations are usually held by the State, families and to lesser extent by financial institutions.

These issues are just some of the features that should be analysed when ownership concentration is used as a tool for agency problem mitigation.

We will analyse in more detail the properties and consequences of ownership concentration, its impact on the alleviation of the agency problem and consequently on firm performance in the next Chapter.

1.6 Conclusion

In this Chapter, we assessed a set of fundamental concepts that define the role and the importance of corporate governance. Agency problem emerges in an environment where the firm is considered a nexus of incomplete contracts entered into by different entities with bounded rationality and opportunistic behaviour and are subject to asymmetric information and uncertainty. The agency problem is created in an organization at the moment when the principal (owner) delegates work to the agent (manager) in order to work in the principal's best interest. This can be divided into two elements: (i) divergent interests of principal and agent; and (ii) costs that a principal needs to bear in order to monitor the agent's actions or to make adequate incentives for the agent to act in his best interest. Furthermore, this setting triggers the formulation of a compensation scheme for the agent, aimed at achieving efficient allocation of risk and rewarding the agent's performance. This setting is complicated further by the fact that the risk-averse agent has to operate in an uncertain environment.

If the principal and the agent want to maximize their personal wealth, the principal has to develop an incentives scheme and establish monitoring mechanisms to control any self-interested activities of the agent (monitoring costs). At the same time the agent will spend funds in proving or guaranteeing that he is not taking any activities which would harm the principal (bonding cost). Even with monitoring and bonding costs, the incomplete contract between the principal and the agent will always create the condition for the residual loss to appear.

Whether costs reflect the self-interested opportunism of managers (wealth creation for themselves instead of owners) or their shirking behaviour (lack of attention to maximize owners' interest-firm performance), the principal is exposed to the agent's behaviour.

Therefore, the corporate governance framework involves developing a set of structures, processes, cultures and mechanisms to cope with the inevitable agency cost and its minimisation.

These mechanisms monitor and influence the behaviour of managers at the firm level (internally) or market level (externally). Their efficiency varies with differences in corporate governance structures, legal frameworks, capital market settings and whether they are created to be utilised as a group or as a single instrument that ensure effective corporate governance framework.

The discussion in Chapter 1, starting from theory of the firm and the properties of agency theory to different corporate governance mechanisms created for the efficient resolution of agency problem, forms the foundation on which our research relies, the role of ownership concentration and its impact on the firm performance, is based.

Chapter 2, therefore, reviews the literature evaluating the role of ownership concentration as an alternative or a supplement to conventional corporate governance mechanisms in different economic environments (developed economies vs. transition economies). The inconclusiveness and, to some extent, the inconsistency of the empirical literature on the relationship between ownership concentration and firm value triggers the need for a quantitative review and summing-up of the literature using Meta Regression Analysis in Chapter 3.

CHAPTER 2

THE RELATIONSHIP BETWEEN OWNERSHIP CONCENTRATION AND FIRM PERFORMANCE: AN AGENCY THEORY PERSPECTIVE

2.1 Introduction

In this Chapter we provide a detailed critical review of the literature on ownership structures in different corporate governance frameworks. The focus of this Chapter is to survey the theory and empirical evidence that analyses the relationship between ownership concentration and firm performance. The rapidly growing literature on this topic has its roots in the work of Berle and Means (1932) and Jensen and Meckling (1976). They postulate that the agency problem arising from the separation of ownership and control reflects an underlying premise that self-interested managers take actions that may be inconsistent with the aims of shareholders. Therefore, the emerging ownership structure, reflecting the shareholders' desire to optimise their position given all relevant factors, is considered an important instrument in corporate governance frameworks that are created to resolve the conflicts of interest between shareholders and managers. How powerful or effective this process may be remains the question that we shall try to analyse in more detail in this Chapter as well as in Chapter 3.

In addition, discussion of the second part (starting with subsection 2.4) of Chapter 2 is motivated by the rich debate on how the agency problem is reflected in the ownership concentration-firm performance relationship in Transition Economies (henceforth TEs). Given the weak institutional settings (inefficiently enforced property rights, governance, and poor protection of minority shareholders) in these countries, two issues will be addressed: first, the assessment of the ability of ownership concentration to counterbalance the deficient institutional settings in TEs, i.e., to what degree ownership concentration can control and align managerial behaviour; and second, the assessment of how efficient ownership concentration in this setting can prevent the expropriation of minority shareholders. Furthermore, in the context of TEs as an inseparable part of the above-mentioned discussion, we review a rich body of empirical literature which analyses the superiority of different ownership structures, or identities, in respect to achieving better firm performance. This review specifically examines whether foreign ownership outperforms other types of ownerships, and whether privatisation is vindicated by underperformance of state-owned firms compared to other types of ownership. These two issues will be the subject of separate empirical analysis in Chapter 4.

We commence Chapter 2 with a section explaining the existing variations in country-specific ownership structures with special reference to the analysis of cross-country legal frameworks

which predominantly moulded corporate governance settings and the role of the ownership concentration in them. This leads to the influence of ownership concentration as the controlling mechanism that should force managers to align their behaviour with shareholders' interests. We continue by outlining theoretical views on whether ownership concentration affects firm performance at all and, if so, whether the effect is positive (incentive-alignment), negative (entrenchment of managers or outsiders and the expropriation of the private benefits of control) or non-monotonical (combination of these opposite effects) or non-existent. In the penultimate section (2.4), we review the changes in ownership structures and types of dominant owners in TEs, triggered by various privatization methods and which have taken place in parallel with the emergence of corporate governance mechanisms and the development of stock markets in these countries. We conclude by setting the scene for the quantitative review of the empirical evidence using Meta regression analysis in Chapter 3.

2.2 Ownership structure: Cross-country variation

There are significant differences in the levels and structures of shareholding across countries. These differences primarily reflect the diversity of the corporate governance systems in different countries. Stressing the importance of variations within corporate governance systems, we can divide ownership structures across the world into two groups: (i) ownership structures which reflect insider (Anglo-Saxon) corporate governance system present in the USA, in the UK, Australia, and to some extent in Canada (although it is more of a hybrid system with predominant influence of the insider system); and (ii) ownership structures which reflect outsider corporate governance systems (Continental European) present in Germany, France, Italy, Greece, Scandinavian countries and Benelux countries. Again, in the case of Japan, it is more of a hybrid system with stronger emphasis is on the outsider corporate governance system.

The main attributes of the insider corporate governance system are: dispersed ownership, a developed alternative corporate governance mechanism such as a managerial labour market, a market for corporate control in the form of hostile takeovers (Ferrell, 2003), and a developed mechanism of equity based compensation to create incentives for managers (Coffee, 2005). At the same time, these systems have developed within a very developed and liquid capital

markets (Becht, 1999). Moreover, Coffee (2001) points out that the cost of entry and exit into the firm's shareholding are low. These systems are prepared to swap the possibility of ownership concentration and a certain level of active investment for the sake of liquidity. Pyramidal ownership is usually forbidden in these countries. This type of ownership was common in the USA until the implementation of the New Deal initiatives in 1930 (Morck, 2006).

In the Continental European corporate governance systems, with some variations among countries, ownership concentration (i.e. large block holders) is the most prominent feature. In these systems, standard corporate governance instruments such as managerial labour market and hostile takeover (external mechanisms) are underdeveloped, while managerial contracts are mostly cash-incentive based. Contrary to the Anglo-Saxon systems, Continental European capital markets are less liquid with shareholders that are more interested in long-term active investment than in speculative trade. The less liquid capital markets in the Continental European countries may result in distorted and inefficient information about the firm's quality if judgment is made on the share price. The main difference among Continental European countries is the variations in the ratio between ownership right and voting right of shares, i.e. whether countries have pyramidal or cross ownership (as in Germany), or they do not (as in the Netherlands).

Berglof and Burkart (2003), supported by Barca and Becht (2001) and; La Porta et al. (1999), find that, on average, companies in Austria, Belgium, Germany and Italy have a single controlling blockholder, which holds more than 50% of voting rights. Similarly, in the Netherlands, France, Spain and Sweden, a single controlling blockholder is very common, holding between 20% and 43.5% of the voting rights. On the other hand, in the United Kingdom, on average, a single shareholder controls only 9.9% of voting rights. La Porta et al. (1999) compared companies from 27 of the most developed economies and, unsurprisingly, found high dispersion of ownership in the UK and US companies, while other countries starting with Germany (institutional shareholding) and Sweden (family shareholding) experienced concentration of ownership. With these differences between Continental European and Anglo-Saxon ownership structures, the question of their origin and their explanation becomes fundamental to this discussion and needs to be answered.

One possible explanation has been offered by the so-called “law and finance theory” developed by La Porta et al. (1998, 1999, and 2000). This theory represents an aspiration to integrate the theory of corporate finance, institutional economics, and legal and economic history to explain the above divergence in corporate governance systems, and their effect on economic growth. La Porta et al. (1998) as well as Graff (2005) point out that countries’ corporate finance laws rely on the historical legacy of their laws. There are three main types of legal legacies which might explain the differences in ownership concentration across countries: Common law, Civil law and German and Scandinavian civil law.

The Common Law which originated in the UK and adopted in all former UK colonized countries including USA, Australia and Canada, is predominantly based on the rights of private property:

“The English common law tradition is almost synonymous with judges having broad interpretation powers and with courts moulding and creating law as circumstances change. The common law is obsessed with facts and deciding concrete cases, rather than adhering to the logical principles of codified law”.

Beck and Levine (2003)

On the other hand, France has a legal legacy based on Roman Law principles, widely known as “Civil Law”.

“Like Justinian, Napoleon sought a code that was so clear, complete, and coherent that there would be no need for judges to deliberate publicly about which laws, customs, and past experiences apply to new, evolving situations. Furthermore, this approach required a high degree of procedural formalism to reduce the discretion of judges in regulating the presentation of evidence, witnesses, arguments, and appeals ... The French situation encouraged the development of easily verifiable “bright-line-rules” that do not rely on the discretion of judges.”

Beck and Levine (2003)

In Germany and Scandinavia they made certain adjustments to Civil Law. German Civil Code, based on Bismarck's changes of civil law in 1873 represents, "a dynamic, common fund of legal principles that formed the basis for codification in the 19th century" outline Beck and Levin (2003, p. 8). Moreover, in contrast to the revolutionary zeal and antagonism to judges that shaped the Napoleonic Code:

"German legal history shed a much more favourable light on jurisprudence and explicitly rejected France's approach ... Whereas the Napoleonic code was designed to be immutable; the Bürgerliches Gesetzbuch was designed to evolve."
Graff (2005)

Although one cannot derive a conclusion about differences among ownership structures in different countries from the description of their legal legacies, empirical literature finds the evidence that the adaption of the common and civil law has different effects on the level of ownership concentration and the type of agency problem that arises as a consequence of the separation of ownership and management. According to Lopez-de-Foronda et al. (2007, p. 1130) in common law countries, "as a consequence of the relationships between managers and shareholders, capital structure and managerial ownership are the most effective mechanisms of control. In civil law countries, however, as a consequence of the conflicts between majority and minority shareholders, the ownership concentration and the sharing of control within the firm become crucial."

One of the most important differences among these legal systems is their capability to evolve and adapt. In respect to the above criteria, these laws can be ranked as follows: the most adaptive is Common law, followed by German and Scandinavian civil law while the law with the lowest ability to adapt is French civil law. As Common law has a greater power of adaptation, it is easier in common law countries to develop new corporate governance instruments for investor protection. Graff (2005) takes nine criteria to measure which of these three laws assure the best investment protection: (i) one share-one vote, (ii) proxy voting by mail, (iii) shares not blocked; (iv) cumulative voting, (v) oppressed minority, (vi) pre-emptive rights, (vii) extraordinary rights, (viii) anti-director rights and (ix) mandatory dividend. He found that the common law system is better (obtaining a grade 4), then the German Law system (obtaining an average grade of 3) while the French law system had a grade 2.33. This implies that in terms of shareholders' protection, common law performs better. It appears that

the common law system generally provided a more favourable starting point for financial development and economic growth, whilst the French variety of the civil law tradition provides the least opportunities.

However, Graff (2005) fails to prove that common law provides better investor protection over German or French civil law, although he notes “the legal tradition” of the common and civil laws view investors differently. Therefore, in the context of the evolution of corporate governance based on different legal frameworks, it appears that common law provides the most favourable setting for the corporate governance development as opposed to civil law which shows the least favourable setting.

Another perspective on the evolution of corporate governance systems is provided by Bebchuk and Roe (1999). The so-called “path dependency theory” in essence represents the quantitative equivalence of “finance and law theory” previously explained. According to Bebchuk and Roe (1999), corporate structures differ across advanced economies due to the historical development path of corporate structures. They argue that the corporate structures in any economy in the present depend largely on those structures that it had in the past. Path dependence is created by combining two factors: (i) structure driven factors, and (ii) rule driven factors. In structure driven factors, the corporate structures embedded in an economy are built upon the structures with which the economy started. Initial ownership structure (the ownership structure in time t_0 has such a powerful effect because it affects the identity of the ownership structure that would be chosen by the firm in time t_1 providing incentives to existing shareholders and accelerate changes in the future ownership structure. In rule driven factors, corporate rules, which impact ownership structures, will themselves rely on the ownership structures built in the initial phase. These initial ownership structures induce the constitution of both, (i) rules and mechanisms that would be effective, and (ii) the interest groups that would have enough power to choose these rules and mechanisms.

Finally, Coffee (1999) provides the “Strong Convergence Thesis”, explaining differences in ownership structure across countries, but more importantly, attempting to provide an answer to the question of what a future superior ownership structure should look like. According to Coffee (2001), dispersed and concentrated ownership are not just different, but they are competing. The ultimate “winner” of this Darwinian process is not yet known. Would winners be sharing a market-focused system based on dispersed ownership like that which is

present in the USA and the UK, or would it be block holdings and cross shareholdings characteristic of Continental Europe and Asia? According to the “Strong Convergence Thesis” a winner does not necessary have to exist.

This thesis provides a middle ground solution, between two schools of thought: (i) the neoclassical view recognizable in the work of Demsetz (1983) and Easterbrook and Fischel (1991); and (ii) the political forces and path dependency view promoted by Roe et al. (1999) and Graff (2005) which has a different vision of the future of corporate governance systems. On the one hand, the neoclassical school of thought treats corporate governance as one type of technology. There is no middle solution. If a company chooses a technology which is less effective in the long term, the firm’s overall efficiency will suffer and competition will punish the company for making a wrong choice. As Easterbrook and Fischel (1991) point out, if we take into account the efficiency of corporate governance systems, one system has to ultimately prevail and firms that choose the “wrong” corporate governance system will have to adjust or disappear.

The proponents of political (legal) forces and history path dependency theories find that in common law countries political forces established an environment in which security markets can grow and prosper at the expense of lower capacity of active managerial monitoring through ownership concentration and creating incentive instruments founded on the short-term achievements of managers. Alongside that, political forces based on civil law created strong financial intermediaries in comparison to weaker stock markets where ownership concentration provides better monitoring of managers that are focused on achieving long-term goals (Pound, 1993). This means that both systems have survived due to their relative differences which have a long history and path dependency (Roe et al., 1999). In the meantime, they continuously created different sets of political and legal devices in accordance to their priorities (stock market liquidity vs. long-term investment).

These conclusions are not echoed in the work of Aguilera and Jackson, (2003); Aguilera et al. (2012); Haxhi and Aguilera (2012, p. 234) who argue that, “firms have some degree of freedom in creating their corporate governance portfolio even though they are embedded in a given national or institutional environment. “They strongly oppose the assumption that internationalization of the corporate governance practices should be seen as increasing competition over “best practices,” leading to a convergence toward practices of Anglo-Saxon

Countries. At the same time, they disagree with the contrasting assumption that the countries will continue to diverge along stable, path-dependent trajectories. Instead, Aguilera and Jackson, (2003, p. 461) claim that “the multilevel interactions spanning from international to national and sub-national policies, most strikingly through the European Union,” together with variations in behaviour among different stakeholders should incentivize corporate governance practices “hybridization” rather than fostering convergence or “path dependency” of corporate governance practices.

These findings are in line with those of Yoshikawa and Rasheed (2009 and 2012) whose argument is that inevitable changes in corporate governance are subject to increasing integration of product and capital markets. Nonetheless, these changes that aim to achieve greater efficiency are limited and usually subject to local institutional and political settings leading to the creation of “hybrid” solutions rather than the adoption of mechanisms characteristic of other corporate governance settings.

Finally, those supporting the “Strong Convergence” idea point out that in future, a convergence of systems can be expected (Carati and Rad, 2000; Gilson, 2000; Nestor and Thompson; 2004; Wojcik, 2006, among others). Continental European countries are gradually developing their stock markets and devices for minority shareholders protection while the USA and UK are developing devices for better monitoring of managers, including better organization of dispersed shareholders on the secondary markets. Coffee (2001) predicts the convergence of these systems given that both systems wish to overcome their relative weaknesses by developing legal instruments, bringing them ever closer.

To sum up, the “law and finance” theory developed by La Porta et al. (1998) explains in detail how current ownership structures have developed across different countries. The core explanation is that the legal legacies (such as the judicial system) of countries affect the development of their corporate governance systems. “Path dependency” theory, promoted by Bebchuk and Roe (1999), more or less provides a quantitative explanation of “law and finance” theory, providing time dimensions to the theory. The conclusion is that ownership structures are deeply dependent on their past values and owners' identities, causing further divergence of corporate governance mechanisms across countries.

At the same time, the three different theories provide different visions of future corporate governance systems and their potential ownership structures. While “legal” and “path dependency” theories predict the further development of each, the Continental European and Anglo-Saxon corporate governance systems are driven by intrinsic differences in their laws and economic backgrounds. The neoclassical view promoted by Demsetz (1983) supports the theory that one corporate governance system has to prevail considering corporate governance as a type of more or less efficient technology.

2.3 Ownership Structure and Firm Performance: Theory from Developed Economies

The idea that ownership concentration and firm performance relationship is ambiguous is considered more an axiom in current empirical research than a theorem requiring proof. Berle and Means (1932) triggered a prolonged debate on how the separation of ownership and control leads to the strengthening of management incentives to maximize firm value, i.e. to act in the best interest of owners. This problem was thoroughly analysed by Jensen and Meckling (1976) who stress the importance of solving the agency problem between self-interested managers (agents) and owners (principals) with clear instructions to the agents to act in the owners’ best interest and aim for firm value maximization. Therefore, we try to explain three broad strands of research based on different understandings and assessments of whether ownership concentration can actually monitor managers or change entrenched managerial behaviour; and ultimately, how ownership concentration interrelates with firm performance.

Given that the empirical literature analyzing the impact of ownership concentration and firm performance is huge¹⁴, we focus on different theoretical aspects of this relationship and the relevance of the assumptions of the agency problem. This would give us an intuitive response to the diversity of findings of empirical research. In the case of developed economies, understanding the difference in theoretical aspects would help in coding the distinctive control variables that will be applied in the Meta Regression Analyses in the next chapter.

¹⁴An economic literature data-base search of “ownership +” “concentration” + “firm performance” or “value,” lists more than five thousand articles, books, papers, working papers, etc. on this topic

2.3.1 Incentive Alignment Theory

The incentive alignment theory is based on the traditional agency theory literature that predicts that an increase in managerial or outsider ownership will help align the interests of managers (or outsiders) with other shareholders. Jensen and Meckling (1976) and Zeckhauser and Pound (1990) argue that the increase of the stakes of single owners advances their incentive to fully utilize their control rights and impose performance maximizing decisions thorough monitoring the managers. The classical agency theory assumes that active monitoring of management will restrain managers from extracting benefits at the expense of shareholders. Extraction of benefits by managers takes many forms from shirking and consumption of excessive perquisites to sub-optimal investment (Fleming et al., 2005, p. 31).

The question arises, if large owners are able to prevent this behaviour among managers, how do we explain a dispersed ownership structures in Anglo-Saxon countries, for example? This question raises two issues of interest: (i) whether incentive alignment theory is sensitive to the type of corporate governance system in the country; and (ii) whether the alignment of managers' interests is more effective through its direct control or through the creation of appropriate incentive-based and control-based (bonding and monitoring) instruments.

It seems that the type of corporate governance system matters in the context of incentive alignment – managerial entrenchment controversy. When managerial contract incentives are not so strong, as in Continental European countries where stock based compensation and the market for corporate control are not developed (Coffee, 2005), it can be expected that the room for manoeuvre for managerial entrenched behaviour is less possible and incentive alignment through managerial monitoring is a more likely outcome. Namely, one might expect that in the 'insider corporate governance systems' (characteristic of Anglo-Saxon countries and explained in detail in Appendix 1.1) where ownership concentration is substituted with internal and external corporate governance mechanisms, some of these mechanisms (especially incentive contracts that should help to align the interests of owners and managers), may turn out to be inefficient. Even more, they may trigger the entrenched behaviour of managers with detrimental impact on firm performance. On the other hand, one may expect that in the 'outsiders corporate governance systems', ownership concentration as

a popular instrument substituting other (less developed) corporate governance instruments may efficiently alleviate the agency problem by aligning their interests by better monitoring. For example, in line with the incentive alignment theory, Kaserer and Moldenhauer. (2008) use data from Germany and find a strong long-term positive relationship between insider ownership concentration and firm performance. However, these studies do not provide any explanation as to whether a positive significant relationship between insider ownership and firm performance in Continental European countries is due to share based contracts or better monitoring practice of large outsider shareholders. Given that the differences in corporate governance systems might have a significant impact on the firm performance volatility across countries, this issue needs to be taken into account in the MRA in Chapter 3.

Although the incentive alignment theory should represent a logical outcome of agency theory, there are only few studies that analyze the power of certain types of corporate governance mechanisms such as managers' stock options compensation plans. In one of those rare studies, Jin and Meulbroek, (2001) examine whether stock option contracts have the power to align interests of managers with interests of the firm and whether this mechanism can be sustained in conditions of low market prices. They discovered that equity-based compensation contracts and stock option contracts are both very efficient in aligning managerial interests with the interest of firms, and moreover, in contrast to the logic of self-interested behaviour, managers seems to be insensitive to a decline in stock prices. On the other hand, Jensen et al. (1989) argue that managerial compensation contracts are rarely connected with firm performance, which could lead to underperformance of managers. Namely, managers become more focused on performance driven contracts, focusing solely on the targeted firm performance. Similarly, Jensen et al. (2004, p. 98) argue that "while executive compensation can be a powerful tool for reducing the agency conflicts between managers and the firm, compensation can also be a substantial source of agency costs if it is not managed properly."

In short, we can conclude that incentive alignment theory represents a clear outcome of the agency theory explained by Fama and Jensen (1983) and Jensen and Meckling (1976): managers will behave in line with the firm's interests if they are insider owners of those companies. However, many questions remain unanswered, such as: What type of compensation contracts are necessary to genuinely align interests of managers? To what

extent are these contracts really connected with firm performance? Empirical evidence finding the positive impact of ownership concentration on firm performance is very extensive and varied. However, the evidence for a positive impact of ownership concentration on firm performance is more in the context of Continental European countries and emerging markets rather than Anglo-Saxon countries. Therefore, an interesting question is whether the incentive alignment theory is more applicable in the Continental European countries, where monitoring of managers by large outsider shareholders might be an efficient solution, or if the corporate governance systems in these countries create the opportunity for the extraction of private benefits of control by large shareholders or opportunistic behaviour by insider owners, which undermines the assumptions of incentive alignment theory? The answers to these questions go beyond the scope of the narrative review of the incentive alignment theory. We will return to these issues later in the MRA in Chapter 3.

2.3.2 Entrenchment Theory

The underlying assumption of “entrenchment theory” (henceforth ET) is that managers exercise private benefits of control by: (i) implementing costly entrenchment strategies in order to preserve their positions in the firm, (ii) neutralizing voting power of other shareholders, (iii) making their dismissal by other shareholders costly, (iv) expropriating other shareholders. Managerial entrenchment, if not controlled, leads to the expropriation of shareholders’ wealth or an inefficient allocation of firm resources (Shleifer and Vishny, 1989; Shleifer and Vishny, 1997; DeAngelo and Rice, 1983, Jensen and Warner 1988). Therefore, entrenchment of managers is one of the most acute demonstrations of agency problem (Jensen and Ruback, 1983).

Ang et al. (2000) pioneer an attempt to quantify agency cost (in absolute and relative terms) that is triggered by the separation between owners and managers. They find that agency cost is inversely related to the managerial stake in the firm and they assume that agency cost, calculated as the loss of the revenue created by sub-optimal asset utilization, results in dubious investment decisions by managers, known as managerial shirking. However, Jensen and Ruback (1983, pp. 30-31) argue that it is very difficult to measure the agency costs of manager-shareholder conflict due to at least three reasons: (i) measurement of the relative impact of the various external and internal mechanisms may subdue managerial departure

from firm value maximization; (ii) difficulty in identifying and quantifying benefits that managers obtain when implementing opportunistic decisions; and finally, (iii) when a suboptimal decision is made, it is difficult to distinguish whether it is the result of managerial incompetence, managerial opportunism or just bad luck. Furthermore the shareholder-managers conflict and their relative power may be blurred with differences between cash flow and voting rights of the shareholders (Morck et al., 2005; Jensen and Ruback, 1983; Jensen and Warner, 1988).

The entrenchment theory begins with Fama and Jensen (1983) who stressed the offsetting costs related to significant management ownership. They argue that when managers hold small ownership stake, they are disciplined with various factors such as: (i) the managerial labor market (Fama, 1980); (ii) the product market (Hart, 1983); and (iii) the corporate control market (Jensen and Ruback, 1983; Stulz, 1988; Manne, 1965; Marris, 1964). In practice, managers use various mechanisms to neutralize the effects of especially external corporate governance mechanisms (Dahya et al., 1998; De Miguel et al., 2004; Denis et al., 1997; Morck et al. 1988), through: (i) poison pills¹⁵ (Field and Karpoff, 2002; Bebchuk et al., 2002; Denis, 1990); (ii) anti-takeover measures (Gompers et al., 2003; Bebchuk et al., 2009; Jensen and Ruback, 1983; Jensen and Warner, 1988); (iii) increased cost of management layoffs; or (iv) “golden parachutes”¹⁶ (Blair, 1994; Kleinfield 1982; Lambert and Larcker 1985; Fiss, 2006). The focus of our interest is whether managerial ownership and the behaviour of managers have a detrimental impact on firm value.

According to the classic assumption of the shareholders-management conflict, entrenched behaviour would lead to inefficient allocation or misuse of resources, and adverse effect on firm performance. This occurs due to the existence of asymmetric information between managers and shareholders which creates a moral hazard problem and the inability of shareholders to quantify the loss occurred by opportunistic behaviour of managers.

However, another strand of empirical evidence maintains that the impact of managerial entrenchment actions on firm performance is not harmful at all. According to Surroca and

¹⁵Poison pill can be defined as a mechanism or management strategy used to discourage hostile takeovers as attempts to make its shares less attractive to the potential acquirer.

¹⁶Golden parachute usually refers to the extra compensation that management receives when their contract are terminated, or when they are forced out of the company, usually just before or after the takeover. In this manner, shareholders have an increased cost of potential layoff of the management.

Tribo (2008) and Waddock and Graves (1997), managerial entrenchment may have a positive impact on firm performance when there is excessive external pressure from financial markets which promotes corporate social responsibility (CSR) strategies implementation, and which are in the long-run beneficial for firm performance. Similarly, Rajan and Wulf (2006, p. 1) argue that although “executive perks are a form of agency or private benefit and a way for managers to misappropriate some of the surplus the firm generates,” simultaneously managerial perks may have positive effects on managerial productivity and firm performance.¹⁷

A large part of empirical literature on ET claims that managerial behaviour is a function of the managerial ownership level, alluding to the presence of the nonlinear relationship between insider ownership and firm performance and reflecting shifts of managerial behaviour at different levels of ownership. For example, Stulz (1988) develops a model in and, in contrast to the findings of Jensen and Meckling (1976), finds that managerial ownership is positively related to firm value at lower levels of managerial ownership but becomes negatively affected at higher levels. Similarly, McConnel and Servaes (1990) show that after a certain level of managerial shareholding, cost of managerial entrenchment escalates and becomes more influential (providing more benefits) than the benefits of the alignment of interest characteristic of lower levels of managerial shareholding. According to Jensen and Meckling (1976) and Haugen and Senbet (1981), it is assumed that if managerial performance is measured by means of high pay-performance sensitivity (for example by share prices), one should expect to observe managerial initiative to work hard and pursue lucrative, risky projects.

However, high managerial ownership burdens managers relative to diversified small shareholders. According to Ross (2004) and Lewellen (2006) the more sensitive managerial pay is to a performance instrument, the more risk-averse the agent (or manager) becomes. This would imply that managers with high ownership stake in the firm become more risk averse, pursuing sub-optimal, less risky policies. A similar argument was used in the work of Bolton and von Tadden (1998) and Burkart et al. (1997) in the case of outsider concentration, pointing out that outsiders’ concentration makes owners risk-averse, restraining managers from risk-taking behaviour and/or initiative, and negatively affecting firm performance.

¹⁷For a detailed discussion on the pros and cons of managerial entrenched behaviour and whether they consistently pursue entrenched behaviour, especially in antitakeover measures, see Straska and Waller, 2013.

On the other hand, according to Morck et al. (1988), there is a non-monotonic but significant relationship between insider ownership concentration and firm performance: a positive relation can be expected at ownership levels below 5% and above 25%. However, in the medium range 5%-25% of managerial ownership, the entrenchment effect is stronger than the alignment effect inducing a negative impact on firm performance. The rationale behind this view is that at the low level of managerial ownership (below 5% for US firms), the managers' position is very weak and the managerial labour market can punish managers who are not behaving in line with firm value maximization. On the other hand, a high level of managerial ownership would lead to aligning the interests of managers and shareholders (value maximization goal) because the benefits from a value maximizing goal overpowers entrenchment benefits. However, in the middle range (5% to 25%), benefits that managers could obtain by pursuing their own interests are higher than those obtained by firm value maximization, and in the middle range of managerial ownership, a negative impact on firm performance may be expected. Short and Keasey (1999) find that Morck's threshold levels are too low in the case of UK companies, so they ran regressions with ranges of 10%-30% and 20%-40%, stressing that UK firms are smaller and less sensitive to wealth change in terms of increase and decrease of managerial ownership. These findings are similar to those of Cosh et al. (2001), Gugler et al. (2004), McConnell and Servaes (1990), Holderness et al. (1999), Alimehmeti and Paletta (2012), Gugler et al. (2008), etc., diverging mostly in terms of threshold levels.

According to Gugler et al. (2003), it is very difficult and inaccurate to use one measure of insider ownership, usually the percentage of shares held by managers, if two different concepts - entrenchment and alignment of interest - are simultaneously present in the relationship. This issue becomes very important given that with the change of managerial ownership levels, their relative impact changes as well. Thus, Claessens et al. (2002) try to distinguish between two different variables: proxies for managerial ownership of which one captures only the entrenchment effect, while the other captures the incentive alignments effect.

According to Gugler et al. (2003), the total value of managerial shareholdings is a good proxy for capturing incentive alignment. The rationale is that ownership concentration in the form

of a percentage shareholding does not take into consideration the size of a company. This means that an increase of 5% in insider managerial shareholding is, in terms of the percentage, to the same for a large as well a small company. However, this increase is significantly different if it means an increase of £50 mil. in the large company and £0.5 mil. in the small company. Conversely, the percentage of managerial ownership is a good proxy for capturing entrenchment effect. The logic behind this choice is that if the percentage of managerial shareholding increases, it is more difficult to control them, e.g., it is more difficult to “displace managers through takeover” or “vote them in a proxy contest”. Gugler et al. (2003) empirical results suggest that managerial entrenchment has a negative, significant effect on firm performance, while investment alignment has a significant positive affect on firm performance. However, in cases where shareholding rights are not equal to voting rights, using pyramidal holdings, i.e. the situation in most Continental European countries, this approach is not applicable.

In summary, theoretical assumptions as well as empirical evidence of the negative and/or curvilinear relationship between (insider) ownership and firm performance is very rich and offers the evidence for the difference in the nature of the relationship between managerial ownership and firm performance (linear vs. nonlinear) diverging primarily in the assessment of the managerial behaviour at higher ownership levels. This will be taken into consideration in Meta regression analysis in Chapter 3.

2.3.3 The Neutrality Theory- Endogeneity of Ownership Structures

The core explanation of the neutrality theory formulated by Demsetz (1983) and Demsetz and Villalonga (2001) is that there is a lack of a systematic relationship between ownership structure and firm performance, i.e. ownership concentration adjusts itself to other firm and market condition variables –and therefore should be treated as endogenous. This theory questions the applicability of Bearle and Means’ (1932) idea of the separation of ownership and control, the presence and the magnitude of shareholders-managers' conflict and its resolution through ownership concentration. Zeckhauser and Pound (1990, p. 150) point out that if large shareholding assures active monitoring that “could deter managers from securing benefits at the expense of shareholder, ”aligning their interest with those of management and

affecting firms' performance in a positive way, then why do not all firms have large shareholders.”

Using data from US companies, Demsetz and Lehn (1985) indicate that diffused ownership, characteristic of Anglo-Saxon countries, accept having disadvantages but these are counterbalanced with a set of advantages that manifest in value maximization behaviour.¹⁸ At its core, ownership structures (diffused or concentrated) that maximize expected returns (value maximization) are those that emerge from the interaction of market forces. According to the neutrality theory, the ownership structure of a firm reflects profit that maximizes the interest of shareholders, i.e., a conglomerate of those shareholders who own and who would like to own shares of the company, while the market for shares represents a catalyst for exchanging these profit maximizing preferences. Consequently, “the ownership structure of a corporation should be thought of as an endogenous outcome of decisions that reflect the influence of shareholders,” (Demsetz and Villalonga, 2001, p. 2) and no systematic relationship between ownership structure and firm performance should be expected.

Researchers supporting the neutrality theory have developed a number of explanations for the causes of the endogeneity of ownership structure. Demsetz and Lehn (1985) and Demsetz and Villalonga (2001) provided the most exhaustive theoretical background on the determinants of ownership structure and its endogeneity but their explanation of its cause remains (simultaneity and/or unobserved heterogeneity) will be explained in more detail in Chapter 4. On the other hand, Himmelberg et al. (1999) developed a theory on unobserved heterogeneity affecting both ownership structure and firm performance. Nonetheless, their theory is based on very restrictive assumptions (time invariant unobserved heterogeneity) and questionable econometric techniques (Fixed effect).¹⁹ Finally, Kole (1995) and Cho (1998) provide

¹⁸ Cost of shirking, getting benefits from large ownership who invest in monitoring, or if there is no large shareholder getting poorer firm performance.

¹⁹This issue is analyzed in Chapter 4. In core, Himmelberg et al. (1999) provide extensive evidence in favour of the hypothesis that ownership concentration is endogenous due to unobserved, firm-specific heterogeneity (such as intangible assets, quality of monitoring technique of managers or market power). These affect both firm performance and ownership structure, thereby giving rise to an apparent yet nonetheless spurious relationship. At the same time, they model unobserved heterogeneity as a “firm Fixed effect” which, when included in an econometric specification, makes the relationship (between ownership concentration and firm performance) insignificant. On the other hand, Zhou (2001) argues that one-year changes in ownership are usually negligible and sporadic, which in turn are not likely to reflect within-year changes in firm performance. Instead, he

empirical results which are in favour of reverse causality being the source of endogeneity. Controlling for the endogeneity of ownership concentration is common in recent literature and can be easily controlled for using techniques such as the Instrumental Variable approach (IV) or General Method of Moments (GMM), as found in Javid and Iqbal (2008), Alonso-Bonis and Andres-Alonso (2007), Damijan et al. (2004), Gugler et al. (2008), etc.

We start with the theory presented by Demsetz and Lehn (1985) and Demsetz and Villalonga (2001) who were the first to highlight the idea that ownership should be treated as multi-dimensional and endogenous. They argue that the agency problem explained by Berle and Means (1932) and Jensen and Meckling (1976) is not very important in the context of a firm's performance, i.e., the manner in which share ownership is composed does not impact the quality of the firms' performance. Demsetz' Darwinian thesis of a superior corporate governance system being the outcome of fierce market competition argues that the "interplay of market forces" will determine a firm's performance while the ownership structure will be an "amalgam" of different shareholders with profit maximizing interests. This argument holds irrespective of owners' identity and their relative stake, i.e., no matter whether the ownership structure is concentrated or dispersed (Demsetz and Villalonga, 2001, pp. 210) or whether the largest shareholder is comprised of outsiders or insiders (Demsetz and Villalonga, 2001, pp. 215).

To put this differently, they argue that shareholders will adopt the ownership pattern that maximizes expected return given the interplay of market forces affecting a particular firm. Furthermore, they explain that the "market succeeds in bringing forth ownership structures, diffused or concentrated, that are of approximate appropriateness for the firms they serve" (Demsetz and Villalonga, 2001, p. 231). Furthermore, the difference in the ownership structures is caused by a market environment that affects the firm (economies of scale, the type of the industry, level of regulation, etc.). If the market was perfect, a systematic relationship between ownership structure and firm performance, would not exist. However, they argue that although the market is far from perfect, it still is not so "imperfect" to create

highlights the cross-sectional characteristic of (managerial) ownership structure: while ownership structure differs substantially from firm to firm, it hardly changes over time. In this case, because the Fixed effect estimator uses only within-group variation, it is inherently unable to yield efficient estimates of relatively unchanging ownership.

this relationship. In addition, Demsetz and Lehn (1985) provide an explanation for a set of market driven variables that affect ownership structure in the environment of an imperfect market, such as: firm size, amenity potential, level of market uncertainty, etc.

Although, Demstz and Lehn (1985) and Demsetz and Villalonga (2001) have presented a novel and important view on the relationship and insisting on the endogeneity of ownership structure, their theory also has a number of shortcomings. We can argue that by neglecting the agency problem, the identity of shareholders, or more precisely their interests, they undermine the importance of the corporate governance type. The neutrality theory is based on the so-called “*ex-post* rationalization” as explained by Zingales (2000). The market indeed determines firm performance, however, the market is an “*ex post*” evaluator of a firm’s competitiveness and comparative advantage. This comparative advantage reflects, among other things, the efficiency of corporate governance systems employed in the firm. Therefore, ownership structure should not be neglected, i.e., we could argue that an “amalgam of shareholders” or a better amalgam of potential investors interests is determined by the relative competitiveness of the firm.

Our first comment on Demsetz' theory is that agency problem cannot be ignored when investigating the relationship. The neutrality theory cannot be universally applied in all types of corporate governance systems. Irrespective of whether we talk about concentrated or dispersed ownership, different shareholders have different interests which have an effect on the firm’s performance. Thus, not only that ownership matters, but the identity of shareholders matters as well. We argue that the type of corporate governance system and the identity of the prevailing or dominant shareholder will have an impact on firm performance. In the case of dispersed ownership where the “amalgam” of the shareholder is very diversified, synergetic influence on firm performance may not exist. However, in the case of continental European countries, where the “amalgam of shareholders” is much more concentrated, we could expect a significant impact of outsider ownership concentration on firm performance.

The rationale for Demsetz’s critique is that market mediation theory could be applied in conditions where a stock market is developed and liquidity and ownership is dispersed. In

that case, the “amalgam of shareholders” is very diversified, and a significant proportion of shareholders is speculation driven with no incentive for long-term attachment or active involvement in a firm’s activities. In that case, the product market as well as the stock market could be explained as the perfect catalyst of shareholders preferences. However, do the same standards apply to companies in Continental Europe? Here, large owners that are exposed to risks are closely involved in strategic the decision-making process concerning a firm’s activities. Consequently, a significant relationship between ownership concentration and firm performance can be expected, whether positive (Gugler and Weigand, 2003) or negative (Wahla et al., 2012). The work of Gugler and Weigand (2003), Pindado and Torre (2004), etc. support the thesis that the ownership concentration and firm performance relationship works out differently in the case of German companies compared to US companies.

The second issue represents the relative importance that the identity of shareholder has for the relationship. Although Demsetz argues that the behaviour of managers in companies with dispersed ownership is irrelevant for the firm performance, he is among the first scholars to point out the importance in dividing outsiders and insiders when investigating this relationship. This very relevant issue will be analysed further in Chapter 3. We argue that the identity of owners matters when investigating the relationship, especially because of its importance in solving agency problem and difference in behaviour of outsider and insider as shareholders.

Finally, the third question we raise is connected with the econometric techniques that are applied. Namely, Demsetz and Villalonga (2001) in their empirical research using 2SLS estimation do not provide any convincing test for the endogeneity of ownership concentration. In the robust test and the results obtained, they fail to conduct, for example, the Durbin Wu-Hausman test which could provide a clear picture of the potential endogeneity of ownership structure. Also, although the IV approach successfully solves the errors-in-variables problem (Wooldridge, 2000, p. 461). Furthermore, an important drawback of performing IV estimation is “when x and the error term are uncorrelated, the asymptotic variance of the IV estimator is always larger than the asymptotic variance of the OLS estimator”, (Wooldridge, 2000, p. 466). Hence, the standard errors on IV estimates are likely to be larger than OLS estimates. Therefore, one may assume that in 2SLS, inflated standard

errors would lead toward less significant coefficients. This argument is explained in more detail in Chapter 4.

The second seminal empirical research which is based on the neutrality theory was conducted by Himmelberg et al. (1999). Unlike Demsetz, Himmelberg et al. (1999) do not deny the importance of the agency problem but emphasize the importance of unobserved heterogeneity in contracting environments across countries, industries and firms-which explains the absence of a relationship between ownership concentration and firm performance. Moreover, the unobserved heterogeneity also leads to differences in insider ownership structures across firms. Consequently, insider ownership concentration should be treated endogenously, i.e., the relationship does not exist but is being “built” on the basis of unobservable variables, affecting both insider ownership and firm performance.

The sample used in this study is based on the US corporate governance system, taking into account existence of ownership diversification and supported by the sound protection of minority shareholders. Moreover, Himmelberg et al. (1999, p. 355) provided an explanation of the variables used to control for moral hazard such as: advertising intensity, R&D intensity, cash flow, and investment rate and price variability.

However, Himmelberg et al. (1999) based their analysis on a set of very restrictive assumptions that have a significant impact on their results. It can be argued that these assumptions are questionable. The first issue is the appropriateness of the Fixed Effect estimator for investigating the relationship between ownership concentration and firm performance. According to Zhou (2001), a meaningful relationship between ownership concentration and firm performance will be hard to find when using Fixed Effect (FE) estimator. This estimator ignores changes taking place within the firm, i.e., it does not take into account the changes in insider ownership concentration within the firm over time; it only takes into account variation between firms. In that respect, very valuable information which can be useful in explaining the relationship is lost. By removing all cross sectional variation across the firms, it will be very unlikely that a significant relationship could be observed between ownership concentration and firm performance. In other words, the Fixed Effect estimator will not be able to capture a very important view that “managerial ownership

incentives are important for firm performance,” Zhou (2001, p. 560), where managerial ownership incentives are materialized by an increase in their shareholding (ownership) over years.

The second issue is related again to the appropriateness of using FE estimator for examining the ownership-performance relationship. This could also arise not only because of its inability to involve cross section variation, but because of its biased measurement error observed by Grilliches and Hausman (1986) which leads to over-rejection of the ‘no correlation’ hypothesis between ownership concentration variables and unobserved heterogeneity, i.e., this shortcoming of the FE estimator encourages results in support of the endogeneity assumption. In order to provide a check for robustness of the results obtained by the FE estimator (faced with limitations), Himmelberg et al. (1999) attempted to use an instrumental variable approach as an alternative to FE, but they find these results tentative because of weak instruments.

The third very sensitive issues on which the Himmelberg’s theory is based, is that unobserved heterogeneity represents a FE, i.e. it is time invariant. This is a very important element of the endogeneity argument because its proof is based on the existence of a correlation between time invariant unobserved heterogeneity and firm performance. In their regression, they account for observable firm characteristics (firm size, advertisement costs, etc.), and if unobserved heterogeneity is assumed a constant, then it would mean that managerial contracting environment is unchanged. If there is no change in the contractual environment, there is no change in managerial contracts (incentives) across firms, i.e., the assumption of the endogeneity of insider ownership concentration becomes unnecessary.

Overall, we can conclude that by using FE, Himmelberg et al. (1999) progressed the debated by comparing research that uses cross-sectional OLS and 2SLS estimations. At the same time, they do not undermine the issue of agency problem, rather, they emphasize the role of unobserved heterogeneity in a contracting environment which affects insider ownership concentration and firm performance, causing the endogeneity (between insider ownership concentration and firm performance). We should stress the importance expected long-term interest of (insider) owners and expected long-term performance, explained by Zhou (2001),

that is missing in the case when FE estimator is used. Therefore, a dynamic panel data estimator could efficiently capture dynamic of the potential relationship and could be considered as a desirable estimation technique in comparison to Fixed Effects.

Finally, the third group of studies supporting the neutrality theory is focused on the reverse causality as the main cause of the endogeneity of ownership concentration. Cho (1998) and Kole (1995) are the most representative empirical research in this area. Cho (1998) argues that there is reverse causality between ownership and performance stressing a three dimensional assumption that insider ownership has an impact on investment (i.e., capital expenditure), which in turn affects corporate performance. Controlling for endogeneity in simultaneous equations using 2SLS, he finds that investment positively affects corporate value, which affects positively insider ownership. He assumes that insider ownership is very sensitive to firm value and investment opportunities; which mean that managerial ownership will increase in the firms with better investment opportunities translated in better firm performance. This assumption coincides with the assumption of Murphy (1985), who argues that “ownership structure can represent an endogenous outcome of the compensation contracting process,” Cho (1998, p. 106). He argues that investment is the connecting element between insider ownership concentration and firm performance and mutually affects both of them (directly or indirectly). However, except for this point which is to a certain extent expected, he fails to provide any systematic explanation regarding the endogeneity of insider ownership.

In the sample used by Cho (cross section data from 1991), the mean value of insider ownership is 12.14%, significantly higher than that in the Demsetz and Villalonga (2001) which was 3% (for a similar sample for the period 1976-1980). This supports Coffee’s (2005) observation that substantial increase of insider ownership in the US companies occurred in the late 1980s and 1990s. However, if we look closely at Cho’s sample, the standard deviation is very high (18.1) and median is 4.45%, which explains that half of the firms included in the sample have quite low insiders stake (lower than 5%). Consequently, we could argue that the choice of the companies in the sample (taking into account that Fortune 500 includes the largest publicly traded companies with very diversified ownership structure) can have a very important role in the obtained results. On the other hand, starting from the Demsetz and Lehn (1985) conclusion of the shareholders’ risk adverse behaviour in large

firms, Kole (1995) develops the hypothesis of reverse causality, suggesting that managers in high performance firms will prefer higher equity stakes using stock-based compensation schemes. However, both of them concentrated heavily on empirical research and failed to provide any systematic explanation on the reverse causality as a potential reason for the endogeneity of insider ownership.

The endogeneity of ownership structure is an assumption that is almost without exception taken into consideration in recent empirical literature. This issue, which strongly divides the empirical evidence, would be coded in the Meta regression analysis (see next Chapter).

2.4 Ownership concentration and firm performance: Theory and Evidence from Transition Economies (TEs)

This subsection provides a review of the empirical literature concerning the relationship between ownership concentration and firm performance in transition economies (henceforth TE). The ownership structures in developed and TEs diverge in their nature and conditions of development as well as in distribution, deepness of adjustments, speed and institutional framework in which they have developed. In general, TEs embarked on structural and political reforms aimed at macroeconomic stabilization and microeconomic restructuring. These countries are distinguished primarily by their relatively “high level of human capital, initial lack of wealth in private domestic hands, and a heritage of anti-entrepreneurialism,” (Estrin et al., 2009, p. 1). One of the dominant characteristics of TEs is the speed of ownership structural change, underpinned by each country’s specific privatisation design.

In the context of TEs, we highlight two factors that predominantly affect patterns of ownership structure: (i) privatization, i.e. the process transferring the ownership rights in formerly state owned or socially owned enterprises and (ii) the gradual development of a corporate governance framework and its interrelation with ownership concentrations (perceived mostly as substitutes rather than complements, McGee, 2008; Lazarova, 2008). In this subsection, the following will be addressed: first, how privatization affects ownership concentration; second, whether ownership concentration fills the gap resulting from the absence of corporate governance mechanism and if so how; and third, what is the leading agency problem triggered by high ownership concentration (private benefits of control, expropriation of minority shareholders in TE).

2.4.1 Privatisation and its implication for ownership structures in TEs

Privatization is perceived as a core element of the transition process that should, among other benefits, improve corporate governance and firms’ efficiency (Megginson and Netter, 2001). In fact, privatization, perceived as the transfer of ownership rights (from the state to private owners), is seen as crucial for the efficient allocation of resources and long-term economic growth (Estrin et al., 2009). However, it is difficult to compare different countries given the differences in the speed of the privatization, the methods of privatization and the initial

conditions. Namely, the differences in ownership concentration patterns across TE are primarily caused (among other relevant factors) by differences in: (i) privatization speed and sequencing; (ii) privatization methods, and (iii) initial conditions of institutional settings and their evolution. A general premise is that privatisation should create new and efficient ownership structures. However, the empirical evidence does not firmly indicate efficiency and optimal distributional effects of different privatisation methods. For example, some privatisation methods have a prominent dimension of social fairness, while others contribute to the development of the capital market (voucher privatisation) which may not coincide with the creation of sound corporate governance systems.

Concerning the speed of privatization, according to Simoneti et al. (2005), “the ideal privatization strategy is to transfer assets as rapidly as possible to concentrated owners through open, fair and transparent methods.”²⁰ In essence, “big-bangers”– academics support the premise that fast extensive privatisation and reforms are leading to efficient ownership structures (De Melo et al., 2001; Sachs, 1996; Aslund, 2002). A general strategy of most TEs was to privatize a large number of firms as soon as possible (Estrin, 1994). This strategy takes into account goals such as fast price liberalization, the withdrawal of the state from intervention with its less than optimal decision making, and achieving desired political stability (Frydman and Rapaczynski, 1991; Shleifer and Treisman, 2005) or the prevention of asset stripping by managers and/or employees in the environment when property rights are not well defined and enforced (Frydman et al., 1993). The second group consists of “Gradualists” (Stiglitz, 2000; Popov, 2000; Popov, 2007; Burawoy, 1996, etc.) who argue that if privatisation is not accompanied by gradual and systematic institutional reforms, its implementation may have the detrimental effect of incentivizing new ownership structures’ perverse behaviours. As noted previously, various aspects of privatisation, if neglected by authorities that carry it out, may hamper its success at the country level and threaten accomplishment of its purpose: creating owners that will behave like “an active owner who could take responsibility for the enterprise and make a contribution to its equity,” (Baltowski and Mickiewicz, 2000, p. 435). Similarly, according Laban and Wolf (1993), Roland (1994), Bogetic and Conte (1992) and Ahuja and Majumdar (1998) “big-bang” fast, privatization does not appear to be easy and feasible, especially when it comes to the privatization of large companies. Furthermore, Portes (1991) challenge the “big-bang” approach arguing that it has

²⁰Transition – The first ten years: analysis and lessons for Eastern Europe and former Soviet Union, The World Bank; 2002 (pp. 72-73).

high reversal costs in cases when early reforms have been unsuccessful. Moreover, a “big-bang” approach does not prepare a country’s business environment for sequence-based reforms especially when reforms are unpopular or create instability.

On the whole, there is no consensus in the literature regarding the privatisation method and/or design that can be declared as the most efficient. For example, Protsiv (2008), in the case of Ukraine, finds that the direct share to investors out performs other types of privatisation methods and positively affected labour productivity growth. Ellerman (1993), Stiglitz (2000) and Weitzman (1993) were strong supporters of privatisation to management and employees, while Frydman and Rapaczynski (1994), and Lipton and Sachs (1990) argued that privatization to outsiders is the most effective method of privatisation. Mass voucher privatisation (henceforth MVP) can be described as a “genuine and radical transfer of ownership rights to the broad public” (Lewandowski and Szomburg, 1989, p. 72). There is a general assumption that MVP is able to achieve at least three groups of goals: (i) social fairness; (ii) political support by the general public to the process of economic transformation; and (iii) finding effective owners through the rapid creation of transitory initial owners who would sell their shares to privately-managed privatization funds and skilled-strategic investors (Lieberman et al., 2003). However, it appears that irrespective of the privatisation methods used and the differences in proclaimed motives for privatisation, the economic systems and ownership patterns of former socialist countries will remain similar for some time (Baltowski and Mickiewicz, 2000).

Similar divisions exists between those researchers that consider the importance of the initial institutional setting and/or liberalisation as a key factor for success of the privatisation/transition process (for full discussion see Godoy and Stiglitz, 2006; De Melo et al., 2001; Krueger and Ciolko, 1998, Heybey and Murrell, 1999) and those who acknowledge the importance of initial conditions for the success of privatisation but do not find them significant (Moers, 1999; Grogan and Moers, 2001).

In any case, the privatisation methods that were implemented at a faster or a slower pace with more or less success, contributed to the emergence of (private) ownership structures that were, as Grosfeld and Hashi (2007, p. 2) argue, “a precondition for the emergence of the market environment.” Changes in ownership structures facilitated strong firm restructuring, leading to similar ownership structures across most TEs. The first common characteristic of

all TEs, and especially in the context of a wide range of privatization methods, is that the initial allocation of ownership rights was exogenous and according to the large empirical literature suboptimal (inefficient- for full discussion see Djankov and Murrell, 2002; Megginson, 2005; Hamm, King and Stucker, 2012; etc.). Privatisation designs and rules prevented adjustment of ownership (by participating agents) to firm characteristics (Claessens and Djankov, 1999). The second common characteristic is that the concentration of ownership of different groups (banks, privatisation investment funds, individuals, other private domestic/foreign companies, etc.) occurred irrespective of the privatisation method used. The third characteristic is that ownership concentration emerged in countries with relatively weak corporate governance frameworks, where the speed of institutional changes was generally slow. A general assumption is that the emergence of post-privatisation block-holdings was a unanimous response of owners to the deficiency of investors' protection framework. This is in line with Shleifer and Vishny (1997) who argue that ownership concentration can counterbalance the deficiencies of weak institutions. Therefore, in the absence of corporate governance instruments designed for effective monitoring in developed economies, ownership concentration is used as a means of control of management and maximization of firm value. This is an idea in line with views of Berle and Means (1932), Shleifer and Vishny (1986), McConnell and Servaes (1990), Megginson et al. (1994). However, while ownership concentration may subdue one agency problem, in the absence of an effective institutional framework, it will escalate another - the expropriation of minority shareholders. In an environment where minority shareholders are not protected, there are limited ways to prevent large shareholders from extracting a firm's value without sharing it with other shareholders, i.e. to extract private benefits for control. This may result in the negative impact of ownership concentration on firm performance.

Although the empirical literature was able to illustrate the positive impact of ownership concentration in TEs (especially of certain ownership groups), numerous studies warn of the presence of minority shareholders expropriation. Therefore, we divide these studies into two groups: (i) those focusing on the impact of the ownership concentration on firm performance (a substitute for corporate governance), and (ii) studies focusing on the identity of the largest shareholder and its efficiency in respect to firm performance.

There is a strong rationale to review this literature separately from empirical literature in developed economies. In developed economies, the resolution of the agency problem and the

corporate governance mechanisms depend upon whether the largest owners are insiders or outsiders. In TEs it is important to consider whether the largest owner is the state, a foreign or domestic entity, an individual, a family, a privatization/investment fund, a financial institution has a controlling stake (emerging mostly as a result of underdeveloped corporate governance framework. Some of the empirical literature covers both aspects simultaneously: the impact of different owners' identities combined with the analysis of the level of concentration and the impact on firm performance. Both will be empirically analysed in the context of Montenegro in Chapter 4.

2.4.2 The largest shareholder and firm performance

It is generally agreed in the literature that the process of privatization in TEs was followed by the development of corporate governance, the legal and institutional framework that would help assure easy access to capital markets, increase firm efficiency and support better firm performance. It has been argued by some authors (e.g., Babic, 2003) that corporate governance in TEs should not blindly follow the corporate governance frameworks of developed economies, but rather their adoption should ensure a gradual process with high sensibility to country specifics. Others have pointed out that the process of privatization ensured that foreign firms with capacities such as transferring managerial know-how, bringing in additional investments and providing new market access, brought with them a “relatively advanced system of corporate governance”, which “compensates to a considerable extent for the underdeveloped legal and institutional system in many transition economies” (Estrin et al., 2007, p. 37). However, given that the transition process in most cases was gradual²¹, the main characteristic of TEs was, by default, “weak” institutions of corporate governance, accompanied by inadequately developed and/or ineffectively enforced property rights and underdeveloped capital markets (Acemoglu et al., 2002).

Many authors have argued that that in TEs, poor corporate governance and the absence of an effective institutional framework (especially in areas associated with property rights enforcement) leads the investors to fill the corporate governance vacuum by concentrating

²¹The prevailing empirical literature postulates that the privatization is one of the process that prerequisites for successful transition, which is predominantly dependent on systemic changes and policy reforms (Lipton and Sachs, 1990; Blanchard et al., 1991; Aghion and Blanchard, 1994).

their ownership (Lazarova, 2008; McGee, 2008). Large owners should have enough power to exercise tight control over managers' behaviour, forcing them to align their interest with the interest of owners (Jensen and Meckling, 1976; Frydman et al., 1997). However, part of the literature strongly suggests that ownership concentration in the context of TEs is "nothing but the second-best solution in response to a problem of weak institutional framework", (McGee, 2008, p. 325). Even if we put aside the implicit costs of ownership concentration present in developed economies, such as destruction of managerial initiative and risk-taking behaviour (Burkart et al. 1997; Burkart and Panunzi, 2001; Pagano and Roell, 1998; Aghion and Tirole, 1997) or lowered stock market liquidity (Bolton and von Thadden, 1998), the key weakness of ownership concentration as a substitute for poor corporate governance remains the escalation of the "private benefits of control" due to poor protection of small shareholder (La Porta et al., 1998; La Porta et al., 1999; Wolfenzon, 1999; Bebchuk et al., 1999; Modigliani and Perotti, 1997; Shleifer and Vishny, 1997).

Following Stiglitz (2000), Hamm, King and Stuckler (2012, p. 299) argue that TEs with weak institutional settings experienced poor economic performance and corruption mainly "due to information asymmetries and lack of an effective governance framework, the new private owners had the incentive and opportunity to pursue rent-seeking and asset-stripping."²² The expropriation of minority shareholders by large owners takes many forms starting from investment misallocation, related party transactions combined with various forms of revenue, or "asset tunnelling" such as asset stripping or transfer pricing (Shleifer and Vishny, 1997; Filatotchev and Mickiewicz, 2001). Given the strong incentive of post-privatisation owners to expropriate minority shareholders, because they find it easier to expropriate than provide extra effort to secure future economic returns, the question that inevitably arises is: how can different ownership structures (concentration) in TEs effectively compensate for the deficiency in governance and minimize expropriation of small shareholders? Therefore, empirical researches based on TEs is not solely focused on the agency problem of entrenched behaviour of managers who distance themselves from objectives set by owners once ownership and management control is divided. This problem has been extensively addressed primarily through the experiences of developed economies. However, the core agency

²²Similarly, Stiglitz (1985) argue that: "ownership concentration may trigger agency problems, namely, potential expropriation of minority shareholders by large post-privatization ownership structures within a deficient institutional framework (especially evident in enforcement of property rights and corporate governance)."²²

problem, analysed extensively in TE literature, emerges in the form of a clear opportunity for the expropriation of minority shareholders by large block holders.

However, this view is challenged by another line of research arguing that firms in countries with underdeveloped country-level corporate governance mechanism will react to lack of corporate governance deficiency by imposing better, stricter corporate governance mechanisms at the firm level on their own initiative (e.g. independently increasing disclosure, imposing disciplinary measures for managers, creation of reliable boards, etc). These practices would counterbalance the weakness of the laws at the national level and send signals to investors that these firms offer better protection of investors' rights, something which should speed up investment inflows (Klapper et al., 2004; Easterbrook and Fischel, 1991; Black and Gilson, 1998). Moreover, according to Dojige et al. (2004), by creating a sound governance practice at firm level, the controlling shareholders willingly hand over their benefits of control, positively affecting firm performance. In sum, the literature conveys the impression that in the context of TEs, privatization and development of corporate governance will impact patterns of ownership concentration, which in itself is not a prerequisite for improved firm performance.

The richness and diversity of theoretical views on how large owners behave in a weak governance setting is shown by the inconclusive and diverse empirical evidence (see Table A2.1 in the Appendix 2.1 for a summary of a large number of empirical investigations on the ownership concentration-firm performance relationship in TEs). The evidence is divided between those studies whose findings justify and acknowledge merits of ownership concentration as a potent instrument for both efficient management control and compensation for weak corporate governance framework whilst minimizing expropriation and those in which the post-privatisation ownership concentration is portrayed as a means of depriving minority shareholders from getting an adequate return on their investment. Some of the literature provides mixed evidence in which only certain types of ownership structures may be used as an efficient instrument to mitigate agency problem and minimise the expropriation of minority shareholders while positively affecting firm performance.

In order to systematize empirical evidence from TEs, we focus on country-level studies rather than time-horizon criteria (studies capturing short, medium or long-term effects or ownership concentration following privatisation) or type of econometric technique used. Studies at the

country level should capture country-specific institutional framework (corporate governance setting) and its evolution. If institutional frameworks were well captured, it would be possible to filter common country level characteristics of the pre-privatisation institutional setting and the potential speed of its development/adjustment. Furthermore, given the still large diversity of country level studies, we concentrate on a selected number of the most noted empirical studies on the Czech Republic, Poland, Romania, Bulgaria and some of the successor states of former Yugoslavia which had similar institutional background and pre-privatization ownership structure (Slovenia, Croatia, Macedonia and Bosnia and Herzegovina). This will provide the rationale for the hypotheses proposed for Montenegro that will be tested in Chapter 4. A shorter summary of these and other studies are provided in Table A2.1 in Appendix 2.1.

The Czech Republic was the first country to implement a mass voucher privatisation (MVP) and therefore its experience has been the subject of more studies than other countries. The empirical evidence on Czech MVP is very diverse; reflecting the differences in the periods covered (during privatisation, shortly after privatisation or long-term perspective) and the econometric methods applied. One of the earliest attempts to investigate the impact of ownership concentration on performance is the paper by Claessens, Djankov and Pohl (1997) which covered the early MVP period (1992-1995) for a cross section of 706 firms, using OLS and Random Effect estimators. Although they find that a more concentrated ownership is associated with better performance (a higher market valuation and profitability), they acknowledge that “large owners in general have opportunities to expropriate value, as minority shareholders are not well protected given the weak court system in the Czech Republic” (p. 6). Furthermore, they admit that in the case of large foreign ownership, there is the potential for expropriation of minority shareholders through off-market transfer pricing between the subsidiary and its foreign owners, leading to dilution of the claims of minority owners and overall lower profitability. Using a sample of 392 firms over the period 1993-1996, Cull, Matesova, and Shirley (2002) maintain that the Mass voucher privatisation contributed to asset stripping, tunnelling and dynamic “looting” of the type analysed by Akerlof and Romer (1993)²³, given that many joint stock companies in that period had privileged access to soft credit from state controlled banks.

²³Akerlof and Romer (1993) put forward the idea of ‘bankruptcy for profit’, when “poor accounting, lax regulation, or low penalties for abuse give owners an incentive to pay themselves more than their firms are worth and then default on their debt obligations” (p. 2).

A study by Weiss and Nikitin (1998) provides evidence for the opposite view: the poor performance of voucher privatization in the Czech Republic was caused by the failure to concentrate ownership to provide effective control over managers. However, Weiss and Nikitin (1998) acknowledge the presence of tunnelling, whereby the dominant owners expropriate the minority shareholders and tunnel the assets into a firm or account they fully control. Kocenda and Svejnar (2003), using panel-data from the post privatization period with potential to observe medium-term effects of strategic restructuring, maintain that the lack of a positive profit effect among virtually all types of domestic owners is consistent with the large shareholder “looting” at the expense of small shareholders.

Hanousek, Kocenda and Svejnar (2007) using an unbalanced panel of 1,540 medium and large companies for the period 1996-1999 (after mass voucher privatisation), find that only in some instances and for selected performance indicators the effect of concentrated ownership on firm performance to be positive or neutral. This finding is in line with the the predictions of the agency theory (that better monitoring through ownership concentration may improve firm performance) and not in line with those theories predicting a positive effects for managerial autonomy. The authors share the concern of Claessens, Djankov, and Pohl (1997) that “in an underdeveloped legal and institutional setting, any one type of ownership could be associated with managers or key shareholders “looting” the firms, directly or through transfer pricing” (p. 9).

Brown, Earle and Telgedy (2004) examine the impact of large block holders on firm performance in Hungary, using a sample of 168 firms for the period 1996 to 2001, using the fixed effect method to control for unobserved heterogeneity. They find that only when the share of the largest shareholder is used as the measure of ownership concentration, there is a positive, statistically significant effect on corporate performance. Their evidence suggests that the largest owner can be used as a viable instrument for management control and incentive alignment. Additional block-holdings have statistically insignificant or negative coefficients. This diminishing return to additional ownership concentration is explained by two potential factors. First, too many large shareholders can be involved in disagreement over strategic decisions in the firm, leading to blocking and negotiating joint decisions, i.e. creating “too many cooks” that can lead to suboptimal results. Second, the cost of concentration is reflected in reduced liquidity and informational value of the share price.

Empirical studies from Slovenia are divided between those that acknowledge that large block-holders have a positive impact on firm performance and those that acknowledge the potential for the extraction of private benefits of control in the institutional settings of the country. Damijan, Gregoric and Prasnikar (2004), using a sample of 150 large and medium-sized Slovenian firms, applying OLS and GMM, argue that concentration by large blockholder might have a positive effect on firm performance. However, additional block-holdings do not help with monitoring and instead within a firm, it actually tends to reduce the firm value. These findings resemble those in the work of Brown, Earle and Telgedy (2004) for Hungarian firms, indicating that too many large shareholders can have a negative impact on firm performance.

Brezigar, Gregoric and Zajc (2006) add to the discussion of block-holder motivation by investigating how ownership patterns in Slovenian firms affected firm performance in the post-privatisation period. They describe the creation of large block holders in Slovenian firms as a control contest between insiders and outsiders, and among different types of heterogeneous outsiders. They find that large block-holders in non-listed firms have a positive effect on firm performance, regardless of homogeneity or heterogeneity. On the other hand, in the case of listed firms, when two of the largest owners are homogenous, they perform poorly. However, unlike the findings in Gregoric and Vespro (2009), they argue that the poor performance of firms with two large shareholders is not due to poor collaboration. Instead, two large shareholders are more likely to form a coalition, showing rent seeking behaviour, interested in extraction of private benefits of control (this is especially visible in the case of the largest owners are investment funds).

Empirical evidence from Croatia is almost unanimous in detecting the extraction of private benefits of control by large owners. This behaviour of block-holders was captured, for the first time, in the empirical results of Micela Pop and Le Maux (2006). Using the data for 484 companies listed at the Varazdin, and Zagreb Stock Exchanges during 2000-2003, and employing OLS and Fixed Effect methods, they find that Croatian firms display signs of increasing agency conflicts when more power is given to a single shareholder. Firms start to perform better only if additional large shareholders, comparable in size, are present. Given that they were unable to observe similar behaviour in the case of Romania, Micela Pop and Le Maux (2006) ascribe this country-level difference to the quality of legal protection offered

to minority shareholders due to the fact that Romania, compared to Croatia, was much closer to the alignment of its legislation to EU standards in that period.

Pervan, Pervan and Todoric (2012) using an unbalanced panel of listed Croatian firms from the Zagreb Stock Exchange covering the 2003-2010 period, applied a Generalized Method of Moments estimation method and found a consistent negative relationship between ownership concentration (top four largest owners) and firm performance (ROA). They argue that the results confirm the entrenchment hypothesis by which the management of internally controlled firms expropriate small stockholders. The mechanism that facilitates expropriation of minority shareholders, they argue, lies in a low level of investor protection, evidenced in sluggish sub-index of strength of investor protection in Croatia's Doing Business index.²⁴

According to Dharwadkar, George and Brandes (2000) the potential for expropriation varies in different governance structures. Only large dominant outside owners are able to replicate the effectiveness of the governance characteristics of developed economies when it comes to efficient monitoring of managers. If dominant ownership structures consist of non-controlling owners, the overall effectiveness decreases due to higher coordination costs (McDonald, 1993) and/or lack of disclosure norms and intermediaries who gather information for non-controlling owners (Khanna and Palepu, 1999). However, aligning the behaviour of managers through monitoring and control does not prevent dominant outsiders from disregarding the interest of minority shareholders. According to Dharwadkar, George and Brandes (2000), only dominant foreign owners are able to subdue the possibility of extraction of private benefits of control. They assume that dominant foreign owners will be under greater government scrutiny than domestic owners that are already well presented in a local social environment. A dominant foreign investor will more likely refrain from transfer pricing and profit repatriation (Fraedrick and Bateman, 1996).

Summing up the empirical evidence from TEs, it is clear that monitoring capabilities of block-holders, trying to resolve agency problem associated with entrenched managers in the absence of standard corporate governance tools, is not counterbalanced by another agency problem- the expropriation of minority shareholder. It is particularly important to note the

²⁴Sub-index of strength of investor protection of Croatia's Doing Business index, remains low (4 on the scale 0-10) over the period 2006-2011.

high premiums paid by large block-holders in Slovenia, which indicates the potential motivation for the extraction of private benefits of control. Similarly, the evidence from Croatia is undivided in finding a negative impact from ownership concentration on firm performance, indicating a weak institutional setting for the protection of minority shareholders. Therefore, when it comes to the investigation of the Montenegrin companies, it is difficult to put forward the hypothesis that ownership concentration is a powerful monitoring tool positively affecting firm performance. More so it is evident (Cerovic, 2010) that Montenegro, a country that shared inherited initial institutional conditions with Slovenia and Croatia, is still lagging behind its potential (given the initial conditions) in the area of institutional building.

2.4.3 Identity of the largest shareholder and firm performance

Another issue of interest in the literature exploring ownership concentration and firm performance in TE is whether the type of owner who acquires a large block for shares during the privatization process matters. There are two aspects of ownership identity: difference according to the organizational structure of the owners (financial institutions, privatization funds, workers, managers, other companies, individuals, etc.) and whether the owner is domestic investor, foreign investor or the state.²⁵ There is much heterogeneity in the empirical literature analysing the impact of types of dominant owners emerging from the privatization programmes and firm performance. Here we shall briefly discuss some of the main qualitative surveys (Djankov and Murrell, 2000; Estrin et al., 2009; Ticha, 2012) and some that have been the subject of Meta-analysis by Djankov and Murrell (2002).²⁶ Table

²⁵The first aspect is much more difficult to compare across countries, given that roles of some of them (for example privatisation –investment funds, workers, financial institutions) have different roles in different privatization schemes implemented and were created and/or used with different purposes (e.g. the role of banking sector in Poland and the Czech Republic).

²⁶Issues such as: (i) endogeneity of ownership concentration, (ii) the level of development of capital markets, (iii) the sophistication of potential investors, (iv) the type of privatisation schemes, sequence of the privatisation on the institutions state are carrying privatisation (Baltowski and Mickiewicz, 2000), (v) the strength of the existing private sector and market-based institutions, (vi) a bias in the choice of companies sold to private owners, i.e., usually the best and most productive (Gray, Hessel, and Rapaczynski, 1999; Salis, 2006), (vii) studies' reliance on short time periods with observations gathered immediately before and after privatization which may capture only short term effects; are just some of the aspects that are usually missed or partially missed that should be controlled in the literature. Indeed, providing empirical evidence, or its narrative review of the literature, is highly inconclusive and hardly comparable. There is a clear need for the Meta regression analysis (MRA) on the literature that would help produce an unbiased effect size comparable across studies.

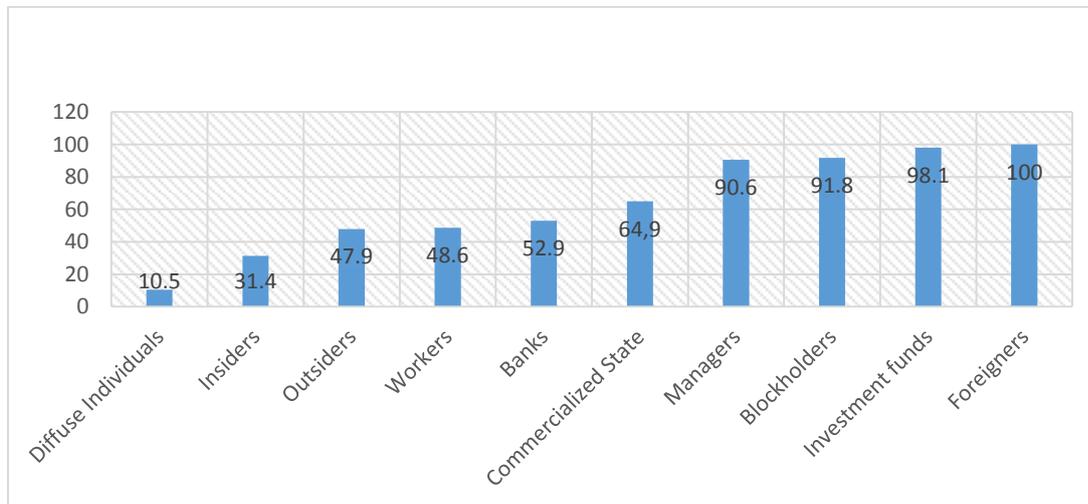
A2.1 in the Appendix 2.1, also summarises the features of many other studies referring to the performance of enterprises with particular types of dominant owners.

In terms of the effectiveness of different types of owners, Djankov and Murrell (2000) conducted the most comprehensive qualitative analysis using 23 studies to compile a data set depicting the effects on restructuring of different types of owners. Comparing 11 different types of owners²⁷ analysed in these studies they have chosen, they were able only to find the relative effects of different owners (i.e. which type of ownership is more effective than others in terms of firm performance after privatisation). In order to make a comparison possible they have created an internal scale in which the least effective ownership type has a score of zero, while the most effective has a score of 100.

Figure 2.1 indicates how different ownership types affect firm performance after privatization. We can easily see that the aggregation of findings from 23 studies leads to the conclusion that the most effective owners are managers, concentrated individual ownership, investment funds, and foreigners. On the other hand, traditional state ownership is considered to be the least effective type of ownership. Scale presented in Figure 2.1 allows the reader to quantify the relative success of certain type of owners relative the most successful –foreign ownership. That implies that for example banks as the largest owners generates slightly more than only half as much restructuring as privatization to foreigners, while insiders as the largest owners generate only one third as much restructuring as foreign owners.

²⁷Djankov and Murrell (2000, p. 10) divide them into following groups: “1. Traditional state ownership: state ownership in enterprises that are 100 percent state-owned and that have not been part of a privatization program. 2. State ownership in commercialized (or “corporatized”) enterprises: state ownership in enterprises that have been legally separated from the state, that are treated as private enterprises under corporate laws, and that have usually been part of a privatization program. In practice, this type of state ownership usually occurs in firms that are partially privatized. 3. Enterprise insiders (a composite group, where workers and managers were not differentiated). 4. Enterprise outsiders (a composite group consisting of all nonemployee, non-state owners). 5. Workers (non-management employees). 6. Managers (managerial employees). 7. Banks. 8. Investment funds (other than those owned by banks or the state). 9. Foreign owners. 10. Blockholders: outsider ownership that has been concentrated in the hands of large individual owners (such as individual entrepreneurs or domestic firms) other than those listed above. 11. Diffuse outsiders: the residual outsider ownership category, when outsider owners are not identified as belonging to the categories above. This category is dominated by individual outsider ownership that remains diffused across large numbers of individual owners.”

Figure 2.1 Relative Effects of Changing from Traditional State Ownership to Different Private Owners



Source: Djankov and Murrell (2000)

Later, Djankov and Murrell (2002) extended their research using Meta-analysis in order to try to synthesise the empirical studies analysing restructuring in transition in a transparent and comparable manner. Among several important issues, they consider the effect of different types of dominant owners on enterprise restructuring and performance.²⁸ They conclude that the type of dominant owner is very important and different owners can have a significantly different impact on firm performance. They maintain that when investment funds are the dominant owner, the firms are five times more productive than if insiders were the dominant owners. Foreign ownership is found to be three times as productive as insiders are. Other block-holders too, with an interest in better and faster restructuring perform better than insiders. At the same time, they find that firms with dominant private domestic ownership perform better than those in state ownership in Central and East European countries but the difference disappears in the Commonwealth of Independent States (CIS).

Estrin et al. (2009) analyse the efficiency and distributional effects of privatisation worldwide by reviewing some of the more recent and more important studies related to privatisation

²⁸ Simultaneously, they test a set of hypothesis characteristic for this literature, such as: (i) whether privatisation generates more restructuring, (ii) the effect of different types of owners on enterprise restructuring, (iii) how large is the effect of the product market competition on firm performance, (iv) the relationship between enterprise restructuring and the hardening of budget constraints, (v) whether bringing in new capital is associated with better firm performance, etc. However, we are particularly interested in the second hypothesis that explores the different types of owners and privatisation schemes that provide the most successful restructuring and superior firm performance

around the world.²⁹ They conclude that privatisation to foreign ownership and domestic ownership generates better firm efficiency compared to state ownership. This evidence is very robust across CEE region (but not so in China). Similarly, they find a robust presence of superior domestic ownership performance compared to state ownership.

Unlike Djankov and Murrell (2002) who do not find strong evidence for the superiority of private domestic ownership in CIS countries, Estrin et al. (2009) manage to find evidence across both CEE and CIS countries. The discrepancy is explained by the treatment of endogeneity: studies, which have accounted for endogeneity, and used more sophisticated econometric techniques, find a strong evidence for the superior performance of domestic private ownership. Moreover, by taking into account recent studies which cover the period since privatisation, Estrin et al. (2009) can capture the long-term effects of privatisation when new owners take control and when there is time for the repercussions of their actions to be noted.

Commander and Svejnar (2007) gather a large stratified random sample of 5,897 firms from 26 TEs for the period 2002-2005, using 2SLS, OLS and Fixed Effect models, to investigate how the business environment, ownership concentration, exports, and changes in competition affect firm performance. They find that foreign ownership has a particularly strong effect on performance measured by the level of sales.

Damijan, Gregoric, and Prasnikar (2004) use an unbalanced panel of 150 large and medium-sized enterprises from Slovenia for the period 1998-2002, analysing primarily how the outside block-holders' affects firm performance. They argue that post-privatisation concentration realizes mainly through takeovers (in listed firms) and exchanges of large blocks of shares (on the "over the counter" market). Simoneti et al. (2001) fails to find a significant impact of any of investors' type on firm performance while using data based from the period covering the privatisation. In contrast, Damijan, Gregoric, and Prasnikar (2004)

²⁹The analysis relies on extended database on studies reviewed in the Meta analysis of Djankov and Murrell (2002) dividing studies according to two criteria: (i) the quality of methodologies used and the sample size and, (ii) the difference in definition of ownership concentration. The first criteria is placing emphasis on those studies treating the issue of endogeneity (IV approach, Fixed effect) and using larger samples (at least 200 companies for large markets, and at least 75 companies for smaller markets) compared to earlier studies that use simpler techniques or smaller sample sizes. According to the second criteria, they divide the literature among those that examine the effect of ownership concentration on (i) total factor productivity, (ii) labour productivity, (iii) profitability, (iv) sales and revenues, (v) employment, (vi) wages and (vi) other indicators of profitability.

use data from the period when the process of privatisation was complete which would allow investors to “stabilize” their stakes. Using GMM and controlling for the endogeneity of ownership concentration, they find that an increase of outside control has no significant effect on firm efficiency (the total factor productivity growth – TPF growth). The only “responsive” large investors are firms controlled by domestic non-financial owners and insider owners. When aggregately holding dominant ownership blocks, they perform better than firms controlled by the state-controlled Funds.

In the aforementioned study by Pervan, Pervan and Todoric (2012), the authors find that foreign controlled firms have superior firm performance compared to those owned by the state or by domestic owners. The underlying rationale for the superior performance of foreign controlled firms is that they have faster and better access to financial markets, technical resources, and have large positive spill over effects by transferring skills and know how. This conclusion is very similar to that of Salis (2006) who identified the presence of technology transfer from foreign owners to local firms in Slovenia. Smith, Cin and Vodopivec (1997) find that, in Slovenia, privatised firms with higher revenues, profits and exports are more likely to be either in foreign ownership or largely owned by employees.

However, findings by Pervan, Pervan and Todoric (2012) are somewhat different from Džanic (2012). In a study by Džanic (2012) using similar data from the Zagreb stock exchange for the period 2003-2009 with a panel estimated with Fixed effects and 2SLS, he does not find strong evidence that foreign-owned companies have better firm performance than domestic-owned companies. His explanation for a negative or insignificant impact of foreign owners in different specifications on firm performance is due to late entry (after 1998) of foreign capital in Croatia. Namely, the political disturbance that occurred during the 1990s in Croatia possibly prevented full realisation of positive spill over effects of foreign companies to their domestic affiliates. This conclusion is similar to Claessens and Djankov (2002) who argue that firms that are privatized for less than two years have labour productivity growth similar to those of state-owned enterprises; however, firms privatized by foreign owners for three or more years significantly outperform state-owned enterprises.

Using a database of 100 companies from Bosnia and Herzegovina in 2005 and a methodology similar to Džanic (2012), Suljkanovic (2007) finds no evidence for the superior performance of foreign owned companies in comparison to the state owned firms. Instead, firms run by

families and domestic individuals appear to have better performance compared to other ownership structures. Finally, in the case of Macedonia, Zalduendo (2003), using a sample of 425 firms in the period of 1996-2000 and employing the OLS method, finds that private ownership together with a hard budget constraint and development of market-based institutions have a positive impact on firm performance.

Although it is clear that ownership change *per se* does not have a positive impact on performance without complementary changes in legal institutions, management structure, access to finance, the competitive environment, etc., empirical evidence largely supports the view that private ownership is associated with better performance than state ownership. Therefore, in our empirical investigation, we would like to analyse the following hypothesis further: H_1 : In the context of Montenegro, firms which are privately owned perform better in comparison to state owned companies. A second hypothesis is generated by the overwhelming empirical evidence for the superior performance of foreign investors over domestic investors, i.e., H_2 : In the context of Montenegro, firms that are owned by foreign investors perform better than domestically owned companies do. Both hypotheses will be the subject of a separate empirical analysis in Chapter 4.

2.5 Conclusion

In this Chapter, we provided a critical review of the theoretical and empirical literature exploring the impact of ownership concentration on firm performance. Berle and Means (1932) triggered a debate on the separation of ownership and control and how this may lead to the enhancement of management incentives to deviate from shareholder value maximization. This problem was further thoroughly analysed by Jensen and Meckling (1976) who stressed the importance of solving the agency problem between self-interested managers (agents) and owners (principals) who employ the managers to act in their best interest.

The “alignment theory” postulates that ownership concentration is a viable instrument to align the interests of owners and managers at relatively low monitoring cost, replacing most alternative corporate governance mechanisms. The creation of block holders limits the agency problem while providing strong monitoring of managers by strategic, long-term oriented investors who have both the skill and the incentive to monitor managers.

However, the presence of large shareholders may (i) induce over-monitoring which discourages risk taking and initiative-oriented behaviour of managers; (ii) induce lower liquidity of shares, leading to reduced information value of share prices; and (iii) lead to the expropriation of small shareholders by large blockholders or managers, the extraction of private benefits of control at the expense of minority shareholders – particularly in environments with poorly protected rights of small shareholders.

The “entrenchment theory” analyses the behaviour of managers in a situation when they hold a significant stake in their company and consequently may use their voting power to: (i) ensure the continuation of their tenures at the firm; (ii) make their dismissal very costly for other shareholders, (iii) engage in behaviour characterised by moral hazard and expropriation of other investors; and (iv) award themselves higher salaries that are not performance based.

The ‘neutrality theory’ maintains that the ownership structure is endogenous, i.e., it is an outcome of shareholders’ decisions reflecting the desire of existing or potential owners, driven by profit-maximizing objective, to change their ownership stakes. The discipline imposed by market forces on managers and large shareholders compensates for any tendency to deviate from value maximisation. As a result, ownership concentration will not have any effect of firm performance. The endogeneity of ownership concentration may of course be induced by firm or market-specific unobserved heterogeneity and/or reverse causality.

The very rich empirical literature confirms that the relationship between ownership concentration and firm performance is a very complex issue, and the generalization of sign and significance of their relations remains a challenge. Differences in the prevailing corporate governance practices, the origins of the legal system, the estimation techniques employed, control for potential endogeneity, and the measurement of ownership structures and the identity of dominant owners are some of the reasons for the diversity of the empirical literature on this topic.

Therefore, in order to develop a quantitative generalization of the ownership concentration-firm performance relationship in developed market economies, we will pursue a Meta Regression Analysis (henceforth MRA) in Chapter 3. Although there have been some

attempts at Meta analysis³⁰, the full capability of MRA was not systemically exploited in the context of the existing empirical literature analysing the relationship between ownership concentration and firm performance. As for the relationship between ownership concentration and firm performance in transition economies, and the specific case of Montenegro, the discussions of the second part of this Chapter will be used as the starting point for the model of firm behaviour in this country in Chapter 4.

³⁰See Sanchez-Balesta and Garcia-Meca (2007); Dalton et al. (2003); Heugens et al. (2009)

CHAPTER 3

OWNERSHIP CONCENTRATION AND FIRM PERFORMANCE: A META REGRESSION ANALYSIS

3.1 Introduction

The issue of the relationship between ownership concentration and firm performance is one of the most widely discussed in the corporate governance literature. However, although this relationship has been the subject of thorough empirical analysis with pronounced divergence in the theoretical underpinnings as well as in conclusions on the nature, significance and sign of the relationship, meta-regression analysis (MRA) of this literature has not yet been implemented. This leaves an empirical gap that will be addressed in this Chapter. The general definition of MRA is that is “a set of quantitative techniques for evaluating and combining empirical results from different studies” (Rose and Stanley 2005, p. 350). Accommodating and correcting the biases associated with applied econometrics is the central objective of MRA. Accordingly, MRA on the ownership concentration-firm performance literature will enable us to achieve three major goals (following Pugh et al., 2012, p. 281): (i) summarize findings from the empirical literature; (ii) identify sources of heterogeneity in these findings; and (iii) in so doing identify and control for publication bias – if any - in the empirical literature investigating the relationship between ownership concentration and firm value.

Given that in Chapter 2 we provide a narrative review of the relevant literature, in this Chapter we focus on technical aspects of MRA and major modelling challenges arising from the richness of the empirical literature under consideration. Therefore, in Section 3.2 we provide details on how the literature was searched, compiled and organized. In Section 3.3, we outline properties of standard tests and procedures for jointly investigating publication bias and authentic empirical effect. Simultaneously, we present and interpret the econometric model based on the whole sample as well as on subsample MRA specifications. The penultimate section summarizes key results; including a comparison of results with those obtained by Ballesta and Garcia-Meca (2007), while the last section concludes.

3.2 Data and sampling procedure

According to Stanley (2001, p. 134) we should start MRA by compiling all relevant empirical studies as a way of reducing potential biases that may be induced by any selective approach. Thus, we used: EBSCO; the EconLit database; working paper series; the internet; and references obtained from the literature. Key words used in the search were: “ownership

concentration+firm performance”; “ownership structure+firm value”; and “ownership concentration+ performance”. These approaches identified more than 500 papers, but after selecting relevant empirical papers for the MRA, the search resulted in 62 empirical studies published in the period 1985-2010 (see Table 3.1) providing 946 estimates. The 62 studies in our MRA database are listed in Table 3.1 (columns 3, 4, 5 and 6 are explained later). Doucouliagos and Laroche (2009) postulate that MRA should rely on one of two strategies: (i) usage of a complete population of studies; or (ii) usage of a random sample from the population researching a particular effect or relationship. We defined the relevant population of studies by excluding purely theoretical papers as well as those studies that were empirical but that did not use regression analysis. In addition, structural differences among empirical studies investigating the ownership concentration-firm performance relationship required other, albeit minor, exclusions to achieve a coherent population of studies to be investigated by MRA. Accordingly, we also excluded econometric studies that defined either the dependent variable or the variable of interest in ways not clearly consistent with the theory under investigation: namely, those studies that defined firm performance as productivity growth or growth of wages, etc.; or that defined ownership concentration has too broad and unclear definition, or exploring one particular type of owners (state, privatisation fund, etc.).

Table 3.1: Studies Included within the Model

<i>Author</i>	<i>Year of Publication</i>	<i>Insiders</i>	<i>Outsiders</i>	<i>Endogeneity</i>	<i>PureLinear</i>
<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>	<i>Column 5</i>	<i>Column 6</i>
Drakos and Bekiris	2010	No	Yes	Yes	Yes
Benson and Davidson	2009	No	Yes	Yes	Yes
Dickins and Houmes	2009	Yes	No	No	Yes
Florackis and Ozkan	2009	Yes	No	No	No
Perrini, Rossi and Rovetta	2008	Mixed	Mixed	No	Yes
Fishman, Gannon and Vinning	2008	No	Yes	No	Yes
King and Santor	2008	No	Yes	No	Yes
Schmid and Zimmermann	2008	Yes	No	No	No
Hu and Izumida	2008	No	Yes	Yes	Yes
Bhabra	2007	Yes	No	No	No
Cho and Kim	2007	Yes	No	No	No
Kapopopulos and Lazaretou	2007	Mixed	Mixed	Mixed	Yes
Minguez-Vera and Ugedo	2007	No	Yes	No	Yes
Sabri Boubaker	2007	No	Yes	No	Yes
Yen and Andre	2007	No	Yes	No	No
Adams and Santos	2006	Yes	No	No	Yes
Cheung and Wei	2006	Yes	No	Yes	No
Mueller and Spitz-Oener	2006	Yes	No	Yes	No
Lskavyan and Spatareanu	2006	No	Yes	No	Yes
Olof, Bjuggren and Bohman	2006	Mixed	Mixed	No	Yes
Caspar Rose	2005	Yes	No	No	Yes
Davies, Hillier and McColgan	2005	Yes	No	Yes	No
Florackis	2005	Yes	No	No	Yes
Fernández-Rodríguez et al.	2004	Yes	No	No	No
Chirinko et al.	2004	No	Yes	No	No
Gugler and Yurtoglu	2003	Yes	No	Mixed	No
Edwards and Weichenrieder	2004	No	Yes	No	Yes
Miguel, Pindado and Torre	2004	No	Yes	Yes	No
Steen Thomsen and Rose	2004	No	Yes	No	Yes
Chen	2003	Yes	No	No	Mixed
Gedajlovic Shapiro and Buduru	2003	No	Yes	Yes	Yes
Gugler and Yurtoglu	2003	Yes	No	Mixed	No
Gugler and Weigand	2003	No	Yes	Mixed	No
Randoy and Goel	2003	Yes	No	No	Yes
Welch	2003	Yes	No	No	Yes
Miwa and Ramseyer	2003	No	Yes	No	Mixed
Williams, Coles and Sen	2001	Yes	No	No	Yes
Demsetz and Villalonga	2001	Mixed	Mixed	Yes	Yes
Lopez-Iturriaga	2001	Yes	No	Yes	Yes

Chen and Steiner	2000	Yes	No	Yes	No
Jameson, Sullivan and Constand	2000	No	Yes	No	Yes
Morck, Shleifer and Vishny	2000	No	Yes	No	Yes
Keloharju and Grinblatt	2000	Yes	No	No	Yes
Himmelberg et al.	1999	Yes	No	Yes	Yes
Pedersen Thomsten	1999	No	Yes	No	Yes
Barnhart and Rosenstein	1998	Yes	No	No	No
Cho	1998	Yes	No	Yes	Yes
Han and Suk	1998	Yes	No	No	No
Loderer and Martin	1997	Yes	No	No	No
Cai and Wei	1997	No	Yes	No	Yes
Agrawal and Knoeber	1996	Yes	No	No	No
Kole	1995	Yes	No	No	Yes
Mehran	1995	Yes	No	No	Yes
Santerre and Neun	1993	No	Yes	No	Yes
Craswell and Taylor	1997	Yes	No	Yes	No
Prowse	1992	No	Yes	No	Yes
Leech and Leahy	1991	No	Yes	No	Yes
McConnell and Henri Servaes	1990	Yes	No	No	No
Charles Hill	1989	Mixed	Mixed	No	Yes
Murali and Welch	1989	No	Yes	No	Yes
Wruck	1989	Yes	No	No	Yes
Demsetz and Lehn	1985	No	Yes	No	Yes

Source: Author

Given that in Chapter 2 we failed to obtain a conclusion regarding the relevance and direction of causation between ownership concentration and firm performance in developed corporate governance systems, we decided to bind our dataset to empirical research developed from the experience of developed economies. In the case of developing economies, including TEs, ownership structures are developed in an environment of poorly developed corporate governance mechanisms (especially protection of minority shareholders) as well as of underdeveloped financial intermediaries and capital markets. These deficiencies jointly burden ownership concentration, which is expected to substitute for these deficiencies and to provide stronger alignment of managerial interests with those of owners. Furthermore, in TEs the process of transition, reflected mainly through the process of privatization, caused fast and radical change in the ownership structures that are not a result of the long-term corporate governance setting. Bearing in mind these specificities of ownership concentration in developing countries, as well as the pronounced heterogeneity of the empirical literature for developed economies, we decided that our contribution to the literature using MRA should be

focused on the experience based on developed economies. In order to provide efficient results, we implement procedures that comply with the Reporting Guidelines for Meta-Regression Analyses in Economics developed by Stanley et al. (2013).

3.3 Whole sample MRA specification

3.3.1 Whole sample MRA specification – A funnelling research

The main contribution of the MRA is that it estimates the ownership effect size – the parameter of interest - “beyond publication bias”, i.e. by extracting or netting out potential publication bias, while identifying sources of heterogeneity in the effect sizes estimated by the primary studies (Coric and Pugh 2010; Rose and Stanley 2005; Haile and Pugh, 2012). Meta-regressions can determine the degree to which the literature is biased by publication selection.

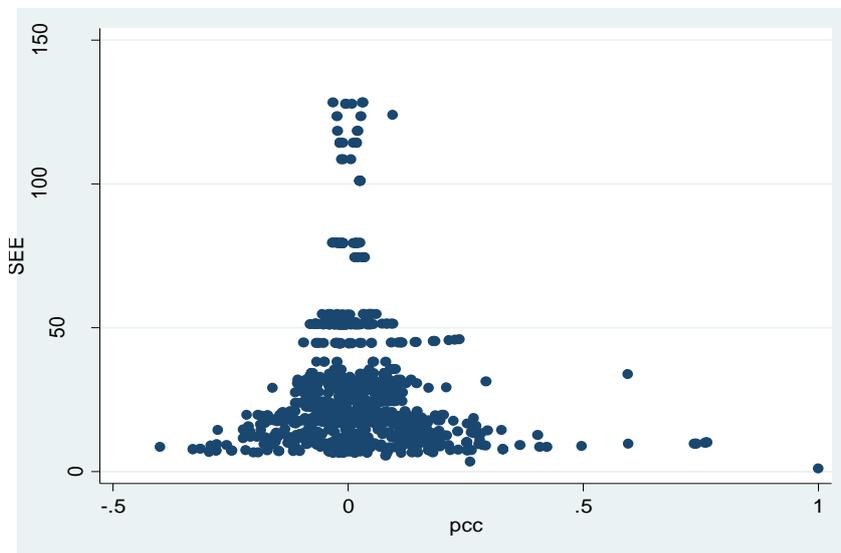
Publication bias reflects research practices whereby authors, editors or referees favour results in one or the other direction, predominantly reporting findings that correspond with their prior conceptions. Namely, researchers have an incentive to conform to the prevailing theoretical understandings by not submitting unconventional estimated findings or by over-searching among a wide variety of specifications in order to select for submission only those estimates of the desired size and/or significance (Pugh et al., 2012, p. 283). Publication selection is recognized as “another fundamental threat to valid empirical economic inference,” (Stanley and Doucouliagos, 2009).

A funnel plot is the most basic method for publication bias detection. Its informal examination of publication selection is the first step in the process of publication bias detection (Sutton et al., 2000). A funnel graph represents a scatter plot of some standardized effect size (e.g. the partial correlation coefficient - henceforth PCC - between the variable of interest – some measure of ownership concentration – and the dependent variable – the measure of firm performance – in each regression reported in the primary literature) against sample size or some other indicator of the precision of the estimate (e.g. the inverse of the

standard error of the PCC, which is suggested to be the best measure of precision; Stanley and Doucouliagos, 2009, p. 3).

In the absence of publication bias, a plot from studies, which estimate the same effect, will be symmetrical and bear some resemblance to an inverted funnel. Namely, when there is no publication selection, estimates vary symmetrically and randomly around the ‘true’ population effect. On the other hand, a skewed funnel indicates the presence of publication bias; i.e. non-random distribution of the estimates around the true measure of the effect size (or Type I of directional selection). Bearing in mind that the small-sample researches are typically less precise (larger standard errors), they form the base of the graph and the plot will be more scattered and wider at the base than at its top. In contrast, estimates from larger data sets have smaller standard errors (more precise) and should provide more precise estimates compactly distributed around the true effect size, converging towards it as sample size becomes larger.

Figure 3.1: Funnel graph of full sample MRA specification (PCC against inverted SEE)



Note: The vertical axis indicates the measure of precision $\frac{1}{Se^{PCC}}$ while the horizontal axis refers to estimates of the PCC

Visual inspection of a funnel graph (Figure 3.1) based on the whole MRA sample provides some evidence of modest asymmetry, which may reflect the presence of publication bias. Namely, although the plot appears to have the form of an inverted funnel, skewness towards

positive values is evident. Furthermore, we notice a significant clustering in the case of studies with larger data sets (hence, more precise estimates).

MRA data specification	Visual Description of the Funnel Plot	Evidence of the publication bias
Full Sample	Relatively symmetrical with concentration at the lower levels (smaller samples), more skewed to the right, pronounced clustering on certain levels	H ₀ : Existence of publication bias; positively skewed

Although a funnel plot provides useful information regarding the presence of positive publication bias in the full MRA specification, conclusions based on visual inspection can be considered as provisional. Namely, the main drawback of the funnel plots is that they represent a subjective, qualitative method, vulnerable to subjective interpretation (Haile and Pugh, 2011). Since the funnel graphs are “inherently ambiguous and subjective,” (Stanley, 2007, p. 108) we proceed with investigation implementing quantitative and more precise procedures with the aim of estimating the representative effect size – if any – while controlling for publication bias.

3.3.2 Testing for publication bias and authentic empirical effect (FAT-PET)–whole sample MRA specification

In the previous subsection we emphasised that publication bias is a consequence of a general practice that editors, reviewers and/or researchers prefer results that are statistically significant (Stanley, 2005) and/or satisfy theoretical expectations and predictions (Doucouliagos, 2005). Publication selection arises if researchers, editors or reviewers use statistical significance as a model selection criterion (Stanley and Doucouliagos, 2012). The general assumption is that researchers are encouraged by the editors’ selection process to conform to theoretical expectations and/or to present significant results. In turn, this incentivizes researchers dealing with small samples to search across different model specifications and/or econometric techniques in order to get larger estimates to yield statistically significant results. By default, a property of small samples is that they, because of limited degrees of freedom, have larger standard errors on estimated coefficients (i.e. yield less precise estimates). Hence, researchers using smaller datasets may try to compensate by

specification search and selecting larger estimates with – for a given level of precision – correspondingly higher statistical significance. If so, then this selection procedure leaves a statistical trace in the form of an empirical literature displaying widely scattered but asymmetric points at the base of the funnel plot.

According to Stanley (2005, 2008) and Sutton et al. (2000), the point of departure of the strategy for publication bias and authentic empirical effect filtration is to estimate a MRA by regressing a standardized effect size on its standard error. This allows the meta-analyst to determine and correct for the impact of publication selection and simultaneously to estimate the effect or effects of interest suggested by the literature (Ludvigsen, 2008, p. 6). Given that regressions in the primary literatures under investigation are specified in different ways (linear, log-linear, non-monotonic), measuring variables in different units (Insiders, Outsiders, Herfindahl index (HHI), top 5 largest shareholders, etc.) and use different estimation methods, the first task is to identify a common effect size.

A standardized strategy that we follow is to calculate for each regression the partial correlation coefficient (henceforth PCC) between the variable of interest (ownership concentration) and the dependent variable (firm performance). By calculating the PCC for each reported regression we achieve standardization of the effect across studies between ownership concentration and firm performance. Moreover, in the context of multivariate regression, this measures the direct relationship between the dependent variable and some variable of interest controlling for the effects of all other variables (Pugh et al., 2012). In other words, we identify an effect size that is comparable across all the studies in the literature.

The basic MRA specification regresses the standardised effect size (i.e. PCC) on an intercept ($\hat{\beta}$) and the conventional measure of precision (SE_{pcc} , i.e. the standard error of PCC), as follows:

$$PCC_i = \hat{\beta}_0 + \hat{\beta}_1 \cdot SE_{pcc_i} + \hat{\varepsilon}_i \quad (3.1)$$

where $i = 1, \dots, N$ indexes regressions in the MRA database, $\hat{\beta}_0$ and $\hat{\beta}_1$ are the coefficients estimated, and $\hat{\varepsilon}_i$ is the regression error term. $\hat{\beta}_1 \cdot SE_{pcc_i}$ filters out publication bias (i.e. correcting for publication bias) (Limits $SE_{pcc_i} \rightarrow 0$, $E(PCC) \rightarrow \hat{\beta}_0$), i.e. the estimated intercept term reflects an estimate of the true or authentic empirical effect - or, more precisely, the average or representative PCC (or effect size) in the literature (Pugh et al, 2012; p. 287). With the standard errors set to zero, $\hat{\beta}_0$ would represent an estimate of the true effect in conditions of no publication selection. Simultaneously in the context of equation 3.1, statistically significant estimates of the slope coefficient $\hat{\beta}_1$ reveal publication bias, which is thus controlled for in the estimation of the authentic empirical effect.

However, equation 3.1 does not provide the most efficient results due to heteroskedasticity (Stanley and Doucoilagos, 2012), since the standard error is the estimated standard deviation of the PCC. Namely, the regression error term is likely to display severe heteroskedasticity, because instead of the constant variance assumed in OLS regression, the size of each individual error term varies considerably. The error variance varies with the sample size as well as with other individual characteristics of the primary regressions possibly by “several orders of magnitude” (Stanley and Doucoilagos, 2012, p. 24).

Therefore, the recommendation by Stanley (2008) is that this bivariate MRA model should be weighted with the standard error of the PCC; i.e. for estimation be transformed into its weighted least squares (WLS) version. This procedure gives most weight to the most precise estimates (and vice versa).

$$TSTAT_i = \hat{\beta}_0 \cdot \frac{1}{SE_{PCCi}} + \hat{\beta}_1 + \hat{u}_i \quad (3.2)$$

Equation 3.2 is a bivariate weighted least squares MRA where the dependent variable is the t-statistic on the variable measuring ownership concentration (variable of interest) in the primary regression and where both sides are weighted by the standard error of the PCC. Dividing through - i.e. weighting - the regression by the individual estimated standard errors,

SE_i ,³¹ gives a weighted least squares (WLS) regression, which diminishes heteroskedasticity and yields estimates that are more efficient.

The right-hand side variables of equation (3.2) provide estimates for conducting the FAT-PET testing procedure in order to investigate publication bias and authentic empirical effect in the primary literature.³² The intercept term $\widehat{\beta}_1$ provides the Funnel Asymmetry Test (henceforth FAT) for detection of publication selection, i.e. the FAT for detection of publication bias tests the hypothesis $H_0: \widehat{\beta}_1 = 0$ in regression 3.2. Non-rejection is consistent with an absence of publication bias. The precision effect test (henceforth PET) detects genuine effect beyond publication selection (rejection of $H_0: \widehat{\beta}_0 = 0$ is evidence for an authentic empirical effect, in which case $\widehat{\beta}_0$ estimates that effect).

However, prior to FAT-PET procedure, we analyse the MRA model for the quality of the statistical specification. The theoretical background on the ownership concentration-firm performance relationship is very extensive, and the effect size is formed from heterogeneous studies using various methodologies and having widely differing characteristics. This by default would suggest the existence of heteroskedasticity in the error term. Moreover, in 81% of the sample, the estimates are not sampled independently, i.e. studies report multiple results. Therefore, the WLS estimators are not sufficient. Instead, the coefficients are estimated with cluster-robust standard errors where each cluster includes all the estimates from the same study. Moreover, in the chapter we incorporated a conservative approach by presenting cluster-robust standard errors while estimating regressions in which each observation is weighted by the inverse number of observations pertaining to each study (e.g. weight 1/3 if the study reports three regressions). This procedure assures that the observations are weighted in a way that gives equal weight to each study in the estimates.

The bivariate MRA model set out in Equation 3.2 is augmented by moderator variables to become a fully-specified multivariate MRA model. In order to control for and measure sources of heterogeneity in the ownership concentration effects reported in the literature, we interact – according to model 3.2 above – our variable capturing an authentic empirical effect (the inverse standard error of the partial correlation coefficient) with moderator variables

³¹For properties of WLS regression, see Wooldridge (2006, pp. 284-85).

³²For a formal demonstration of this, see Pugh et al. (2012).

capturing information on each study and/or estimate of the types recommended in recent MRA reporting guidelines (Stanley et al., 2013). Therefore we introduce a set of standardized moderator variables controlling for data types (panel, cross-sectional, time series, etc.); publication year; geographical characteristic from which an data set is drawn (Anglo Saxon vs. non-Anglo Saxon); model specification (controlling for whether the estimated model includes/omits important variables generally considered in the literature); estimation techniques and approaches implemented (OLS, 2SLS, 3SLS, Fe, Re, etc.). The descriptive statistics reported in Table 3.2 reflect this interaction.

Table 3.2: Moderator variables to account for the variation among observed OC effects

Variable	Brief explanation of moderator variables	Mean	Std.Dev
<i>Effect size and measure of precision</i>			
OCSE	Ownership Concentration Effect size-dependent variable	0.50	2.29
SEE	The inverse standard error of the partial correlation coefficients	28.2	21.8
<i>Moderator variables –context of investigation</i>			
Size	Dummy, 1 if a study uses variable for size in the model, 0 otherwise	22.68	24.10
Investment	Dummy, 1 if a study uses variable for investment in the model, 0 otherwise	5.05	15.98
Leverage	Dummy, 1 if a study uses variable for the value of debt as a fraction of the book value of assets in the model, 0 otherwise	16.04	23.71
Amenity *	Dummy, 1 if a study uses variable for amenity in the model (indicator variables for example utilities industries or media industries), 0 otherwise	0.82	3.12
Control	Dummy, 1 if a study uses variable for control in the model, 0 otherwise	1.12	3.92
Industry	Dummy, 1 if a study uses variable for industry type the model , 0 otherwise	9.47	18.87
FirmSpecific	Dummy, 1 if a study uses variable for firm-specific risk in the model, 0 otherwise	3.7	12.83
MarketSpecific	Dummy, 1 if a study uses variable for market risk in the model, 0 otherwise	0.68	3.27
R&D	Dummy, 1 if a study uses variable for research and development Expenditures in the model, 0 otherwise	11.68	21.97
CapExp	Dummy, 1 if a study uses variable for capital expenditures (on fixed plant and equipment) in the model, 0 otherwise	8.13	18.60
AdvExp	Dummy, 1 if a study uses variable for advertisement expenditures (s) in the model, 0 otherwise	5.85	12.73
Published	The year an article is published (1985=1; 1986=2; 1987=3; ...; 2011=26)	18.89	4.59
OLS	Dummy, 1 if estimation is based on OLS with GMM as benchmark	13.61	17.71
PARAM	Dummy, 1 if estimation is based on Parametric approach with GMM as benchmark	0.68	4.53
SPARAM	Dummy, 1 if estimation is based on Semi Parametric approach with GMM as benchmark	0.08	1.46
GLS	Dummy, 1 if estimation is based on Generalised Least Squares approach with GMM as benchmark	0.19	2.48
WLS	Dummy, 1 if estimation is based on Weighted General Least Squares with GMM as benchmark	0.11	1.33
2SLS	Dummy, 1 if estimation is based on Two Stage Least Squares approach with GMM as benchmark	3.71	16.01
3SLS	Dummy, 1 if estimation is based on Three Stage Least Squares approach with GMM as benchmark	1.22	4.85
FE	Dummy, 1 if estimation is based on Fixed Effect approach with GMM as benchmark	6.02	15.26
RE	Dummy, 1 if estimation is based on Random Effect approach with GMM as benchmark	0.18	2.79
Cross	Dummy, if estimation is based on cross-sectional data with time series as benchmark	7.20	8.74
Pooled	Dummy, if estimation is based on pooled data with time series as benchmark 0 otherwise	18.37	26.86
Robust	Dummy, 1 if a study presents at least one check of results' robustness, 0 otherwise	18.51	25.55
Anglo Saxon	Dummy, 1 if a sample is for Anglo Saxon countries, 0 otherwise	17.38	24.16

Insiders	Dummy, 1 if a study examines impact of insider owners' on firm performance, 0 otherwise	18.57	23.15
Endogeneity	Dummy, 1 if a model addresses endogeneity, 0 otherwise	11.42	23.18
Tobin_s_q	Dummy, 1 if a model uses Tobins Q as a firm performance proxy with accounting firm performance measures as a benchmark	20.99	21.48
Top5	Dummy, 1 if a model uses the percentage of shares owned by the five largest shareholders in the model, with studies using the HHI [†] as the benchmark.	3.89	13.00
OC	Dummy, 1 if a study uses percentage of shares owned by the largest shareholder, with studies using the HHI as the benchmark.	17.04	21.45
OCsquared	Dummy, 1 if a study uses variable if shares owned by % largest shareholders squared, with studies using the HHI as the benchmark.	5.02	14.65
OCthird	Dummy, 1 if a study uses variable if shares owned by % largest shareholders power of three, with studies using the HHI as the benchmark.	2.03	10.8
OCfourth	Dummy, 1 if a study uses variable if shares owned by % largest shareholders power of four, with studies using the HHI as the benchmark.	0.13	1.93
OCfifth	Dummy, 1 if a study uses variable if shares owned by % largest shareholders power of five, with studies using the HHI as the benchmark.	0.09	1.63
OClow	Dummy, 1 if a study uses variable "if shares owned by x% largest shareholders", where x% is some author-chosen low threshold, with studies using the HHI as the benchmark.	1.39	6.73
OCmedium	Dummy, 1 if a study uses variable "if shares owned by x% largest shareholders", where x% is some author-chosen medium threshold, with studies using the HHI as the benchmark.	1.16	6.39
OChigh	Dummy, 1 if a study uses variable "if shares owned by x% largest shareholders", where x% is some author-chosen high threshold, with studies using the HHI as the benchmark.	1.18	6.42

Source: Author

Note: Due to the number of moderator variables, we do not include the suffix "SE", nonetheless these moderator variables are all divided by the standard error of the partial correlation coefficients.

* According to Demsetz and Villalonga (2001, p. 15) Amenity "has no prescribed directional role to play in the firm performance equation, and it is used in this equation much as would be any industry indicator variable. However, amenity purchases made by owners should result in reduced profit." Therefore, we do assume a negative impact on firm performance.

[†]Ownership concentration is measured by the Herfindahl index (HHI), calculated on the basis of the structure of holdings of major voting rights.

An additional set of moderator variables was introduced, aimed to explain the heterogeneity of the findings in the primary literature. We introduce a dummy variable for the quality of the implemented estimation procedure and presented diagnostics (*Robust*). In order to distinguish the “wheat from chaff” (Stanley, 2001, p. 131) we carefully analyze the robustness checks (if any) presented in the empirical literature. The underlying assumption is that those studies that presented at least one table with the diagnostics of their estimates, showing their robustness, should be more reliable than those that omit this procedure. Furthermore, we introduce a dummy variable to control for studies that address the potential endogeneity between ownership concentration and firm performance in the model (*Endogeneity*). We expect a significant impact of this variable in the explanation of study heterogeneity.

We were concerned that inclusion of the endogeneity dummy might bring problems of multicollinearity, given that econometric techniques used in primary studies to address endogeneity are controlled for separately by moderator variables in the meta-regression. However, endogeneity is such an important issue in the empirical literature on ownership concentration-firm performance that it divides this literature into studies that address this issue and those that do not. Furthermore, Sánchez-Ballesta and García-Meca (2007) strongly suggest that this characteristic of the literature is so important that should be used in further meta analysis research together with governance system, measurement of performance and identity of owners (insiders vs. outsiders). Finally, the endogeneity moderator variable is significant across the various regressions presented in the following subsections.

Furthermore, we control for the set of variables that are more or less standard in the mainstream literature of interest: namely, market-specific and firm-specific characteristics affecting ownership concentration and its relationship to firm performance such as advertising expenditures (*AdvExp*), research and development expenditures (*R&D*), capital expenditures as a proxy for tangible assets (*CapExp*), firm leverage (*Leverage*), firm size (*Size*), (*Regulation*) and (*Amenity*). Furthermore, market specific uncertainty is captured and controlled by (*Market risk*), whilst firm specific risk is controlled (*FirmSpecific*), if a study controls for any type of firm specific uncertainty proxy. Their impact on ownership concentration and the relationship between ownership concentration and firm performance is thoroughly analyzed in Chapter 4. Accordingly, these moderator variables capture the effects

of the inclusion/omission of variables specified by theory on the effects reported in the empirical literature.

Concerning definitions of variables describing firm performance, we decided to divide the literature into those using market value (*Tobin's Q*) and those using accounting measures such as accounting profit rate, return on assets (in which the net income is measured after tax and before tax) and return on equity (where the net income is calculated before tax, or is in the form of a dividend pay-out ratio).

According to Sánchez-Ballesta and Emma García-Meca, (2007 p. 883), there are at least four moderating variables that should be taken into consideration with respect to potential sub sampling: (i) the nature of the performance measure; (ii) the corporate governance system; (iii) the control for endogeneity; and (iv) the measurement of insider ownership. However, we start the analysis based on the whole sample comparing the estimates of the bivariate MRA models and multivariate MRA models. Table 3.3 reports the bivariate and the fully specified multivariate MRA models based on the whole sample.

Table 3.3: Bivariate and Multivariate model testing for publication bias and authentic empirical effect (Bivariate and Multivariate MRA FAT-PET model)–Cluster-robust estimates

Variables	Full Sample Multivariate Cluster-robust Linear Regression	Full Sample Bivariate Cluster-robust Linear Regression
<i>The dependent variable is OWNCONC, t statistic on the ownership concentration variable of interest</i>		
Intercept (FAT)	0.69(2.49)**	0.45(2.12)**
1_see_pcc (PET)	0.036(2.60)**	0.003(0.60)
Size	-	-
Investment	0.02(1.74)*	-
Leverage	-	-
Amenity	0.06(2.17)**	-
Control	-0.08(-4.25)***	-
Industry	-0.031(-4.10)***	-
FirmSpecific	-	-
MarketSpecific	-	-
RnD	-	-
CapExp	-0.04(-5.83)***	-
AdvExp	0.01(1.74)*	-
OLS	-0.02(-2.37)**	-
PARAM	0.02(1.57)	-
SPARAM	0.01(0.74)	-
GLS	-0.02(-2.15)**	-
Wls	-	-
2SLS	-0.01(-0.99)	-
3SLS	-0.02(-1.48)	-
FE	-0.01(-1.09)	-
RE	0.03(1.67)*	-
Cross	-0.02(-2.52)***	-
Pooled	-	-
Robust	-0.01(-1.65)	-
Anglosaxon	-0.01(-1.25)	-
Insiders	0.02(2.83)***	-
Endogeneity	-0.003(-0.33)	-
Tobin_s_q	-0.006(-1.04)	-
Oc	0.02(2.13)***	-
Ocsquared	-0.04(-3.14)***	-
<i>Model Diagnostics</i>		
N	946	946
R-squared	0.20	0.002
F TestH0: independent variables are jointly equal 0	F(23, 922) = 6.43 P=0.00	F(1, 63) = 0.44 P=0.51
Ramsey RESET Test:H0: Correct Functional form	F(3, 919) = 6.18 Prob > F = 0.004	F(3, 941) = 2.23 Prob > F = 0.08
VIF check	6.82	

Source: Calculations of the Author, Stata 11

Note: * and ** and *** denote statistically significant at the 10%, 5% and 1% level, respectively. t-statistics are in parentheses.

For the resulting multivariate model reported in Table 3.3, the Ramsey RESET test rejects the null hypothesis of no omitted variables and a linear specification at the five percent level of significance, alerting us that the functional form may not be appropriate. Concerning the issue of heteroskedasticity, we report weighted-cluster robust regression, and the estimated standard errors are heteroskedasticity robust. In spite of the possibility of multicollinearity – which is endemic in multivariate MRA because there is potential overlap between some of

the moderator variables, especially between those that control for different techniques in the primary literature and the one that controls for studies addressing endogeneity – the sample is sufficiently large to yield significant estimates for several of the moderator variables individually, while the model F-test rejects the null that the estimated effects of the moderator variables are jointly insignificant ($p=0.00$).³³ Multicollinearity is not a problem peculiar to our model. Greene (2012, p. 130; emphasis added) makes clear that “... non-experimental data will never be orthogonal”. Moreover, multicollinearity is not a threat to the validity of regression estimates (Greene, 2012, p. 129): “Multicollinearity leads to imprecision in the estimator, though not to any systematic biases in estimation.”

The resulting bivariate and multivariate WLS–MRA models encompass the FAT–PET procedure (i.e. the tests for publication selection and the existence of an authentic empirical effect in the literature). Concerning the FAT procedure, it relies on the assumption that publication selection is present when the reported effects are correlated with the standard errors. Conversely, nonexistence of publication bias can be inferred when estimates and their standard errors (SE) are independent, as required by random sampling theory (Stanley and Doucioulagos, 2011, p. 23). In the case of larger samples, SEs are smaller, and as the sample grows the reported effects approach the true effect: i.e. “the amount of the publication selection $\beta_0 SE_i$, shrinks to zero with zero variance” (Stanley and Doucioulagos, 2009, p. 410). PET, i.e. the “precision effect test”, signals the presence or otherwise of an authentic empirical effect in the literature. Because $1/SE_i$ is the precision of this estimate of empirical effect, this test ($H_0: \beta_0 = 0$) makes the multivariate model a FAT-PET-MRA. According to Stanley (2008) PET is very powerful and robust to the intensity of publication selection.

³³In all specifications the F test is calculated using default standard errors instead of cluster-robust standard errors for which the F test can not be calculated. The explanation is as follows (provided by Stata 11, Version 11): “The VCE you have just estimated is not of sufficient rank to perform the model test. This can happen if there is a variable in the model that is nonzero for only 1 observation in the estimation sample. Likewise, it can happen if a variable is nonzero for only one cluster when using the cluster-robust VCE. In such cases the derivative of the sum-of-squares or likelihood function with respect to that variable's parameter is zero for all observations. That implies that the outer-product-of-gradients (OPG) variance matrix is singular. Because the OPG variance matrix is used in computing the robust variance matrix, the latter is therefore singular as well.” However, Cluster-robust standard errors are valid in large samples but not necessarily in finite samples with small numbers of groups. An indication of where cluster-robust may not be valid is when default standard errors are larger than cluster-robust ones, in which case the conservative approach to inference is to report the default standard errors. However, this is not the case in any of the regressions reported in the Tables presented in Chapter 3; the cluster-robust standard errors are uniformly larger than the default standard errors. Given this, the default F-tests can be regarded as indicative only. However, these F-tests - taking no account of clustering - do suggest that the null of joint insignificance of the estimated coefficients is uniformly rejected ($p=0.00$ in all cases).

The estimation of the bivariate MRA model is used solely as an intuitive tool to assess the robustness of the FAT-PET tests in the full multivariate model. Namely, although the Ramsey RESET test indicates that the specified (linear) functional form may not appropriately model the relationship between the regressors, and in the bivariate model the small R^2 value (0.002) indicates that the inverse standard error alone is not sufficient to explain the heterogeneity in the empirical literature, the results from the bivariate and multivariate MRAs taken together suggest the presence of publication selection bias as well as the possible presence of an overall genuine empirical effect. Nonetheless, we should be aware that the PET test can be biased in favour of rejecting $H_0: \beta_1=0$ (where β_1 is the coefficient on *1_see_pcc* (PET)) - hence, concluding that there is an authentic empirical effect - in the case of pronounced unexplained heterogeneity and the presence of publication selection bias (Stanley, 2008; Doucouliagos and Stanley, 2009, p. 416).

In both bivariate and multivariate cluster-robust models the t-statistic for the null hypothesis that $H_0: \beta_0=0$ (the test for publication bias) is statistically significant; indicating that the positive effect size typically reported in the literature is subject to publication bias. There is clear evidence that the ownership concentration-firm performance relationship is skewed (see Table 3.3) toward positive values (nonrejection $H_0: \beta_0=0$, $t_{bivariate_fullmodel}= 2.12$ and $t_{multivariate_fullmodel}=2.49$), confirming our visual impressions from the funnel graph (Figure 3.1). Once we control for publication bias, the PET for the multivariate cluster robust model supports the existence of a genuine positive empirical effect (nonrejection $H_0: \beta_1=0$; $t_{multivariate_fullmodel}=2.60$). On the other hand, in the case of the bivariate cluster robust model the PET does not support the existence of genuine positive empirical effect (rejected $H_0: \beta_1=0$; $t_{bivariate_fullmodel}=0.6$).

The following discussion refers to the interpretation of results of moderator variables where nine of the thirty moderator variables are estimated with coefficients statistically significant at the conventional ten percent level of significance (Egger et al., 1997; Doucouliagos and Laroche, 2009). Because the empirical literature is very heterogeneous, the significant moderator variables reveal sources and consequences of that heterogeneity. Due to the space limitations, we focus on explanation of the significant moderator variables in the Multivariate MRA. The obtained results further suggest that those studies that control for the level of investment (*Investment*) are more likely to present a positive impact of ownership concentration on firm performance. The same stands for studies that control for

advertisement expenditure (*AdvExp*), and those studies that use insiders as a proxy for ownership concentration, and amenity potential (*Amenity*). On the other hand, the obtained results suggest that if a study controls for systematic regulation characteristics of industries (*Control*) it is less likely to report a positive impact of ownership concentration on firm performance. Similarly, those studies that control for industry characteristics are less likely to report a positive impact of ownership control on firm performance. Similarly, those studies that control for the level of capital expenditure (*CapExp*), uses cross section data (*Cross*), uses OLS or GLS, or controls for regulated industries (*Control*) are less likely to report a positive impact of ownership control on firm performance.

Finally, among the 13 moderator variables used to proxy ownership concentration, only two yield statistically significant coefficient estimates, indicating that studies using definitions of ownership concentration as a percentage of overall ownership are more likely to discover a positive relationship between ownership concentration and firm performance, while those studies that also specify a quadratic term as the squared percentage of overall ownership are less likely to discover a positive relationship between ownership concentration and firm performance.

3.4 Subsample MRA specifications

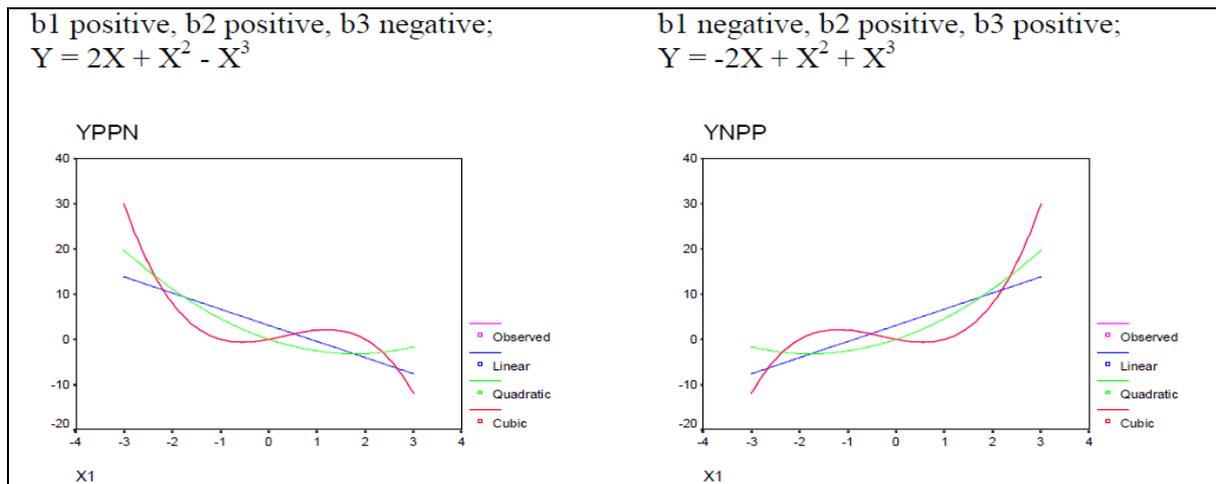
Further investigation addresses the “apples and oranges” issue in MRA – i.e. achieving coherent units of analysis - by dividing the overall sample into nine subsamples with respect to pronounced dependent variable heterogeneity in the literature. There are at least two criteria depicting severe heterogeneity in the literature, urging further investigation. The first criterion is the type of owners (Insiders versus Outsiders); and secondly, the type of the functional forms explaining the nature of the relationship between ownership concentration and firm performance (linear vs. nonlinear). Given that the empirical literature is divided between nonmonotonic and linear modelling of the relationship between ownership and performance, the difference in the functional form represent a justified criterion for subsample MRA specification. Dalton et al. (2003) in a meta analysis solely examine linear relationships among different types of equity characteristics and firm performance. We employ a division suggested by Ballesta and Garcia-Meca (2007, p. 886); namely, conducting

the analysis on subsamples, based on different functional specifications of the relationship and difference in the identity of the largest owners (insider ownership and ownership concentration).

However, unlike Ballesta and Garcia-Meca (2007) we do not keep the cubic term on ownership concentration or any higher level of exponentiation. Namely, from the sample we drop observations referring to any nonlinear relationship of a higher term than quadratic. We argue that polynomial models with terms higher than two do not have support in the theoretical literature on the ownership concentration-firm performance relationship (Figure 3.2).³⁴ If we look at the graphic specification of a potential polynomial model of order three, we may perceive that this relationship would imply a very complicated, concave-convex relationship between ownership concentration and firm performance. Instead, it seems that authors have clear conformity incentives to use higher order levels in order to select for submission only estimates of the desired size and/or significance.

³⁴A polynomial model can be appropriate if it is thought that the slope of the effect of X_i on $E(Y)$ changes sign as X_i increases.

Figure 3.2: Characteristic polynomial models with cubic terms

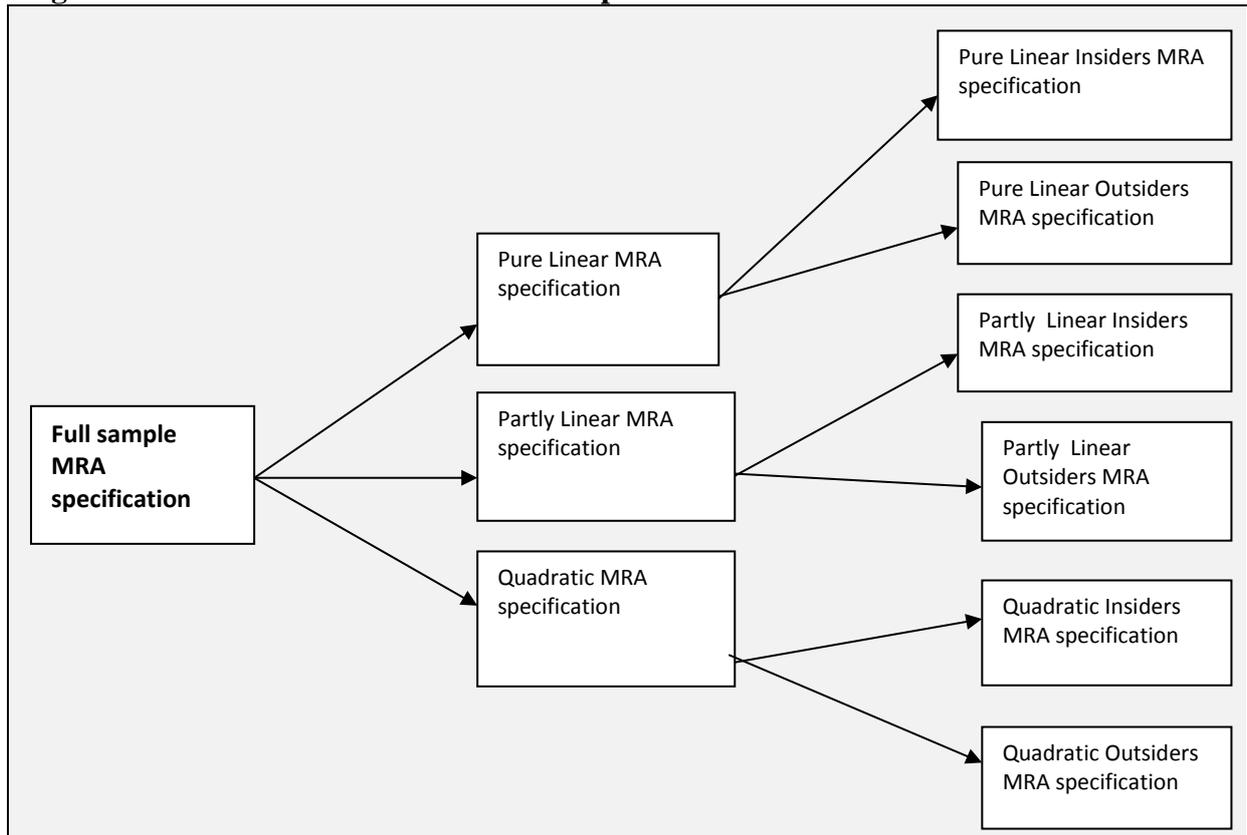


Source: McClendon's Multiple Regression and Causal Analysis, 1994; SPSS's Curve fit documentation, YPPN (Y=dependent variable, a1=Positive, a2=Positive, a3=Negative), YNPN (Y=dependent variable, a1=Negative, a2=Positive, a3=Negative)

All other aspects which cause the empirical literature to vary across studies such as (i) development of the corporate governance environments in which firms are embedded, (ii) the technique(s) applied, (iii) controlling for the endogeneity of ownership, (iv) the nature of the performance measure and limitations on the ownership and performance measurements (v) data quality (Dalton et al., 2003; Ballesta and Garcia-Meca, 2007) are controlled by moderator variables.

The first criterion, functional form, divides the full MRA sample into three subsamples, according to the functional form of the relationship between ownership concentration and firm performance in the primary regressions: (i) pure linear specification (i.e. primary regressions specified with a linear relationship between ownership and performance); (ii) partlylinear specification (i.e.the linear component from those primary regressions specified with a non-linear relationship between ownership and performance); and (iii) quadratic specification (i.e. the quadratic component from those primary regressions specified with a non-linear relationship between ownership and performance). The corresponding MRA specifications are each divided into two further subsamples (Figure 3.3) using the second criteria (type of the largest owner). This creates six additional subsamples: (iv) pure linear insiders; (v) pure linear outsiders; (vi) partly linear insiders; (vii) partly linear outsiders; (viii) quadratic insiders; and (ix) quadratic outsiders. The organisation of our total sample into these six sub-samples is set out in Figure 3.3.

Figure 3.3: The structure of MRA subsamples



Once separation of MRA specifications is made, we summarize the major results separately. We explain below in Section 3.4.5 why separate MRA models are not estimated for either the “partly linear outsiders” subsample or the “quadratic outsiders” subsample.

We proceed with MRA reporting based on guidelines for conducting and reporting meta-analyses offered by Stanley et al. (2012) and Higgins and Thompson (2002).

3.4.1 Initial Strategy – Estimating the full sample with a full set of Interaction Terms

An alternative approach, which is equivalent to partitioning the data, is to estimate the full sample with a full set of interaction terms; for example, estimating the Pure-linear Subsample effects by interacting each variable with the Pure-linear (Part-linear and Quadratic) subsample indicator (a Dummy variable which takes the value 1 if the study estimates a linear (partly linear or quadratic) relationship, 0 otherwise). The advantage of using interaction terms is a clear gain in efficiency arising from the use of all the data to estimate the subsample effect. The potential disadvantage of using interaction variables is greatly

increased multicollinearity, which offsets the precision gain from estimating with the whole sample.

To assess the extent to which these general observations apply to our particular model and data, we use this alternative approach to replicate what was accomplished by partitioning the data, conducting it both in the multivariate and in the bivariate context. We do not interact in the multivariate context all variables, because of obvious collinearity. Instead, the interactions are made with selected variables in each case: (i) the measure of the authentic empirical effect (SEE); (ii) the constant; (iii) moderator variable controlling for studies using data from Anglo-Saxon corporate governance systems (*Purelinear_AngloSaxon*, *Quadratic_Anglosaxon*, *Partlinear_AngloSaxon*); and (iv) the moderator variable controlling for studies treating endogeneity (*Purelinear_edogeneity*, *Quadratic_edogeneity*, *Partlinear_edogeneity*).

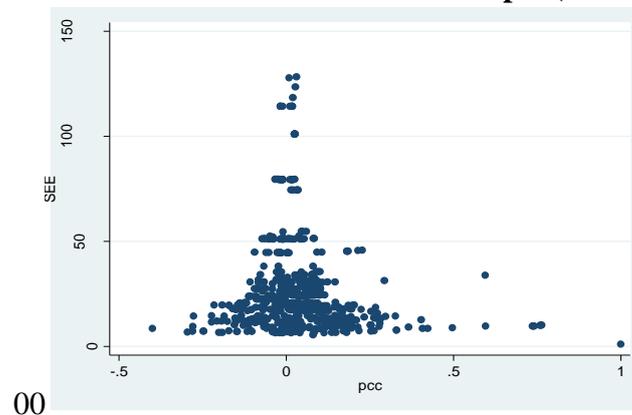
In Appendix 3.2 we present results from multivariate MRA FAT-PET estimates using interaction moderator variables for Pure linear, Part linear and Quadratic estimation. However, the results obtained using interaction moderator variables are not very informative for several reasons. Firstly, possibly due to the mix of linear and nonlinear relationship in the sample, all specifications fail the Ramsey Reset test, indicating miss-specified functional form. In addition, inclusion of interaction dummies adds hugely to multicollinearity, which is shown by the mean VIF of above 10. Furthermore, similarly to cluster robust estimations obtained by partitioning, the F test for joint significance cannot be calculated.

In view of misspecification with respect to functional form and pronounced multicollinearity in the multivariate MRA when specifying our MRA model with interaction dummies, and in view of our relatively large sample size (for MRA), our preferred result are those obtained by partitioning the data set rather than those estimated with interaction dummies. For similar reasons, this is the usual practice in MRA, even in studies using much smaller datasets (see, for example, Efendic et al., 2011).

3.4.2 Pure Linear, Partly Linear, and Quadratic subsamples: Funnel plots

Our empirical investigation of subsamples is based on two structural differences (functional form and the identity of owners), which are possibly reflected in the failure of the linear functional form assumption in the full-sample multivariate FAT-PET MRA (Table 3.3) and which partly motivated us to create subsamples. Funnel plots from the data used in the subsamples are shown in Figures 3.4, 3.5, 3.6, 3.7, 3.8, 3.9 and 3.10.

Figure 3.4: Funnel Plot - Pure Linear whole sample (insiders+outsiders)



As already highlighted, in the absence of publication bias, the funnel graph resembles an inverted funnel. Conversely, “asymmetric and non-random distribution of the estimates around the ‘true’ measure of the effect size, in other words a skewed funnel graph, indicates the presence of publication bias” (Haile and Pugh, 2011, p. 10). Moreover, a symmetrical funnel should converge towards a single point at the top where the largest samples should assure the highest level of precision. Clearly, Figure 3.4 is asymmetric, skewed to the right, reflecting publication bias in favour of positive estimates.

Figure 3.5: Funnel Plot - Pure Linear Insiders

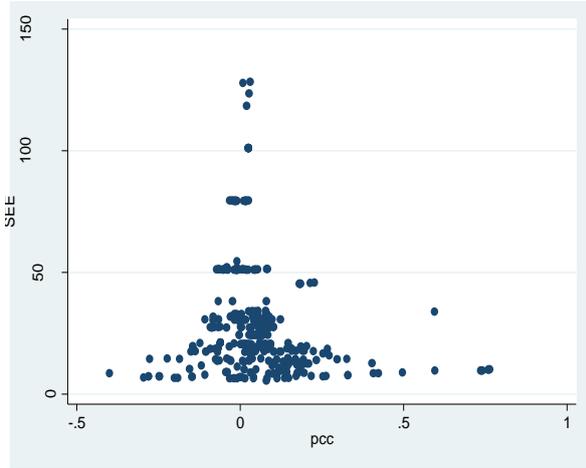


Figure 3.6: Funnel Plot - Pure Linear Outsiders

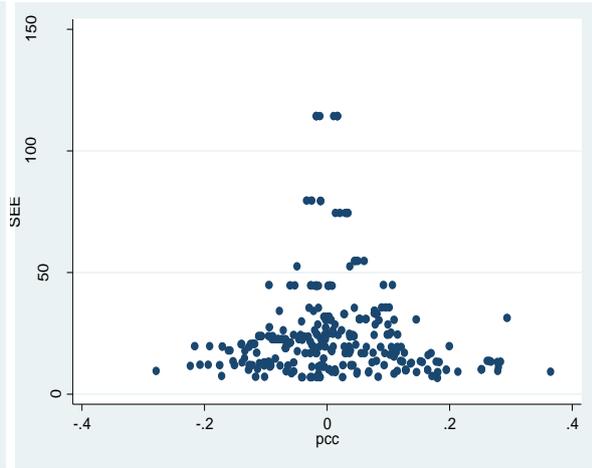


Figure 3.7: Funnel Plot - Part Linear Full Sample

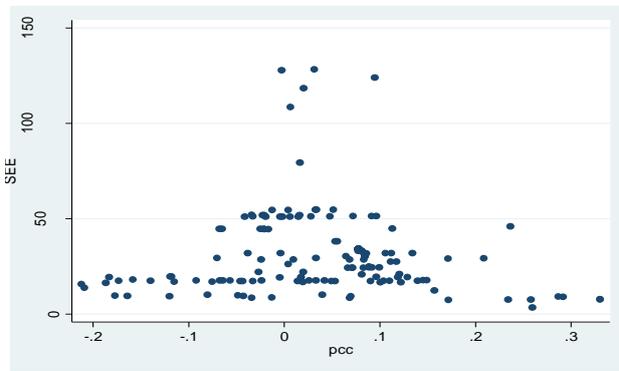


Figure 3.8: Funnel Plot - Part Linear Insiders

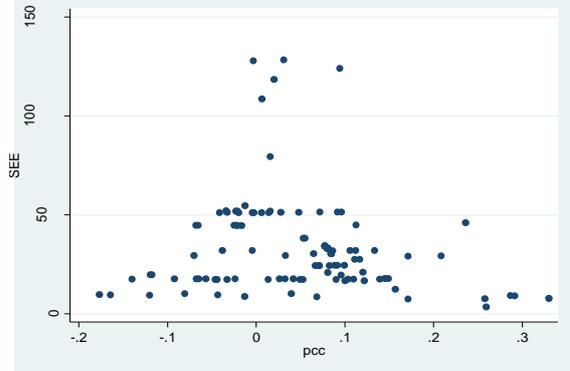


Figure 3.9: Funnel Plot - Quadratic Full sample

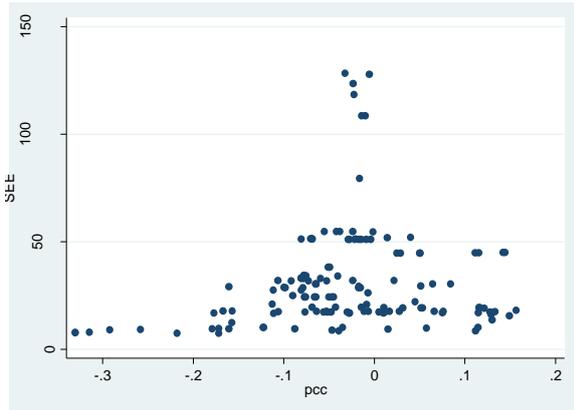
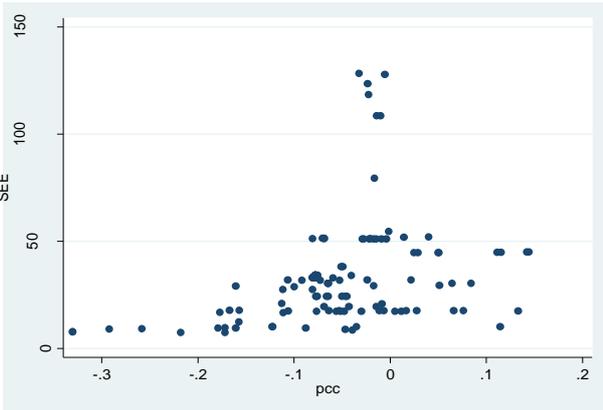


Figure 3.10: Funnel Plot - Quadratic Insiders



The visual evidence of the publication selection, potentially depicted by the funnel plots, based on the authors subjective perspective, are summarised in Table 3.4. The data used in the MRA subsamples specifications are illustrated in Figures 3.5 to 3.10. According to visual inspection, in the case of the pure linear and insiders subsamples there exists clear evidence of positive publication selection (Figure 3.4 and 3.5). Conversely, Figure 3.6 appears symmetrical, converging towards a single point as the level of precision increases, suggesting absence of publication bias. Figure 3.6 suggests that the estimates are randomly and symmetrically distributed around the mean, which pinpoints the assumption of the absence of publication selection.

In the case of the part linear and the insiders subsamples, moderate skewness of the funnel towards positive values reveals potential publication selection in the underlying literature (Figures 3.7 and 3.8). Finally, the quadratic and the insiders subsample funnel graphs signal heavy skewness towards negative values (Figures 3.9 and 3.10), i.e. asymmetric and non-random distribution of the estimates around the ‘true’ measure of the effect size, revealing the presence of publication selection.

Detailed inspection of these seven Funnel graphs provides evidence of clustering in the lower section area with wide variation, indicating the strong presence of small sample studies with lower precision. The range of model specifications and estimation techniques in the primary literature, captured by the moderator variables detailed in Table 3.2, indicate that researchers with small samples have the potential “to search more intensively across model specifications, data and econometric techniques until they find larger estimates” (Stanley and Doucouliagos, 2011, p. 23). This is consistent with the presence of publication bias in most of the sub samples (Table 3.4), i.e. higher probability that the effect size is correlated with its standard error.

Table 3.4: Publication bias assessment based on the sub-sample funnel plots

MRA data specification	Visual Description of the Funnel Plot	Evidence of publication bias
Pure Linear Subsample (Fig.3.4)	Relatively symmetrical with concentration on the lower levels (smaller samples), more skewed to the right, pronounced clustering on certain levels	Existence of publication bias positively skewed
Pure Linear Insiders (Fig. 3.5)	Relatively symmetrical with concentration on the lower levels (smaller samples), more skewed to the right, pronounced clustering on certain levels	Existence of publication bias positively skewed
Pure Linear Outsiders (Fig.3.6)	Relatively symmetrical with concentration on the lower levels (smaller samples), resembles an inverted funnel. The estimates are randomly and symmetrically distributed around the mean.	Absence of publication bias
Part Linear Subsample (Fig. 3.7)	Relatively symmetrical with concentration on the lower levels (smaller samples), highly scattered (wide variation around true effect) mildly skewed to the right.	Existence of publication bias positively skewed
Part Linear Insiders (Fig. 3.8)	Relatively symmetrical with concentration on the lower levels (smaller samples), highly scattered (wide variation around true effect) mildly skewed to the right.	Existence of publication bias positively skewed
Quadratic Subsample (Fig.3.9)	Relatively symmetrical with concentration on the lower levels (smaller samples), highly scattered (wide variation around true effect) strongly skewed to the left.	Existence of publication bias skewed towards negative values
Quadratic Insiders (Fig. 3.10)	Relatively symmetrical with concentration on the lower levels (smaller samples), highly scattered (wide variation around true effect) strongly skewed to the left.	Existence of publication bias skewed towards negative values

Bearing in mind that funnel plots rely on visual observation and subjective judgment, jointly with the fact that an asymmetric funnel graph could result from heterogeneity of the true effect, regardless of publication selection (Stanley, 2005, p. 317), we need a further investigation, which includes objective statistical tests (i.e. the FAT-PET procedure). These tests can identify publication selection and genuine effects beyond publication selection should it exist (Stanley and Doucouliagos, 2011). Accordingly, we continue investigation using the FAT-PET procedure as robust, formal and more objective tests for identification of the publication bias and underlying genuine empirical effect once publication bias is controlled for.

3.4.3 MRA tests for publication bias and genuine effects-Subsamples linear relationship Insiders vs. Outsiders empirical literature

Following the testing procedure for publication bias and genuine empirical effect that are part of meta-regression analysis we preserve a conservative approach to inference, always favouring cluster-robust standard errors. Bearing in mind that outliers were not evident as an overwhelming problem, a testing down procedure continues by dropping variables with the highest p-values and by giving priority to the model diagnostics. Hence, the final step was to

eliminate moderator variables whose t-statistic was low (following Doucouliagos, 2005, p. 376) or suffer a problem of very high correlation and potential multicollinearity (indicated by the VIF check).

According to Stanley and Doucouliagos (2011, p. 1) “publication selection bias represents one of the most serious challenges to the integrity of empirical economics”. The FAT procedure (see Table 3.5) shows a clear sign of publication selection bias (i.e. rejection of $H_0: \beta_0=0$) toward positive values in two out of three multivariate specifications: $t_{\text{multivariate_full_sample}}=2.49$; $t_{\text{multivariate_Insiders}}=1.44$; $t_{\text{multivariate_outsiders}}=3.08$. For the pure linear subsample (Column 1), the result of the multivariate FAT-PET MRA is in line with the corresponding funnel plot (Figure 3.4) in suggesting the presence of publication bias. However, in the case of the pure linear insiders subsample (Column 3) the suggestion of publication bias from the funnel plot (Figure 3.5) is not supported by the multivariate MRA estimate. Similarly, in the case of outsiders, although Figure 3.6 indicates an absence of publication selection bias, the FAT result (Column 5) challenges the impression given by the Funnel plot, showing the clear presence of publication bias at the one percent level of significance.

According to Stanley (2008) and Stanley and Doucoulagos (2011) testing $H_0: \beta_1=0$ (in Table 3.5, the coefficient on 1_see_pcc (PET)) should provide evidence of whether there is or is not a genuine empirical effect existing beyond publication bias. The authentic empirical effect is estimated only after controlling for sources of heterogeneity in the literature and after we make due allowance for publication bias. Bearing in mind that β_1 is the coefficient measuring precision, the PET procedure in the context of subsample for Pure linear specification (Column 1) fails to provide evidence of genuine empirical effect. However, in the case of the pure linear outsiders subsample (Column 5), the PET procedure indicates the presence of a genuine underlying empirical effect beyond distortion due to publication selection (reject $H_0: \beta_1=0$, $t_{\text{multivariate_outsiders}}=-2.92$). In the case of the Pure linear insiders subsample (Column 3) we find a genuine empirical effect identifying a positive impact ($t_{\text{multivariate_Insiders}}=1.96$) of insider ownership concentration on firm performance. According to Stanley (2008) and Stanley and Doucoulagos (2011) testing $H_0: \beta_1=0$ (in Table 3.5, the coefficient on 1_see_pcc (PET)) should provide evidence of whether there is or is not a genuine empirical effect existing beyond publication bias. The authentic empirical effect is estimated only after controlling for sources of heterogeneity in the literature and after we make due allowance for publication

bias. Bearing in mind that β_1 is the coefficient measuring precision, the PET procedure in the context of the subsample for the Pure linear specification (Column 1) fails to provide evidence of genuine empirical effect. However, in the case of the pure linear outsiders subsample (Column 5), the PET procedure indicates the presence of a genuine underlying empirical effect beyond distortion due to publication selection (reject $H_0: \beta_1=0$, $t_{\text{multivariate_outsiders}}=-2.92$). In the case of the Pure linear insiders (Column 3) subsample we find a genuine empirical effect identifying a positive impact of insider ownership concentration on firm performance. However, diagnostic failure with respect to functional form at the one per cent level suggests that this result may be problematic.³⁵

³⁵ We use the five per cent level of significance as the threshold for rejection/non-rejection, which is the conventional level in economics and business research. Hence, we reject the null of linearity for the models reported in Columns 2 (although we do not reject at the one per cent level), 3 and 4 in Table 3.5.

Table 3.5: Comparative Bivariate and Multivariate MRA FAT-PET estimates for the Subsamples Pure Linear Functional Form Insiders vs. Outsiders – OLS-weighted cluster robust estimate³⁶

Variables	Pure Linear Sample Multivariate Cluster-robust Linear Regression (Column 1)	Pure Linear Sample Bivariate Cluster-robust Linear Regression (Column 2)	Pure Linear Sample Multivariate -Insiders Cluster-robust Linear Regression (Column 3)	Pure Linear Sample Bivariate -Insiders Cluster-robust Linear Regression (Column 4)	Pure Linear Sample Multivariate -Outsiders Cluster-robust Linear Regression (Column 5)	Pure Linear Sample bivariate -Outsiders Cluster-robust Linear Regression (Column 6)
<i>The dependent variable is OWNCONC, t statistic on the ownership concentration variable of interest</i>						
Intercept (FAT)	0.92(2.49)**	0.547 (1.93)*	0.61(1.44)	1.07 (2.83)**	1.23(3.08)***	0.177(0.59)
1_see_pcc (PET)	0.024(1.3)	0.003 (0.43)	0.14(1.96)*	0.004(0.42)	-0.1(-2.92)***	0.003(0.40)
Size	-0.005(-0.28)	-	-0.11(-3.86)***	-	-	-
Investment	0.03(1.35)	-	-	-	0.023(1.11)	-
Leverage	0.006(0.32)	-	0.06(3.92)***	-	0.03(2.78)***	-
Amenity	0.07(1.59)	-	-0.11(-2.72)*	-	0.07(1.17)	-
Control	-0.06(-2.22)**	-	-0.058(-2.53)**	-	-0.048(-1.00)	-
Industry	-0.05(-2.71)***	-	-	-	-0.05(-2.5)**	-
FirmSpecific	-0.001(-0.11)	-	0.07(3.24)***	-	-	-
MarketSpecific	-0.03(-1.27)	-	-0.17(-5.83)***	-	-	-
RnD	0.008(0.48)	-	0.04(2.15)**	-	-0.02(1.28)	-
CapExp	-0.06(-5.19)***	-	-0.01(-0.81)	-	-0.05(-4.37)***	-
AdvExp	-0.016(-0.98)	-	-0.03(-1.32)	-	-	-
Published ³⁷	-	-	-	-	-	-
OLS	-0.002(-0.16)	-	0.03(0.91)	-	0.032(3.05)***	-
PARAM	0.05(1.84)*	-	0.15(3.90)***	-	0.09(4.11)***	-
SPARAM	0.045(1.57)	-	-	-	0.09(4.19)***	-
GLS	-	-	-	-	-	-
Wls	0.14(4.34)***	-	-	-	0.25(12.14)***	-
2SLS	-0.002(-0.02)	-	-	-	-	-
3SLS	-0.001(-0.23)	-	-0.56(-1.85)*	-	-	-
FE	-0.01(-0.44)	-	-	-	-	-
RE	0.07(2.76)***	-	0.14(4.26)***	-	0.16(6.34)***	-
Cross	-0.03(-1.77)*	-	0.04(1.84)*	-	-0.02(-0.78)	-
Pooled	-	-	-	-	-	-
Robust	-0.01(-0.55)	-	-0.06(-3.52)***	-	0.04(2.05)**	-
Anglo-Saxon	-0.008(-0.62)	-	-0.07(-3.65)***	-	-0.02(-1.52)	-
Insiders	0.037(2.36)**	-	-	-	-	-

³⁶Comparative Bivariate MRA FAT-PET estimates for the Subsamples Partly LinearInsiders vs. full sample– OLS-weighted cluster robust estimate - are presented in Appendix 3.1.

³⁷ According to Stanley et al., (2012, p. 383) research papers that conduct MRAs in economics should include in the process of literature coding a dummy of the year of the data used and/or publication year. Therefore, a dummy variable for the publication year is included in the model specification. However, in the model specifications this variable has a very high VIF value and is statistically insignificant, which incentivizes us to exclude it from the model specifications.

Endogeneity	-	-	0.25(0.72)	-	0.05(3.57)***	-
Tobin_s_q	-0.01(-1.12)	-	0.006(0.87)	-	-0.01(-1.06)	-
Top5	-	-	-	-	-	-
oc	0.008(0.31)	-	-0.04(-0.81)	-	-	-
ocsquared	-	-	-	-	-	-
ocsthird2	-	-	-	-	-	-
ocfourth	-	-	-	-	-	-
ocfifth	-	-	-	-	-	-
Oclow	0.031(1.47)	-	0.035(1.46)	-	-	-
Ocmedium	-0.036(-1.16)	-	-0.03(-1.02)	-	0.06(5.92)***	-
Ochigh	-	-	-	-	-	-
Purelinear	-	-	-	-	-	-
Partlylinear	-	-	-	-	-	-
Quadratic	-	-	-	-	-	-
<i>Model Diagnostics</i>						
N	582	582	301	301	281	281
R-squared	0.23	0.002	0.281	0.002	0.35	0.016
F-TestH0: independent variables are jointly equal 0	F(28, 553) = 9.23 Prob > F = 0.00	F(1, 53) = 0.18 Prob > F = 0.67	-	F(1,30)=0.17	F(19, 261) = 21.1 Prob > F = 0.00	F(1, 43) = 0.16 Prob > F = 0.69
Ramsey RESET Test:H0: Correct Functional form	F(3, 550) = 2.38 Prob > F = 0.07	F(3, 577) = 3.26 Prob > F = 0.02	F(3, 275) = 13.32 Prob > F = 0.000	F(3, 296) = 12.22 Prob > F = 0.00	F(3, 258) = 2.68 Prob > F = 0.05	F(3, 276)=2.49 Prob > F = 0.055
VIF	5.25		6.60		6.73	

Source: Calculations of the Author, Stata 11

Note: *, ** and *** denote statistically significant at the 10%, 5% and 1% level, respectively. t-statistics are in parentheses.

For the whole pure linear sample (n=582) both multivariate (Column 1) and bivariate (Column 2) MRA suggest pronounced positive publication bias (FAT) and the absence of an authentic empirical effect (PET). In the pure linear insiders subsample (n=301), the FAT procedure yields mixed evidence of publication bias (not suggested by the multivariate estimate but suggested by the bivariate estimate), while the PET procedure yields mixed evidence of a significant positive authentic empirical effect (suggested by the multivariate but not by the bivariate estimate) (Columns 3 and 4). In contrast, while multivariate MRA on the pure linear outsiders subsample (n=281) (Column 5) yields evidence of publication bias, it yields a somewhat negative authentic empirical effect, which contrasts with the positive effect suggested for the pure linear insiders sample (although neither effect is found in the bivariate MRA.). This suggests that the overall results for the whole pure linear sample (insiders plus outsiders) are potentially misleading in that they may aggregate structurally different and offsetting effects from the Insiders and outsiders subsamples. In addition, diagnostic failure with respect to functional form at the five per cent level suggests that these results may be problematic; if the relationship in this sub-sample is non-linear then coefficient estimates will be biased and statistical inference invalid. Hence, the Column 3 and 4 estimates must be treated as indicative at best. Nonetheless, the multivariate estimates from the pure linear insiders subsample (Column 3) contrast with those from the pure linear outsiders subsample (Column 5). MRA on the pure linear outsiders subsample (n=281) (Column 5) yields evidence of publication bias, while a somewhat negative authentic empirical effect contrasts with the positive effect suggested for the pure linear insiders sample. (Although neither effect is found in the bivariate MRA.) This suggests that the overall results for the whole pure linear sample are potentially misleading in that they may aggregate structurally different and offsetting effects from the Insiders and outsiders subsamples.

3.4.4 Pure Linear Insiders subsample: FAT–PET and meta-regression results

The multivariate pure linear insiders MRA model (Column 3), reported in Table 3.5 explains 28% of the variation in firm performance, i.e. the overall fit of the regression is

moderate. However, the estimates of the multivariate MRA model referring to the pure linear insiders subsample can not be trusted. The Ramsey RESET test ($p=0.00$) clearly rejects - at the five percent level of significance - the null hypothesis of correct specification with respect to the assumed linear functional form of the model. This suggests that the linear specification of the ownership concentration-firm performance relationship, in the context of insiders as the largest owners, may be inappropriate. Further investigation is needed in the context of the quadratic and part linear subsamples, explained in subsection 3.4.6.

Furthermore, existence of nonlinearity in the insiders pure linear subsample makes explanation of the estimates at best indicative. Consequently, we only briefly present results obtained from the pure linear insiders data set. The FAT procedure for no evidence of publication selection bias. The PET procedure indicates the presence of an authentic empirical effect beyond the bias of publication selection (reject $H_0: \beta_1=0$, $t_{\text{multivariate_insiders}}=1.96$ (Column 3)).

3.4.5 Pure Linear Outsiders subsample: FAT–PET and meta-regression results

The multivariate pure linear outsiders MRA model, reported in Table 3.5 (Column 5) explains about 35% of the variation in firm performance, i.e. the overall fit of the regression is relatively high. The model captures much of the heterogeneity in the literature. The RESET test suggests ($p=0.05$) that linear functional form is a plausible assumption; i.e. that problems do not exist with respect to the assumed linear functional form of the MRA model.

The pure linear outsiders MRA subsample FAT procedure shows a clear sign of publication selection bias in the multivariate specification (reject $H_0: \beta_0=0$, $t_{\text{multivariate_outsiders}}=3.08$) toward positive values (Table 3.5, Column 5). Once we control for sources of heterogeneity in the literature and after controlling for the presence of publication bias, the authentic empirical effect is estimated using the PET procedure.

The PET procedure shows that – *ceteris paribus* - there is a negative underlying genuine authentic empirical effect (to reject $H_0:\beta_1=0$, $t_{\text{multivariate_outsiders}}=-2.92$). The direction of the β_1 coefficient is negative as opposed to the positive estimate for the Insider MRA subsample (Column 3).

The results (Column 5) reveal the presence of a set of moderator variables that identify key dimensions in the ‘true’ heterogeneity; i.e. moderator variables control for study-related factors that may explain variation in the results. The following moderator variables in the MRA yield positive and statistically significant effects: Re, OLS, WLS, Parametric and Semi-parametric approaches (*SPARAM*), the level of leverage (*Leverage*), the presence of endogeneity (*Endogeneity*), present diagnostics (*Robust*) or define ownership concentration in the medium range (*Ocmedium*). These results suggest that model specifications in the primary literature with these characteristics are more likely to find a positive (or less negative) impact of outsider ownership concentration on firm performance. Conversely, those studies that control for Capital Expenditures (*CapExp*) or for Industry specification (*Industry*) are more likely to report a negative (or less positive) relationship between ownership concentration (outsiders) and firm performance.

Taking into account that the inverse of SE_{pcc} interacts with the moderator variables in the multivariate model, it is the combination of all the explanatory variables and the respective reference categories that indicate the existence the size of the authentic empirical effect (Doucouliagos and Stanley, 2009; Haile and Pugh, 2012). In the case of multivariate MRA for the Pure Linear outsiders subsample, the effect size in the multivariate model is not purely the coefficient estimate on the inverse of SE_{pcc} .

Table 3.6: The spectrum of empirical effects of moderator variables- studies with specific characteristics - Pure Linear Sample /Multivariate/Outsiders³⁸

Study characteristics (other factors held constant)	Combined coefficient	t-statics	p-value
Studies holding for leverage ($H_0: 1/SE_{pcc} + Se_{Leverage}$)	-0.07	-1.85	0.07
Studies holding for Industry ($H_0: 1/SE_{pcc} + Se_{Industry}$)	-0.15	-5.18	0.00
Studies holding for capital expenditures ($H_0: 1/SE_{pcc} + Se_{CapExp}$)	-0.14	-4.2	0.05
Studies holding for WLS as estimation technique ($H_0: 1/SE_{pcc} + WLS$)	0.15	4.57	0.00
Studies presenting robustness check ($H_0: 1/SE_{pcc} + Se_{Robust}$)	-0.06	-2.43	0.02
Studies which data gathered from Anglo-Saxon countries ($H_0: 1/SE_{pcc} + Se_{AngloSaxon}$)	-0.12	-3.02	0.00
Studies which controls for endogeneity ($H_0: 1/SE_{pcc} + Se_{endogeneity}$)	-0.05	-1.8	0.08
Studies which uses cross section sample ($H_0: 1/SE_{pcc} + Se_{cross}$)	-0.11	-2.91	0.00

Note: The results are the combined coefficients and t-statistics of $1/SE_{pcc}$ and the above variables from the cluster-robust linear regression. Estimates were obtained using Stata's 11 post-estimation command 'lincom'.

Taking into account that in multivariate MRA the effect of precision – measured by the inverse of SE_{pcc} – on the estimated effect of ownership on firm performance is moderated by a range of study characteristics, we combine the estimated precision effect with, in turn, the estimated effect of each statistically significant moderator variable (plus Anglo-Saxon, which is borderline). In this way, we obtain, *ceteris paribus*, estimates of the empirical effects typically arising from studies with the characteristic captured by the particular moderator variable relative to studies with the characteristic captured by the particular reference group (Doucouliagos and Stanley, 2009; Haile and Pugh, 2012).

In the case of multivariate MRA for the Pure Linear Outsiders subsample, Table 3.6 reports the statistically significant combinations and shows that in all but one case (studies that use the WLS estimation technique), the moderator variables capture study characteristics tending to yield a stronger (negative) effect size. Of course, it is possible to obtain further combinations arising from multiple characteristics relative to their respective reference characteristics. However, given that these would compound mainly

³⁸ Printouts available in Appendix 3.3

negative effects, estimates from combinations of multiple moderator variables would not add substantially to those reported in Table 3.6.

3.4.6 Partly Linear and Quadratic subsamples: FAT–PET and meta-regression results

Estimates on the partly linear full sample (i.e. insider and outsider ownership) and the partly linear insiders MRA subsamples, reported in Table 3.7, explain about 53% (Column 1) and 32% (Column 2) of the variation in firm performance, respectively; and the quadratic full sample and quadratic insiders MRA subsamples explain about 49% (Column 3) and 43% (Column 4) of the variation in firm performance, respectively. In relation to MRAs in other empirical literatures in economics (Coric and Pugh, 2010), the goodness of fit of these regressions is relatively high. The RESET test suggests that linear functional form is not a plausible assumption for Partly linear full specification (Column 1), which puts a question mark over the appropriateness of the partly linear (insiders + outsiders) specification. For the Partly Linear Insiders subsample, the RESET test yields a borderline failure at the five per cent level ($p=0.03$). However, estimation of a slightly more parsimonious model (achieved by omitting the non-significant influence of the Endogeneity variable) yields a satisfactory RESET ($p=0.05$) and leaves the FAT unchanged (the estimated constant is 1.68 with a t-statistic of 2.07, in both cases very similar to the results reported in Column 2). The Quadratic (insiders +outsiders) subsample (Column 3) is satisfactory with respect to linearity ($p=0.24$), while the Quadratic Insiders subsample (Column 4) is borderline at the five per cent level ($p=0.04$).

We do not report MRA results for the partly linear outsiders specification for two reasons. Firstly, there is at best only a weak theoretical grounding for a non-linear relationship between ownership concentration among outside owners and firm performance. Those few studies that do assess the relationship between outsider owners and firm performance using a nonlinear functional form do not provide any theoretical explanation for this approach. Rather, we conjecture that this specification may be the result of specification search conducted by researchers to obtain “significant” and novel results. Secondly, there are relatively few studies of this type (the partly linear and

quadratic specifications account for only three studies, contributing 32 observations, in the MRA database). Accordingly, we focus our attention on the results obtained from the insider quadratic (Column 4) and insiders partly linear (Column 2) MRA specifications.

The most interesting result is that in the literature investigating the hypothesised non-linear relationship between Insiders' ownership concentration and firm performance, the sign of the publication bias in the estimates of both the linear term and the quadratic term reflects the path of the expected, inverted-U shaped relationship. First, in the multivariate MRA for the partly linear specification for Insiders (Table 3.7, Column 2) the t-statistic for the null hypothesis $H_0: \beta_0=0$ is statistically significant and positive ($H_0: \beta_0=0$ is rejected: $t_{\text{multivariate_partlinear}}=2.13$), which indicates publication bias toward positive estimates (Table 3.7, Column 2). Secondly, in multivariate MRA estimation of the quadratic insiders subsample (Column 4) the t-statistic for the null hypothesis $H_0: \beta_0=0$ is statistically significant and negative ($H_0: \beta_0=0$ is overwhelmingly rejected: $t_{\text{multivariate_quadratic_insiders}}=-3.94$), which indicates the presence of publication bias in favour of negative estimates (Table 3.7, Column 4). Together, these results reflect a pattern of publication bias precisely in line with the prediction of the prevailing theory regarding a nonlinear, inverted-U relationship between ownership concentration and firm performance.

Table 3.7: Comparative Multivariate MRA FAT-PET estimates for the Subsamples Partly Linear Insiders vs. full sample – OLS-weighted cluster robust estimate

Variables	Partly Linear (Insiders+Outsiders) Sample Multivariate Cluster-robust Linear Regression (Column 1)	Partly Linear Sample Multivariate -Insiders Cluster-robust Linear Regression (Column 2)	Quadratic (insiders +outsiders) Multivariate Cluster-robust Linear Regression (Column 3)	Quadratic Multivariate - Insiders Cluster-robust Linear Regression (Column 4)
Intercept (FAT)	0.98 (1.74)*	1.72(2.13)**	-2.25(-2.13)**	-3.22(-3.94)**
1_see_pcc (PET)	0.074(1.95)*	0.089(1.89)*	0.046 (0.77)	0.077(1.72)*
Size	-0.03(-1.43)	-0.03(-1.77)*	0.041(2.49)**	0.029(1.37)
Investment	-	-	-0.009(-0.30)	0.039(2.58)
Leverage	0.04(2.13)**	-0.017(-0.74)	-0.031(-0.88)	-0.044(-1.93)*
Amenity	-0.09(-2.74)***	-0.12(-2.61)**	0.241(4.22)***	0.227(4.45)***
Control	0.02(0.64)	-	-0.147(-3.65)***	-
Industry	0.008(0.62)	-	-0.003(-0.13)	-
FirmSpecific	-	-	-0.034(-1.24)	-0.014(-0.47)
MarketSpecific	-	-	-	-
RnD	-	0.9(0.39)	-0.037(-0.93)	-0.013(-0.77)
CapExp	-	-	-0.016(-0.76)	-0.014(-0.92)
AdvExp	-0.03(-1.64)	-	0.040(1.28)	-0.013(-0.40)
OLS	-0.05(-4.43)***	-0.065(-1.81)*	-	0.034(1.49)
PARAM	-	-	-0.029(-0.98)	-
SPARAM	0.011(0.73)	-	-	-
GLS	-	-0.07(-1.80)*	-0.051(-1.47)	-0.034(-1.33)
WLS	0.11(2.51)***	-	-0.214(-4.67)***	-
2SLS	-	-	0.013(0.66)	0.026(1.16)
3SLS	0.096(2.38)**	0.102(1.89)*	-0.118(-2.01)**	-
FE	-0.018(-1.41)	-0.038(-2.16)**	-	-
RE	-	-	-	-
Cross	-0.113(-3.17)***	-0.09(-1.52)	0.135(2.12)**	0.082(1.37)
Pooled	-0.05(-3.82)***	-	0.049(2.03)**	-
Robust	0.022(1.06)	0.003(0.11)	-0.055(-1.54)	-
Anglo saxon	-0.029(-1.42)	-0.01(-0.38)	-0.021(-0.70)	-0.083(-2.53)**
Insiders	0.03(1.00)	-	0.006(0.27)	-
Endogeneity	-	-0.032(-1.10)	-0.023(-1.26)	-
Tobin_s_q	0.009(1.04)	-0.013(-0.84)	0.013(2.41)**	0.021(3.94)***
<i>Diagnostic</i>				
N	150	118	150	118
R-squared	0.53	0.32	0.49	0.43
F Test H0: independent variables are jointly equal 0	F(18, 131) =13.40 Prob > F = 0.00F	na	na	F(13, 104) =3.13 Prob > F = 0.00
Ramsey RESET Test:H0: Correct Functional form	F(3,128)=6.03 Prob> F = 0.00	F(3,101)=3.12 Prob> F = 0.033	F(3, 125) = 1.41 Prob> F = 0.242	F(3, 101) = 2.97 Prob> F = 0.044
Vif	9.8	5.82		4.83

Source: Calculations of the Author, Stata 11

Note: * and ** and *** denote statistically significant at the 10%, 5% and 1% level, respectively. t-statistics are in parentheses.

The combination of the signs of the publication bias estimated by MRA of the Partly linear sample (positive) and of the Quadratic sample (negative) follow the prediction of the theory supporting a non-linear, convex relationship between ownership concentration and firm performance; i.e. “the positive effect of a better alignment of shareholder and manager interests in the case of very high ownership concentration might be small compared to potential negative effects due to private benefits of controlling shareholders” (McConnell and Servaes, 1990; Han and Suk, 1998; Thomsen and Pedersen, 1999; Balsmeier and Czarnitzki, 2010; McConnel et al., 2008; Morck, et al., 1988; Wruck, 1989; etc.). Hence, the theory which supports a curvilinear relationship between (insider) ownership concentration and firm performance is reflected in the hypothesis:

*H₀: The relationship between firm performance and ownership concentration is curvilinear, i.e. in the equation firm performance = a*OC+b*OC², where a>0 and b<0 and a<-2b*

As Stanley and Doucouliagos (2008, p. 7) argues, the main source the “publication selection found in economics may be the result of an understandable desire to report findings that are statistically significant (hence noteworthy) and of the ‘correct’ sign (hence perceived to be ‘valid’)”. The findings of separate MRAs on the two components of interest specified by models in the primary literature testing the above hypothesis – ownership and ownership squared – are fully consistent with this statement. Together, these two MRAs reveal the statistical trace of researchers’ specification searches for results consistent with the theory of a nonlinear relationship between insider ownership and firm performance.

However, it is difficult to assess whether publication selection bias emerges from the supply side (authors’ over-reporting of results with the expected sign) or from the demand side (editors’ or referees’ reluctance to publish results that are contrary to the

expectations). As yet, to the author's knowledge, this is an issue that has not been explored in the meta-regression literature. Hence, the analytic range of MRA does not (yet) include differentiating the contributory influences that give rise to publication bias. Nonetheless, the MRA methodology adopted in this chapter does enable us address our primary aims regarding publication bias: namely, to measure publication bias and so identify authentic empirical effects – if any – “beyond publication bias” (i.e. effects suggested by an empirical literature after publication bias has been netted out).

Once we control for publication bias in the Partly linear subsample (Column 2), we find evidence for the existence of a genuine positive empirical effect ($H_0: \beta_I=0$ can be rejected at the 10% level: $t_{\text{multivariate_partlinear}}=1.89$). Similarly, once we control for (negative) publication bias in the Quadratic subsample (Column 4), we find evidence for the existence of a genuine positive empirical effect ($H_0: \beta_I=0$ can be rejected at the 10% level: $t_{\text{quadratic}}=1.72$).³⁹ This suggests, as hypothesised in the primary literature, the existence of a genuinely positive effect of the ownership concentration of Insiders on firm performance. However, the hypothesised quadratic (“inverted-U”) relationship is not supported by this finding. Once we net out publication bias, both the linear and the quadratic effects are positive and statistically significant, which is contrary to the positive/negative pattern posited by the theory (see the hypothesis set out above).

In the context of the partly linear insiders subsample, the positive authentic empirical effect found in the multivariate specification remains positive across various moderator variable interactions with the effect size (Table 3.8).

³⁹The rejection related to the linear effect in the bivariate model is stronger: $t_{\text{multivariate Quadratic}}=2.19$. The bivariate counterparts to the results reported in Table 3.7 are reported in Appendix 3.1.

Table 3.8: The spectrum of empirical effects of moderator variables for studies with specific characteristics - Partly Linear Insiders⁴⁰

Study characteristics (other factors held constant)	Combined coefficient	t-statics	p-value
Studies holding for uncertainty (H ₀ : 1/SEpcc + Se_R&D)	0.11	1.66	0.11
Results obtained from studies using 3SLS estimation (H ₀ : 1/SEpcc + 3SLS)	0.2	2.36	0.03
Results obtained from studies presenting robustness checks (H ₀ : 1/SEpcc + Robust)	0.1	2.06	0.05
Results obtained from studies conducted in Anglo-saxon countries (H ₀ : 1/SEpcc + Anglo-saxon)	0.09	1.96	0.06
Results obtained from studies holding for endogeneity (H ₀ : 1/SEpcc + endogeneity)	0.06	1.74	0.1
Results obtained from studies using Tobins' Q as firm performance (H ₀ : 1/SEpcc + Tobins' Q)	0.08	1.71	0.1

Note: The results are the combined coefficients and t-statistics of 1/SEpcc and the above variables from the cluster-robust linear regression on the extended data set reported in Table 3.7 Estimates were obtained using Stata's 11 post-estimation command. 'lincom.

In the quadratic insiders subsample (Column 4), a positive authentic empirical effect evident in the multivariate specification is also persistent in various combinations of significant moderator variables (Table 3.9) with the effect size. A nonpositive effect can not be achieved with any pair of the precision effect plus a significant moderator variable, nor in a wider combination (Table 3.9, the last row). These results suggest the robustness of a positive authentic empirical effect.

Table 3.9: The spectrum of empirical effects of moderator variables for studies with specific characteristics- Quadratic Insiders⁴¹

Study characteristics (other factors held constant)	Combined coefficient	t-statics	p-value
Studies holding for amenity (H ₀ : 1/SEpcc + Amenity)	0.31	4.48	0.00
Studies holding for size (H ₀ : 1/SEpcc + Size)	0.11	3.14	0.005
Studies holding for Investment (H ₀ : 1/SEpcc + Investment)	0.12	2.28	0.03
Results obtained from OLS estimation (H ₀ : 1/SEpcc + OLS)	0.11	2.73	0.01
Results obtained from 2SLS estimation (H ₀ : 1/SEpcc + 2SLS)	0.1	2.62	0.02
Studies using TobinsQ as a proxy for firm performance (H ₀ : 1/SEpcc + Tobins'Q)	0.1	2.12	0.05
SEE + Size + Se_investment + se_amenity5 + Se_GLS + Se_2SLS + Se_OLS + Se_TobinsQ	0.42	4.43	0.00

⁴⁰ Printouts available in Appendix 3.3

⁴¹ Printouts available in Appendix 3.3

Note: The results are the combined coefficients and t-statistics of 1/SEpcc and the above variables from the cluster-robust linear regression on the extended data set reported in Table 3.7 Estimates were obtained using Stata's 11 post-estimation command. 'lincom.'

Finally, we compare Column 3 in Table 3.5, (the pure linear insiders sample) with Column 2 in Table 3.7 (the partly linear insiders sample). In other words, we compare the specifications in which only ownership is specified with the specifications in which both the level of ownership and ownership squared are specified. Here, we compare the results of diagnostic testing for functional form: in the former, the null of linearity is clearly rejected (F=13.32 and p=0.000); in the latter, although the null of linearity is still rejected at the 5% level it is not rejected at the one per cent level (F=3.12 and p=0.033). We now set out an argument as to why this diagnostic improvement may be revealing about the literature. In doing so, we believe that we are raising for the first time a possible line of enquiry for MRA more generally, which typically does not comment on model diagnostics (or, quite commonly, even report model diagnostics).

3.4.6 Omitted non-linear terms in primary regressions and non-linearity in MRA

In the primary regressions, we may contrast a stylised true model, in which recent theory proposes the inclusion of a non-linear term, with the corresponding model actually estimated by many studies in the literature.

$$\text{True Model: } FP_i = \alpha + \beta_1 \text{Ownership}_i + \beta_2 \text{Ownership}_i^2 + \varepsilon_i \quad (1)$$

$$\text{Model estimated: } FP_i = \hat{\alpha} + \hat{\beta}_1 \text{Ownership}_i + u_i \quad (2)$$

$$\text{Hence: } \hat{u}_i = (\beta_2 \text{Ownership}_i^2 + \varepsilon_i) \quad (3)$$

In this case, the model estimated suffers from omitted variables bias. Hence:

1. given that *Ownership* and *Ownership*² are correlated, *Ownership* is correlated with the non-linear error term *u_i*, which means that *Ownership* is endogenous; and

2. the beta coefficient on *Ownership* in the (misspecified) estimated model measures not only the effect of *Ownership* on firm performance but also the effect of the correlation between *Ownership* and the omitted non-linear term in the regression residual (u_i).

The bias on the estimated β_1 coefficient on ownership in the primary regressions is given by the following formula:

$$E(\hat{\beta}_1) = \beta_1 + \beta_2 \times f(r_{12})$$

where r_{12} measures the correlation between *ownership* and $(ownership)^2$ and f denotes a function of r_{12} .

The MRA effect size reflects this omitted non-linearity through its introduction into the t-statistic on the estimated β_1 coefficient on *Ownership*. Because the regression error term (u_i) contains the omitted non-linear effect of ownership squared, this omitted non-linearity is introduced into the calculation of the standard error and so into the calculation of the t-statistic (see below). Finally, this non-linearity influences the MRA effect size - the *PCC* – because this is calculated from the t-statistic (see Pugh et al., 2012, p. 295, for the derivation of the *PCC*). Hence, the omission of non-linear effects in the primary regression may be reflected in non-linearity in the MRA.

Without access to the data for every primary regression, and then re-estimating each regression with the non-linear ownership term, it is not possible to be definite as to the size or even the direction of the bias in the t-statistic (unless we assume the sign of the non-linear effect suggested by theory). Moreover, there is a second dimension of difficulty confronting any attempt to be precise as to the size and direction of the bias. Because the t-statistic on the estimated coefficient on the ownership variable is subject to bias, the behaviour of researchers engaged in specification search will add a source of bias that is itself conditional on omitted variables bias. However, although the effect of this omitted variables bias in the primary regressions on the direction and, especially, the size of the omitted variables bias on our effect size is unknowable, we do know that the effect must be non-linear.

This suggested relationship between omitted non-linearity in the primary regressions and non-linearity in the meta regression has important implications for the practice of MRA in general and for the interpretation of a large part of the literature on ownership concentration and performance in particular. Our argument suggests that diagnostic failure with respect to the validity of a linear model in the meta regression may reveal the trace of a similar specification failure in the primary regressions. Moreover, this possibility is particularly relevant when the literature under investigation omits a non-linear term specified by theory.

The formula for the t-statistic is as follows:

$$t_{\hat{\beta}_i} = \frac{\hat{\beta}_i}{\frac{\left(\sqrt{\sum \hat{u}_i^2} \frac{1}{\sqrt{DF}} \right)}{\sqrt{\sum (X_i - \bar{X})^2 (1 - R_i^2)}}}$$

The t-statistic is positively related to:

- the size of the estimated coefficient $\hat{\beta}_i$, which in MRA is the effect size from the primary regressions;
- the square root of the degrees of freedom (DF); and
- variation of each variable X_i around its mean.

and negatively related to:

- the size of the error terms (the \hat{u}_i) and
- the size of correlation between each variable X_i and the other independent variables (R_i^2).

If we substitute from (3) above for the error term \hat{u}_i , then – even in the simplest case in which ownership and ownership-squared are assumed to be uncorrelated (so that the estimated coefficient is not biased) - the t-statistic contains an obvious source of bias:

$$t_{\hat{\beta}_i} = \frac{\hat{\beta}_i}{\frac{\left(\sqrt{\sum (\beta_2 \text{Ownership}_i^2 + \varepsilon_i)^2} \frac{1}{\sqrt{DF}} \right)}{\sqrt{\sum (X_i - \bar{X})^2 (1 - R_i^2)}}}$$

We can gain insight into the nature of the bias if we differentiate the t-statistic with respect to the omitted term in the primary regression – i.e. the model estimated – set out in Equation (2) above:

$$\frac{\partial(t_{\hat{\beta}_i})}{\partial(\beta_2 \text{Ownership}_i^2)} = -(\hat{\beta}_i * \sqrt{\sum (X_i - \bar{X})^2 (1 - R_i^2)} * \sqrt{DF}/2) * \sum (2\beta_2 \text{Ownership}_i) / (\sum (\beta_2 \text{Ownership}_i^2 + \varepsilon_i) 2)^{\frac{3}{2}}$$

The first derivative of the t-statistic with respect to the omitted quadratic term in the primary regression is non-linear and negative. In other words, given that the effect of the quadratic term “beyond publication bias” is positive, the effect of omitting the quadratic term is to impart a downward bias to the statistical significance of the estimates of the ownership effect on firm performance. In this case, we can conclude that while in the Pure Linear sample the omission of the quadratic term from primary studies on the effect of ownership concentration on firm performance may entail some quantitative bias (an underestimated positive effect), the effects of such misspecification are qualitatively benign in that the positive direction of the effect is unaffected. Accordingly, both the Pure Linear and Partly Linear samples gives rise to qualitatively similar estimates: namely, a statistically significant positive effect of insider ownership concentration on firm performance.

3.5. Summary of results –key points

This study applied MRA to the extensive empirical literature on the ownership concentration-firm performance relationship. MRA results support the view that the empirical evidence concerning the relationship between ownership concentration and firm performance is mixed, inconsistent and highly inconclusive (Sanches–Ballesta and

Garcia-Meca, 2007). According to Hu and Izumida (2008) there are various reasons why ownership-performance relationships vary, such as: (i) quality of corporate governance frameworks in which firms are embedded; (ii) differences in estimating technique applied; (iii) treatment of endogeneity of ownership; (iv) ownership and performance measurements; and (v) data quality, etc. Summarizing results from the different MRA specifications reported above, at least four fundamental results can be presented.

Firstly, the funnel graphs predominantly suggest publication selection. In turn, this suggests that meta-analytic estimates of empirical effects in this literature must control for publication bias. MRA is designed to estimate authentic empirical effects together with sources of heterogeneity in reported effects "beyond" or net of publication bias.

Secondly, the FAT-PET testing procedure within the framework of multivariate MRA confirms that this literature is heavily affected by publication bias. Across various specifications publication bias is not only present but appears in the directions posited by the prevailing theory. Most interestingly, for the insiders samples we find publication bias corresponding to the "inverted-U" relationship between ownership concentration and firm performance favoured by the prevailing theory: i.e. positive values for the linear component (ownership concentration) of a quadratic specification (partly linear sub-sample; Table 3.7, Column 2); but negative values for the quadratic component (ownership concentration squared) of a quadratic specification (quadratic insiders sub-sample; Table 3.7, Column 4). Here, theoretical assumptions are reflected perfectly by the estimated pattern of publication bias. This suggests that researchers responded to incentives to conform to mainstream theoretical views. Here, MRA is performing its task of detecting the statistical trace of such, otherwise unobserved, selection processes (Pugh et al., 2012).

Thirdly, in the full sample multivariate specification (Table 3.3, Column 1) the PET procedure does reveal the presence of an authentic positive empirical effect. However, the Ramsey Reset yields a clear rejection of the null of linearity ($p=0.00$). This may

suggest that the linear specification of the ownership concentration-firm performance relationship is not appropriate. In subsamples of Pure linear Insiders (Table 3.5, Column 3) and Outsiders (Table 3.5, Column 5) underlying authentic empirical effects appear, but with opposite signs (positive in the Insiders subsample and negative in the Outsiders subsample; Table 3.5, Column 3 and Column 5). Namely, MRA of the Pure Linear Insiders sample reveals a positive impact of ownership concentration on firm performance; yet MRA of the Pure Linear Outsiders sample yields a negative underlying empirical effect. This demonstrates primary sources of heterogeneity in this literature and, hence, supports sub sampling as a legitimate strategy for MRA analysis in the context of this empirical literature.

Moreover, our initial approach, equivalent to partitioning the data, was to estimate the full sample with a set of the most interesting interaction terms. Although, in principle, there should be a clear gain in efficiency arising from the use of all the data to estimate the subsample effects, the disadvantage of using interaction variables is even more pronounced multicollinearity. We have acknowledged the likely presence of multicollinearity in our estimates, while arguing that this is not so pronounced as to prevent informative results from being obtained (Section 3.3.2 above). However, estimating with interaction terms gives rise to the situation noted by Stanley and Doucouliagos (2012, p. 91), whereby “all-inclusive” MRA models can be greatly limited, because “the fog of multicollinearity and low statistical power virtually guarantees the obscuring of much of the existing pattern of research”. More importantly, Ramsey RESET testing of all specifications using interaction variables yields a clear suggestion that the linear specification, based on the full sample, of the ownership concentration-firm performance relationship is not supported by the data. For these reasons, our preferred strategy is to exploit the size of our dataset to partition the data into theoretically-specified subsamples for separate estimation, which is the usual procedure in MRA.

In addition, all the multivariate MRAs reported above include statistically significant moderator variables, each one of which reveals sources of heterogeneity in the effects

reported in this literature, typically arising either from characteristics of the samples or from features of the modelling procedures chosen by researchers. For example, it appears that studies using samples from Anglo Saxon countries are less likely to find the presence of a genuine empirical effect in various subsamples (with some exceptions).⁴² Moreover, the same can be concluded for those studies that employ robustness checks for various model estimations.

⁴²Our findings are supporting the part of the empirical literature which strongly argues that the overall impact of block holders on performance is insignificant in Anglo-saxon corporate governance systems such as the USA and the UK (due to pronounced ownership diversification, high share trading frequency and strong protection of investors).

Table 3.10: Summary of key results from the multivariate MRA specifications

	Multivariate- Full Sample	Pure Linear Sample Multivariate- Full Sample	Pure Linear Sample Multivariate- Insiders	Pure Linear Sample Multivariate- Outsiders	Partial Linear Sample Multivariate- Full Sample	Partial Linear Sample Multivariate- Insiders	Quadratic Multivariate- Full Sample	Quadratic Multivariate- Insiders
	1.	2.	3.	4.	5.	6.	7.	8.
Hypothesis suggested by the Funnel Graph	H0: Existence of positive publication bias (see Figure 3.1)	H0: Existence of positive publication bias (Figure 3.4)	H0: Existence of positive publication bias (Figure 3.5)	H0: Absence of publication bias (Figure 3.6)	H0: Existence of positive publication bias (Figure 3.7)	H0: Existence of positive publication bias (Figure 3.8)	H0: Existence of negative publication bias (Figure 3.9)	H0: Existence of negative publication bias (Figure 3.10)
Expectation supported	yes	yes	no	no	yes	yes	yes	yes
FAT	+*	+*	+	+*	+*	+*	-*	-*
PET	+*	+	+*	-*	+	+*	+	+*

Expectations supported: whether hypothesis from the funnel graph are supported with FAT results

Sign * denotes whether the effect is significant at the ten percent level of significance.

Signs +/- denotes direction of the publication bias or authentic empirical effect, where + refers to positive and - to negative direction of the publication bias or authentic empirical effect

Table 3.10 presents an overview of our findings on publication bias and authentic empirical effect (abstracting from the effects of the various moderator variables) in both the whole sample (Column 1) and in all seven sub-sample multivariate MRA models discussed above (Columns 2 to 8) together with an indication in each case of how accurately the corresponding funnel plot indicated the presence of publication bias and its direction.

In essence, from Table 3.10 we may conclude that provisional hypotheses on the presence or absence of publication bias, formulated in the light of visual inspection of the funnel plots, are to a large extent (in six from eight cases) consistent with the results of statistical tests from mainstream MRA methodology. Although Table 3.10 reveals overwhelming (Row 3) presence of publication bias in almost all subsamples, there is some difference between the assumptions formed from inspecting funnel plots and the statistical results obtained from MRA. For example, the two cases of the Pure linear subsample for outsiders (Table 3.10, Column 4) and the Pure linear subsample for insiders (Table 3.10, Column 3) indicate that funnel plots can be used only as an indicative tool for detection of publication bias: in the former case, the corresponding multivariate MRA result does not achieve statistical significance; while in the latter the impression of the funnel plot is strongly contradicted by the multivariate MRA finding.

3.5.1 Robustness check- comparison of MRA and SG MA results

In this Section, we compare our key results and the results obtained by Sanches–Ballesta and Garcia-Meca (henceforth SG). Given the similar structure of the moderator variables and sub sampling procedures of these two studies, comparison of results could provide useful insights as well as robustness checks of the results reported above. However, we criticize major limitations of SG (2007): first and foremost, they do not investigate or control for the presence of publication selection; secondly, they use insufficient moderator variables to control for important sources of pronounced heterogeneity in the literature.

We compare only results from analysing the Insiders subsample, because our research and SG (2007) use different definitions of “Outsiders” and “ownership concentration”.⁴³ The SG analysis indicates that in primary regressions specifying a linear relationship insider ownership concentration positively affects firm performance, which is similar to our findings. Table 3.11 summarizes the main comparisons.

Table 3.11: Summary of key results from SG MA and MRA Insiders specifications

	SG MA specification		MRA specification	
	Sign/ p value	FAT (Publication selection)	PET (Authentic empirical effect)	
Pure Linear Relationship	+*	+ ⁴⁴	+*	
Partly Linear Relationship	+*	+*	+*	
Quadratic term	-*	-*	+*	
Cubic term	+*	na	na	

Signs +/- denotes direction of the publication bias or authentic empirical effect, where + refers to positive and - to negative direction of the publication bias or authentic empirical effect in columns II and III respectively, while in column I +/- refers only to the direction of the relationship between ownership concentration (insiders) and firm performance.

Sign * denotes whether the effect is significant at the ten percent level of significance.

SG (2007) and the present study concur in finding that both the Pure Linear and the Partly Linear specifications yield a positive effect of insider ownership on firm performance, although SG (2007) estimate this relationship with consistently higher levels of statistical significance. Yet the most striking difference is in the estimation of the quadratic term: whereas SG (2007) reports a negative quadratic term in line with mainstream theory, the present study reports a positive effect. We maintain that the reason for these difference in findings is the contrasting (non)treatment of publication bias. Whereas SG (2007) omit publication bias in their estimates of the effects of insider ownership on performance, the present study controls for and, hence, filters out the

⁴³ “Ownership concentration” in the SG research refers to the block of the largest owner irrespective of its identity (insider or outsider), while the “Outsiders” variable in our research captures solely the largest ownership of outsider owners.

⁴⁴ The Ramsey RESET test indicates that the Pure Linear Insiders MRA model is not appropriately specified with respect to the assumed (linear) functional form. Given that this invalidates the point estimates as well as statistical inference using the t-statistics and F-statistics (Gujarati 2004; Wooldridge 2008) these results should be taken as indicative.

effects of publication bias from the estimated effects of ownership on performance.

Consequently, the SG (2007) findings are impaired by omitted variable bias: by omitting the positive publication bias infecting the estimates of ownership in the literature it is likely that they attribute this to ownership effects and so overestimate the positive effect of insider ownership concentration on firm performance; and, more seriously, by ignoring the negative publication bias infecting the quadratic estimates in the literature it is possible that their negative finding reflects mainly this bias rather than any authentic empirical effect. In contrast, our MRA methodology is designed to reveal authentic empirical effects and the heterogeneity of such effects “beyond publication bias” (Stanley, 2005).

Although at first the sign and the significance of the relationship in all three MRA specifications reported in this chapter correspond to the SG MA results, there are some important differences. Firstly, the SG MA is not able to capture the presence of publication selection present in the last two specifications (partly linear insiders and quadratic insiders, Table 3.7, Column 2 and Column 4). Strong positively skewed publication bias detected in partly linear insiders as well as strong negative publication bias present in the quadratic insiders MRA subsamples indicate that the SG MA results may be driven by publication bias that their approach cannot filter. Once we control for publication bias, strong positive authentic empirical effects appear in both nonlinear and linear specifications. However, Ramsey Reset test failure in the pure linear Insiders MRA model suggests that the purely linear relation may not be appropriate for modelling the relationship between insider ownership and firm performance. Yet the final contrast between the results reported above and the results reported by SGMA is that we find no support for the quadratic (“inverted-U”) effect hypothesized in the theoretical literature.

3.6 Conclusion

There is an extensive debate in the empirical literature regarding the relationship between ownership concentration and firm performance characterized by inconsistency in results and conclusions. Namely, a heterogeneity of findings on the subject matter seems to be the main characteristic of this literature. Therefore, in Chapter 3 we apply MRA to provide an objective and comprehensive quantitative synthesis of the empirical economic evidence on the firm performance effects of ownership concentration; i.e. to provide at least some generalized answer as to whether ownership structure affects firm performance and, if so, how. We used 62 econometric studies from countries with developed corporate governance mechanisms, published since 1985, that provide 946 estimates of the effect size (PCC).

The reason to omit less developed corporate governance economies is a justifiable decision, given that in the context of these economies ownership concentration represents a substitute for corporate governance mechanisms. Our investigation builds on the MA conducted by Sanchez-Ballesta and Garcia-Meca (2007) by employing the methodology of MRA, which entails procedures for filtering out the influence of publication bias on estimates of authentic empirical effect. To ensure transparency and the quality of MRA, we follow the reporting guidelines developed by Stanley et al. (2012). In particular, following these guidelines with respect to the modelling of – and, hence, control for - publication bias explains why the present MRA reports results that are somewhat different from those of the previous MA.

The primary finding of the MRA suggests that the functional form and the identity of the largest owner both matter in assessing the presence of publication bias, authentic empirical effects and the relevant moderator variables explaining the heterogeneity of the findings in this empirical literature. Thus MRA in the context of this topic requires subsampling, using these two criteria. For example, In the Pure Linear sample (Table 3.5, Column 1) MRA suggests positive publication bias (FAT) and the absence of an authentic empirical effect (PET). However, we argue that the absence of an authentic

empirical effect (PET) reflects offsetting effects from the Insiders and Outsiders subsamples; i.e. the neutral (almost zero) effect is in fact a composition of underlying positive (Insiders) and negative (Outsiders) authentic empirical effects from the pure linear outsiders and the pure linear insiders subsamples, which divide the pure linear subsample into almost equal parts (n=301 and n=281, respectively). Therefore, lack of evidence of an authentic empirical effect in the pure linear subsample can be considered as misleading. Furthermore, the Ramsey Reset test in the pure linear insiders subsample (Table 3.5, Column 3) suggests that linear functional form might not be appropriate; i.e. the relationship between concentrated ownership and firm performance in the case of Insiders shows potential for non-linear functional form.

We find evidence of persistent publication bias in almost all subsample MRAs. Moreover, the pattern of publication bias suggests that researchers have a strong incentive to conform to the prevailing theories (alignment and entrenchment). This behaviour becomes evident in the cases of the partly linear and quadratic insiders subsamples (Table 3.7, Column 2 and Column 4). Namely, MRA on the partly linear insiders subsample provides evidence for positive publication bias ($H_0: \beta_0=0$, $t_{\text{multivariate Insiders_partlylinear}}=2.13$), while MRA on the Quadratic Insiders subsample indicates strong negative publication bias ($H_0: \beta_0=0$ is rejected, $t_{\text{multivariate Insiders_quadratic}}=-3.94$). This pattern of publication bias (positive for the Partly Linear subsample and negative for the Quadratic subsample) follows the hypothesis of entrenchment theory based on the assumption of a curvilinear relationship between insider ownership concentration and firm performance due to managerial free riding behaviour when significant equity (voting power) ensures their position inside the firm. Nonetheless, once publication selection is controlled for, a positive authentic empirical effect of insider ownership concentration on firm performance emerges, which is consistent with the convergence-of-interest hypothesis between owners and managers developed by Jensen and Meckling (1976). On the other hand, in the Pure Linear Outsiders subsample, when we control for positive publication bias a negative authentic empirical effect emerges in the context of the impact on firm performance of outsider ownership concentration. In the case of outsider ownership, MRA suggests that the empirical effect supports the

hypothesis that the large shareholder can expropriate assets at the expense of other shareholders (Thomsen et al., 2006, La Porta et al., 1999).

Concerning the moderator variables that control for sources of pronounced heterogeneity in this literature, we focus on the following that have an interesting common effect; namely, the sign on each of these moderator variables is almost always the opposite of the sign of the estimated authentic empirical effect. For example studies, using samples from Anglo Saxon countries are less likely to find the presence of a genuine empirical effect in almost all subsamples. Moreover, the same can be concluded for the moderator variables controlling for those studies that employ robustness checks for various model estimations. In almost each case, these moderator variables act to reduce the estimated empirical effect size in absolute value. In almost each case, these moderator variables act to reduce the estimated empirical effect size in absolute value: in the case of “Anglo Saxon countries”, meta-regression thus points to the influence of country/institutional context, which is not possible for primary studies of single countries; whereas in the case of “robustness checks”, meta-regression points to the effect of an important aspect of good practice in econometric investigation.

In conclusion, our main finding is that concentrated insider ownership has a positive effect on firm performance, while concentrated outsider ownership has a negative effect on firm performance. Conversely, the hypothesised non-linear – inverted-U–relationship is at best not proven in the case of concentrated insider ownership and has no theoretical grounding in the case of concentrated outsider ownership in the context of developed corporate governance systems. With respect to the outsider ownership concentration - firm performance relationship, MRA suggests that even in developed economies the key agency problem is not manager-shareholder conflict but rather the risk of expropriation of minority shareholders by dominant or controlling outsider shareholders.

Finally, beyond the confines of this particular literature, we have proposed a new line of enquiry for MRA methodology; namely, that diagnostic failure with respect to the

validity of a linear model for the meta regression may reveal the trace of a similar specification failure in the primary regressions. At present, we offer this as no more than a potential line of enquiry.

CHAPTER 4

OWNERSHIP CONCENTRATION AND FIRM PERFORMANCE IN MONTENEGRO

“Privatization done in the right way, or under the right circumstances, can have huge positive effects, but privatization can also be hugely detrimental.”
Djankov and Murrell (2002, p. 748)

4.1 Introduction

This Chapter provides additional evidence on the relationship between ownership concentration and firm performance in the context of the small transition economy of Montenegro. In the analysis, we address two main questions: whether there exists a causal relationship between ownership and performance; and which type of ownership may be considered as “superior” with respect to corporate performance criteria. Furthermore, the answer to these questions will enable us to analyze whether there is a significant difference in the sign and significance of this relationship between countries with developed corporate governance systems (referring to the results provided by the Meta regression presented in Chapter 3) and those with a poorer corporate governance environment (TEs, including Montenegro). Using panel data from a sample of 204 Montenegrin joint stock companies listed on the Montenegrin Stock exchanges over a five-year horizon (2004-2008), the focus of our research is an assessment of whether outsider ownership is associated with better firm performance. In addition, in this Chapter we will also investigate whether the domestic/foreign identity of owners affects this relationship, which would provide additional information concerning the quality and the effectiveness of Montenegrin privatisation, with respect to the choice of privatisation methods and the quality of strategic foreign investors chosen during the process.

This Chapter makes two contributions: first, to the understanding of the effects of Montenegrin privatisation in particular; and, second, to the understanding of effects of privatisation more generally in the context of transition economies.

Firstly, possibly because of its size, or possibly due to the fact that Montenegro obtained independence quite late (in 2006)⁴⁵, it has not been in the spotlight of academic interest concerning the analysis of the process of privatisation, unlike other transition

⁴⁵However, it is important to stress that Montenegro obtained its monetary independence earlier, starting in 1999, after adoption of the German mark as legal tender.

economies. This applies also to the literature that used comparative analysis of transition economies to analyse the process of privatization, ownership characteristics, characteristics of corporate governance, etc. A possible explanation might be the lack of data, which represented the main challenge confronting this analysis. Thus, without further discussion on what is the cause of the lack of an empirical body of work on Montenegrin privatisation, we will try to fill the literature gap, assessing the quality of privatisation measured by its materialization through the potentially better performance of Montenegrin companies.

Secondly, we find that Montenegro is a very interesting setting for analysis of the privatization process, changes in ownership concentration and its potential effect on firm performance. The core argument is that Montenegro underwent the process of privatisation quite late, in comparison to other transition economies (starting from 1999), due to an unfavourable political setting, accompanied by economic instability (financial sanctions, imposed by U.N. countries 1992-1995⁴⁶; hyperinflation in 1993⁴⁷ and the NATO military operation against the Federal Republic of Yugoslavia in 1999). The second argument is that Montenegro can be considered as a highly open, small country, with a population of 620,858 and an estimated GDP of 3.045 billion Euros in 2010. This setting on one hand assures a fertile soil for dramatic institutional flexibility but, at the same time, the level of external exposure is likewise dramatic. As IMF (2010) outlines: “A small and highly open economy like Montenegro is inherently more exposed to global ups and downs.”⁴⁸ Consequently, the policy framework is challenged to create sufficient funds which would diminish the exposure of the Montenegrin economy to global shocks. Official dollarization (euroization), the monetary strategy that Montenegro adopted since 1999, with the aim to anchor inflation expectations,

⁴⁶The United Nations imposed financial sanctions against Serbia and Montenegro in May 1992. Financial sanctions were partially suspended in accordance with the terms of the Dayton Peace Agreement in 1995. The United Nations lifted all types of financial sanctions against Serbia and Montenegro in October 1996.

⁴⁷The government of Yugoslavia tried to finance an enormous budget deficit formed by excessive printing money and introducing laws which prohibited companies from discharging employees which created a large drop of GDP (in 1993 GDP of Yugoslavia dropped more than 70% due to the war and UN sanctions). The result was an inflation rate that peaked at 313,563,558 % per month.

⁴⁸ *IMF country report Montenegro (2010, p. 11)*

simultaneously burdens fiscal policy, which is *de facto* the only viable mechanism for conducting economic policy. As the IMF (2010, p. 66) has noted: “In order not to overload the fiscal policy tool, a high degree of flexibility in the Montenegrin economy is imperative, as is a proactive and effective banking sector policy.”

Montenegro offers an interesting setting to examine ownership concentration-firm performance issues. Montenegro is a very small, open economy with a shallow, underdeveloped capital market. At the same time, Montenegro also has poorly developed corporate governance mechanisms, and extremely high ownership concentration. Thus, we would argue that this research adds to the literature on firm performance and specific ownership structures through the assessment of whether ownership concentration in the environment of poorly developed corporate governance mechanisms can be considered as an efficient substitute for management control, in turn contributing to better firm performance. Together with findings (conclusions) from the previous and following Chapters (2 and 3), we will obtain a sufficient body of empirical evidence to establish our final conclusions concerning the effectiveness of the privatisation process in Montenegro, and to assess:

1. changes of ownership structures and its consequence;
2. whether these contributed to better firm performance; and
3. whether ownership structure patterns in Montenegrin companies differ, by and large, from those in other transition countries and how different types of owners (with the focus on state vs. private) affect firm performance.

The fourth Chapter pursues these objectives and is organized as follows. Section 1 provides a concise overview of the macroeconomic environment in Montenegro, focusing on the inflow of Foreign Direct Investments (henceforth FDI) and development of the capital market in the post-mass voucher privatisation period ending prior to escalation of the financial crisis in 2009. Section 4.3 explains patterns of

ownership evolution, i.e. transition of different types of owners in the post Mass Voucher privatisation (henceforth MVP) period. Section 4.4 provides information on the properties of the data set used for empirical estimation. Model specification and description of variables, the main descriptive statistics, together with the issue of the endogeneity of ownership concentration will be discussed in Section 4.5. The analysis of the main findings of the empirical investigation on ownership concentration - firm performance relationship will be undertaken in Section 4.6. The final section (Section 4.7) concludes and delivers issues for further research.

4.2 Macroeconomic overview of Montenegro

Prior to analysing the structure of ownership of Montenegrin companies, its evolution in the post mass voucher period (henceforth MVP) period and, finally, assessment of whether change in ownership structure had an impact on corporate performance, we provide some stylized facts about the Montenegrin economy. There are at least two reasons to provide a short note on the Montenegrin macroeconomic environment in the period covered by the empirical analysis reported below.

During the first decade of the 21st Century, Montenegro experienced a strong improvement in its economic activity with average real GDP growth of 4.2% (see Table 4.1), which is above the world average (estimated at 4.1%).

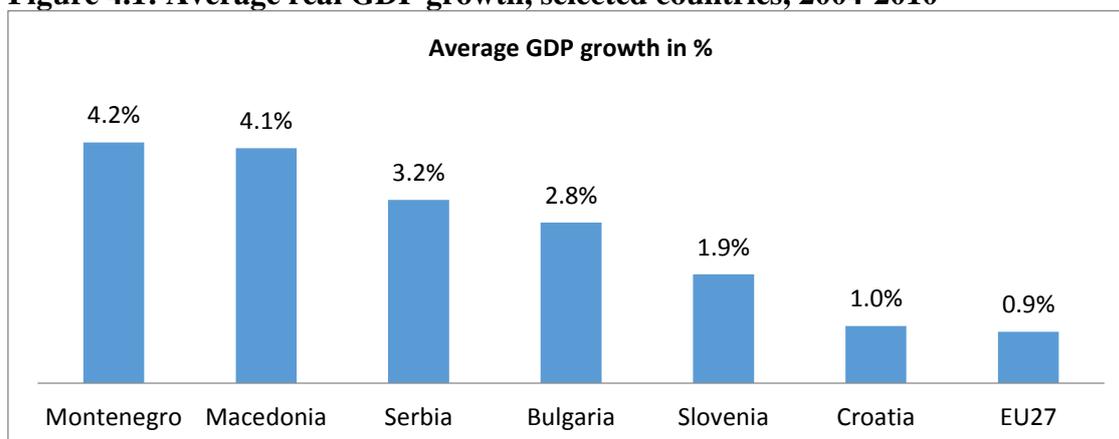
Table 4.1: GDP growth World vs. Montenegro

World	GDP - real growth rate (%)	Montenegro	GDP - real growth rate (%)
2003	2.7	2003	4
2004	3.8	2004	4.1
2005	4.9	2005	4.8
2006	4.7	2006	5.6
2007	5.3	2007	8.9
2008	5.2	2008	6.8
2009	3.1	2009	-5.7
2010	-0.7	2010	2.5

Source: CIA Fact-book, MONSTAT, 2010

Figure 4.1 demonstrates that the average GDP growth of Montenegro (4.2%) in the period 2004-2010 was higher in comparison to other SEE countries, as well as well above the EU27 country average (0.9%).

Figure 4.1: Average real GDP growth, selected countries, 2004-2010



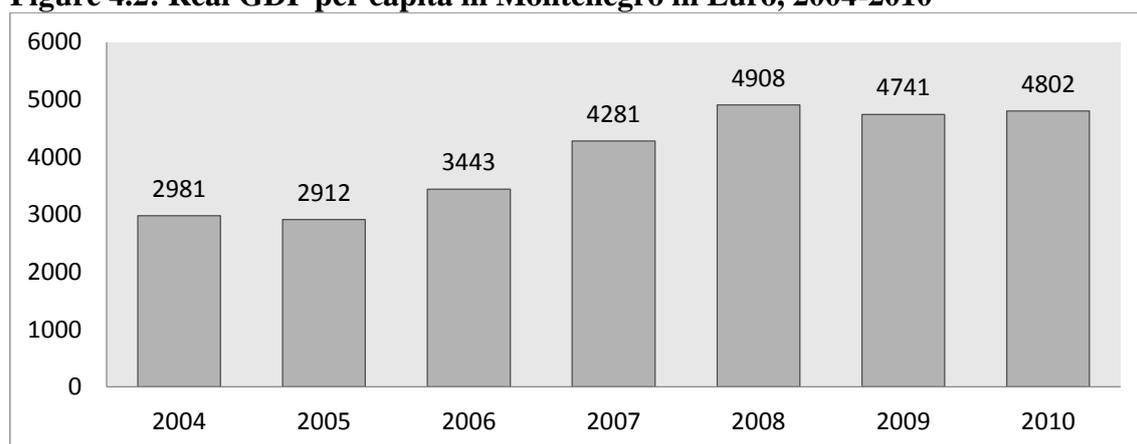
Source: Monstat, Eurostat, CBM

During this period significant adjustment in the contribution of different industries to GDP growth occurred, mainly because of a high FDI inflow in real estate and tourism. Instead of industrial production⁴⁹, the service sector, principally tourism and related services, transport and retail sales and, to a lesser extent, construction emerges as the

⁴⁹For instance, the joint contribution of the “KAP Aluminium Plant AD” and the “Niksic Steel Mill AD” to the Montenegrin economy declined from 5% of GDP in 2000-2005 to 1.7% in 2010.

main drivers of the economy. Consequently, the relative share of industries such as manufacturing and power production decreased from 14.4% of GDP in 2004 to 11.2% of GDP in 2008, while service oriented industries increased: construction from 3% of GDP in 2004 to 5.4% in 2008; and tourism from 3% of GDP in 2004 to 5.1% in 2008 (see Table 4.2). In this way, the services sector increased significantly in its importance to the economy; by 2010, it accounted for approximately 75% of total employment and over two-thirds of exports, as presented in Figure 4.3. The expansion of service-oriented industries resulted in an increase in the number of small and medium-sized enterprises (SMEs), contrary to the evident decrease in the number of joint stock companies.⁵⁰ For example, in 2010 the number of employees in companies with 100 employees or less was 73,380 comprising approximately 60 per cent of the total private sector workforce.

Figure 4.2: Real GDP per capita in Montenegro in Euro, 2004-2010



Source: The CBM, 2011

Comprehensive economic reforms in Montenegro and development based on the principles of private ownership, free markets, openness to trade, the free flow of capital and competitive tax policies contributed to an increase in the country's GDP of approximately 7.7 per cent in real terms between 2006 and 2008, while increasing GDP per capita by 44.6% in the same period (see Figure 4.2). The declaration of independence in

⁵⁰ According to the Central Depository Agency of Montenegro (henceforth CDA) data, the number of joint stock companies (excluding banks and other financial institutions) decreased from 268 to 218 in the period 2004-2010 (i.e. from 268 to 232 in the period 2004-2008).

June 2006 had a further positive impact on economic growth. However, as noted previously, due to its relative high exposure to external demand, Montenegro was badly hit by the global financial crisis, with growth decelerating to -5.9 % in 2009, and showing signs of only gradual recovery during 2010 (an increase by 2.5%). Key challenges for Montenegro include further restructuring and reforms in the public sector and State administration, developing sustainable pension and health systems, reforms to the judicial system and legislation, labour market reforms and further improvements in the business environment.

Concerning the institutional setting, Montenegro created a very favourable institutional environment for attracting FDI, reflected through a favourable tax regime and tariff policy, liberal laws on capital and current account transactions as well as through efforts to improve the business environment.⁵¹ It has set up a Council for Eliminating Business Barriers in co-operation with the World Bank, with the aim of simplifying administrative procedures and reducing red tape. Representatives of the private sector are also members of the Council. In addition, Montenegro uses the euro as its legal tender (starting to use official “dollarization” as its monetary strategy in 1999, by adopting the German mark) which complements a favourable tax environment for attracting FDI, taking into consideration that with dollarization the exchange rate risk is mitigated. In sum, we would argue that Montenegro, in the period under consideration, became a service oriented, highly liberal and open economy, with high exposure towards the EU market. Table 4.2 and Figure 4.3 set out data on the evolving structure of, respectively, output and exports in recent years.

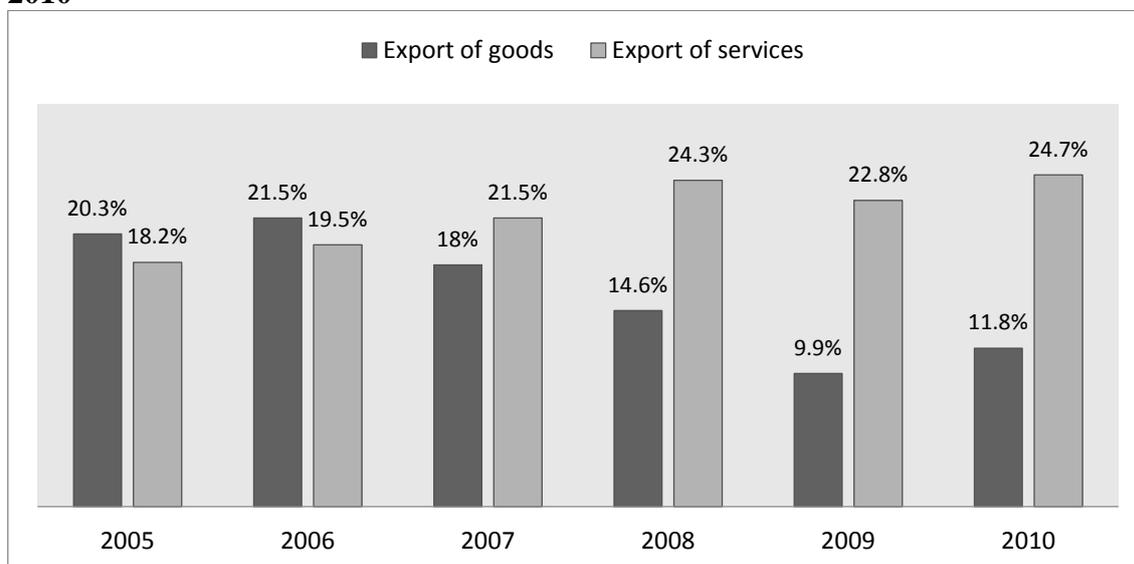
⁵¹Under the Montenegrin Corporate Profit Tax Law (*Official Gazette of Montenegro*. 65/2001, 12/2002, 80/2004, 40/2008 and 86/2009), a withholding tax of 9 per cent is applicable on all capital transactions, allowing overseas investors to remit profits, dividends and interest freely.

Table 4.1: Nominal GDP of Montenegro-production side 2005-2008, structure and contribution to real GDP growth

	2004			2005			2006			2007			2008		
	<i>Mill Eur</i>	<i>Structure of GDP %</i>	<i>Contribution to nominal growth %</i>	<i>Mill Eur</i>	<i>Structure of GDP %</i>	<i>Contribution to nominal growth %</i>	<i>Mill Eur</i>	<i>Structure of GDP %</i>	<i>Contribution to nominal growth %</i>	<i>Mill Eur</i>	<i>Structure of GDP %</i>	<i>Contribution to nominal growth %</i>	<i>Mill Eur</i>	<i>Structure of GDP %</i>	<i>Contribution to nominal growth %</i>
<i>current prices</i>															
<i>Agriculture & forestry</i>	159	8.8	0.3	178	8.3	1.1	194	7.2	0.7	230	7.5	1.4	247	8.3	0.5
<i>Manufacturing & power</i>	261	14.4	(0.4)	282	13.1	1.2	290	10.8	1.2	333	10.8	1.6	335	11.2	0.1
<i>Construction</i>	54	3	0.3	76	3.5	1.2	155	5.8	0.9	191	6.2	1.3	162	5.4	(1.0)
<i>Trade</i>	190	10.5	1.2	238	11.1	2.6	357	13.3	4.6	382	12.4	0.9	357	12	(0.8)
<i>Hotels</i>	54	3	0.3	64	3	0.6	118	4.4	1.3	133	4.3	0.6	152	5.1	0.6
<i>Transport</i>	171	9.4	0.5	208	9.7	2	239	8.9	3.5	289	9.4	1.9	284	9.5	(0.2)
<i>Finance & real estate</i>	255	14	0.5	309	14.4	3	359	13.4	7.3	371	12	0.5	372	12.5	0.0
<i>Government services</i>	378	20.8	3.4	401	18.6	1.2	420	15.7	4.4	547	17.7	4.7	565	18.9	0.6
<i>Taxes — Subsidies</i>	295	16.3	2.8	396	18.4	5.6	549	20.5	7	230	19.7	2.2	508	17.1	(3.3)
<i>Total GDP</i>	2.048	100	8.7	2.148	100	18.4	2.680	100	30.7	3.086	100	15.1	2.981	100	(3.4)

Source: National Statistical Office of Montenegro (MONSTAT), 2010

Figure 4.3: Structure of Montenegrin exports in % of nominal GDP, period 2005-2010



Source: Monstat and CBM, 2010

4.2.1 Foreign Direct Investment in Montenegro

For the purpose of our analysis, we pay particular attention to FDI flows into Montenegro. Namely, like other transition countries, Montenegro experienced high FDI inflow, which in the period of our sample (2004-2008) found Montenegro as the country with the largest FDI per capita inflows in Europe. However, some particular characteristics of Montenegrin FDI patterns and flows were not characteristic of other transition economies. Firstly, unlike other transition economies (Anghel, 2005) investors in Montenegro were primarily interested in service sectors, instead of low technology manufacturing sectors. Similarly, in the case of Montenegro, most of the FDI was not in the form of investment in equity or intra-company loans. Instead, a significant FDI inflow was observed in the form of investment in real estate⁵², where investors from Russia, Ireland and Great Britain had the most prominent role.

⁵²According to the Law on Investments, unlike in other countries, individuals were able to purchase real-estate in Montenegro. Montenegro, presented as the fastest growing touristic destination by the World

The reason for the relative lack of FDI from multinational firms (with a few exceptions such as Daido AD, Deutsche Telekom-T mobile AD, CEAC (Central European Aluminium Company), possibly lies in the fact that, as Brindusa (2006, p. 12) argues; “FDI is used to serve other markets and not only the market of the host country” which coincides with Resmini (2000), Filippaios et al. (2003) and Smarzynska (2004). Namely as Janicki et al. (2005) notes, in the case of pre-EU, pre-accession countries, the core drivers of FDI inflows are: the size of the host economy; host country risk; labour costs in the host country; and openness to trade. Although Montenegro has a relatively non-risky business environment compared with the other SEE countries⁵³ and maintains a very liberal trade policy, Montenegrin market size is a limiting factor, because the Montenegrin market of 620,000 is substantially smaller compared to other SEE countries. Furthermore, as suggested by Resmini (2000), besides the market size, investors are very much interested in the relative wage competitiveness of FDI host countries. Investors are equally interested in the low-cost unskilled labour as a prominent location-specific determinant as well as in more capital knowledge and skill intensive labour (Madarassy and Pfeffermann, 1992; Noorbakhsh et al., 2001).

Montenegro, in comparison to neighbouring countries is also in an unfavourable position concerning its wage competitiveness. Namely, Montenegro experienced rapid wage growth well in excess of its productivity growth rates. As presented in Appendix 4.1 (Table A4.1), real net real wage growth rates appear to be constantly above the productivity growth rate. Simultaneously, due to the economy overheating, the wage growth in Montenegro was significantly higher comparing to its neighbouring countries (see Appendix 4.1, Table A4.2).

Relatively poor wage competitiveness might impede Montenegro from accomplishing the task of rebuilding relative economic competitive advantage, taking into account that increased competitiveness is needed to affect external adjustment to a more sustainable

Touristic Organization in 2006, became a very interesting investment destination.

⁵³According to the *Doing Business Index* developed by the World Bank, Montenegro in the context of Eastern European and Central Asian countries is ranked in 14th place, above Albania (16), Serbia (18), Moldova (19) and Bosnia and Herzegovina (20).

current account deficit through export diversification and, to some extent, import substitution in agriculture, energy and gas production. On the other hand, extensive empirical literature indicates that low wage levels negatively affect FDI inflow (Rahmah and Yussof, 2003; Marr, 1997; Holland and Pain, 1998; Resmini, 2000, Kyrkilis et al., 2010; Amaro and Miles, 2006, etc.). However, the prevailing message that stems from the literature on this issue is that the cost of labour in the host country is one of the major factors affecting the investor's decision on locating investment, particularly if investors are operating in industries seeking to produce labour intensive products for export.

However, we cannot neglect the fact that due mostly to its natural resources (aluminium, steel and untouched nature), in the five year horizon from 2004 to 2008, Montenegro recorded consistent growth of net inflows of FDI (growing from EUR 399 million in 2004 to EUR 1,066.5 million in 2008), becoming the leading country in Europe in FDI per capita, with FDI as a percentage of real GDP ranging between 17% in 2004 to 25% in 2007 (see Table 4.3). At the same time, the number of foreign registered companies increased from 1,145 in 2005 to over 6,000 in 2010. Yet, FDI in real estate was in the range between 25.1% of overall FDI inflow in 2004 to 50% of overall FDI inflow in 2008. As the IMF noted: "FDI targeted primarily the tourism and financial sectors, triggering a cycle of wealth effects, as real estate became more valuable, was used as loan collateral, with loans in turn again funding construction activities. To the extent that FDI targeted other sectors it was either negligible or dependent on exceptionally favourable commodity prices and subsidies."⁵⁴

⁵⁴ *IMF-Montenegro: 2010 Article IV Consultation—Staff Report, 2010*

Table 4.3 FDI Flows in and out of Montenegro 2004-2010 in million euros

FDI	2004	2005	2006	2007	2008	2009	2010
Investment in equity	41,783.6	322,392.3	252,076.6	377,676.1	261,393.9	882,928.9	260,970.2
Intra company loan	0.0	18,078.4	48,116.2	165,602.6	258,085.7	169,974.7	172,801.2
Real estates	10,868.1	70,333.4	337,879.3	513,888.3	320,130.7	170,525.2	186,769.0
Rest	0.0	0.0	9,231.1	61.9	7,705.3	571.0	32,295.4
FDI Inflow	52,651.7	410,804.1	647,303.2	1,057,229.0	847,315.6	1,223,999.8	652,835.8
FDI outflow	2,084.7	11,805.0	177,619.7	489,446.6	265,363.4	157,503.0	100,728.4
Net FDI	50,567.0	398,999.1	469,683.6	567,782.4	581,952.1	1,066,496.8	552,107.3
Net FDI, % GDP	3.0%	22.0%	21.9%	21.2%	18.9%	35.8%	17.8%

Source: Central Bank of Montenegro (CBM), 2012

However, as presented in Table 4.3 (the row *Real estates*) in the period 2005-2008, investments in real estate were almost one third of all investment inflows (investment in equity or intra company loan) in Montenegro. Taking into consideration that the former Law of Investments (put out of force in 2007) allowed individual foreigners to purchase all types of real estate (including land) under the same conditions as Montenegrin citizens, the impact of investments in real-estate was mainly seen in the disposable income of individuals who sold their land to foreigners. We would argue that the behaviour of individuals, particularly those who obtained significant fortunes through selling their land, is observed primarily through enormous Montenegrin current account deficits (CAD). For instance, the Montenegrin CAD was at 39.1% of GDP in 2006, 50.9% in 2007 and 39.8% in 2008 due to imports of consumption goods and nondurables. Simultaneously, FDI inflow was followed by increase of deposits: in 2006 annual deposit growth was estimated to have been 48.1%; in 2007, 112%; and in 2008, 55.3%. In turn, deposit growth was accompanied by increase of share prices (explained in the following subsection).

We argue that the FDI boom in Montenegro was accompanied by challenges characteristic for transition economies (inflation, growth of structural unemployment, competitiveness, etc.), most of which other transition economies have faced. However, as explained in subsection 4.1, Montenegro has fewer policy instruments to tackle them. The challenges that Montenegro faced during the boom were a creation of the boom in asset markets, soaring credit growth and record current account deficits. In the period of boom 2006-

2008, real estate prices escalated by more than 35%, while credit growth soared to 165% in 2007 (see Table 4.4). Namely, as the IMF notes: “The aggressive push for market share by individual banks resulted in credit surpassing FDI as the main reason for the deteriorating current account deficit.” Imprudent assessment by the young Montenegrin banking system of loan quality in the real estate and capital markets during the period of boom resulted in a high non-performing loans level, which at the end of 2010 reached almost one quarter of the overall credit portfolio.

Table 4.4: GDP growth in% vs. credit growth to the private sector in Montenegro in %

Year	2005	2006	2007	2008	2009	2010
Real GDP growth in %	6.7	8.6	10.7	6.9	-5.7	1.1
Domestic credit growth in %	46.3	125.5	165	24.6	-14.3	-8.3
Non-performing loans to total credit portfolio in%	2.3	2.8	3.1	4.2	10.1	12.3

Source: Monstat, Central Bank of Montenegro, 2010

Simultaneously, we would argue that FDI inflow in real estate had a significant impact on the capital market in the post-mass voucher privatization (henceforth MVP) period, which unexpectedly affected the creation of “efficient owners” (Simoneti et al., 2001, Pistor and Spicer, 1997 and Cole, 2001), through the secondary market. Instead of providing an institutional framework promoting the emergence of owners with a long-term business orientation, the small capital market in Montenegro became an arena for speculative activities. This favoured not potential effective and efficient owners but those who by selling land, or by taking loans, were using the capital market to multiply their wealth by speculating on “bubbly assets”. In turn, this induced the creation of twin bubbles on the capital market and on the real estate market from 2006-2008.

In the next subsection we explain, in brief, the development of the capital market in Montenegro with special attention to whether FDI as well as privatization contributed to broadening and deepening the capital market, improvement of liquidity and the regulatory infrastructure as well as to an enlarged investor base. We show that inward FDI

occasioning mass real estate sales together with a credit boom enabled by a banking sector prioritising growth above prudence combined to constitute Montenegro's infant capital markets as an arena for speculation. The corollary was that these financial institutions were precluded from their functions of price formation, hence the signalling of company value, and facilitating the emergence of new owners capable of effective and efficient business leadership.

4.2.2. Development of the capital market in Montenegro in the post Mass Voucher Privatisation period

The process of capital market development in Montenegro started in 1993 with the enforcement of the Law on the capital market and the money market, which created the institutional environment to create the Montenegrin stock exchange "Montenegro berza AD". The market was operating under a limited capacity, mostly for trading of T-bills and commercial certificates. Due to extreme political and economic instability, further development of the capital market was interrupted until 2001⁵⁵. Therefore, in the following sections we focus on the period 2001-2008, since the first years of privatisation in Montenegro were characterized by severe problems, associated with exogenous factors that impeded further development of the capital market in Montenegro.

A milestone in the creation of a viable institutional environment was the passing of the Law on Privatization (1999), which was accompanied by the creation of a special Governmental institution - the Council for Privatisation (henceforth the Council), with the aim of conducting the process of privatisation of the Montenegrin public enterprises in a transparent, clear and efficient manner. The Law on Privatisation was followed by a set of inter-connected regulations: the Regulation on Private Vouchers; the Regulation on Privatization Funds and Management Companies; the Decision on the sale of shares and assets by public auction and the sale of shares by public tender; the Decision on the purchase of shares by the frozen savings of individuals; the Decision on Establishing

⁵⁵1995-1999 was a period of high inflation, causing the interest rate on short-term securities to exceed 15% per month, affecting the activity at the capital market, which in that period was almost inactive.

the Central Depository Agency; and the Decision on the dematerialization of securities and privatization vouchers. In parallel, some early models of privatization were put out of force, such as the sale of controlling stakes to companies' management.

According to the Law, mass voucher privatization and tender, as well as direct sales of companies to strategic (foreign) partners were established as the dominant privatization models. We would argue that the privatization process in Montenegro (explained in the Section 4.3) had a significant impact on the development of the capital market in Montenegro as well as on the evolution of ownership concentration, especially in the case of individual and institutional owners. Mass voucher privatization, conducted in 2001 (further details of the MVP are provided in Section 4.3) was the primary model. This contributed to the creation of new capital market institutions, which at the end of 2002 consisted of two joint stock exchanges (*Montenegroberza AD* and *Nex-Montenegroberza AD*), the Commission for Securities, the Central Depository Agency, twenty broker dealer houses and six privatization funds.

Development of the capital market in Montenegro coincides with the end of mass voucher privatisation in 2001. After privatisation, the institutional framework was strengthened with the set of Laws and complementary regulations, such as: the Law on Investment Funds, which was established to ensure efficient transformation of privatization funds to investment funds; then the Law on Enforcement procedure, providing protection of creditors and their rights, reducing the risk of investing; the Law on Takeover of Joint Stock Companies⁵⁶; the Law on the Privatization of the Economy⁵⁷; the Law on Ownership and Management Transformation; the Law on Voluntary Pension Funds; the Law on Fiduciary transfer of property rights, etc. However, as Stark and Bruzst (1998) point out, establishing rule by autonomous bureaucracies and bodies without the social nexus "by which policies are negotiated and implemented" does not ensure the development of any institution, including the capital market. That is, although the institutional framework for enforcement of an efficient and protected capital market was

⁵⁶*Official Gazette of RM, no. 81/05*

⁵⁷*Official Gazette of RM, no. 33/06*

developed, due to the poor strength of institutional and professional capacities of the Commission⁵⁸ and supporting institutions, their implementation was slow and inconsistent.

Further weakening of the capital market was associated with the creation of two parallel stock exchanges *Montenegroberza AD*⁵⁹ and *Nex Montenegro AD* which, given the number of listed companies, seems like a costly and inefficient decision that opened the secondary market of Montenegro to serious speculative activities. Namely, empirical evidence overwhelmingly shows that in order to survive small exchanges have to deliver sophisticated technology and, more importantly, they need to provide liquidity (Rigobon, 2005). In the case of Montenegro, with somewhat more than 200 joint stock companies divided in two stock exchanges, these requirements for survival are very difficult to meet. More seriously, in these small markets their size creates an opportunity for the group of investors that may have enough funds to disconnect (to some extent) the stock price correlate from the fair value. However, there are instances when the prevailing price level is too high to be justified by underlying and available public information fundamentals.

However, analysis of the legal framework, which regulated the process of privatisation in Montenegro (described in section 4.3), reveals that the regulations were established with the primary aim to enforce and contribute to development of the financial markets, rapid liberalization of capital flows and reform of the financial sector, with special stress on the development of the stock market. Simultaneously, although the Government postulated that the regulatory framework on privatisation should assure gradual withdrawal of state ownership accompanied by a certain level of state control on the subsequent evolution of ownership, in practice the Montenegrin authorities did not have a clear undergirding

⁵⁸For example, IMF ROSC for Montenegro (p.3), in the context of auditing supervision quality, describes the SEC: “Enforcement of IFRS financial reporting by listed companies by the Securities and Exchange Commission (SEC) is not systematic and the SEC lacks some necessary powers. The SEC operates with a relatively small staff and its enforcement role is hampered as the Securities and Exchange Act does not provide a basis for enforcing accounting standards. The SEC cannot levy fines or penalties for improper financial reporting.”

⁵⁹ The “Montenegroberza AD” Stock Exchange provided the composite indices MOSTE20 and MOSTEPIF, while the “Nex-Montenegro AD” Stock Exchange followed two composite indexes, Nex20 and NEXPIF (following shares of privatisation funds). These Stock Exchanges finally merged in 2011.

philosophy that would result in the creation of “efficient owners”. Namely, similarly to Blaszczyk and Woodward (2001, p. 15) in the context of the Slovenian mass privatisation scheme, we may argue in the context of Montenegro that the ownership and control structures created by MVP were transitional, suboptimal and unable to carry out the restructuring of companies. This induced the so-called “secondary privatisation”, which is usually defined as a gradual filtration of efficient shareholders through the stock exchange mechanism. However, this process was not a straightforward one, mainly because it was created by the intention to extensively rely on the “invisible hand” of market forces to “remodel” and efficiently channel the initial temporary ownership structure towards a more effective one.

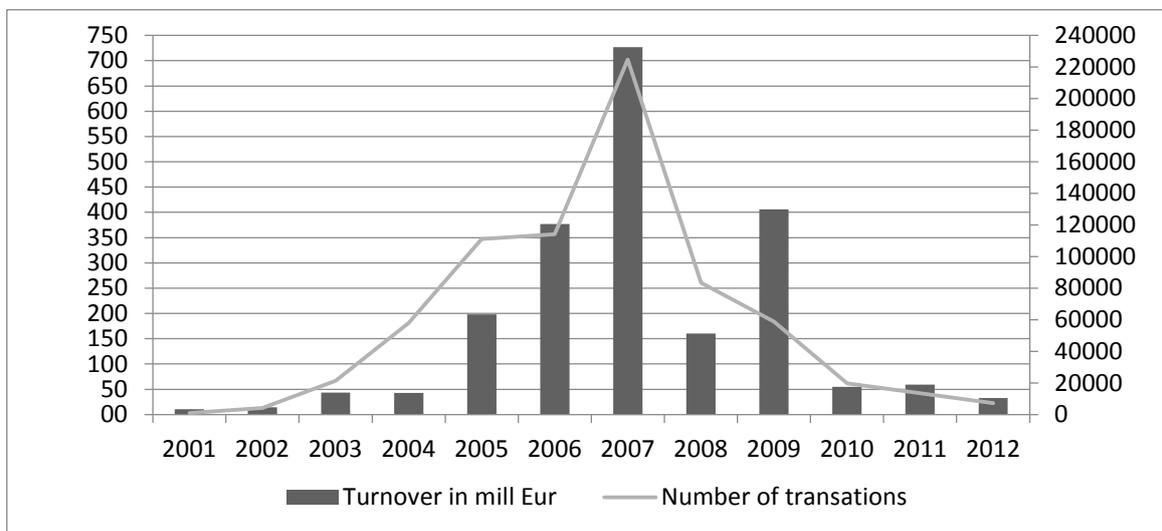
The size of Montenegrin companies as well as the size of the Montenegrin capital market, accompanied by legislation lacking sensitivity regarding the treatment and role of specific ownership types (privatisation funds and state) and treatment of minority shareholders, induced rather uncommon behaviour and choice of investors, i.e. final “efficient owners”. That is, although the Montenegrin stock exchange market flourished after the MVP, as measured by the boost to the total equity market capitalization and the share price indices, we may argue that the success of the MVP should not be assessed by the prices of firms’ shares achieved in the process of transitional shares’ “purchase-selling”, but rather on the criteria of how these firms performed after the process; i.e. whether the process of finding effective owners materialized or not. Unfortunately, in the context of Montenegro, it seems that the process of secondary privatisation was exogenously interrupted by the large FDI inflow in real-estate, the expansive lending policy of the domestic banking system and the limited size of the Montenegrin capital market, which created a fertile soil for speculative, short-term investment choices by speculative investors instead of creating stable, long-term, efficient ownership structures.

As shown in Figure 4.4 the capitalization and the number of transactions undertaken in both Stock Exchanges both indicate that 2005 represents a structural break in the development of stock exchanges in Montenegro. Namely, starting from 2005, Montenegro became a very interesting country for foreign direct investors (since, from then onwards,

Montenegro represents the country with the highest FDI inflow per capita in Europe, increasing from 17.9% GDP in 2005 to 31.2% GDP in 2009) accompanied by significant increase in nominal wages and loan growth. Consequently, the stock bubble accompanied by the bubble in the real-estate market started pushing prices far above their real value, blurring capital market information on company quality and depriving investors of a long-term investment perspective. In quantitative terms, the Montenegrin capital market boom during 2006 and 2007 was characterized by a 1200% increase (March 2006 - March 2007) measured by the level of capitalization. This increase of market capitalization was observed in parallel with a steep increase of share market prices, described by the Monex 20 and Monex PIF composite indices (the Monex20 index increased by 338.0% between April 2006 and April 2007) (See Figure 4.4 and Figure 4.5).⁶⁰ Moreover, a lot of illiquid, poorly performing companies experienced enormous growth of their share prices, increasing their Beta value by up a value of 12 or more, which was the product of the speculative activities of investors. Nonetheless, once the asset price bubble burst in May 2007, both the Monex 20 and Monex PIF indices recorded a decrease of more than 1200%, while overall market capitalization dropped by 233% (May 2007/May 2008). After that period, the capital market became slow, inactive and illiquid, while companies experienced a decrease in their market value by more than 300%, at the end of 2012 compared to 2006.

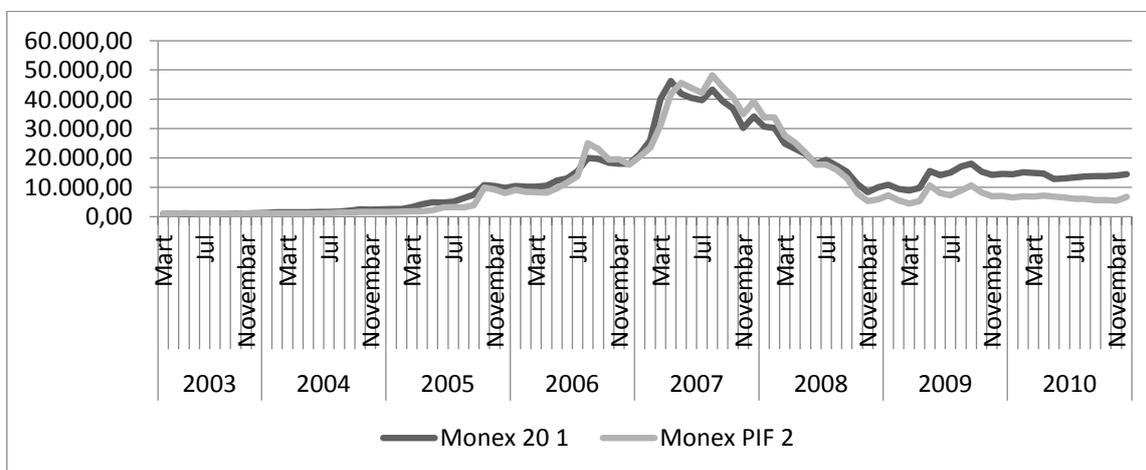
⁶⁰The Monex20 Index follows the share prices of the 20 largest A listed companies, while the Monex PIF follows the prices of shares in privatization (investment) funds.

Figure 4.4: Level of market capitalisation and the number of transactions on the Nex and Montenegro Stock exchanges 2001-2012



Source: Montenegrin Stock Exchange, 2012⁶¹

Figure 4.5 Monex20 and Monexpif indices, 2003-2010 Nex and Montenegro Stock exchange⁶²



Source: Montenegrin Stock Exchange, 2010

⁶¹Axis on the left refers to turnover in million Euro; right axis refers to the number of transactions.

⁶²Monex 20 and Monex PIF ceased to exist after the merger of Nex-Montenegro and Montenegro Stock Exchange in 2011.

A survey of the rather limited literature examining the impact of privatization on the development of capital markets, yields inconclusive opinions, which vary based on the country of choice. According to Tanko (2004) in the case of Nigeria, the privatisation process positively contributed to the deepening of the capital market, increase of price indices and a more flexible institutional environment. A cross-country analysis by Megginson and Boutchkova (2000) on a sample of the most developed and developing countries (excluding the USA) find similar results concerning the beneficial impact of privatization on market capitalization, share trade volume, number of shareholders etc.

With more relevance to the case of Montenegro, Kogut and Spicer (2002) claims that mass privatisation negatively affected the development of the capital market in both the Czech Republic and Russia. They argue that mass voucher privatisation in an environment of poorly developed corporate governance and financial market legal framework induced massive trade outside the scores of official stock exchanges (Morgenstern, 1995). This negatively affected the liquidity of the capital market, as well as the fair assessment of share prices. Similarly, Lastovicka et al. (1994) highlighted the negative impact of the mass voucher privatization on the development of the stock exchange in the Czech Republic. A strand of their critique, questioning the validity of mass voucher privatisation in the process of capital market development, is based on the rationale that price intervals between stock exchange share prices and those obtained via over the counter (OTC) transactions is relatively high, blurring information on the quality of the company. This has led to the diminished attention of international investors and undercapitalization of the capital market in the post MVP period.

Moreover, Fungacova (2005) in the context of transition economies finds that MVP has a negative impact on the capital market in the short and medium term. Instead “the capital market was established and perceived only as a by-product of the privatization process and did not serve as a source of capital for the corporate sector”. Similarly Wagner and Iakova (2001), Bodin and Wachtel (2002) and Bakker and Gross (2004) establish that capital markets in transition economies lack liquidity and are undercapitalized with only a few frequently traded securities. Lastly, but not the least, Claessens et al. (2000), examining 20

transition economies, concludes that these capital markets are underdeveloped in comparison to developed economies, usually lacking basic financial sector infrastructure. We tend to agree with these conclusions, in the context of the impact of the MVP on the development of the Montenegrin capital market. Of course, MVP did contribute to an immediate increase of the number of shareholders. Yet, it is evident that dispersed shareholders did not contribute to increased capitalization of the market or increase of its liquidity. Namely, unlike other countries that underwent the process of MVP, the choice of firms as well as the percentage of offered shares⁶³ indicated that the Government did not intend to make this process strategic with respect to the desired economic development, in comparison to other types of privatisation such as auctions or direct sale to investors.

However, due to the weak institutional framework, especially regarding shareholder protection, we observe that MVP in Montenegro contributed to an increase of over the counter (OTC) transactions, while the FDI increase in real estate induced speculative activities of investors, thus indirectly blurring the quality of information about the firms' prospects through highly volatile and unrealistic share prices. In turn, this induced a rather limited interest by foreign investors in the Montenegrin capital market (see the next subsection) and eventually decreased the number of joint stock companies. Simultaneously, as Claessens et al. (2000) noted for the case of the Czech Republic, in Montenegro many companies in markets "were not natural candidates for raising capital through stock markets and did not see much purpose in being listed". As shown in the following section, a majority of joint stock companies in Montenegro are small to medium, with high ownership concentration, whose strategy can hardly be to be listed or to acquire more capital through initial public offering of shares.

In essence, the Montenegrin capital market, similar to capital markets in other transition economies, was a result of a "made at home" strategy. It was lacking the basic infrastructure for the financial sector, stronger legal protection of shareholders and greater

⁶³Only 9 out of 202 companies listed for MVP offered more than 50% of their capital to be privatized under this scheme.

disclosure. In addition, in the environment of a very small sized, partitioned stock exchange and highly concentrated ownership structure, after the asset boom 2006-2008, the stock exchange (in fact the two stock exchanges) became, to a certain extent, cost ineffective, illiquid, with a decreased number of listed firms, and exposed to speculative impacts due to negligible size.

4.3 Evolution of ownership concentration in the post MVP period in Montenegro

In this subsection we provide analysis of the main characteristics of ownership evolution of Montenegrin companies in the post- mass voucher privatisation period, focusing on the main trends and the strategic behaviour of different types of owners. Namely, similar to Grosfeld and Hashi (2004), Kocenda (2001) and Kocenda and Valachy (2001), we are interested in the change of the ownership structure after the MVP in Montenegro. Nevertheless, unlike the above mentioned studies we are not just interested on the effects of one particular privatisation program; rather, we are interested in how the overall privatisation design implemented in Montenegro (including MVP, auctions, direct sales, etc.) affected ownership concentration. This will enable us to draw a conclusion about whether efficient owners were found in the subsequent process of secondary privatisation and whether their activities materialized through better firm performance.

4.3.1 Changing patterns of ownership concentration: the extent of ownership concentration

The first aspect of our analysis is the assessment of the magnitude of change in ownership concentration, measured by the share of, respectively, the largest, the three largest, the five largest and the ten largest shareholders. Secondly, we analyze the change of ownership structure from the perspective of different types (identity) of owners. Moreover, taking into consideration Montenegrin exposure toward FDI inflows, we are especially interested to assess the change of ownership structure between domestic, state and foreign owners. Finally, we analyze whether there exists significant difference in the

level of ownership concentration between voucher privatized companies and companies that were not involved in MVP.

The results obtained from this analysis will be used to create a hypothesis concerning the relationship between ownership concentration and firm performance, the analysis of which is the main aim of this chapter. Furthermore, we will be able to compare the patterns of ownership concentration changes in Montenegro with that in other transition economies, primarily the Czech Republic, having in mind the similarity of the MVP schemes in these two countries.

To investigate the evolution of ownership structure in the post MVP period, we start by analyzing the changes in ownership concentration of single and then the top three, the top five and, finally, the top ten largest owners of Montenegrin joint stock companies. The data presented in Table 4.5 shows the change in ownership concentration of a panel of 160 joint stock companies, for which the data on ownership structure is available through observing period 2004-2008. The table indicates that although the average holding of the largest shareholder was already quite substantial in 2004 (50%), it nonetheless increased progressively to 61.6% by 2008. This substantial increase reflects the very dramatic changes in the stock markets accompanied by strong FDI inflows, growth of disposable income, expansive lending by the banking sector and implementation of privatisation programme schemes.

Table 4.5: The average share of the largest shareholder in joint-stock companies of Montenegro 2004-2008, in %

	Top1 Largest Shareholder	Top3 Largest Shareholders	Top5 Largest Shareholders	Top10 Largest Shareholders
2008				
Mean	61.6	77.8	81.0	83.9
Std. Dev	24.1	17.7	16.7	15.4
Median	64.2	80.4	84.1	86.6
No. of firms	160	160	160	160
2007				
Mean	59.1	75.7	79.1	82.3
Std. Dev	24	18.3	17.1	15.5
Median	60.3	78.8	81.5	85.1
No. of firms	160	160	160	160
2006				
Mean	55.9	74.1	77.8	81.3
Std. Dev	24.1	18.8	17.6	16.1
Median	53.3	76.9	79.9	84.6
No. of firms	160	160	160	160
2005				
Mean	52.7	71.58	75.8	79.5
Std. Dev	23.7	18.63	17.7	16.6
Median	51.3	73.1	77.5	82
No. of firms	160	160	160	160
2004				
Mean	50	68.4	72.8	76.3
Std. Dev	23.1	18.2	17.3	16.4
Median	50.4	69.3	73.7	77.6
No. of firms	160	160	160	160

Source: Author's calculations using data base sourced from the CBM

Further increases, although none as pronounced as the increase in the share of the largest shareholder, are also seen in the shares of the top3, top5 and top10 owners, which indicates that the shareholding of other owners was decreasing during the period of analysis. To our knowledge, taking into consideration the findings of the empirical literature on the ownership evolution in the post privatization period, Montenegro has the most concentrated ownership structure among the countries that conducted MVP. For example, Hashi and Grosfeld (2004, p. 524) find for the Czech Republic that the average share of the largest shareholder in the firms privatized through the voucher scheme was 38.8% in 1996, increasing to 51.9% in 1999. Furthermore, in the case of the more closed

MVP implemented in Poland they find a similar result, where the largest shareholder, on average, had a stake of 33.9% in 1996 increasing to 50.3% in 1999. Similarly, according to Blaszczyk and Woodward (2001, p. 15), the top five shareholders in Slovenia in 1999 (after MVP) were holding 61.5% of shares in MVP firms, comparing to 72.8% in Montenegro in 2004. Moreover, in the context of the Russian economy, Sprenger (2006) finds that the mean ownership of the largest outsider shareholder after conducting MVP in 1994 was 37.3%, while five years after this the ownership share increased to 52%. There are various reasons why Montenegrin companies have a persistently increasing high ownership concentration of ownership.

The first reason is the relatively small size of firms, which goes in parallel with the country's size. Namely, the largest Montenegrin company using assets as the criteria - is "EPCG AD", with assets in 2009 of 945 million Euros, while the average assets of the joint stock companies in the sample is 1.3 million Euros.⁶⁴ Hence, it is clear that, according to financial criteria, Montenegrin joint stock companies are small or medium sized companies. Moreover, according to Demsetz and Lehn (1985), ownership dispersion happens due to additional issuance of shares, which triggers risk averse behaviour on the part of the existing largest owner, who will be willing to purchase additional shares only at a lower price. That is, the investor purchasing additional shares of the same company increases her risk of potential failure, due to an under-diversified portfolio. Yet, in the case of Montenegro, the investor has been able to purchase additional shares easily, in order to preserve his ownership stake, given that the size (i.e. the value of the asset) of Montenegrin joint stock companies is negligible from the prospective of the international capital market. Consequently, purchasing additional shares in the case of small joint stock company, may involve a lesser level of risk-averse behaviour compared to the level of risk that investor in the large company needs to undertake if he wants to keep its stake in the company when company grows.

⁶⁴Standard & Poor's statistics for 2009 of the 500 largest companies in Eastern Europe did not contain any Montenegrin company.

Furthermore, after the “pyramidal banking scam” in 1994, the banking sector was “rebuilt” and developed by foreign banks only, whose strategy was to establish 100% owned subsidiaries in order to fulfil their lending strategies independently. The banking sector in Montenegro, similar to other South-East European (henceforth SEE) countries, has a high foreign ownership concentration. Indeed, the banking sector of Montenegro is even more concentrated in comparison to other SEE countries (between 2004 and 2009, the foreign ownership share of the Montenegrin banking system - i.e. in the share of total capital - ranged between 95.6% in 2004 to 99.2% in 2009) having only one bank with a domestic largest owner, which is not the case in other transition countries.

The third reason, which may hold for all transition economies with a poorly developed corporate governance framework and underdeveloped capital markets, is that owners (predominantly being individuals or other companies) use ownership concentration as a substitute for underdeveloped or non-existing corporate governance instruments, at the same time increased the potential for expropriation of minority shareholders (Shleifer and Vishny, 1998).

Finally, a fourth argument is that the MVP in Montenegro was not designed to create dispersed ownership as in Slovenia, the Czech Republic and Poland. Instead, as in the case of Albania and Russia, only specific types of companies, with a fragment of ownership, were offered to citizens through the MVP scheme. Namely, according to Estrin et al. (2009, p. 704), MVP in the empirical literature is mostly described as a method that may yield “bad ownership structures”, reducing the effectiveness of the overall privatisation process. Furthermore, non-randomized selection of companies in the process of MVP may have adverse effects, which if not controlled, may distort results in respect of firm performance (Gupta et al., 2008).

4.3.2 Changing patterns of ownership concentration: types of the largest owner

The second criteria for assessment of the evolution of ownership structure in Monrenegro after the MVP is the transition of ownership between different types of shareholders. In our analysis we distinguish five types of owners: individuals; other companies; privatisation funds; banks and other financial institutions; and the state. The data on the share of these five types of owners from 2004 to 2008 is presented in Table 4.6. The results in the table shows that the state gradually became less of a presence as the largest owner, while individuals and other companies became the prevalent types of single largest owner. Privatisation funds decreased their stake as the largest category of owner over time, while bank and financial institutions increased their share in the dominant shareholder list.

Table 4.6: Average share and ownership types of the largest shareholder of joint stock companies of Montenegro, 2004-2008

Year		Individual	State	Privatization/Investment Fund	Other Company	Bank or other financial institution	Total
2004	Nr of observations	51	35	16	56	2	160
	Mean	52.57	37.62	41.70	60.51	63.80	
	Standard Dev	24.18	21.71	14.99	19.50	30.93	
	Min	1.99	16.79	18.97	19.46	41.93	
	Max	100	99.56	73.18	99.99	85.67	
2005	Nr of observations	50	27	15	64	4	160
	Mean	54.59	41.69	50.74	62.49	66.73	
	Standard Dev	23.73	23.41	24.89	20.56	32.23	
	Min	1.99	18.18	18.90	19.46	40.88	
	Max	100	99.56	94.52	99.99	87.77	
2006	Nr of observations	57	17	14	68	4	160
	Mean	55.29	49.06	52.27	68.08	64.41	
	Standard Dev	25.26	27.02	22.32	20.42	28.43	
	Min	1.99	18.18	21.55	22.31	40.91	
	Max	100	99.56	80.96	99.99	86.66	
2007	Nr of observations	60	15	14	69	2	160
	Mean	55.29	49.06	52.27	68.08	66.14	
	Standard Dev	25.26	27.02	22.32	20.42	31.44	
	Min	1.99	18.18	21.55	22.31	42.88	
	Max	100	99.56	80.96	99.99	88.55	
2008	Nr of observations	62	12	12	70	4	160
	Mean	57.07	50.43	51.71	67.94	72.29	
	Standard Dev	23.91	26.37	19.93	20.86	35.13	
	Min	1.99	18.63	21.55	25.94	41.09	
	Max	100.00	99.56	80.96	100.00	89.21	

Source: Author's calculations using data base sourced from the CBM

The stake of the state remains high over time, although the number of companies with the state as the largest shareholder decreases. This is in line with the aim of the Government to maintain control over companies of special interest. It is important to highlight comparing the data from the overall sample with those from the voucher privatisation that the state was not using MVP as a tool to cut the ownership link between the state and the private sector. Instead, the State was using this tool to assure social fairness and to accelerate and deepen the Montenegrin capital market. Simultaneously, the ownership structure of privatisation funds is relatively high, but not enough to assure efficient control in firms. This would imply that privatisation funds did not want to have a part in the process of firm restructuring, as was the case in Poland. Finally, unlike the case of the Czech Republic or Poland, banks and other financial institutions do not have a prominent role in firm ownership.

In line with Kocenda (2001), we created a so-called “matrix of transition” to investigate changes between types of largest owner, from one type of owner to another, for the period of our analysis 2004-2008, in companies included in the process of mass voucher privatisation, comparing it with those who were not involved in this process. For this purpose, we used a balanced panel that contains full 2004-2008 data for 160 joint stock companies. We combine data on the evolution of ownership concentration with the identity of the largest owner. Similarly to Grosfeld and Hashi (2003, p. 9) we create three thresholds, that is four different groups of ownership concentration. The first group refers to the ownership beyond 50% of equity shares, which indicates that the owner has absolute control over company decisions. The second group refers to intermediate levels of ownership concentration (between 33% and up to 50%) with which the owner still has a substantial degree of control over the company. The intermediate-low concentration range, ranging between 10% and 33% shareholdings, enables the owner to have a certain level of control over the activities and decision making process within the firm. Lastly, the fourth group represents a company in which largest owner has less than 10% of the shares, in which case the largest shareholder has little control over the firms’ affairs.

Table 4.7: Distribution of firms by ownership concentration and by the type of the largest shareholder, 2004-2008

Year		Individual	State	Privatization/Investment Fund	Other Company	Bank or other financial institution	Total
2004	Number of observations	51	35	16	56	2	160
	<10%	2	0	0	0	0	2
	10%≤x<33%	13	21	5	5	0	44
	33%≤x<50%	6	6	4	10	1	27
	x≥50%	30	8	7	41	1	87
2005	Number of observations	50	27	15	65	3	160
	<10%	2	0	0	0	0	2
	10%≤x<33%	10	14	6	8	0	38
	33%≤x<50%	6	5	3	9	2	25
	x≥50%	32	8	6	48	1	95
2006	Number of observations	52	28	12	66	2	160
	<10%	1	0	0	2	0	3
	10%≤x<33%	11	14	2	4	0	31
	33%≤x<50%	7	5	4	11	2	28
	x≥50%	33	10	6	48	1	98
2007	Number of observations	57	17	14	71	1	160
	<10%	2	0	0	0	0	2
	10%≤x<33%	8	8	3	0	0	19
	33%≤x<50%	14	1	4	1	0	20
	x≥50%	33	8	7	70	1	119
2008	Number of observations	62	12	12	70	4	160
	<10%	4	0	0	0	0	4
	10%≤x<33%	7	5	0	4	0	16
	33%≤x<50%	16	2	2	7	1	28
	x≥50%	35	5	10	59	3	112

Source: Author's calculations using data base sourced from the CBM

Table 4.7 reveals information concerning the evolution of the ownership concentration of the largest shareholder, simultaneously unveiling changes in ownership concentration between different types of owners. The first observable characteristic is that the number of companies with absolute shareholder control (over 50%) experienced the most pronounced growth during the five years (from 54.3% of the overall sample in 2004 to 70% of the overall sample in 2008). Simultaneously, we observe that the number of firms

with intermediate to high concentration did not change over time. On the other hand, the number of firms with intermediate to low concentration decreased the most, falling from 27.5% to 11.9% of the overall sample, while the group with the lowest ownership concentration is constant over time (1.3% of the sample). Once more, we stress that the ownership concentration in Montenegro after the MVP is significantly higher than in the case of other countries, which underwent a similar privatization process (Romania, Bulgaria, the Czech Republic, and Poland).

Secondly, we analyse the reallocation of shares during the observed period between different types of owners. From these data, we can obtain information concerning the underlying strategy of each type of shareholders. Unlike the Czech Republic (Grosfeld and Hashi, 2003, p. 11), privatisation funds in Montenegro never took an active role in obtaining significant shareholdings in strategic companies. To wit, privatization funds in 2004 were the largest shareholder in only 10% of joint stock companies, although during the privatization process privatization funds gathered more than 65% of individuals' vouchers. Moreover, in 2009 the number of companies in which privatization funds were the largest shareholders fell to 6.9% of the sample. However, there is some indication of a strategy by privatisation funds to decrease the number of firms in which they appear as the largest shareholders while simultaneously increasing the ownership stake above the controlling level of 50% plus one share (from 16 firms in 2004 having a controlling stake in 7, to 12 firms in 2008 with controlling stake in 10 of them). Similarly, the role of banks and other financial institutions is sporadic. This reflects the strategy of foreign banks not to have great exposure to the Montenegrin corporate sector; instead, they rather take a role of financial provider or financial intermediary. However, in those companies where financial institutions are the largest owners, they insist on a high controlling ownership share.

The role of the state diminished gradually. Yet the state significantly improved its control potential over time by selling residual state ownership in companies of less importance while maintaining a strategic controlling shareholding in companies of special, strategic interest. Namely, the remaining firms where the state is the controlling shareholder (9 of

them) account for around 35% of the total book value of companies in the sample. This is in line with the behaviour of the state in the case of the Czech Republic (Kocenda and Valachy, 2001, p. 12), where in the post mass vouchers period the stake in 20 strategic companies accounted for more than a third of the book value of companies involved in the MVP. Finally, individuals and other companies emerged as the most significant types of ownership concentration. Both of them have a similar strategy; to improve and increase ownership concentration, toward controlling stakes, which is again in line with the experience of the TEs.

4.3.3 Changing patterns of ownership concentration: domestic, foreign and institutional (state) owners

The third criteria we used in evaluating ownership concentration in Montenegrin companies represent the trajectory of ownership change between domestic, foreign and institutional (state) owners. According to Djankov and Murrell (2000, p. 10), one of the potential reasons why ownership structures across countries differ substantively is due to different mixes of implemented privatization schemes. Consequently, TEs provided a good context for comparison of different type of owners regarding their effectiveness and impact on firm performance. Analysing 23 empirical studies on the experience of transition economies regarding the effects of different types of owners on the restructuring of firms, Djankov and Murrell (2000) made a comparison matrix of 11 different types of owners, assessed according to their relative effectiveness (Table 4.8). According to Djankov and Murrell (2000)⁶⁵, the state appears to be the least effective owner, while managers and concentrated individual ownership are the most effective. This Table, although based by qualitative and intuitive comparison, using “composite probability judgement”, may nonetheless represent a comprehensive quantitative comparison of different ownership structure efficiency that we may use as a benchmark in assessing whether the ownership structure in Montenegrin companies evolved into a more or into a less efficient state.

⁶⁵ For more details on Djankov and Murrell (2000) and Djankov and Murrell (2002), see Chapter 2.

Table 4.8: Differences between the effects of different owners on enterprise restructuring

Category of owner	Traditional state	Diffuse individual	Insiders	Outsiders	Workers	Banks	State	Managers	Block holder
Diffuse Individual	No								
Insiders	Probably	Probably							
Outsiders	Probably	Extremely likely	No						
Workers	Probably	Probably	No	No					
Banks	Extremely	Probably	No	No	No				
Commercialized	Extremely	Extremely	Extremely	No	No	No			
Managers	Extremely	Extremely	Extremely						
Blockholder	Extremely	Extremely	Extremely	Extremely	Probably	Probably	Probably	No	
Investment funds	Extremely likely	Extremely	Extremely	Extremely	Probably	Probably	Probably	No	No
Foreign	Extremely	Extremely	Extremely	Extremely	Extremely	Probably	Probably	No	No

Source: Djankov and Murrell, 2000.

Key: the cells record judgements as to whether one type of ownership is more effective than another. For example, in the cell defined by “Diffuse ownership” and “Traditional state”, the cell entry “No” means that the former is not more effective than the latter; and the cell defined by “Foreign” and “Traditional state” suggests that the former is “Extremely” more effective than the latter; and so on.

Data presented in Table 4.9 suggests that, as expected, over time companies moved from the state as the single largest owner to domestic private owners and, especially, to foreign owners. The privatisation process is obvious through decrease in the number of firms that have the state as the largest shareholder (from 38 in 2006 to 12 in 2008). However, in parallel, although state ownership decreases, the percentage of firms under its control, via its ownership shares, increased from 37.4% in 2004 to 49.86% in 2008. This implies that the state has a strategy to sell residual shareholdings, leaving controlling shares in strategic companies of special interest for direct sale to domestic or foreign investors. During the privatisation process, migration of state ownership (26 companies) was unevenly distributed in favour of private domestic investors-owners. From the average shares of private owners, high concentration is present in all years with an upward trend (from 53.4% in 2004 to 60.4% in 2008). However, the range of shares of the largest shareholder is much wider (from 2% to 100% in 2008) in comparison to the other two groups.

Table 4.9: Ownership structure with respect to particular types of single largest owner in the period 2004-2008

Year		Private Domestic	State	Foreign
2004	Number of observations	112	38	17
	Mean	53.47	37.44	63.27
	Standard Dev	20.97	19.34	27.27
	Min	1.99	16.79	26
	Max	99.99	89.50	100
2005	Number of observations	120	30	17
	Mean	56.98	39.69	67.94
	Standard Dev	22.55	20.00	23.37
	Min	1.99	18.18	30.02
	Max	100.00	89.50	100
2006	Number of observations	126	22	19
	Mean	58.36	40.52	69.17
	Standard Dev	22.52	22.84	25.25
	Min	3.23	1.99	18.18
	Max	100.00	89.50	99.99
2007	Number of observations	123	15	22
	Mean	59.98	44.20	73.30
	Standard Dev	23.24	23.81	21.24
	Min	1.99	18.18	26.00
	Max	100.00	89.50	100
2008	Number of observations	126	12	22
	Mean	60.38	49.86	68.81
	Standard Dev	21.15	27.81	23.51
	Min	1.99	18.63	25.94
	Max	100	99.56	100.00

Source: Author's calculations, 2011

Foreign ownership displays the most stable pattern, with the smallest change of average ownership concentration over time (from 63.3% in 2004 to 68.8% in 2008). Simultaneously, foreign ownership has the highest ownership concentration in comparison to the other two groups, having the narrowest range in all five years. This would imply that foreign owners do have a clear strategy of long-term investment in Montenegrin companies, and a general inclination to have the means to actively monitor the behaviour of the management. At this point, having undertaken only qualitative analysis, it is still not possible to provide any valid conclusion concerning the effectiveness of different ownership types with respect to its impact on firm performance.

Lastly, we may conclude that, in the case of Montenegro, MVP did not provide strong dispersion of ownership. Namely: the choice and the share of ownership offered to individuals on average was at the level of 39.2%; and only in the case of 22 companies out of 160 was a controlling package of shares (50% shares+1) offered through the mass voucher scheme. However, three years after the MVP, strong ownership concentration reappeared at a level uncommonly high in relation to the transition economies that underwent a similar pattern of privatization (Slovenia, Bulgaria, Albania, Poland and the Czech Republic). Moreover, using alternative privatization schemes, the Montenegro Council for Privatization was encouraging foreign and domestic investor to acquire controlling shares packages.

In sum, the main characteristics of the “ownership transfer” in Montenegrin companies are:

1. Montenegrin companies have very high ownership concentration, and are usually run by other companies or individuals, similarly to the case of the Czech Republic and Poland (Blaszczyk and Woodward, 2001, p. 24);
2. migration of state to domestic and foreign ownership is gradual, characterized by a strategy of allowing “non-state” owners to acquire a controlling package of shares; and
3. institutional and financial owners - including privatization (investment) funds - are not interested in active control of firms’ management, while the state uses a gradualist approach in selling its stakes and retains its controlling stakes in the companies of special interest.

The evolution of ownership concentration in the post MVP period in Montenegro to a certain extent resembles the evolution of ownership concentration in Poland and the Czech Republic. It differs mainly with respect to the level of concentration, which is extremely high, and the level of involvement and passive behaviour of banks and privatization funds.

The empirical work consists of the discussion of data, the model specification and the empirical results. These are discussed in the next three subsection. In the context of the Montenegrin economy, we find accurate useful comparison in Boubakri et al. (2005,) who, by studying privatized firms worldwide during 1980-2001, find evidence over time of diminishing government control as well as an increase in private ownership concentration.

Furthermore as Mathur and Banchuenvijit (2007, p. 106) summarize their findings “the cross-firm differences in ownership concentration are explained by firm size, firm growth, industry affiliation, privatization method, the level of institutional development, and the level of investor protection.” This conclusion summarizes also the behaviour of Montenegrin companies and, accordingly, suggests that these factors should be controlled in the model specification for estimating the relationship between ownership concentration and firm performance in Montenegro.

4.4 Data

The sample comprises all joint stock companies listed on either or both of the Montenegrin stock exchanges –*Montenegroberza AD* and *Nex-Montenegroberza AD* - over the five-year period from 2004 to 2008.⁶⁶ The data set was created by the author, using individual data for each company obtained from the Central Bank of Montenegro.

The “National Agency for Payment and Settlements” of Montenegro (the institution formerly responsible for collecting and compiling the financial statements of joint stock and limited liabilities companies) ceased to exist in 2001. Instead, three years later, the Commercial Court of Montenegro assumed responsibility for collecting financial statements. According to the existing Law on accounting and auditing⁶⁷, all joint stock companies together with limited liabilities companies whose asset exceeds 100,000 Euros are obliged to submit an annual profit and loss account, a balance sheet, a cash flow report and statistical Annex.⁶⁸ Due to the poor technical resources of the Commercial Court, compilation of data in electronic form could not be undertaken during the period 2001-2006. Consequently, the Central Bank of Montenegro (henceforth the CBM) in 2006 initiated the Agreement of Cooperation with the Commercial Court in Podgorica in May 2006, taking over the database, creating the software for intake, and processing the data from the financial accounts of the Montenegrin corporate sector. Unfortunately, data from the financial statements of Montenegrin joint stock

⁶⁶Although the author obtained the firm level data for 2009, we decided not to include it in the data set. Montenegro was hit by the effects of the global financial crisis in 2009: the overall corporate sector was heavily hit by spillover effects from the financial sector to the real sector, leading to heavy losses in the corporate sector estimated at the level of 270 million Euros. It is not the purpose of our model to explain this structural break, which may be assumed to dominate corporate performance in 2009.

⁶⁷Official Gazette of RM, no.81/05

⁶⁸Article 5 of the Law on accounting and auditing (Official Gazette no. 6/2002 and 17/2007).

companies prior to 2004 could not be recovered. Taking into consideration that data could be obtained only at the individual (firm level), the author had to compile the entire data set from the beginning. Accordingly, the author constructed the dataset from the balance sheets and from the profit and loss statements for each company in each year in the sample. Prior to the study reported in this chapter, this data existed only in hardcopies or scattered pdf files.

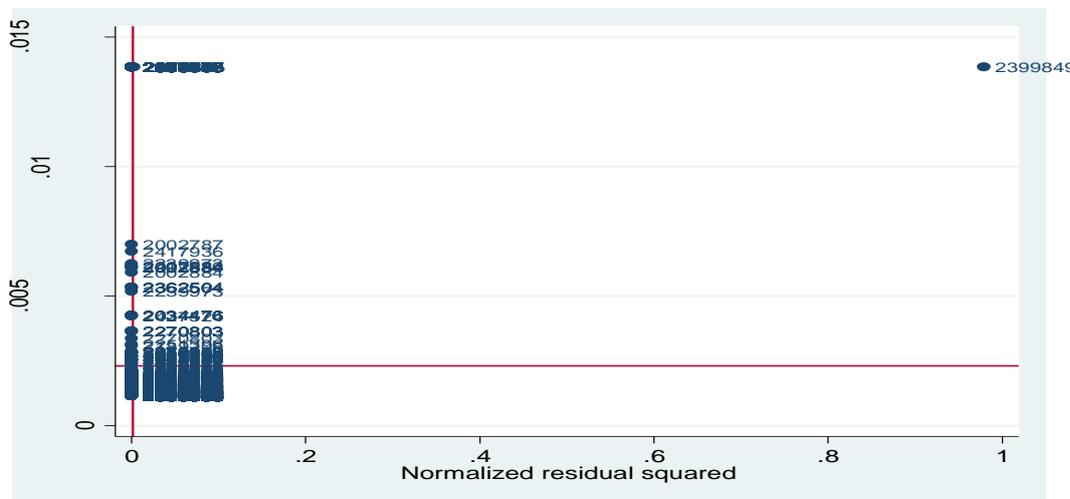
We started our research using all joint stock companies with shares listed and traded on either of the two stock exchanges that appear in the data set. From the number of companies in the sample (204) it is evident some joint stock companies did not submit their annual financial reports, while for others annual reports could not be used due to their technical deficiency. Simultaneously, we excluded from the sample broker and dealer houses, insurance companies, the non-governmental sector and investment funds, together with management companies that run investment funds, because of the nature of the activity of these companies as well as the type of external supervision of these companies (Schmid and Zimmermann, 2008, pp. 187). Concerning that part of the database referring to the ownership structure of the joint stock companies, the author used data obtained from the Central Depository Agency of Montenegro (henceforth CDA). The CDA provides, on a daily basis, a list of the 10 largest shareholders for each company, disclosing simultaneously the origin of shareholders (domestic vs. foreign).

We started our empirical investigation with an unbalanced panel, consisting of 936 observations on 215 companies (for the five years 2004-2008) with shares listed and traded on the *Montenegroberza AD Stock-Exchange* or/and *NEX the Montenegro AD Stock Exchange*. From this initial sample, we excluded two insurance companies, five broker-dealer houses and three insurance companies. As Mancinelli and Ozkan (2006) argue, companies from the financial sector have distinctive financial accounts, which make comparison of certain variables with the corporate sector impossible: for example, solvency or liquidity ratios, which are under special scrutiny for the insurance companies; and the treatment of loss.

In addition, we dropped all observations for which financial statements were inconsistent (for example, balance sheets that reported a negative value of capital). Furthermore, we excluded all companies with financial ratios suggesting that these firms do not operate. Namely, when inspecting our dataset, we observed that due to the poor quality of some financial statements,

or due to the fact that some joint stock companies are barely operating, their financial ratios appeared to be rather odd. In order to prevent inclusion of those companies with dubious activities, we implement a set of “rule of thumb” filters for various financial indicators to exclude suspect observations from the data used for estimation: a leverage ratio higher than 0.7; a fixed asset to sales ratio greater than 0.001; and R&D to sales ratio less than 0.3 based on the general criteria provided by Lebahar-Friedman (1999). Finally, after initial ordinary least squares (OLS) estimation, we checked for undue leverage and outliers. According to Figure 4.6, showing the leverage versus the squared residuals for each observation, we observed that in the case of one company (*Crnogorskaplovidba AD*) a potential problem of high leverage may exist. Accordingly, in order to preclude a likely source of bias in our estimates, our strategy was to exclude from the sample the four observations for this company.

Figure 4.6: An examination of outliers and leverage points on ownership concentration and firm performance (Pooled OLS)



Source: Author’s calculation Stata 2011

These adjustments narrowed the initial database, resulting in a final unbalanced panel consisting of 755 observations from 204 companies over the period 2004-2008.

4.5 Model specification and description of variables

The choice of variables in the model will build on the model foundations proposed by Demsetz and Villalonga (2001), which have been widely adopted and replicated in the

context of different economies (Welch, 2003; Fishman et al., 2008; Himmelberg et al., 1999; Hu and Izumida, 2008; Gugler and Weigand, 2003; Kapopoulos and Lazaretou, 2007; Pedersen and Thomsen, 1999; de Miguel et al., 2004; etc.). The fundamental reasoning to follow the choice of variables suggested by Demsetz and Villalonga (2001) and Demsetz and Lehn (1985) lies in the fact that these two papers provided thorough and systematic theoretical justification of the model specification used to assess the impact that ownership concentration might have on firm performance. Namely, taking into consideration that with regard to Montenegro, to our knowledge, no similar research has been conducted, the systematic and well-justified choice of variables and methodologies provided by Demsetz and Villalonga (2001) is the preferred platform for our own analysis. Nevertheless, besides the variables proposed by Demsetz and Villalonga (2001), in our model specification we include a set of additional variables that mainly reflect the country specific characteristics of the Montenegrin economy as a small, open economy in transition.

The initial challenge in the model specification is that we need to choose between four different measures of firm performance: *Tobin's Q*; Return on assets (henceforth *ROA*); Return on equity (henceforth *ROE*); and Net profit margin (henceforth *NPM*). These variables can be divided into market based (*Tobin's Q*) and accounting based (*ROA*, *ROE*, and *NPM*). As Demsetz and Villalonga (2001) and Himmelberg et al. (1999) argue, there is a significant difference between the market based and accounting type of measure. The first dimension is temporal. While *Tobin's Q* is forward looking, taking into consideration that, through the market, share values reflect the future expectations of investors (optimistic or pessimistic), *ROA*, *ROE* and *NPM* are accounting measures of firm performance oriented to what the firm has already accomplished. Secondly, both of these measures have limitations with respect to how they are calculated.

Accounting profit indicators are limited by accounting practice where, even while applying International Accounting Standards (IAS), practice allows for biased and looser assessment of, for example, the value of intangible assets or different methods of calculating depreciation. In contrast, while calculating *Tobin's Q*, the replacement value of the firm's tangible assets, part of the *Tobin's Q* denominator, does not include investments that the firm has made in intangible assets. This would imply that revenue is generated only from investments made in tangible assets, which consequently leads toward overestimation of the financial results, i.e. of firm performance.

In the context of the Montenegrin economy, both accounting and market value indicators of the firm's profitability can be considered as potentially unreliable. Namely, although the Montenegrin Law on Accounting and Auditing⁶⁹ requires accounting practice in Montenegro to be in line with the International Accounting and Auditing Standards, there is an evident implementation gap with respect to following IAS in domestic practice.⁷⁰ For example, the World Bank's Report on the observance of standard and codes (ROSC, 2007) for Montenegro provides an assessment of accounting, financial reporting, and auditing requirements. The general view on the accounting practice from this report is clear from the following excerpts (ROSC 2007, p. 3):⁷¹ "The review of financial statements identified some systematic accounting issues that need to be properly addressed in practice. In addition to a lack of detailed disclosures required under IFRS, the review identified a number of common recognition and measurement issues, such as asset valuation (e.g. the lack of impairment tests), insufficient disclosure of related party transactions (including those involving the State), improper reflection of taxes in the annual financial statements, and pension accounting and practices within the enterprise and financial sectors in Montenegro."

Moreover:

"...enforcement of IFRS financial reporting by listed companies by the Securities and Exchange Commission (SEC) is not systematic and the SEC lacks some necessary powers. The SEC operates with a relatively small staff and its enforcement role is hampered as the Securities and Exchange Act does not provide a basis for enforcing accounting standards. The SEC cannot levy fines or penalties for improper financial reporting. Although the SEC has recently undertaken several concrete corrective measures, issues raised in qualified audit reports even in the A and B segment of the securities market were not always followed up."

Therefore, due to poor quality of accounting standards implemented in the national laws, this may imply that ROA, ROE and NPM are, to a certain extent, deficient estimates of firm performance.

⁶⁹ *Official Gazette of RM, no.41/08*

⁷⁰ *Official Gazette of RM, no.69/05 and no.80/08, Article 6a*

⁷¹ *The Republic of Montenegro: Report on the Observance of Standards and Codes (ROSC), Accounting and Auditing, 2007*

The market-based alternative, Tobin's Q, is a future oriented measure reflecting investors' perspective on the company's quality by comparing the market value of a company's stock with the value of a company's equity book value. As explained in section 4.2, during 2006 and 2007 the stock market prices of shares in Montenegro were distorted due to inflow of FDI in real estate, credit growth and nominal wage growth. Therefore, it is hard to believe that, in the period 2006-2007, the market value of companies, on average, increased more than five times on the grounds of real increase in firms' profitability, market share, growth, etc. Instead, we would argue that the Montenegrin small, underdeveloped capital market allowed enormous growth of share prices that reflected speculative activities of investors rather than long-term investors' expectations. Given the enormous share price growth, exogenously driven by FDI and buoyant credit growth, that was unrelated to the actual status and behaviour of the listed companies, we would argue that Tobin's Q would also be a highly misleading measure of firms' performance. However, Tobin's Q is the most frequently used measure of firm performance in the literature assessing the relationship between ownership concentration and firm performance (Wruck, 1989; McConnell and Servaes, 1990; Mehran, 1995; Kole, 1995; Agrawal and Kroeber, 1996; Craswell, 1997; Cho, 1998; Himmelberg et al., 1999; Morck et al. 1988; Demsetz and Villalonga, 2001; Welch, 2003; Chen et al., 2003; Mura, 2007; etc.).

Thus, we had a challenging task to choose between two different types of firm performance measures, each having serious drawbacks concerning their reliability. Our choice was made by the criteria of which measure would create less bias to the estimated results and thus more accurately reflect firms' activities. Comparing the quality of variables, we conclude that Tobin's Q and NPM are the least reliable (Table 4.10) measures of firm performance as judged by implausibly high variation and range.⁷² Hence, our choice narrowed to the two remaining firm performance variables, ROA and ROE. Given that accounting assessment of the asset base might be subject to more bias than assessment of the nominal value of equity (reflecting potentially poor assessment of intangible assets, the value of stocks, depreciation and changes in the value of land due to the real estate bubble) we finally decided to use ROE.

⁷²Tobin's Q equal to 1797.24 would imply that the market value of the firm is 1797.24 higher than its replacement (nominal) value. This figure reflects overrated values of share prices during a capital market bubble (2006-2007).

An additional argument to use ROE is its better performance regarding the normality of distribution compared to other accounting based indicators of firm performance. Namely, using an informal approach to checking normality, a histogram, and using all observations in the sample, we find an overall symmetric, moderately tailed distribution slightly skewed to the right (Figure 4.7 and 4.8). Once we place restrictions on the tails using the criteria that ROE should lie in the range of $-10 \leq \text{ROE} \leq 10$, the histogram indicates a symmetric, moderately tailed distribution with some outliers on both ends of the tail, but maybe right skewed.⁷³ Further evidence is provided by the qnorm plot (implemented by Stata; Figure 4.7), which compares the distribution of a variable with the normal distribution (with deviations from the straight line indicating departure from normality). The qnorm plot of ROE in the range of $-10 \leq \text{ROE} \leq 10$ is mainly coincident with the straight line, which suggests a normal distribution. However, there are departures at both tails. Overall, the qnorm plot suggests a symmetric distribution with fat tails. Potential outliers (16 observations) that do not conform to the range of the above imposed range and which may cause departures from normality are separately examined in order to see whether they are valid observations or potentially arise from errors in data entry. Careful examinations indicates that most of the potential outliers refer to four large real estate and construction companies where, given the type of the business and speed of the business cycle, it is possible that annual revenue substantially exceeds the capital stock of the firm. Hence, we did not exclude these potential outliers. However, the impression of basic symmetry suggests that there is no case for transforming the variable. In addition, GMM estimation does not require distributional assumptions as does Maximum likelihood estimation.

⁷³ Once we place restrictions on the tails using the criteria that ROE should lie in the range of $-5 \leq \text{ROE} \leq 5$ (this restriction will be later used as a robustness check of presented results) histogram appears somewhat more symmetric but still slightly right skewed. When we used the criteria that ROE should lie in the range of $-2 \leq \text{ROE} \leq 2$, the histogram is more symmetric in comparison to presented histogram (Figure 4.8), but maybe left skewed. (See Appendix 4.6.)

Figure 4.7: ROE - qnorm plot [-10, 10]

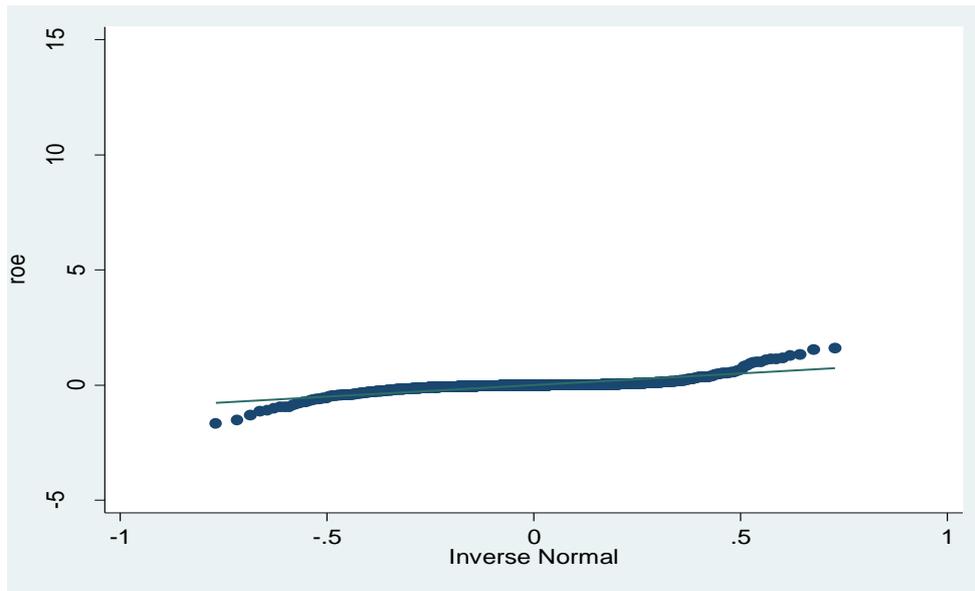


Figure 4.8: Histogram of the dependent variable ROE [-10, 10]

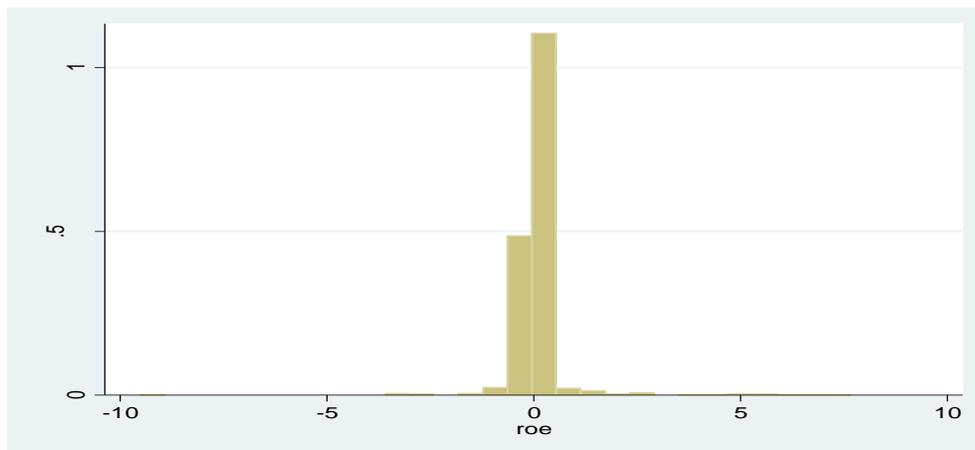


Table 4.10: Summary statistics for the proxy variables of the firm performance

Variable	Nr. Of Observations	Mean	Standard Deviation	Minimum	Maximum
ROA	962	-0.03	0.37	-7.93	4.59
ROE	962	-0.69	0.203	-5.43	13.62
NPM	904	-13.25	121.56	-2321.47	92.38
Tobins' Q	902	13.26	98.07	0.00	1797.24

Source: Author's calculation, Stata 2011

Although Return on Equity (ROE) is our choice as a proxy for firm performance in our preferred model specification, still, we estimated model specifications using the other measures of firm performance. We argue that usage of different firm performance measures provides useful robustness checks on our preferred results. However, usage of ROA is highly questionable, given that its usage would end up specifying a model in which assets appear on both sides of the equation.

Four ownership variables are investigated in the model: the shareholdings of the largest shareholder (*Top1OC*); and the shareholdings of the three largest (*Top3C*), five largest (*Top5OC*) and ten largest shareholders (*Top10OC*). Comprehensive empirical literature examining the impact of different types of owners (explained in Chapter 3) on firm performance, addresses the issue of the difference between outsider and insider owners. Our empirical investigation was conducted primarily to bring into focus the impact of outsider ownership on firm performance. In the case of Montenegro, corporate governance measures such as performance bonuses for executives are rarely used to align the interests of managers and owners. Secondly, managers rarely appear as large owners in the Montenegrin corporate sector. Privatisation in Montenegro hardly supported the development of managerial ownership. Namely, unlike other transition economies, Montenegro did not conduct “managerial buy-outs” (henceforth MBO) privatization, which were characteristic for Poland (1993), Slovenia (1992), Hungary (1993), Croatia (1992) and Russia (1991). In these countries, MEBO was considered as a fast and efficient privatisation process in the case of small or medium sized companies (Ellerman, 1993).

Consequently, taking into the consideration that we are primarily interested in the impact of outsider ownership concentration on company performance, our preferred measure is the shareholding held by the five largest shareholders. We acknowledge that this measure has its disadvantages. As Demsetz and Villalonga (2001) point out, the fraction of shares held by the largest shareholder might not be a convincing measure of the outsiders’ ownership and of the degree to which investors are protected from managerial shirking and self-fulfilling actions in the case when management often holds enough shares to be the single largest shareholder. Moreover, we are fully aware that in the case where the largest owner is an individual, most probably he/she will be the Executive Director, on the Board of Directors and in the senior management team. This setting is characteristic for small firms in Montenegro. However, searching for managers’ stake in the group of largest shareholders is possible only in the

context that the largest shareholder is an individual. As Demsetz and Villalonga (2001, p. 1) argue: “the fraction of shares owned by the five largest shareholding interests is more likely to be representative of the ability of shareholders, as this term is ordinarily understood, to control professional management than the fraction of shares owned by management is to be representative of the ability of professional management to ignore shareholders.” Following Demsetz and Villalonga (2001) we also use the fraction of the five largest shareholders as a proxy for ownership concentration.

Our general sentiment is similar to the findings of a very rich empirical literature based on transition economies’ experience, which generally reports a negative, significant impact of ownership concentration on firm performance (Kuznetsov et al. 2011; Aukutsionek et al. 1998, Balsmeier and Czarnitzki 2010; etc.). These countries usually are characterized as economies with a weak, under-developed, poorly functioning legal framework created presumably to protect minority shareholders and with underdeveloped, illiquid and shallow capital markets, in which share prices do not usually reflect the quality of firms’ performance. This reminds us that Demsetz’ theory of corporate value maximization irrespective of the ownership concentration is based on the assumption of perfect market mechanisms (“vote” and “exit strategy”, developed corporate governance instruments and liquid, developed secondary markets), which may not be considered as applicable, or even relevant, for the case transition economies, including Montenegro.

Empirical literature on TEs does not face the problem of interconnecting theoretical concepts with their empirical findings. Instead, there are numerous theoretical explanations supporting the conclusion of a significant negative relationship between ownership concentration and firm performance. Castaneda (2006) notes that, in the case when the stock market is illiquid, and minority shareholders are not well protected, and share prices do not reflect the quality of firm performance, large owners (the ones that bear the most risk) are disabled with respect to assessing asset allocation efficiently, resulting in their choice of low-risk, low-productive projects, which leads to poorer firm performance. However, we would argue that the negative impact of ownership concentration on firm performance in transition economies is considerably present due to expropriation of minority shareholders (Shleifer and Vishny, 1997). In addition, there is also the problem of insufficient incentives for the largest owners to attempt timely and efficiently restructuring of firms to maximize their value over the long–run horizon. Desai and Goldberg (2000) provide a very critical analysis of Russian and CIS

countries which, through MVP, witnessed heavy asset-stripping conducted by poorly monitored managers, absence of restructuring due to poor monitoring mechanisms, accompanied by distortive contracts between government and investors in order to assure the protection of local employment, even at the expense of company efficiency. Furthermore, they argue, given the illiquidity of secondary markets, managers do not have the necessary incentive to increase the value of shares; instead, they sell the assets by themselves as a way of valorising their control rights.

Still, empirical evidence on the impact of ownership concentration on firm performance in the context of transition economies is not uniform in suggesting a negative effect. For example, comprehensive analysis by Balsmeier and Czarnitzki (2010) based on the experience of 28 transition economies including Montenegro (using the EBRD BEEPS data for the period 2002-2008) suggests that, in the case of an underdeveloped institutional framework, ownership concentration, as a distinctive feature of lack of the corporate governance mechanisms, may substitute for institutional shortfalls. Furthermore, as Shleifer and Vishny (1997) pointed out, ownership concentration may act as an equivalent to standard corporate governance mechanisms, efficiently monitoring managers and contributing to better firm performance.

Hence, we are left with two contrasting theories, preventing us from concluding one way or the other regarding the expected sign on the relationship between ownership concentration and the firm performance. We have strong empirical evidence suggesting the positive effect of ownership concentration on firm performance due to diminished agency costs. Conversely, especially in the case of highly concentrated ownership, missed investment opportunities and high private benefits of control might lead to a negative relationship between ownership concentration and firm performance. Therefore, in the context of the Montenegrin economy, given its uncommonly high ownership concentration, we are not sure concerning whether the impact might be positive or negative. Whether the argument of better monitoring potential of ownership concentration or escalation of the private benefits of control will emerge, at this point of analysis is difficult to anticipate.

Without further discussion, we tend to agree with the conclusion of La Porta et al. (1999) that, in the contexts of small countries, with highly concentrated firm ownership by families or individuals, owners of those firms might gain significant political power. Additional

political power may be used for expropriating additional sources and mitigation of potential business barriers that can be used to obtain better firm performance.

In the model we control for the firm's leverage (*Leverage*), calculated as the debt to asset ratio. According to Demsetz and Villalonga (1985), Himmelberg et al., (1999) and Welch (2003, p. 294) leverage has a negative impact on firm performance. In line with the pecking order theory, there is an inverse relationship between the financial results of the firm and the level of its debt.⁷⁴ In contrast, according to the agency theory higher leverage leads toward better performance, through additional monitoring of managers by institutions that provided external finance, or through threat of liquidation, which leads to a more responsible attitude of managers who are afraid of losing salaries, reputation or bonuses (Grossman and Hart, 1982 and Williams, 1987). Moreover, according to agency theory, a higher leverage ratio might mitigate potential conflicts between owners and managers concerning the choice and the level of risk of additional investments (Jensen and Meckling, 1976). That is, the agency theory would support the hypothesis that an increasing leverage ratio triggers diminishing "agency costs of outside equity and improvement of firm performance, all else held equal" (Berger and Udell, 2002).

In addition, in the model we control for the size of the company (*Ln_Asset*). According to Demsetz and Lehn (1985, p. 1185), in larger firms, a smaller share stake is needed in order to obtain the desired level of control. Consequently, we would hypothesise that firm size would have a negative impact on ownership concentration. They argue that in the attempt of shareholders to preserve the same level of ownership concentration, they would be willing to purchase additional shares only at a lower - risk compensating - price i.e. they will have risk-averse behaviour.

⁷⁴"The pecking order theory of capital structure is based on the assumption that firms have a preferred hierarchy in financing decisions. The first choice is to use internal financing (retained earnings) before deciding to use any form of external funds. Namely, internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage" Myers and Majluf (1984). However, if a firm is forced to use external funds, there is a gradual list, based on managerial will to maintain control over the firm's decisions, concerning which funds will be used first: debt; convertible securities; preferred stock; and, finally, common stock (Myers, 1984). This scale is based on the incentive of financial managers to preserve control of the firm (since only common stock has a "voice" in management), reduce the agency costs of equity, and avoid the negative market reaction that will be raised with a new equity issue (Hawawini and Viallet, 1999).

Concerning the impact of firm size on firm performance, a large empirical literature on this issue is equally as inconclusive as the literature assessing the relationship between ownership concentration and firm performance. A limited literature review (taking into consideration that exhaustive assessment of this relationship is beyond the scope of this thesis) examining the link between ownership concentration and firm's size supports the idea of its pronounced inconclusiveness. The additional information that might be obtained from this variable is to assess whether firm size really matters in the context of the Montenegrin economy, consisting as it does in large part of small and medium enterprises.

The literature on this issue starts with the famous Gibrat's law (1931), or the so-called "Law of Proportionate effect," which argues that firm performance is proportionate to firm size, growing independently. This is supported by findings of Hymer and Pashigian (1962) and Mansfield (1962). Bhattacharyya and Saxena (2009) argues that this applies only in the case of large firms "that have overcome the minimum efficient scale of a given industry". On the other hand, we would argue that a sea-change occurred with Baumol (1959), supported later by empirical findings of Hall and Weiss (1967), Gale (1972), Shepherd (1972) and Punnose (2008), who find a positive impact of firm size on firm performance. According to Power and Reid (2003), firms that are considered as small (which is the case for most joint stock companies in Montenegro) need to remain small i.e. firms "need to adjust downwards in size" in order to achieve better firm performance and to be long lived. Contrariwise to previous findings, Marcus (1969), Evans (1987) find a weak negative impact of firm size on firm performance arguing that larger firms would have lower profit rates because of diminishing returns to the fixed factors of production. However, these studies were relying on the cross sectional databases, neglecting the dynamics existing between a firm's size and a firm's performance. Thus, in our model specification we cannot provide a definite hypothesis concerning the sign and significance of the relationship between firm size and firm performance in the context of Montenegrin economy, taking into consideration the widely varying empirical evidence on this relationship. Nonetheless, assessing the dataset characteristics, the general impression is that large privatized companies achieve better performance, taking into consideration that they have easier access to international capital markets.

In like manner, we intended to include variables to control for firm risk (*Firm_risk*) and market specific risk (*Market_risk*). However, for reasons explained below, eventually these

variables were not included. These variables control for the fact that different levels of risk are attached to investment in different companies. According to Demsetz and Lehn (1985) the profit potential of one company is related to the instability of its market environment. The noisier the environment, the more difficult it is to ensure efficient managerial behaviour and profit maximization. Changes in prices, changes in market structures, technologies, etc. will induce increase of ownership concentration, as a reflex of owners to ensure satisfactory management monitoring. Thus, we need to control for two effects, changes in the firm's environment measured by the market risk and reaction of the firm to the changes in the market environment, i.e. firm specific risk.

The variable we use to capture the effect of the Market risk represents the value of the beta coefficient obtained from regressions of monthly stock returns of a particular company on monthly market returns. Because the Montenegrin Stock Exchange does not provide beta for any of the listed joint stock companies, these coefficients had to be calculated by the author, for all 204 joint stock companies present in our sample for the period 2004-2008. The beta coefficients were obtained using OLS estimation from 1020 regressions of monthly stock returns on monthly market prices, which are approximated by the MONEX20 cumulative stock exchange index.

According to Demsetz and Lehn (1985, p. 1160) we need also to control for firm specific risk, arguing that the firm specific risk is "the factor most strongly associated with the type of instability for which control is most useful". In other words, Demsetz and Lehn (1985) claim that the owners believe that they can control the success (firm performance) of their firms. However, in the case when the firm's environment is noisier- i.e., more uncertain (due to price changes, technological changes, changes in the market positions, etc.) - monitoring of managers becomes more difficult, because the signals with respect to the behaviour of the firm are difficult to monitor, becoming "non-readable" due to the changes in the company's environment. Thus, with increase of the firm's uncertainty and noisiness of signals from the market, ownership concentration increases, as a reaction to the increased difficulties faced by owners of efficiently monitoring managers; i.e. we expect that with the increase of firm specific risk ownership concentration will increase.

As a proxy for the firm specific risk, we use the variable *Firm_risk*, which is the standard error obtained from the regression used to estimate the beta coefficient (i.e. market risk). Demsetz and Lehn (1985) suggest two other measures: the standard deviations of annual accounting profit rates; and the standard deviations of monthly stock market rates on return (Pedersen and Tomsten, 1997; Demsetz and Villalonga 2001; Siqueira, 1998; Rogers et al. 2008). However, we decided to use the measure considered as “mainstream” in the empirical literature dealing with this topic (Perrini et al., 2008; Welch et al., 2003; etc). Moreover, in the case of Montenegro, fluctuations of the standard errors of the beta coefficient are less pronounced in comparison to the standard deviation of the monthly stock market rates of return of Montenegrin joint stock companies. We use this variable with caution.

As explained in Subsection 4.2, the Montenegrin capital market experienced dramatic expansion during the period 2004-2008, due to an exogenous shock triggered by extensive FDI inflow in real-estate, credit growth and nominal wage growth. Consequently, during this period the capital market (measured by market turnover volume) increased by more than 14 times, accompanied by the bubble on the real-estate market where prices increased by more than 147% over two years. Accordingly, the calculated values of the beta coefficient for this period do not reflect changes of firms’ performance, or the noisiness of the “normal” business environment, so much as they may reflect the speculative activities of investors (usually individuals who obtained money from selling real-estate on the Montenegrin coast) who typically were completely unaware of the real status and performance of the companies in which they were investing. Therefore, in the Specifications presented in Table 4.14 these two risk variables were not included, given that they did not yield informative results when included in the model.

Although we concluded that in our particular context the risk variables could not fulfil their intended function, we did include additional firm specific variables in the model specification, *RD_Sale* and *Fix_Sale*, which are, respectively, proxies for research and development expenditures (R&D) and gross fixed assets as a fraction of annual revenue. These two variables in the model specification, proposed by Demsetz and Villalonga (2001), are used for two reasons. Firstly, to control for the extent to which the firm invested in intangible capital (R&D to sales ratio) and to control for accounting differences stemming from different approaches to fixed assets depreciation (Fixed asset to sale ratio). In particular,

the proxy for the level of intangible assets is used to control for distortion of Tobin's Q, taking into consideration that the book value of assets, which represents the denominator of Tobin's Q, usually does not include the value of all intangibles. Demsetz and Villalonga (2001, p. 14) argues that it is necessary to include fixed assets to take into consideration that accounting decisions affecting Tobin's Q originate from poor assessment of fixed asset depreciation. Given, that we do not use Tobin's Q in our model as a proxy for company performance, due to the severe distortion of share prices during the credit boom in 2005, 2006 and 2007, we decided to include those variables for the first set of reasons provided by Demsetz and Villalonga (2001). Simultaneously, we use the *RD_Sale* variable as an alternative to the potentially unreliable beta coefficient as an indicator for the firm specific uncertainty, as suggested by Hashi and Grosefeld (2001).

As already accentuated, in line with Demsetz and Lehn (1985), in the case when a firm operates in a less certain environment, it faces various external factors such as market competition, technology changes, government policy shifts, etc., which magnifies the importance of the control of management. Namely, as we argue in relation to a noisier environment, owners will have incentives to monitor more closely managers by increasing their ownership share. Thus, assuming that large ownership would not affect managerial initiative, which might lead toward a worsening of the firm's results, we may argue that, in the context of the Montenegrin economy, a positive relationship can be expected. As Hashi and Grosefeld (2001) argue, it is difficult to find a good proxy for the degree of uncertainty in the firm environment. As noted, due to overheating of the Montenegrin economy, followed by creation of price bubbles in the capital and real estate markets, firm levels as well as market Beta coefficients obtained for the period 2004-2008 are of a very poor quality. Namely, prices were driven primarily by speculative demand, fluctuating independently of the real quality of listed companies. Consequently, the beta coefficient is very much misleading as a proxy for firm specific risk, although often used in similar research. Instead, we use R&D expenditure as an alternative proxy of firm specific environmental noise. We are fully aware that this proxy is of a poor quality, which might be reflected through its low precision in the estimated regression; yet we argue that it is a preferable option to the Beta coefficient.

As previously explained, in our model specification, instead of Tobin's Q, we use alternative, accounting measures of firms' profitability: Return on Asset (*ROA*); and Return on Equity

(*ROE*). Still, we are interested to see how intangible assets might affect firm performance. The literature on R&D and its impact on firm performance and productivity are very rich, covering both macro and micro levels. According to Holak et al. (1991) and Morebey (2003), R&D might have either a positive or a negative impact on firm performance, depending on the level of investment in R&D; i.e. it is necessary that firms exceed a certain threshold in investing in R&D in order to have a positive impact on firm performance. Similarly, O'Mahony and Vecchi (2009), Griliches, (1979); Grossman and Helpman (1991); Coe and Helpman (1995), Cuneo and Mairesse (1984); Mairesse and Cuneo (1985); Griffith et al., (2006); Bloom and Van Reenen (2002); Harhoff (1998), etc., find in the context of various countries (the OECD countries, USA, France, UK, Germany) that investment in knowledge based capital positively affects firms' productivity. However, it is necessary to emphasize that the impact of R&D investment on firm performance, or its spill over effects on the economy (Romer, 1986), is not the focus of our research. Instead, in our model specification we control for intangible assets, using the ratio of R&D expenditures to sales, with the main aim to use this variable as a potentially valuable proxy variable, which at the same time captures accounting distortions in evaluating the level of firms' intangible assets.

Concerning the Fixed assets to annual sales ratio, we include this variable to control for distortions in the accounting evaluation of fixed assets (level of depreciation) and its impact on firm performance. Namely, at present there is evident debate among managers, investors, accountants and capital market regulators about "disclosure and recognition of long-term nonfinancial assets at estimated value, rather than at depreciated historical cost" (Aboody et al., 1999). As stated in their work, upward revaluations of fixed assets significantly positively affect changes in future performance in the context of UK firms. Simultaneously, fixed assets indicate capital intensity, which would imply that those companies with higher capital intensity might have better firm performance (Chhibber and Majumdar, 1998) due to the fact that firms "operating with higher capital-to-sales ratio impose entry barrier and enjoy better control over the market, than it would have been otherwise" (Kumar, 2004, p. 13).

In addition, we include a *Regulation dummy*, which controls for the regulation effect on the financial sector in a setting where regulation severely circumscribes what management (insiders) and outsiders can do with the assets owned by firms. Namely, according to Demsetz and Lehn (1985, p. 1161), in industries which are under special supervision due to their importance for the financial stability of a country, additional regulation is provided,

which on the one hand restricts the behaviour of owners, but on the other hand provides stricter monitoring of the management, relaxing the necessity for ownership concentration. Indeed, the Law on Banks of Montenegro consists of articles that directly affect the identity and the structure of owners⁷⁵ as well as the behaviour of managers⁷⁶ in line with its purpose of ensuring the financial stability of Montenegro. Strict regulation environment affects the magnitude of management manoeuvre when it comes to investment decisions, revenue generation and profit allocation. Therefore, a general expectation is that a strict, risk averse regulatory environment might have a negative impact on profitability. The same conclusion stands for certain types of utility industries controlled by strict rules concerning other types of sensitivity (eg. environmental), which are controlled by the *Utility_dummy*.

Following the Demsetz and Lehn (1985) specification we include another indicator variable *Media_dummy*, in order to control for “amenity potential” in the media industry. According to Demsetz and Villalonga (2001, p. 222) “amenity potential” is described as “a characteristic of the good produced by the firm that allows for the creation of non-profit related utility for owners of the firm” or creation of the “the private benefits of control” (Grossman and Hart, 1988). Namely, according to Djankov et al. (2001, p. 5) who assessed the ownership structure of media firms around the globe, the amenity potential reflects potential non-financial benefits, such as fame and indirect influence, obtained by controlling a newspaper or a television station. These nonfinancial benefits for controlling a media company or a famous sport team must be considerably higher than those from controlling a firm of comparable size in, say, the hotel or the pottery industry. However, this “non-pecuniary benefit of control” (Villalonga and Amit, 2010, p. 876) can not be utilized if the ownership structure is diffuse. Therefore, it is expected that owners will be more concentrated for those special firms that have a potential to exhibit high amenity potential; with the aim to enjoy in it. Simultaneously,

⁷⁵According to Article 9 of the Law: “No legal or natural person may acquire qualified participation in a bank without prior approval of the Central Bank. A party with qualified participation may not further increase participation in capital or voting rights in a bank, on the basis of which it acquires 20%, 33%, or 50% or more of participation in voting rights or in the capital of the bank, without the prior approval of the Central Bank. A legal person that is engaged in non-financial activity and in which a bank has participation in capital or voting rights of at least 20%, may not acquire participation in capital or voting rights in that bank of 5% or more.”

⁷⁶If the Central Bank establishes irregularities in the bank’s operations, it may take one of the following measures: “...order a bank to discharge a member of the Board of Directors, an executive director or an official with special powers and responsibilities and set the timeframe for conducting the procedure of their relieving of duty and, as a rule, prohibit these persons to further perform their functions until the completion of the ordered procedure; revoke the previously granted approval to a board of directors member; order the bank to reduce overhead expenses, including the imposing of restrictions to salaries and other benefits of the bank's executive directors and other officials with special powers and responsibilities”; etc.

amenity purchases made by owners, are driven not purely for profit maximization, but forgiven benefits that arise from exploiting amenity potential, and should result in reduced profit (Demsetz and Villalonga, 2001, p. 223).

As mentioned, although our aim is to include those variables suggested by Demsetz and Lehn (1985) and Demsetz and Villalonga (2001), we include an additional set of variables that might have impact on corporate performance, along with a set of variables that should control for country specificities of the ownership concentration patterns of Montenegrin companies. We include the variable *Liquidity* to control for the effect of a company's financial position on performance. According to Couderc (2005) and Gitman (1984), excessive cash holdings within the firm - i.e. putting too much focus on liquidity – causes poorer firm performance due to underinvestment. On the other hand, Kim et al., (1998), argue that those companies that want to achieve better financial results need to have higher liquidity, in order to fund their operations and sales growth. Thus, we would expect either a negative or a positive impact of liquidity on firm performance; or a non-significant effect if both theories are valid and so offset one another in their practical realisation. We can make an argument for potential simultaneity, i.e. potential reverse impact of firm performance on liquidity. The same issue arises in relation to firm solvency as an addition to the core variables of Demsetz and Lehn (1985) and Demsetz and Villalonga (2001).

Moreover, in the model specification we introduce the solvency ratio (*Solvency*). Taking into consideration that solvency is usually defined as the ability of a firm to meet its long-term fixed expenses and to accomplish long-term expansion and growth, or as the ability of a business to have enough assets to cover its liabilities, we may argue that solvency is the *condition sine qua non* in achieving better firm performance (Yu and Liang, 2011; Hu and Izumida, 2008). However, the versatile empirical literature on this issue denotes simultaneously that better firm performance might be achieved with firms that have lower solvency ratios. For example, Collin (1998, p. 29) argues that firms with a low solvency levels will be under pressure to allow their debt holders to impose their actions on the managers and a “stable but not an exceptionally high profit could be expected”. On the other hand, Rajan (1992) argues that those companies that have solvency problems may be the subject of excessive rent extracting enforced by their lenders that, in the case when company's debt capacity is reached, have stronger negotiating power.

Although the solvency ratio is not part of the core model introduced by Demsetz and Villalonga (2001), we include the solvency ratio within the model specification. Analysing the database we observed that there are numerous companies with poor financial ratios (solvency, liquidity and profitability), supporting the impression that these companies have problems in maintaining their business activity at a satisfactory level. Similarly to liquidity, we can hypothesise potential simultaneity (endogeneity) between firm performance and solvency ratio. In the event, however, attempting to instrument these variables either singly, together or in combination with size – another potentially endogenous variable – demanded too many instruments in relation to the number of observations. (We discuss the problem of “too many instruments” in the context of system GMM estimation below). This was evident in poor model diagnostics and the failure of the model to yield useful results (the respective regressions are reported in Appendix 4.4). Accordingly, we instrument only what is essential (ownership concentration, our variable of interest) rather than what in principle might be desirable (i.e. instrumenting, in addition, liquidity, solvency and size). In doing so, we follow the usual practice in the literature of instrumenting ownership concentration but not other potentially endogenous variables in the model.

In addition, as noted by Mura (2007), it is important to distinguish between different types of large block-holders in assessing the quality of firm performance. Namely, following Djankov and Murrell (2002), Frydman et al. (1999) and Anderson et al. (2000), transition country ownership was, in large part, exogenously determined by political and administrative processes. These processes contributed to creation of many different types of owners, examined by a large empirical literature. The prevailing sentiment in the empirical literature for transition economies is that privatisation, resulting in change in ownership patterns, contributes to economic growth, faster transformation and restructuring and, finally, better performance of companies. This is supported by Carlin et al. (2001) in the case of 25 transition economies; Djankov (1999) in case of Georgia and Moldova; Earle and Estrin (1997) in the case of Russia; Estrin and Rosevear (1999) in the case of Ukraine; Grigorian (2000) in the case of Macedonia; Roberts et al (1999) for the case of Kirgiz Republic, etc. Thus, in the model, similarly to Djankov and Murrell (2002), in order to assess the relative effectiveness of different types of owners, we include five different variables controlling for different types of owners: *Individual_dummy* (taking value of one if an individual is the largest owner, zero otherwise); *Other_Company_dummy* (taking value of one if another company is the largest owner, zero otherwise); *Financial_Institution_dummy* (taking value of

one if the bank is the largest owner, zero otherwise; *Privatisation_Fund_dummy* (value of one if a Privatisation fund is the largest owner, zero otherwise); and *State_dummy* (taking value of one if the state is the largest owner, zero otherwise).⁷⁷ Each of these controls for different types of owners. However, unlike Djankov and Murrell (2002) instead of eleven overlapping groups⁷⁸, we tried to make a division that avoids overlapping, which may induce problems of multicollinearity in the model specification. According to Pound (1988) and Almazan et al. (2005), institutional investors are more efficient monitors, due to their better expertise and analytical capacities. This would imply that institutional investors on average have a stronger (positive) impact on firm performance.

We introduce a set of dummy variables to control for the type of controlling owner with respect to whether they are foreign (*Foreign_own*), domestic (*Domestic_own*), or state owners (*State_dummy*). We want to explore how different identity of owners may affects firm performance. As it can be noticed, the *State_dummy* variable overlaps with the previous set of dummies that controls for different type of investors. Therefore, we will investigate two separate specifications, the first one exploring the impact of different type of owners; and the second one exploring the impact of different owners' identities. As previously explained, Montenegro, due to political issues and economic sanctions during the nineties of the last century, was left almost without domestic capital. The strategy accentuated in the milestone document "Development of Montenegro 2002-2006" created a tax environment that resulted in a high level of FDI inflow. Extensive literature on this issue predominantly argues that foreign owned firms, on average, experience better firm performance (Alan and Steve, 2005; Piscitello and Rabiosi, 2005; Douma et al., 2006; Aydin et al., 2007, etc.). Moreover the *EBRD Transition Report* (1999, p. 33) findings supports the idea that "unambiguously positive results have been found only for those enterprises privatised to strategic foreign investors or to other types of concentrated outside owners".

⁷⁷In our empirical investigation, we control for the identity of the largest owner, no matter what is the percentage, i.e. instead of using a threshold e.g.: Estrin and Rosevear, (2003) $\geq 0\%$; Jones and Mygind, (1999) $\geq 50\%$; or Classens and Djankov, (2002) $\geq 33.3\%$.

⁷⁸Djankov and Murrell (2002) identified eleven different types of owners, some of which overlap: traditional state ownership (100% state that have not been the part of a privatisation program); commercialized state-enterprises that underwent the process of privatisation and where there is no infliction of the state in the management decisions of the enterprise, enterprise insiders-includes workers and managers; outsiders-a group consisting of non-employee and non state owners; workers; managers; foreign owners of all types; banks; investment funds; block-holders-concentrated outsider ownership; and diffuse outsider-dispersed outsiders.

The general argument supporting the idea is that foreign investors provide better corporate governance practice, increase productivity, and ensure cheaper sources of financing, higher value added to output and greater capital intensity (Willmore, 1986), transfer of knowledge and know how (Blomstrom and Kokko, 1998), which translates to better firm performance of foreign owned companies in comparison to domestic owned ones. According to Yasar and Paul (2007) foreign owned companies in Moldova, Tajikistan, Uzbekistan and the Kyrgyz Republic have better performance in comparison to domestic owned companies, due to higher productivity, export shares and capital intensity. However, although we would assume that this hypothesis is particularly correct for transition and less developed economies, empirical literature regarding the effectiveness of foreign ownership is not so conclusive in the case of developed economies (Ayedín et al., 2007, p. 106). For example, Barbosa and Louri (2003) do not find evidence that multinational corporations perform better than domestic firms in the case of Portugal and Greece. Similarly, Konings (2001) fails to support the argument that foreign ownership is superior to domestic ownership in the case of the Czech Republic and Bulgaria, although this is the case for Poland. On the other hand, Mickiewicz et al. (2005) in the context of Poland, while arguing that privatisation has a positive impact on the employment growth three to six years after the process of privatisation, provide evidence that State owned companies are achieving lower sales growth.

Conversely, Lizal and Svejnar (2002) find that foreign owners do ensure better performance of firms. Similarly, Smith et al. (1997) in the case of Slovenian companies find that foreign ownership is associated with higher increase of value added in comparison to ownership of employees. However, Mickiewicz et al. (2005) argue that there is a reasonable doubt that behaviour (i.e. performance) of newly privatised companies would be affected by inherited labour surpluses or by the privatisation contracts which, usually, prohibits lay-off of workers for a considerably long period after privatisation. This practice holds for most companies sold to strategic investors in Montenegro. Conversely, the privatization scheme in Montenegro was created on the “cherry picking” principle⁷⁹, with the aim that the best strategic companies

⁷⁹One of the issues not fully covered is the fact that the design of privatization methods and their impact (success) on corporate performance is that firms are not chosen for the process of privatization randomly. A “cherry-picking” strategy was characteristic for firms’ sales to strategic investors (using tenders, auctions or direct negotiation). This issue may contribute to bias when assessing effectiveness of the privatization methods. For example, Szenpeteri and Telegedy (2010, p. 298) argue that in the process of firm selection for the state, “employment concerns played a key role, even if efficiency gains had to be sacrificed.” The empirical survey of Gupta et al., (2008) reveals that the absence of controlling for the problem of non-randomized choice of firms that are going to be privatised, creates biased results of empirical research that are estimating effectiveness of

should be sold to strategic domestic or foreign investors. We assume that in the context of the Montenegrin economy foreign ownership should contribute to better performance.

Given the poor institutional environment and corporate governance environment we introduce three dummies to control for the type of controlling owner with respect to whether they are state (*State_50*), foreign (*Foreign_50*), domestic (*Domestic_50*). Controlling owner in the context of Montenegrin legislation regarding corporate governance is the one that has more than 50% of votes, i.e. a large enough percentage of shares such that no one share holder or a coalition of stock holders is able to block decisions by the controlling owner.

Although it is not the primary focus of our empirical analysis, we want to highlight that the literature in the case of transition economies faces problems in creating a definite theoretical concept concerning the impact of different privatization programs on ownership structure evolution. Possibly the most comprehensive analysis was provided by Dyck (2000), who tried to compare how different privatisation designs contributed to growth at the national level as well as to creation of the legal framework on corporate governance protection.

Similarly, Estrin et al. (2007) provide a very extensive examination, based on a review of the existing literature, which assesses the impact of ownership structure changes in the post privatization period of transition economies and the impact of these evolutions on firm performance. A thorough summary of the relevant studies, dealing with the impact of different privatisation processes on ownership structure and the consequent impact of ownership on firm performance or speed of restructuring provides compelling evidence that private ownership outperforms state-ownership in the context of firm performance. Therefore we have at least an implicit indication, following experiences of other countries, as to what we may expect as a finding of our model with regard to efficiency of private vs. state ownership. With this brief assessment of this transition-related empirical literature, we want to highlight the profound differences among empirical findings regarding the effectiveness of varied ownership identities with respect to firm performance (in most cases state ownership

different privatisation designs. Djankov and Murrell's (2002) Meta analysis survey indicates that one-half of the studies do not treat the issue of selection bias at all, whilst Hanousek, Kocenda and Svejnar (2007, p. 17), who managed to capture nonrandomized selection of companies, claim, "the other half suggests that many treat the issue in a relatively haphazard way." In contrast (and we are supportive of this premise in the context of Montenegrin economy), Hamm, King and Stuckler (2012) argue that non-randomized choice of companies for privatisation is a delusional task due to dubious quality of financial data.

vs. private ownership), and then compare/ check the robustness of our findings. As noted, almost all the studies refer to the period prior to 2005, when privatisation processes in almost all transition economies had been finished and outcomes were available to be summarized through analytical research.

As explained in the introductory section, Montenegro undertook its process of privatisation one decade later (starting in 2001) in comparison to most transition economies from (CIS and EEC countries). To our knowledge, the existing empirical literature lacks evidence on the impact of privatisation on ownership structure and consequent firm performance for Montenegro. Thus, this research contributes to filling a knowledge gap, with assessment on how different ownership identities affect firm performance, and whether certain types of privatisation affected the current performance of the Montenegrin economy.

Consequently, we include an *MVP_dummy*, a dummy variable to control for the impact of MVP on firm performance. Namely, the extensive empirical literature remains vague concerning the effectiveness of this privatisation method with respect to economic growth and creation of effective corporate governance. According to Megginson and Netter (1999), the MVP, on average, performed worse in comparison to other privatization programs. Yet, they argue that voucher privatisations at the same time “foster free and efficient markets, and promote effective corporate governance.” Similarly, Miller (2006) argues that in the case of Bulgaria MVP have performed less well than firms privatized by other privatisation methods. Pistor and Spicer (1996) provide extensive grounds for critique of MVP, finding that citizens in Russia and the Czech Republic became owners of the worst privatized firms, while insiders became owners of the best performing firms.

Our general sentiment is that we may expect a negative coefficient on the MVP variable. Namely, in the context of the Montenegrin economy it is evident that different privatization processes resulted in a very mixed yet concentrated ownership structure. According to Shleifer and Blasi (1996), in the absence of a developed capital market, as was the case in Montenegro, which prevents fast re-trading of shares, the ownership structures created after the MVP have a more persistent effect on enterprise actions and consequently on its performance. Taking into consideration that the main downside of the MVP is creation of granulated, ineffective and unskilled shareholders (Gray, 2001), delayed or insufficiently fast re-trading of shares due to the underdeveloped capital market may additionally worsen the

performance of companies that were the subject of MVP. In addition, according to Megginson and Netter (2001), privatisation tends to have a positive impact on firm performance, including the state owned companies, in an environment with readily competitive markets. In contrast, the rationale for privatisation is less compelling in markets where monopolistic behaviour is prevalent. This is the case in Montenegro, which can be described as a small, highly monopolized market, where certain sectors are occupied by only one to four companies; i.e. we would argue that some industries are to a certain extent monopolized. For instance, the energy sector consists of only one company⁸⁰, the construction industry consists of eight large companies, around 75% of the retail trade consists of three large retail trade chains⁸¹, while telecommunication services are provided by two companies⁸². Lastly, we introduce a set of industry dummy variables to control for industry effects.

Table 4.11 sets out the list of variables used in our model specification, their corresponding symbols and expected signs, according both to existing theories and to the distinctive characteristics of the Montenegrin economy.

⁸⁰“ElektroprivredaCrne Gore AD Nikšić”

⁸¹“Voli DOO”, “MEX DOO”

⁸² “Pro Monte–Telenor AD” and “T-Mobile AD Podgorica”

Table 4.11: Symbols and description of variables used in the empirical analysis

Symbol	Description	Expected Sign
Dependent variable		
ROE	Firm Performance – Return on Equity	
Independent variables		
lnSize	Size- natural logarithm of the average book value of assets	+/-
Leverage	Leverage-the ratio of year-end debt to the year-end book value of assets	-
IntopOC5	Ownership concentration - $\ln(\text{OCTOP5} / (100 - \text{OCTOP5}))$, where OCTOP5 is the percentage of ordinary shares owned by the top 5 shareholders. Following established practice in the literature, this variable is specified as a natural logarithm	+/-
Liquidity	Liquidity ratio– (Liquidity indicator: cash +accounts receivable + short term investment)/current liabilities	+/-
FixSale	Fixed asset to sales ratio - the ratio of the gross fixed assets to annual sales	-
Solvency	Solvency ratio–Solvency indicator used to measure a company's ability to meet long-term obligations, measured as the ratio of the after tax net profit plus depreciation to long and short term liabilities	+
R&DSale	R&D to sales ratio-the average ratio of annual research and development expenditure to annual sales	+
Media_dummy	Dummy for media and sport clubs companies (equal to 1 if the firm operates in the media or sport industry, and 0 otherwise)	+
Utility_dummy	Dummy for utility company (equal to 1 if the firm operates in the utility industry, and 0 otherwise)	+
Finance_dummy	Dummy for finance company (equal to 1 if the firm operates in the finance industry, and 0 otherwise)	+
Individual_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is an individual, and 0 otherwise)	+
State_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is the state, and 0 otherwise)	-
Other_company	Dummy for investor's identity (equal to 1 if the firm's largest owner is another company, and 0 otherwise)	+
Bank_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is a bank or other finance company, and 0 otherwise)	+
PF_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is a privatisation fund, and 0 otherwise)	-
State_50	Dummy for investor's identity (equal to 1 if the firm's controlling((larger than 50%) owner is state, and 0 otherwise)	-
Foreign_50	Dummy for investor's identity (equal to 1 if the firm's controlling((larger than 50%)owner is foreign, and 0 otherwise)	+
Domestic_50	Dummy for investor's identity (equal to 1 if the firm's controlling owner ((larger than 50%)is domestic, and 0 otherwise)	+
Foreign_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is foreign investor, and 0 otherwise)	+
Domestic_dummy	Dummy for investor's identity (equal to 1 if the firm's largest owner is domestic investor, and 0 otherwise)	+
MVP	Dummy for type of privatisation (equal to 1 if the firm was involved in the MVP process, and 0 otherwise)	-
Industry Dummies (1-15)	Dummy for industry that a firms main activity is grouped (equal to 1 if the firm's activity belongs to a certain industry, and 0 otherwise) ⁸³	/

⁸³Industries are sorted according to MONSTATs division (which does not corresponds to NACE industry aggregation) where 1-Agriculture, forestry and water management; 2 –Fishery; 3- Mining and quarrying; 4- Manufacturing Industry; 5-Production of electricity, gas and water; 6-Construction; 7-Wholesale and retail;8- Hotels and restaurants; 9-Transport, storage and communication; 10-Financial intermediation; 11-Real estate activities; 12-Public administration and social security; 13-Education; 14-Health and social work; 15- Community, social services.

Table 4.12 provides descriptive statistics for the continuous explanatory variables, while Table 4.13 provides descriptive statistics for the categorical (nominal) variables. The inclusion of these variables in an empirical specification may produce significant coefficients, taking into consideration very pronounced variation between companies. Descriptive statistics of quantitative explanatory variables reflect on the one hand the level of financial stability of the Montenegrin economy, and on the other lack of good accounting practice. That is, Montenegrin companies from the mean values presented in Table 4.12 may be considered as relatively indebted (Mean Leverage ratio=0.49), solvent (Mean Solvency ratio=2.2) but insufficiently liquid (Liquidity ratio=0.81). Simultaneously, they do not invest enough in Research and Development (mean R&D to sale ratio=0.03), while, on average, they inefficiently utilize their fixed assets to generate revenue (mean Fixed Asset to Sales ratio=6.99). An underlying characteristic of the data set is the poor quality of accounting practice used for financial reporting of companies used in the sample. Namely, we are very suspicious that certain companies do not have any fixed assets (minimum Fixed Asset to Sale ratio=0.0), or record a negative value of the Liquidity ratio (minimum Liquidity=0.0). Consequently, starting with an unbalanced panel, we introduced filters to exclude observations with unusual values of financial indicators, where these are included in the model specification. The criteria for thus cleaning the data set are explained in Subsection 4.4.

Table 4.12: Descriptive statistics of quantitative explanatory variables, 2004-2008

Explanatory Variables	Mean	Std. Dev.	Min	Max
Return on Equity	-0.63	19.00	-587.45	13.42
Size	14.95	2.13	7.60	20.85
Ownership Concentration Lnoctop5	1.9	2.17	-2.86	9.210
Liquidity	0.81	7.95	0.00	185.6
Leverage	0.49	0.93	0.000	12.34
Solvency	2.22	7.28	-463,5	2,050.1
R&D to sale ratio	0.027	0.08	0.000	0.98
Fixed Asset to sale ratio	6.99	8.92	0.000	41.11

Source: Author's calculation

As noted, Table 4.13 shows the descriptive statistics for the categorical (nominal) variables used in our preferred model specification. A compelling characteristic of the data set is that there are no missing observations in the quantitative explanatory variables. Descriptive statistics demonstrates that the majority of companies (71.0%) are domestically owned, while the rest are almost equally divided between state owned companies (14.9%), of which almost half had a state ownership higher than 50% (8.7 p.p.), and foreign owned companies (14.6%) of which 10.6 p.p. refer to shareholdings higher than 50%. Furthermore, 38.1% of the sample refers to companies that underwent the mass voucher privatisation process.

Table 4.13: Descriptive statistics of categorical explanatory variables, 2004-2008

Explanatory Variables	Taking value 1 (%)	Missing
Media_Dummy	0.52	0.00
Utility_Dummy	0.52	0.00
Finance_Dummy	4.98	0.00
Individual_Dummy	31.5	0.00
State_Dummy	15.6	0.00
Privatization_fund_Dummy	7.2	0.00
Other_company_Dummy	40.1	0.00
Bank&Finance_Dummy	5.5	0.00
Domestic__Dummy	70.9	0.00
Foreign_Dummy	13.5	0.00
Domestic50_Dummy	44.7	0.00
State50_Dummy	9.6	0.00
Foreign50_Dummy	9.9	0.00
MVP	38.1	0.00
Industry 1	2.5	0.00
Industry 2	1	0.00
Industry 3	3.5	0.00
Industry 4	24.1	0.00
Industry 5	0.5	0.00
Industry 6	5.4	0.00
Industry 7	28.8	0.00
Industry 8	12.7	0.00
Industry 9	9	0.00
Industry 10	5	0.00
Industry 11	3.1	0.00
Industry 12	0	0.00
Industry 13	0.5	0.00
Industry 14	1.5	0.00
Industry 15	2.3	0.00

Lastly, although *Media_dummy* is included to control for the amenity potential, and the *Utility_dummy* to control for the presence of industries with special regulations affecting ownership concentration and firm performance, in the context of our sample, these two variables are capturing individual company effects (i.e. a fixed_ effect), rather than the particular impact of amenity potential or regulation. Namely, in the sample, there is only one company in each of these two categories (respectively, *Pobjeda-Daily AD* and *Elektroprivreda EPCG AD*). Consequently, we may find a high value of the coefficients for these two variables, which are capturing unobserved company fixed effects.

4.5.1 Endogeneity of ownership concentration

Prior to concluding the model specification, we firstly need to address the controversial issue of potential ownership structure endogeneity. Namely, the existing literature dealing with the ownership concentration - firm performance relationship is profoundly divided on how empirical analysis treats ownership structure: as a potentially endogenous variable (Demsetz and Lehn, 1985; Hermalin and Weisbach (1988); Loderer and Martin, 1997; Cho, 1998; Hermalin, 1998; Demsetz and Villalonga, 2001; Himmelberg et al., 1999; Miguel et al. 2004; Holderness and Sheehan, 1988; Bergstrom and Rydqvist, 1990; Agrawal and Knoeber, 1996; etc.) or as a variable determined “outside” the firm (McConnell and Servaes, 1990; Leech and Leahy, 1991; Crespi, 1998; Morck et al., 1990; Shleifer and Vishny, 1986). Although the issue of ownership concentration is discussed in Chapter 3, at this point we want to pay it additional attention in order to interlink it with our preferred estimation choice, explained in the following subsection. This is a most important issue: endogeneity if not adequately addressed produces biased and inconsistent parameter estimates, leading to seriously misleading hypothesis tests.

Early empirical literature supports the core assumption developed by Berle and Means (1932) that managerial behaviour diverts the firm’s resources towards fulfilling their own interests, which usually diverge from profit maximization. In that setting, ownership concentration is an exogenous substitute for this institutional weakness, thereby exerting a positive impact on firm performance (Shleifer and Vishny, 1986; Grossman and Hart, 1988; Harris and Raviv, 1988, etc.). In contrast, the separation of ownership and control in illiquid capital markets with a weak institutional framework may subject minority shareholders to diversion of profits

to majority shareholders (Atanasov, 2005; Claessens, et al., 2002; Dyck and Zingales, 2004; Nenova, 2003) thereby weakening firm performance.

Demsetz is the most prominent advocate of the endogeneity of ownership concentration. Demsetz (1983, p. 384) argues: "...the ownership structure of firms is the endogenous result of competitive selection in which the advantages and disadvantages in costs are balanced to achieve a balanced organisation in the firm."

For Demsetz, a firm's ownership structure, no matter whether it is concentrated or dispersed, maximises the value of the firm, arguing that the self-interested behaviour of concentrated or dispersed shareholders will ensure both maximum return on assets (performance) and effective control of managers (agents). In this case, the source of potential endogeneity is joint determination of both the dependent variable (performance) and the variable of interest (ownership) by omitted variables that may be unobservable. Similarly, Demsetz and Lehn (1985) as well as Demsetz and Villalonga (2001, p. 1) postulate that the ownership structure of a corporation is seen as "an endogenous outcome of decisions that reflect the influence of shareholders". Moreover, there are numerous factors such as company size, the regulatory framework, amenity potential, uncertainty of the environment (market) in which the company operates, that affect both ownership structure and company performance. The potential endogeneity of ownership concentration might affect seriously the estimated relationship between ownership concentration and firm performance. Most studies, which considered ownership structure as exogenous, found a significant impact of ownership concentration on firm performance. Yet, once potential endogeneity is addressed, this relationship appears insignificant. It is observable that recent literature predominantly treats ownership concentration as an endogenous variable, using econometric techniques that address the issue of potential endogeneity, including traditional instrumental variables (IV), fixed effects (FE) and GMM.

If ownership concentration endogeneity exists, then what might be its cause? We need to determine our estimation strategy in the light of answers to this question. Himmelberg et al. (1999) provide extensive evidence in favour of the hypothesis that ownership concentration is endogenous due to unobserved, firm-specific heterogeneity (such as intangible assets, quality of monitoring technique of managers or market power). These affect both firm performance and ownership structure, thereby giving rise to an apparent yet, nonetheless, spurious

relationship. At the same time, they model unobserved heterogeneity as a “firm fixed effect” which, when included in an econometric specification, gives rise to an insignificant relationship between ownership and firm performance. On the other hand, Zhou (2001) argues that one-year changes in ownership are usually negligible and sporadic, which in turn are not likely to be reflected by within-year changes in firm performance. Instead, he highlights the cross-sectional characteristic of (managerial) ownership structure: while ownership structure differs substantially from firm to firm, it hardly changes over time. In this case, because the fixed effect estimator uses only within-group variation, it is inherently unable to yield efficient estimates of relatively unchanging ownership effects.⁸⁴ Consequently, Himmelberg et al. (1999), in effect, predetermine the non-significance of ownership concentration; it is a corollary of their choice of estimation technique rather than compelling evidence of endogeneity. We conclude that fixed effect estimation can not provide decisive evidence against the hypothesis that (managerial) ownership affects firm performance.

Using two stage least squares (2SLS) Demsetz and Villalonga (2001) find no relationship between the firm performance and the fraction of shares owned by the five largest shareholders, where ownership structure is treated as an endogenous variable. Conversely, when they assessed this relationship using OLS, they find a positive, significant impact of ownership concentration on company performance. Although the IV approach successfully solves the errors-in-variables problem (Wooldridge, 2000, p. 461), an important drawback of performing IV estimation when x and the error term are uncorrelated is that the asymptotic variance of the IV estimator is always larger than the asymptotic variance of the OLS estimator (Wooldridge, 2000, p. 466). Hence, the standard errors on IV estimates are likely to be larger than OLS estimates, and even more so if the excluded instrumental variables are only weakly correlated with the endogenous regressors. This would imply that the coefficients estimated with IV would be less significant, if at all, in comparison to coefficients estimated by OLS. Consequently, the disappearance of the significance of the relationship assessed with IV approach might just reflect flaws in its application, rather than genuine lack of a relationship between ownership concentration and firm performance. Moreover, if we take into consideration that the empirical literature using IV fails to provide the appropriate diagnostic evidence - i.e. tests for the validity of the chosen instruments

⁸⁴This insight is at the heart of recent controversy surrounding fixed effects estimation; see Plümpert and Troeger (2007) and the subsequent papers published in *Political Analysis*, Spring 2011.

(using, for example the first-stage F-statistic) - then the validity of the chosen instruments remains open to doubt. Baum et al.(2003) and Baum et al. (2007), provide an accessible overview of the problems of IV estimation, in particular the problem of “weak instruments”, together with the full range of diagnostic tests and estimators for IV estimation currently available to applied researchers. In turn, the “state-of-the-art” in IV estimation puts into question the validity of the “no relationship” findings reported in Demsetz and Lehn (1985); Demsetz and Villalonga (2001); Welch, (2003); etc.

Recent empirical literature has made significant progress in providing robust evidence of ownership concentration endogeneity, and in controlling for it in the model specifications (Al Farooque, 2010; Chen, 2012; Grosfeld, 2006; Javid and Iqbal; 2008; Lee, 2008; Dzanic, 2012; etc.). These are necessary steps in the assessment of the ownership concentration-firm performance relationship. However, from our empirical critique of Himmelberg et al. (1999), building on Zhou (2001), we conclude that sometimes certain estimation techniques predetermine desired results. Consequently, we need to implement an appropriate estimation technique, from which we can draw valid conclusions on the nature of the ownership concentration–firm performance relationship.

4.5.2 The estimation strategy, selection of an appropriate estimator and model specification

Having defined the sample and the variables used, we now outline the econometric methodology employed to complete the reasoning for our preferred empirical specification. Our baseline empirical specification can be implemented by different estimation strategies (techniques). Recent empirical literature, analysing unbalanced panels to assess the impact of ownership concentration on firm performance employs various estimation strategies. Firstly, the linear OLS regression model assuming homogeneity across time and units. It continues with the one-way fixed effects model (FE) ignoring the between-firm variation and focusing only on the within-firm variation (Himmelberg et al., 1999; Lopez-Iturriaga and Rodriguez, 2001; Chen et al., 2003; Fernandes, 2005; etc.); the two-way FE model considering group and time effects simultaneously; random effects (RE) models; and, finally, general method of moments (GMM) estimation of dynamic panel models.

Although recent empirical literature emphasizes GMM dynamic panel estimation, we start our investigation by estimating the more traditional model specification in this literature, namely the one-way FE model. Yet, as we have emphasised, significant limitations arise from this estimation strategy:

1. FE estimation is not able to estimate coefficients for variables that have no within-group (firm) variation, which in the present study includes the impact of amenity potential and excess regulation on firm performance; and
2. estimation of variables such as ownership concentration with relatively little within-group variation compared to their between-group variation cannot be estimated efficiently.

This second limitation of FE estimation *by design* biases the investigation against finding a non-zero effect of ownership concentration. This may apply *a fortiori* to Montenegrin companies.

Two-way FE models suffer from the same problem; namely, because FE estimates arise only from “within-group” variation, and ownership structure is generally slowly moving at most, lack of variation in the data may make efficient estimation – hence, a non-zero effect of ownership concentration - difficult to achieve. Moreover, while RE estimation does make efficient use of both with-group and between-group variation it does so on the very strong assumption that the group (in this context, company) fixed effects are not correlated with any of the independent variables. Moreover, in random effects estimation this assumption is by construction violated in dynamic models (the lagged dependent variable must be correlated with the time-invariant group effect in the error term). Yet we have sufficient time dimension in our panel dataset and it is a reasonable assumption that present company performance at least in part reflects the history of company performance, especially in the recent past. Accordingly, our preferred modelling approach is to estimate a dynamic panel model. Hence, our preferred estimation strategy is to use dynamic panel model using a GMM estimator.

By construction, dynamic specification – defined by inclusion of the lagged dependent variable among the regressors - removes otherwise omitted dynamics from the error term and introduces them into the estimated part of the model. To estimate a dynamic panel model, we

apply GMM estimation, given that its principles apply to the properties of our preferred model specification (Bond, 2002; and Roodman, 2006).

Both the “difference” and “system” GMM estimators developed by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998) are appropriate for the characteristics of our sample and variable of interest: relatively large N (204 companies) and small T (5 years); with an independent variable of interest that is not strictly exogenous (ownership concentration), with persistence effects in the dependent variable (firm performance); and possibly displaying heteroskedasticity.

Firstly, in the empirical literature there is sufficient indication to expect persistence effects with respect to the influence of the past values of a firm’s performance on its current value. Damijan et al. (2004, p. 13) argues that this persistence effect: “... is especially true for financial performance of firms since owners require persistent growth of profits and firm value, where present financial performance is correlated with the past performance of the firm.”

Moreover, the lagged values of ownership concentration might have impact on the current firm performance, given the fact that it takes time for changes in ownership concentration to affect the monitoring process, managerial behaviour and, finally, actions, which might result in altered firm performance (Hu and Izumida, 2008; Alonso-Bonis and Andres-Alonso, 2007).⁸⁵ As Alonso-Bonis and Andres-Alonso (2007, p. 210) argue: “... the dynamics of the panel enables an examination of the response processes over time and an observation of the variation of the dependent variable in the face of changes in its own determining factors over the time horizon.”

By estimating the effect of the lagged dependent variable, we capture the effects of the entire history of the process-giving rise to the dependent variable, firm performance (Greene, 2000, p. 307). In addition, the estimated coefficient on the variable of interest, ownership concentration, reveals any contemporaneous effect beyond the already settled effects of history. Finally, the coefficients on the lagged dependent variables and on the variable of

⁸⁵As Prasnika et al. (2004, p. 13) argue: “... this is especially true for financial performance of firms since owners require persistent growth of profits and firm value, where present financial performance is correlated with the past performance of the firm. In other words, notwithstanding the static specification of our model we might observe a strong autoregressive financial component when dealing with the panel structure of the data.”

interest may be combined to measure the long-run accumulated impact on firm performance of changes in ownership concentration (if any).

As discussed in the previous subsection endogeneity of ownership concentration, stemming from reverse causality or unobserved heterogeneity may affect both firm performance and ownership concentration and so should be addressed. In the empirical literature, researchers have used IV approaches to treat the problem of endogeneity: mainly 2SLS or 3SLS (Demsetz and Villalonga, 2001; Demsetz and Lehn 1995; Cho, 1999; Welch, 2003; etc.). 2SLS estimates typically find an absence of any relationship between ownership concentration and firm performance, which complements the theoretical hypothesis that firm performance is the endogenous outcome of market forces. Yet, as Wooldridge (2000, p. 102), remind his readers "... Another potential problem with applying 2SLS and other IV procedures is that the 2SLS standard errors have a tendency to be large. What this statement typically means is either that 2SLS coefficients are statistically insignificant or that the 2SLS standard errors are much larger than the OLS standard errors. Not surprisingly, the magnitudes of the 2SLS standard errors depend, among other things, on the quality of the instrument(s) used in estimation."

We argue above that insignificance of the relationship in the empirical literature using 2SLS might stem from weak instruments. Staiger and Stock (1997) in their analysis of the 2SLS estimator with weak instruments conclude that, even in the case of large sample sizes, weak instruments - i.e. instruments that have a low partial correlation with an endogenous explanatory variable - may lead to biases in 2SLS estimation. Given that the theoretical setting explaining the determinants of ownership concentration and firm performance provides a rather limited number of determinants, while providing a very little theoretical advice on the choice of valid instruments, we face the problem of finding suitable instruments for conducting 2SLS estimation. Conversely, GMM estimation addresses this problem by exploiting the time-series depth of panel data to create "internal" instruments: the difference GMM estimator uses lagged values of the levels of variables to instrument the differences values; and the system GMM estimator combines the instruments used in difference estimation with lagged differences of variables to instrument levels values. Both GMM estimators may - but need not - use additional "external" instruments from outside the initial dataset. Moreover, in two-stage least-squares (2SLS), as ordinarily practiced, "there is a trade-off between the lag distance used to generate internal instruments and the depth of the

sample for estimation” (Roodman, 2009, p. 137), while difference GMM (Holtz-Eakin et al., 1988) avoids the trade-off between instrument lag depth and sample depth by including separate instruments for each time period. Consequently, we utilize the properties of the GMM estimation, designed to estimate efficiently the model where independent variables, including the predetermined lagged dependent variable, are not strictly exogenous.

Given the discussed theoretical analytical framework inspired largely by the Demsetz and Villalonga (2001) model specification, and augmented by a set of transition and country-specific variables, we specify our preferred dynamic panel-data model, to be estimated by GMM, as follows:

$$\begin{aligned}
 ROE_{it} = & c + \beta_1 ROE_{it-1} + \beta_2 \ln size_{it} + \beta_3 Leverage_{it} + \beta_4 Fix_Sale_{it} + \beta_5 R\&D_Sale_{it} \\
 & + \beta_6 Solvency_{it} + \beta_6 Media_{it} + \beta_7 Finance_{it} + \beta_8 Utility_{it} + \beta_9 Individual_{it} \\
 & + \beta_{10} State_{it} + \beta_{11} Privatisation_fund_{it} + \beta_{12} Other_Company_{it} \\
 & + \pi \sum_{t=2004}^{2008} year_t + u_i + v_{it}
 \end{aligned}$$

where subscript i denotes the cross-sectional units and t denotes time period, so that $i=(1,2,3,\dots,204)$ and $t=(2004, 2005,\dots, 2008)$; $\beta_{1,2,\dots,12}$ are parameters to be estimated; π denotes the vector of year effects to be estimated; u_i represents the group-specific error term, which controls for unobserved firm specific sources of heterogeneity affecting firm performance that can be assumed to be constant over the period of observation (or, at least, slowly moving); and, finally, v_{it} stands for the observation specific error term. The year dummy variables are included to control for period effects that affect all the banks in the sample in much the same way. These dummies may be informative economically – e.g. in capturing effects of events not specifically modelled such as the global financial crisis – but are also required for the statistical purpose of minimising the possibility of cross-group correlation among the observation residuals (Roodman, 2009).

4.5.3 Diagnostic tests

Before starting a discussion of the estimates we undertake thorough model diagnostic testing in order to assess the validity of the GMM approach for estimating the relationship between

ownership concentration and the firm performance. In particular, we need to consider that GMM, by creating a great number of moments (hence, potential instruments) might have questionable reliability in the case of a finite sample. The GMM estimator enables the generation of many potential instruments, whose number grows quadratically in T (Roodman, 2007, p. 1). This entails a trade-off: on the one hand, a larger number of instruments means using more information in estimation, which leads toward more statistically significant results; on the other, this at the same time increases the risk of over fitting the model (with biased results) and reduces the power of the diagnostic tests. The corollary of this trade-off is that the maximum number of instruments is not necessarily the optimum number. Unfortunately, as Roodman (2007, 2009) argues, the literature does not provide rules and procedures for optimising the number of instruments in different sized samples. Consequently, we pay special attention to assessing the number of appropriate instruments, using the overriding criterion of obtaining the best possible model diagnostics and thus the greatest possible assurance concerning instrument validity and the corresponding integrity of our estimates.

Our final choice of model specification with respect to the instrument set was guided by the standard diagnostic tests: (i) tests for first and, most importantly, second order serial correlation among the differenced residuals (the m_1+m_2 tests); and (ii) the Hansen test, which is a heteroskedasticity-robust version of the Sargan test of the over-identifying restrictions.

(i) First, we test for residual autocorrelation. Although GMM estimation does not require distributional assumptions (normality) and allows for heteroskedasticity (Pugh, 2009, p. 27), still it is based on the assumption that the differenced error terms are not autocorrelated. Taking into consideration that GMM estimators use lagged values as instruments, the residual independence assumption is a crucial condition for the exogeneity and hence validity of the instruments (Roodman, 2009, p. 97).

The GMM estimator is considered to be consistent if there is no second-order serial correlation in the error term of the first-differenced equation; i.e. it requires that $E[\Delta e_{it}\Delta e_{it-2}] = 0$. A test for the validity of the instruments (and of the corresponding moment restrictions) is a test of second-order serial correlation in these residuals, m_2 .⁸⁶ If this

⁸⁶For detailed explanation for testing first- and second-order serial correlation, see Arelanno and Bond (1991)

condition does not hold, there is a reasonable doubt that the instruments may not be valid. As presented in Table 4.14, in all three specifications the m_2 test does not reject the null hypothesis of no second-order autocorrelation of the residuals ($p=0.14$ in Specification 1 and Specification 3 and $p=0.15$ in Specification 2), which is consistent with the validity of the instruments introduced in the model specification.

However, there is an argument that full confidence in the m_2 test requires also rejection of the null hypothesis of no first-order autocorrelation in the differenced error terms (meaning that there *is* first order autocorrelation in the differenced error terms). In different model specifications estimated by the GMM estimator, presented in Table 4.14, this problem arises, i.e. the m_1 test fails to provide sufficient evidence that there *is* serial autocorrelation in the differenced error term. Because this issue is not much considered in the literature, we will consider it at some length.

Smith (2010, p. 13) argues that the m_1 statistic has an assisting function in assessing the robustness and reliability of the m_2 test. In the case when the levels error terms follow a random walk, it is impossible to reject second-order correlation of the differenced errors. If the errors in the levels follow a random walk, i.e. if $\rho=1$ in $e_{it}=\rho e_{it-1}+v_{it}$, then (suppressing the pure white noise v_{it}) $e_{it}=e_{it-1}=e_{it-2}=\dots=e_{it-n}$. In this case, $e_{it}-e_{it-1}=0$, $e_{it}-e_{it-2}=0, \dots, e_{it}-e_{it-n}=0$. Thus, in the specification of the m_2 test, $\Delta e_{it}=\lambda \Delta e_{it-2}$ resolves to $0=\lambda_0$. Hence, because λ can take any possible value, the null $\lambda=0$ cannot be rejected. In this case, the m_2 test loses power. Conversely, first-order serial correlation in the first differenced errors, i.e. $0<\lambda<1$ in $\Delta e_{it}=\lambda \Delta e_{it-1}$, excludes a random walk in the first-order levels errors: because, in turn, $e_{it}-e_{it-1}\neq 0$, $e_{it}\neq e_{it-1}$ and $0<\rho<1$. Accordingly, the m_1 test for first-order serial correlation in the differenced errors is a check on the validity of the m_2 test. However, if genuinely there is no serial correlation at *any* order in the differenced error terms, then $\lambda=0$ is an authentic result. In this case, the crucial m_2 test remains valid. For example, if $\rho=0$, in which case each levels residual is pure white noise, then the differenced errors by definition are independent from each other: if $e_{it}=\rho e_{it-1}+v_{it}$ then, when $\rho=0$, $e_{it}=v_{it}$, $e_{it-1}=v_{it-1}, \dots, e_{it-n}=v_{it-n}$, in which case $\Delta e_{it}=e_{it}-e_{it-1}=v_{it}-v_{it-1}, \dots, \Delta e_{it-n}=e_{it-n}-e_{it-n-1}=v_{it-n}-v_{it-n-1}$. Given that the difference between two white noise terms is also white noise, the successive lags of the differenced errors must be completely independent; i.e., $\lambda=0$. Unfortunately, we are unable to identify the reason of the lack of serial correlation

and Pugh (2009).

in the first differenced error terms: it may be a random walk in the levels errors, which invalidates the m_2 test; or it may reflect a lack of serial correlation at any order among the first differenced error terms, which is consistent with the m_2 test.

Unfortunately, the literature concerning the function and importance of the m_1 test, and its implications in the case when the m_1 null does not hold is scarce and divided. On the one hand, we have developed the argument that the m_1 tests can indicate the possibility of a random walk in the levels error term, which puts a question mark over the non-rejection by the m_1 test of the null of instrument validity. On the other, Roodman (2006, p. 33) is dismissive of the m_1 test: "...negative first-order serial correlation is expected in differences and evidence of it is *uninformative*." To our knowledge, this issue has not yet been resolved. However, to date, Roodman's view seems to prevail and may explain why the m_1 statistic is typically not reported. Consequently, our approach is to note the potential problem with the m_1/m_2 procedure given the test results reported in Table 4.14 and, correspondingly, to lean more heavily on the Hansen test of over-identifying restrictions in our discussion of model diagnostics as well as on a standard procedure to check the validity of dynamic panel estimates obtained by GMM approaches, which is reported below.⁸⁷

Finally on this issue, in our model specification the m_1 test is sensitive to the upper and lower limits placed on ROE. So far, we filtered our sample by imposing a very minimal restriction on ROE, removing only observations with ROE values greater than 10 or smaller than -10. If we take only a slightly less conservative approach to removing outliers, by modifying the ROE range to between -5.0 and +5.0, we reduce the sample size by only seven observations (from 755 to 748, i.e. by fewer than one per cent). Yet, in the first two specifications of our model, the m_1 test now rejects the null hypothesis of no first-order autocorrelation in the differenced error terms (i.e. suggesting the anticipated presence of first order autocorrelation in the differenced error terms) at the 5% and/or 10% levels of significance (see Appendix 4.3). Given that estimation within a more restricted range of ROE yields results similar to those presented in Table 4.14, we conclude that these preferred results are not invalidated by the associated m_1 statistics.

⁸⁷ The theory of dynamic panel modelling is still developing, which means that issues can be raised that have no agreed solution or even implications. The common indication of first-order serial correlation by the m_1 test is one such issue. Another, which is at the frontiers of current debate on dynamic linear modelling, is the issue of "weak" instruments. The available diagnostics, which we implement in this Chapter, test the validity of the overidentifying instruments. As yet, tests for weak instruments have not been developed for dynamic models estimated by GMM methods.

(ii) Given that GMM models can generate an enormous number of potentially “weak” instruments that can cause biased estimates, Roodman (2006) recommends reporting the number of instruments. Although there is no straightforward rule to answer the question as to how many instruments is “too many” (Roodman, 2006; 2007), we need to rely on rule of thumb procedures that can be specified and replicated. Firstly, in the specifications presented in Table 4.14 the number of instruments range from 42 to 45, i.e. substantially smaller than the number of observations ($n=755$). Moreover, the number of groups - 204 firms - exceeds the number of instruments in each model (between 42 and 45), which satisfies the “minimal” rule of thumb suggested by Roodman (2006, p. 13).

Furthermore, Hansen's J is a robust alternative to the Sargan test of over-identifying restrictions. Indeed, Sargan's statistic can be considered as a special case of Hansen's J, under the assumption of homoscedasticity. The choice depends on whether we suspect non-sphericity in the errors (e.g. in the case of heteroscedastic errors), which will generally be the case in panel datasets (Roodman, 2006, pp. 11-12). Therefore, for robust GMM the Sargan t-statistic is inconsistent, which supports our choice of the Hansen J as the preferred diagnostic. In the results reported in Table 4.14 below, the Hansen test consistently yields p-values ranging between $p_{Specification1}=0.51$ to $p_{Specification2}=0.82$, which are neither too low (of at least 0.25, suggested by Roodman, 2007, p. 10, as a rule of thumb for valid instruments) nor too high (approaching $p=1$, which suggests a weakening of the test; see Rodman, 2008, p. 10). We conclude that the estimated models reported in Table 4.14 are statistically well specified.

(iii) Furthermore, good practice suggested by Roodman (2006) is to report the approach used to obtain the “optimal” number of instruments. In practice, we employ the strategy suggested by Roodman (2006), and implemented using his *xtabond2* user-written programme for STATA, to investigate the potential problem of “too many instruments”. We investigate the robustness of our results, giving priority to the model diagnostics, by starting with the maximum (default) instrument set and then successively decreasing the number of instruments: first, we reduce the number of lags used to create the “internal” instruments; and, second, we use the command `>collapse<`, which reduces the instrument count still further by creating instruments for each variable only, instead of creating instruments for

each time–period (T), variable and lag distance.⁸⁸ As noted by (Pugh, 2009, p. 22), in large samples *>collapse<* would reduce statistical efficiency. However, in the case of small samples, it can help to address the problems arising from “too many instruments”.

Our sample of 755 observations could be regarded as small for GMM estimation, given that we have hundreds of observations rather than thousands. As previously noted, the number of groups - 204 firms - exceeds the number of instruments in each model (between 42 and 45), which satisfies the “minimal” rule of thumb suggested by Roodman (2006, p. 13). Moreover, the number of groups (firms) in our sample exceeds the 140 firms in the benchmark sample of Arellano and Bond (1991), which is used also by Roodman to demonstrate the capabilities of both difference and system GMM estimation of dynamic panels (2006, p. 14). Because we cannot a priori be certain as to whether the number of firms in our dataset is “small” or sufficiently large in relation to the number of instruments, we experiment with a number of other regressions in which we increase or decrease the number of instruments, including the use of the *collapse* approach to decrease the number of instruments. However, using this sample, we are unable to improve the model diagnostics; in particular, the collapse approach only worsens the diagnostics. The resulting pattern of instrumentation can be seen in Appendix 4.2, where the *xtabond2* printout is provided in full.

⁸⁸ Thorough explanation of how the *>collapse<* command works is provided by Roodman (2009, pp. 107-108).

Table 4.14 Model diagnostics

	<i>Specification 1</i>	<i>Specification 2</i>	<i>Specification 3</i>
Number of observations	755	755	755
Number of companies	204	204	204
Wald test	Wald chi2(26) = 402.24 Prob> chi2 = 0.00	Wald chi2(27) = 736.17 Prob> chi2 = 0.00	Wald chi2(26) = 527.51 Prob> chi2 = 0.00
Number of instruments	42	43	45
Hansen test (H0 ; over-identifying restrictions are valid)	Prob > chi2 = 0.51	Prob > chi2 = 0.82	Prob > chi2 = 0.82
Arellano-Bond test for AR(1) in first differences	z = -1.14 Pr > z = 0.26	z = -1.12 Pr > z = 0.26	z = -1.12 Pr > z = 0.26
Arellano-Bond test for AR(2) in first differences	z = 1.47 Pr > z = 0.14	z = 1.44 Pr > z = 0.15	z = 1.48 Pr > z = 0.14
Difference-in-Hansen tests of exogeneity of instrument subsets			
GMM instruments for levels Hansen test excluding group	Prob > chi2 = 0.700	Prob > chi2 = 0.752	Prob > chi2 = 0.710
Difference (null H = exogenous): gmm(L.roe, lag(1 2))	Prob > chi2 = 0.256	Prob > chi2 = 0.650	Prob > chi2 = 0.737
Hansen test excluding group:	Prob > chi2 = 0.373	Prob > chi2 = 0.395	Prob > chi2 = 0.739
Difference (null H = exogenous) gmm(lnoctop5, lag(2 2))	Prob > chi2 = 0.581	Prob > chi2 = 0.950	Prob > chi2 = 0.694
Hansen test excluding group	Prob > chi2 = 0.937	Prob > chi2 = 0.927	Prob > chi2 = 0.890
Difference (null H = exogenous)	Prob > chi2 = 0.194	Prob > chi2 = 0.519	Prob > chi2 = 0.536
Fe coefficient Roe(-1)	-0.004	-0.004	-0.004
OLS coefficient Roe(-1)	0.002	0.0015	0.0025
OLS coefficient Roe(-1) upper confidence range	0.005	0.005	0.005
GMM coefficient Roe(-1)	0.002	0.002	0.002

(iv) Furthermore, we are interested in the difference-in-Hansen tests of the exogeneity of instrument subsets. In the results reported in Table 4.14, the critical values of the difference-in-Hansen tests applied to the differences used to instrument the levels equation find insufficient evidence to reject the null hypothesis of valid over-identifying restrictions, suggesting that the system GMM is preferred to the difference GMM estimator and that the model satisfies the steady state assumption (Roodman, 2007).

(v) A checking procedure on the validity of dynamic panel estimates suggested by Bond (2002) and Roodman (2009) argues that if we compare the values of the estimated coefficient

on the lagged dependent variable (ROE(-1)) with the same coefficient from both OLS and FE estimation, the true estimator of this coefficient should be lower than the coefficient obtained from OLS but higher than the coefficient obtained from FE estimation. Although – as required - in all three specifications the coefficient from FE estimation (See Appendix 4.5) is significantly lower compared to the coefficient on the lagged dependent variable from system GMM ($FE_{\text{specification1}}=-0.006$ and $FE_{\text{specification2}}$, $FE_{\text{specification3}}=-0.0034$ and $< GMM=0.002$), in all three Specifications the coefficient from OLS estimation (provided in Appendix 4.5) is a little lower compared to the coefficient on the lagged dependent variable from system GMM ($GMM=0.002 > OLS_{\text{specification 1,2,3}}=0.0018$). However, according to Roodman (2007, p. 18) “Good estimates of the true parameter should therefore lie in the range between these values—or at least near it, given that these numbers are themselves point estimates with associated confidence intervals.” Our estimates satisfy this guideline: in all three specifications, the upper confidence range of the coefficient on the lagged dependent variable in OLS estimation is substantially above the system GMM estimate ($OLS_{\text{upper_confidence_range_Spec.1,2,3}}=0.005 > GMM=0.002$).

Summing the results of the various diagnostic tests, we conclude that the estimated model is sufficiently well specified as a statistical generating mechanism to support economic interpretation. A possible exception is that the m_1 test fails to provide evidence that there is serial autocorrelation in the differenced error term. However, the relevance and interpretation of this test is contested (to the point where it is often not reported). Moreover – and most important - further investigation reveals that taking a less conservative approach to removing outliers entails the loss of only a few observations but results in the m_1 test rejecting the null hypothesis of no first-order autocorrelation in the differenced error terms while, otherwise, yielding similar diagnostics and estimates to those reported in the main text of this Chapter.

4.6 Discussion of the main empirical findings

The results of our preferred model specification estimated by GMM are presented in Table 4.15, following a standard testing down procedure. The differences between the three variant specifications arise from the inclusion of different sets of dummy variables that control for the different identity of the largest owner: in Specification 1 (Column 1) we introduce a set of dummies controlling for different types of owners according the institutional criteria (individual, other company, state, privatization fund, etc.); in Specification 2 (Column 2) we introduce a set of dummy variables controlling for the origin of the largest (top 10) owner (domestic, foreign and state); and, finally, in Specification 3 (Column 3) we introduce a set of dummy variables to control for the variation in the identity of the largest shareholder (state, domestic or foreign) if its shareholding exceeds the controlling limit of 50% of shares.

All three dynamic specifications reveal the presence of a small (0.002, in each case) but highly significant persistence effect ($p=0.00$ in Specification 1 and 2 and $p=0.01$ in Specification 3). The positive coefficient on the first lag of the firm performance variable captures the partial adjustment of firms' performance in each period, suggesting that past values of firm performance affect current values of the firms performance positively, which is in line with findings of Prasnikar et al., (2004) in the context of the Slovenian economy. Thus, the obtained result would suggest that, *ceteris paribus*, a change in the ROE in the previous year (ROE_{t-1}) of a little less than one standard deviation (0.20 percentage points, see Table 4.10) leads to a 0.0004 percentage points increase in the return on equity ratio in the current year. Even allowing for a non-marginal one percentage point increase in the return on equity (ROE_{t-1}) ratio in the previous year contributes only a 0.002 percentage points increase to the return on equity ratio in the current year. These small persistence effects suggest that company performance can change quickly from year to year so that the long-run effects on firm performance of changes in the independent variables are not much different from the estimated short-run effects reported in Table 4.15 (for example the estimated long-run effect of changes in ownership concentration on economic performance is 0.1102 compared to a short run effect of 0.11).⁸⁹

⁸⁹The long-run effect on company performance of changes in any of the independent variables is calculated by dividing the estimated short-run effect by (1-the estimated coefficient on the lagged dependent variable), which

Table 4.15: Dynamic Panel System GMM estimations ownership concentration and firm performance in Montenegro – Short Run effects

Dependent variable: Return on Equity (ROE)

	Specification 1 (short run effects)	Specification 2 (short run effects)	Specification 3 (short run effects)
Lagged dependent variable (ROE _{t-1})	0.002*** (0.00)	0.002* (0.00)	0.002*** (0.01)
LnTOPOC5-Top 5 largest owners ⁹⁰	0.11** (0.04)	0.10** (0.04)	0.10* (0.09)
Leverage-Debt of the firm	-0.05 (0.339)	-0.02 (0.64)	-0.002 (0.96)
LnSize – the size of the company	0.03 (0.46)	0.05 (0.31)	0.05 (0.26)
Solvency-Solvency ratio	0.003*** (0.00)	0.003*** (0.00)	0.003*** (0.00)
R&D_Sale- Uncertainty measure	-	0.0001** (0.04)	0.0002** (0.02)
Liquidity-Liquidity ratio	-	0.00 (0.67)	0.0008 (0.48)
Fixsale_asset- Uncertainty measure	-	1.35*10 ⁻⁶ ** (0.06)	-
Media_industry-Amenity potential	-	-	-
Utility_industry-Regulation impact	-6.85 (0.2)	-8.12 (0.16)	-7.96 (0.11)
Finance_industry-Regulation impact	-0.12 (0.6)	-0.21 (0.38)	-0.36 (0.19)
Dummy_2008	-0.10** (0.04)	-0.14*** (0.01)	-0.16*** (0.01)
Dummy_2007	-0.22 (0.46)	-0.05 (0.15)	-0.07* (0.074)
Dummy_2006	0.014 (0.76)	-0.02 (0.77)	-0.02 (0.68)
MVP-Mass Voucher Privatisation	0.05 (0.7)	0.02 (0.40)	0.01 (0.89)
Individual-Individual as the largest owner	0.008 (0.95)	-	-
State-dummy-State as the largest owner	0.46*** (0.01)	-	-
Privatization_fund- Privatization_fund as the largest owner	0.11 (0.21)	-	-
Other_company- Other_company as the largest owner	0.085 (0.32)	-	-
Foreign_ownership-Foreign investor as the largest owner	-	-0.58 ** (0.01)	-
Domestic_ownership-Domestic investor as the largest owner	-	-0.42** (0.04)	-
State_50- State as the controlling owner>50%	-	-	0.24 (0.14)
Domestic_50-Domestic investor as the controlling owner>50%	-	-	-0.31*** (0.00)
Foreign_50-Foreign investor as the controlling owner>50%	-	-	-0.37*** (0.01)

in the case of Specification 1 is (1-0.002). In this case, the adjustment makes little difference.

⁹⁰Ownership concentration is potentially endogenous. In each of the three specifications the differenced variable in the system estimator is instrumented as follows: in Specifications 1 and 3, with the minimum number of levels instruments (the second lag only); and in Specification 2, with all available lagged levels. Full details on the pattern of instrumentation for both ownership concentration and the lagged dependent variable are reported in Appendix 4.4.

Constant	-0.65 (0.32)	-0.38 (0.54)	-0.61 (0.35)
Industry1-Agriculture and Forestry	0.13 (0.58)	0.21 (0.32)	0.12 (0.62)
Industry2-Fishing industry	-0.04 (0.68)	-9.60 (0.15)	-12.37* (0.07)
Industry3-Mining industry	-0.06 (0.77)	-0.02 (0.91)	-0.05 (0.82)
Industry4-Processing industry	-0.24** (0.02)	-0.28*** (0.01)	-0.29** (0.02)
Industry6-Construction	0.25 (0.41)	0.21 (0.38)	-0.03 (0.90)
Industry7-Trade	-0.03 (0.76)	-0.06 (0.57)	-0.04 (0.71)
Industry8-Retail sales	-0.22* (0.06)	-0.26** (0.04)	-0.21 (0.11)
Industry9-Tourism	-0.06 (0.51)	-0.11 (0.33)	-0.12 (0.36)
Industry11-Realestate services	0.1 (0.8)	-0.22 (0.71)	-0.07 (0.91)
Industry13-Educationservices	9.31* (0.09)	21.9* (0.08)	26.03** (0.04)
Industry14-Utility, Social services	-1.1 (0.60)	-0.23** (0.04)	-0.24* (0.08)

Note: p-values in brackets where ***, ** and * denote statistical significance of variables at 1%, 5% and 10% level of significance respectively. The p-values are obtained from two-step dynamic panel estimation with Windmeijer's corrected robust standard errors.

The estimate of special interest is the coefficient on the ownership concentration variable (lnOCTop5). In all three model specifications, we find a significant (p=0.04 in Specification1, p=0.04 in Specification 2=0.04 and p=0.09 in Specification 3) and positive impact of ownership concentration on firm performance. Moreover, this relationship seems to be robust across different model specifications based on the inclusion of different variables regarding the identity of the main shareholder. In the preferred model specification, the coefficient on the ownership concentration variable indicates that, on average, increase of ownership concentration by 1% is estimated to be associated with the increase of the Return on Equity (ROE) by 0.11 (Specification 1), by 0.1 (Specification 2) or by 0.1 (Specification 3) percentage points. Firstly, we would argue that the magnitude of the impact is relatively strong, which may imply that ownership concentration might, after all, successfully play the role of control of managerial behaviour. In the context of TEs our findings are similar to Grosfeld (2006) and Claessens and Djankov (1999), even after controlling for the endogeneity of large ownership; namely, we find a positive impact of ownership concentration on firm performance.

Conversely, this result does not coincide with the evidence provided by Pervan, Pervan and Todoric (2012), Dzanic (2012) and Suljkanovic (2007), who in the case of Croatia and Bosnia and Herzegovina find a negative impact of the ownership concentration on firm

performance. Therefore, we may claim that strong extraction of benefits (private benefits of control) conducted by large shareholders at the expense of (poorly protected) small shareholders evidenced in the literature of SEE countries does not apply in the case of Montenegro.

The estimated coefficient on ownership concentration suggests a positive and significant impact of the largest shareholders on firm performance. Accordingly, we argue that, in the context of the Montenegrin economy, the largest owners act as a “buffer” to offset the lack of institutional framework, supplementing the effectively nonexistent corporate governance mechanisms for management control as well as the underdeveloped capital market. In line with our expectations, ownership concentration is an efficient substitute for the corporate governance mechanisms. This conclusion is consistent with Banchuenvijit (2011, p. 101), who argues that “a positive effect of ownership concentration on firm performance is larger in countries where investor protection is weak”.

Our results suggest that the Demsetz and Lehn (1985) and Demsetz and Villalonga (2001) conclusion - that ownership concentration is not related to the firm performance, but rather that both are driven by market forces - should not be considered as a stylised fact across different countries (and corporate governance frameworks). Namely, in the case of countries that have not experienced a long tradition of corporate governance protection and liquid, deep and developed secondary markets, ownership concentration can not be an endogenous “amalgam of shareholdings owned by persons with different interests” unrelated to firm performance as Demsetz and Villalonga (2001, p. 211) claim. As suggested by our Meta Regression Analysis (Chapter 3), country specific factors do play a prominent role in determining how ownership concentration affects firm performance.⁹¹ This applies to the case of Montenegro. As explained in subsection 4.4, similarly to the case of Russia (Kuznetsov et al., 2011), firms are highly concentrated (block-holder ownership) with dominant owners who seek direct control over the firm usually taking positions as managers and board members. Simultaneously, we assume that among dominant shareholders insiders are present, given that almost half of the sample refers to individuals as the largest owners.

⁹¹In various subsample MRA specifications, in the context of developed corporate governance systems, provided in Chapter 3, Anglo-Saxon countries report underrepresentation of the authentic empirical effect.

Solvency (*Solvency*) appears to be an important indicator of firm performance in the context of the Montenegrin economy. The coefficient appears positive and significant in all presented model specifications ($p=0.00$). The obtained results lead to the conclusion that, on average, increase of the solvency ratio by 1 percentage point leads toward increase of the firm performance (*ROE*) by 0.003 percentage points (across all three Specifications). However, because – as we note above – an argument can be made that this variable is potentially endogenous, precise quantitative interpretation may not be valid.

The estimates of the ownership identity effect reveal very surprising and contrasting results in comparison to the mainstream findings of the comparable empirical literature assessing the impact of various shareholder types on company performance, after the process of privatisation in transition economies. In the preferred Specification 1 presented in Table 4.15, we use banks and other financial institutions as the base for comparison with other types of owners. State owned companies (*State_dummy*) is associated with a statistically significant positive effect on firm performance ($p=0.01$). This suggests that, on average, those companies that have the state as its largest owner perform better than those companies that are led by banks or other financial institution. In the case of Montenegro, unlike the case of the Czech Republic or Poland in particular, financial institutions were not actively involved in the process of privatisation. Their primary interest was to take the role of debt holder rather than equity holder in Montenegrin corporations; even though the latter may give banks additional power in the disciplining of firms (Baert and Vennet, 2009). Similarly, although both insignificant, the positive signs on the coefficients on *Other_company* and *Privatization_fund* are consistent with this reasoning.

The significant negative coefficient on the year dummy, *Dummy_2008*, reflects the presence of strong exogenous factors adversely affecting firms' performance in Montenegro during 2008 ($p=0.00$). We would argue that the significant coefficient confirms the negative impact that the global financial crisis had on the performance of the corporate and financial sector in Montenegro.⁹²

The coefficient on the level of *R&D* to sales (*R&D_Sale*) is as expected positive and significant in Specification 2 and 3, implying that on average companies that invest more in

⁹²According to aggregate data in 2007, the aggregate profit of the corporate sector in Montenegro was estimated at 125 million Euros, diminishing to 12 million Euros in 2008. Source: Central bank of Montenegro, 2011.

R&D achieve better firm performance. Thus, the obtained result would suggest that, *ceteris paribus*, a change in R&D to sales of a one standard deviation (0.08 percentage point, see Table 4.12) leads to a 0.000008 in Specification 1 and 0.000016 in Specification 2 percentage points increase in the return on equity ratio in the current year. Although statistically significant, this is not an economically substantial effect.

The findings with respect to industry differences are robust across specifications. Processing industry (*Industry 4*) in all three specifications, and utility service (*Industry 14*) in Specifications 2 and 3 perform worse, on average, compared to energy and water production (the reference category). On the other hand, education services (*Industry 13*) appears, on average, to perform substantially better than the energy and water production benchmark. However, no conclusion can be drawn from this result, given that *Industry 13* refers to only one firm.

In model Specification 2 we used a set of ownership variables referring to the identity of the owner in respect of their origin (state, private or foreign), using *State_ownership* as the base category. We find results that are unexpected, taking into consideration the findings of similar empirical research conducted in other transition economies (Djankov and Murrell, 2002; Frydman et al., 1999; Damijan et al. 2004; etc.). Namely, the results suggest that state ownership performs better in comparison to private domestic or foreign ownership. The most surprising is that, *ceteris paribus*, companies under foreign ownership (*Foreign_ownership*) on average yield a ROE 0.58 percentage points lower than do state owned firms. We argue below that this apparent anomaly reflects well the specific conditions in Montenegro during the sample period

In Specification 3 we introduce three dummy variables to control for the variation in the identity of the largest shareholder (state, domestic or foreign) if its shareholding exceeds the controlling limit of 50% of shares. In this case the reference category for, say, foreign ownership (*Foreign_50*) is comprised of all firms under different types of ownership (state and private domestic) as well as firms in which foreign owners have less than 50%+1 of the shares. Introducing these variables we want to check the robustness of the results in Specification 2, by accentuating the decision making power of these three type of owners, i.e.

considering a 50%+1 share as the threshold to define the existence of an owner with full potential to make decisions. The results support the findings in Specification 2. Firstly, in Specification 3, the coefficient on the dummy *Foreign_50* suggests that controlling companies with controlling foreign shareholders perform worse compared to companies with other types of owners ($p=0.01$) irrespective of whether they are controlling shareholders or not. Results in Specification 3 indicate that, *ceteris paribus*, companies with foreign owners (holding above 50% of shares), on average, record lower firm performance (ROE) by 0.37 percentage points compared to other companies. Similarly, controlling domestic shareholders (*Domestic_50*) perform worse compared to other types of large shareholders, irrespective of whether they have a controlling block of shares or not. Specification 3 indicates that, *ceteris paribus*, companies with a domestic owner holding above 50% of shares, on average, have lower firm performance (ROE) by 0.31 percentage points compared to the companies in the base category. Finally, the coefficient for state as the controlling shareholder (*State_50*) is positive, yet insignificant. Nonetheless, it is consistent with the finding in Specification 2; *ceteris paribus*, the state as largest shareholder outperforms other types of owners.

As previously explained, state ownership is generally considered less effective for various reasons. As Barberis et al. (1996) argue, managers appointed by the state may work as a bureaucracy fulfilling primarily social responsibilities rather than fulfilling the aim of profit maximization. In addition, as Vin Le and O' Brian (2006) argue, managers appointed by the state may follow instructions which are politically driven or financially imprudent. Chang and Wong (2004). Dharwadkar et al. (2000), explain that the expropriation of the minority shareholders by the state as the largest owner arises from the power discrepancy between the state and minority shareholders as well as because transition economies largely have weakly developed instruments for the protection of minority shareholders.

In the context of transition economies, the prevailing empirical evidence provided by Friedman et al. (2003), likewise yields conclusions supporting the superiority of private ownership. Moreover, Murrell and Djankov (2002) denote that privatisation programs conducted so as to involve privatisation funds or foreigners are, on average, more productive by five and three times, respectively. Furthermore, the World Bank produce some of the most comprehensive assessments regarding the efficiency of private ownership versus state owned companies, with respect to the speed of restructuring. In a comparative assessment of 31 empirical studies covering transition economies (CIS countries versus other transition

economies), the main question of interest was which type of ownership contributes more to firm restructuring. A general impression is that, on average, at the aggregate level, it is extremely likely that private ownership contributes more to restructuring of companies in comparison to state ownership. The results do not change when greater “weight” is attributed to studies that are more thorough or conceptually stronger in comparison to those that did not provide such firm empirical evidence.

Conversely, evidence provided by Anderson et al. (2000) suggests that outsider and insider private owners perform poorly in comparison to state ownership. Similarly, Beugre (2005) argues that transfer from state to private ownership in emerging economies, *per se*, does not lead toward better performance of the firm if the process of ownership transfer is not followed by the transfer of good managerial and leadership skills. Nellis (1999, p. 17) argues that transfer of ownership leads toward "stagnation and decapitalization" rather than “to improved financial results and enhanced efficiency”.

According to our results, State-owned firms appear to perform better in comparison to other types of shareholders (individuals, other companies, bank and finance and privatisation fund). Taking into consideration this evidence that, in the context of the Montenegrin economy, state ownership is superior to other type of owners, we analyse this issue further. To explain this apparently puzzling result, we need to examine the data at the micro level. In doing so, we find two potentially parallel explanations. The first is that restructuring of companies is a time consuming and complex process. Usually, privatization investment programmes include 4-5 year planned programmes. Consequently, ownership transition from state to private, especially in the case of large companies with substantial inherent problems concerning their efficiency and solvency sold to foreign investors, might not produce an effect reflected in firm performance within the sample period. An additional reason for the non-appearance of the anticipated (positive) effects is that the largest companies were the subject of a controversial privatization based on direct sale negotiated between the Government and the foreign owner. At times, the choice of investors was debatable. For example, the second largest exporter – *Steel Mill AD Niksic*, changed hands through three different controlling

foreign owners, while this company was the subject of heavy asset scrapping, resulting in bankruptcy in April 2011.⁹³

Finally, with respect to Specification 1, 2 and 3, a number of our control variables are estimated with the anticipated sign but are not statistically significant: the coefficient on the Leverage ratio (*Leverage*) displays the anticipated negative sign in all model specifications, supporting the pecking order theory; the coefficient on the Liquidity ratio (*Liquidity*) suggests a positive impact of the level of liquidity on firm performance; those companies that underwent the process of MVP perform, on average, better than those who were not the part of the process (which is inconsistent with Simoneti et al., 2005), which may indicate that the process of MVP did help in faster ownership concentration after all which, in turn, led to better firm performance.

The positive, yet insignificant effect of Size (*LnSize*) is not consistent with the assumption that risk averse investors are reluctant to invest more in the same company and preserve their stake. In the context of small markets, this hypothesis by Demsetz and Lehn (1985) is offset by the fact that large companies have better access to domestic and international capital markets, positively affecting firm performance.

4.7 Concluding remarks

The literature on the effectiveness of privatization argues that privatization replaces state control with private control by outside investors. Consequently, in Chapter 4, the aim was to assess the quality and the effectiveness of privatization in Montenegro, given that the

⁹³The last (third) owner is MNSS from Netherlands. Dutch-based MNSS B.V. (MNSS), the majority stakeholder in Montenegro's sole steel plant Željezara Nikšić AD (ZN Steel), announced that MNSS and Montenegro's Government have reached an agreement on a refinancing plan to guarantee ZN Steel's future and role as a leading Montenegrin exporter, after several months of intensive negotiations and planning. Accordingly, MNSS has agreed to invest an additional €10.0 million to ZN, on top of the €40 million it has already committed, and the Government has agreed to provide a loan guarantee for €25 million to support ZN's modernization, funding and working capital needs. However, in the end, the controlling owners MNSS were left heavily indebted by the connecting MNSS companies, which represents further, obvious asset scrapping of the Steel Mill Niksic AD. The Government after the process of bankruptcy plans an additional, fourth privatization.

implemented privatization design created highly concentrated private ownership. Namely, Mass Voucher Privatisation, accompanied by other types of privatisation (Auction and Direct Sale) led to ownership concentration levels substantially higher than in other transition economies.

The efficiency of the MVP is measured primarily through firms' results, where firms' performance represents a measurement for whether private controlling shareholders are good substitutes for the state. We argue that the capital market failed to be a catalyst of efficient ownership, taking into consideration that from mid-2005 to mid-2007 the capital market in Montenegro experienced overheating and "bubble" dynamics, which led to speculative activity ruining the informative power of share prices. In addition, Montenegro is characterized by a poorly developed institutional framework for investor protection, from the effective enforcement of the legal framework to obvious lack of capacity.

Consequently, we investigated the impact of ownership concentration on firm performance, after controlling for endogeneity, under conditions of a poorly developed capital market and corporate governance instruments. We anticipated that this impact could be either positive or negative:

- positive in the case that high ownership concentration enables effective monitoring by outsider investors to protect their interests efficiently;
- negative should the largest shareholders (as *outsiders*) either pursue their own interest at the expense of minority shareholders, i.e. extract "private benefits of control", or display entrenchment behaviour in the case when the largest shareholder (as an *insider*) is at the same time the manager.

In order to assess how pronounced ownership concentration affected firm performance in Montenegro in the early post-privatisation period, we estimate a dynamic panel model.

We find, firstly, that our dynamic model reveals a small persistence effect in firm performance, whereby the current values of ROE are driven by past values of ROE. This is in line with the recent literature, which highlights the need to take into account potential dynamics in the relationship between ownership concentration and firm performance.

However, the small size of the persistence effect suggests that firm performance in Montenegro could change very quickly during the period under investigation; i.e. one in which companies are very sensitive to external markets. This conclusion is reinforced by the result that suggests a strong negative impact of the financial crisis in 2008.

Secondly, the empirical results *suggest a significant positive impact of ownership concentration on firm performance*. The coefficient on the variable of interest is significant and positive across different model specifications, yet small. This would imply that in the context of the Montenegrin economy, ownership concentration is an adequate (efficient) supplement to still underdeveloped corporate governance mechanisms. Unfortunately, due to lack of data on insider ownership structure, at this stage we are unable to explain in which ways concentrated ownership contributes to better firm performance.

We estimated the effects of a wide range of control variables with results in line with expectations, although not always with acceptable levels of precision. An unexpected result that contradicts the mainstream literature on the effects of state vs. private ownership, is that, on average, state ownership performs better than foreign ownership or domestic ownership. However, this result is consistent with developments in the early post-privatisation period in Montenegro. On the one hand, the state may have been conservative in retaining interests in better-performing companies; while, on the other, in this period the majority of “large losers” had been only recently privatized. In some cases, these companies were the subject of dubious privatizations, under the control of controversial foreign investors, engaged in vigorous asset stripping, and ended in bankruptcy. In other cases, agreements between the state and investors to restructure privatized companies often covered periods of four to five years, thereby planning to realise performance benefits on a time scale stretching beyond our sample period.

We conclude that the robustness of the reported results, especially concerning the impact of different owner identities on firm performance, should be reassessed once privatisation is fully complete and the restructuring plans of privatized firms have been fully executed.

CHAPTER 5

CONCLUDING REMARKS

5.1. Introduction

The aim of this thesis is to investigate the relationship between ownership concentration and firm performance in both developed and transition economies, with a particular focus on Montenegro, a country where this particular issue has not been previously studied. Using the Meta Regression Analysis methodology to supplement the critical narrative literature review, we were able to establish broad outlines of the impact of ownership concentration on firm performance, paying attention to the specific characteristics of the wide range of literature in the field. Based on the insight developed in the first three chapters of the thesis, we employed an original dataset prepared by the author to investigate this relationship in the Montenegrin economy.

This Chapter summarises the research conducted in this thesis, highlighting broad policy implications and contributions to knowledge. We begin by reprising the most prominent findings of the research undertaken in the dissertation (5.2) and continue with a section that outlines the main contribution to knowledge (5.3), followed by a discussion of some policy implications and recommendations from the research (5.4). The inevitable limitations of the empirical work are reported in Section 5.5 while suggestions for the further research are offered in Section 5.6. The final section 5.7 concludes the thesis.

5.2 Main findings of the research

In Chapter 1 we assessed a set of fundamental concepts that led to the development of the concept of corporate governance and its mechanisms. This included the analysis of different aspects of the theory of the firm that perceive the firm as a nexus of incomplete contracts between different entities subject to bounded rationality and acting in an environment of asymmetric information and uncertainty where information is costly. Consequently, the agency problem emerges as a result of the diverging goals of various entities. We are interested in the properties of agency theory in the context of the principal-agent (owners-managers) relationship and whether incentives can be adjusted in order to overcome the agency problem. Therefore, we analysed the theoretical background and the empirical evidence on the incentives-risk trade-off. Diminishing the agency problem entails costs (monitoring cost, bonding cost and residual loss), to which we dedicated separate

subsections. In analysing corporate governance structures, processes and cultures, we especially assessed various internal and external corporate governance mechanisms from the perspective of their effectiveness in aligning the interest of managers and owners. It was shown that the effectiveness these mechanisms and their use as substitutes for ownership concentration vary across countries. Ownership concentration seems to be widely used as a mechanism to overcome the problem of undeveloped corporate governance framework in TEs. However, the discussion in this chapter showed that, in the circumstances of a market economy with characteristics expounded by Coase, Williamson and others, it is very difficult to formulate a contract that could potentially eliminate the agency problem.

In Chapter 2, we outlined the properties of ownership concentration as a supplementary corporate governance mechanism used in resolving the owner-manager conflict. Reviewing the empirical literature exploring “*Whether ownership concentration affects firm performance in developed economies?*” we analysed the properties and differences of the Alignment, the Entrenchment and the Neutrality theories, which differ in their understanding of the importance, direction and repercussions of ownership concentration in the context of firm performance. The most pronounced divergence point among these theories is the efficiency of ownership concentration as an instrument for, if not the resolution, the amelioration of the agency problem between shareholders and managers. These theories are supported by different underlying hypotheses: from the perception that ownership concentration is a viable mechanism providing strong monitoring of managers by strategically oriented investors (owners), to the view that concentrated managerial ownership enhances the moral hazard behaviour by managers pursuing their own interests that diverge from value maximization, to the view that ownership structure is an endogenous outcome of shareholders’ decisions. In Chapter 2 we also analysed the empirical literature on the subject in the context of TEs, which are characterized by the implementation of different privatisation programmes which although led to structural changes of ownership rights, usually failed to develop a reliable corporate governance environment to resolve the problem of expropriation of minority shareholders by large shareholders. We find, on the one hand, great diversity and richness of empirical research, including differences in model specification and estimation techniques; different corporate governance frameworks within which research is conducted; variable specifications of ownership and firm performance; varying approaches to the potential endogeneity of ownership concentration; and so on. Yet, and more importantly, we find no agreement on the nature of the relationship between

ownership concentration and firm performance. From these contrasting findings, we conclude that a narrative review of the literature is not sufficient to develop qualitative generalization concerning this relationship.

Accordingly, in Chapter 3 we introduced meta-regression analysis (MRA) to supplement the narrative review and investigate the question: “*Whether, and how, does ownership concentration affect firm performance in developed economies?*”

MRA results support the view that empirical evidence concerning the relationship between ownership concentration and firm performance are mixed, inconsistent and inconclusive. Summarizing the results from the MRA in this chapter, at least four groups of fundamental results were presented.

1. Both funnel plots and multivariate MRA confirm that this literature is heavily affected by publication bias. Moreover, *publication bias appears in the directions posited by the prevailing theory*. Most interestingly for the “insiders’ subsamples”, we find publication bias corresponding to the “inverted-U” relationship between ownership concentration and firm performance favoured by the prevailing theory, i.e.:
 - Positive values for linear effects, whether estimated in linear primary models (purely linear) or as the linear component of a quadratic specification (partly linear); but
 - Negative values for quadratic terms in quadratic specifications.

Here, the theoretical assumptions are reflected perfectly by the estimated pattern of publication bias. This suggests that researchers responded to incentives to conform to mainstream theoretical views. MRA detects the statistical trace of such otherwise, unobserved selection processes (Pugh et al., 2012) which in turn, suggests that previous meta-analytic estimates of empirical effects in this literature are limited because they do not control for publication bias. For this reason, *in the context of this literature, we argue that MRA is superior to simple meta-analysis* because it is designed to estimate authentic empirical effects together with sources of heterogeneity in reported effects "beyond" or net of publication bias.

2. Full sample MRA revealed that once we control for publication bias, the empirical literature fails to support the existence of any genuine empirical effect of ownership concentration on firm performance. Yet further investigation revealed that: (i) the functional form of the estimated relationship between ownership concentration and firm performance, and (ii) the identity of the largest owner are both primary sources of heterogeneity in this literature. Hence, both matter in assessing the presence of publication bias, authentic empirical effects and the relevant moderator variables explaining the heterogeneity of the findings in this empirical literature. Thus *MRA in the context of this topic requires sub-sampling* using these two criteria. In subsamples of ‘Insiders’ and ‘Outsiders’, underlying authentic empirical effects with opposite signs appear. Therefore, our main findings include the following:

- MRA of the *Pure Linear Insiders* sample – i.e., studies specifying a purely linear relationship between insider concentration and firm performance - reveals a *positive impact of ownership concentration on firm performance*; yet
- MRA of the *Pure Linear Outsider* sample – i.e., studies specifying a purely linear relationship between outsider concentration and firm performance - yields a *negative underlying empirical effect*.

Conversely, in the context of developed corporate governance systems, the *hypothesised non-linear – inverted-U– relationship is at best not proven in the case of concentrated insider ownership* while, arguably, having no theoretical basis in the case of concentrated outsider ownership. With respect to ownership concentration, and firm performance relationship, MRA suggests that *in developed economies the key agency problem is not manager-shareholder conflict but rather the risk of expropriation of minority shareholders by dominant or controlling outsider shareholders*. These examples demonstrate that sub sampling is an appropriate strategy for MRA analysis in the context of this empirical literature.

3. Statistically significant moderator variables revealed *additional sources of heterogeneity in the effects reported in this literature* typically arising either from

characteristics of the samples or from features of the modeling procedures chosen by researchers. For example:

- The endogeneity theory that argues for a neutral effect of ownership concentration on firm performance is not evident when we control the MRA for those studies that *address the econometric issue of endogeneity*;
- In all subsamples, studies using *samples from Anglo Saxon countries* are less likely to find the presence of a genuine empirical effect of ownership concentration on firm performance; moreover,
- The same can be concluded for those *studies that employ robustness checks* for various model estimations.

These results should inform the empirical strategy in future studies by making researchers aware of potential biases entailed in the choice of sample, model specification and approach to estimation.

4. We analysed the likely direction of omitted variable bias in primary specifications that do not include the ownership and ownership-squared variables. In the course of this analysis, we hypothesised and found evidence consistent with a relationship between the omitted non-linearity in the primary regressions and non-linearity in the Meta regression. Although still provisional, this finding has important implications for the practice of MRA in general and for the interpretation of a large part of the literature on ownership and performance in particular:

- In general, our argument suggests that *diagnostic failure with respect to the validity of a linear model in the Meta regression may reveal the trace of a similar specification failure in the primary regressions*. Moreover, this possibility is particularly relevant when the literature under investigation omits a non-linear term specified by theory.
- In the Pure Linear sample in the particular literature under investigation, the omission of the quadratic term from primary studies on the effect of ownership concentration on firm performance may entail some quantitative bias (an underestimated positive effect, though the positive direction of the effect is

unaffected). Accordingly, both the Pure Linear and Partly Linear samples give rise to qualitatively similar estimates, namely, *a statistically significant positive effect of insider ownership concentration on firm performance.*

Montenegro is one of the few transition countries for which a systemic analysis of the quality of corporate governance and its institutional framework has not been undertaken. A strong motivation for investigating the relationship between ownership concentration and firm performance arises from the gap in knowledge about the case of Montenegro. Therefore, in Chapter 4 we tried to fill this gap in the empirical literature by answering the questions: “*Does there exist a causal relationship between ownership and performance; and, which type of ownership may be considered as “superior” with respect to better corporate performance mechanism in Montenegro?*” Using a new panel database gathered by the author for a sample of 204 Montenegrin joint stock companies listed on the Montenegrin Stock Exchanges over a five-year period (2004-2008), our econometric estimates suggested *a significant, yet small, positive impact of ownership concentration on firm performance.* This implies that in the context of the Montenegrin economy, ownership concentration can be considered a viable supplement to the still underdeveloped or non-existent corporate governance mechanisms. Furthermore, concerning the effectiveness of privatisation programmes, we found that those companies that underwent the process of MVP, on average, perform worse than those that were not part of this process. The underlying rationale may lay in biased selection of companies that were included in MVP, or due to the fact that MVP did not ensure stable and efficient owners.

Furthermore, the estimates of the effects of ownership identity revealed very surprising and contrasting results in comparison to the mainstream findings of the comparable empirical literature. This is mainly reflected in the finding that challenges the superiority of private ownership over state ownership in respect to firm performance. This result is especially puzzling since our findings also show that foreign owned companies, on average, perform worse than those that are privately owned. We explain this through two complementary arguments. Firstly, the restructuring of firms was a time-consuming process and investment programmes following privatization typically require 4-5 years to be executed and to bear fruit. Consequently, the transition of ownership from state to private, especially in the case of

large companies with substantial inherited problems affecting their efficiency and solvency sold to foreign investors, might not produce the desired effect reflected in firm performance. Secondly, at times the choice of investors in terms of their credibility, qualifications and investment strategy was debatable.

5.3 Contribution to knowledge

This thesis began with the investigation of a set of issues related to the agency problem and the relationship between ownership concentration and firm performance in developed market economies and TEs. Innovative research on these issues reflected in our main empirical findings (Chapters 3 and 4) and outlined in this subsection represent the contributions to knowledge of this thesis.

Our primary contribution was the first Meta-regression analysis on the relationship between ownership concentration and firm performance, as distinct from meta-analysis, of the literature conducted previously. Next, to extend the analysis to Montenegro, we generated a new primary dataset using a variety of company records. In turn, this unique dataset, which also demonstrated a surprisingly high level of ownership concentration compared to other TEs, enabled the first empirical investigations of the relationship between ownership concentration and firm performance in Montenegrin companies. In the Montenegrin context, ownership concentration might be a functional substitute for a developed corporate governance system.

To begin with, we conducted a Meta-regression analysis on the extensive but inconclusive empirical literature assessing the impact of ownership concentration on firm performance. Although previous Meta-analysis has been conducted on this topic, our Chapter 3 is a pioneering application of current best-practice methodology in meta-regression analysis (as outlined in Stanley, et al., 2013). The MRA methodology has the distinguishing feature of being designed to quantitatively identify and measure the true value of the effect size existing across studies, *beyond publication bias*, while identifying sources and magnitudes of heterogeneity in the literature. This MRA is the first study to measure publication selection bias in this empirical literature *and to correct for it* in deriving quantitative insights into the relationship between ownership concentration and firm performance. The key findings

reported in detail in the previous section are all contributions to knowledge. The primary finding of the MRA suggests that the functional form of the model estimated in the primary literature and the identity of the largest owner matters in assessing the presence of publication bias, authentic empirical effects and the relevant moderator variables explaining the heterogeneity of the findings in this empirical literature. Moreover, MRA in the context of the functional form and the identity of the largest owner requires sub-sampling. Finally, beyond the confines of this particular literature, we have proposed a new line of enquiry for MRA methodology; namely, that *diagnostic failure with respect to the validity of a linear model for the meta regression may reveal the trace of a similar specification failure in the primary regressions*. At present, we offer this as no more than a potential line of enquiry.

The post-privatization ownership structures and their impact on firm performance has not been investigated previously in Montenegro. Using primary data collected and organised by the author, we analyse the impact of ownership concentration on firm performance in the unique setting of the small open Montenegrin economy- characterised particularly with a much delayed privatisation programmes starting from 1999 due to an unfavourable political setting accompanied by economic instability.

We also control for the presence of different investors types (another company, an individual, a financial institution, etc.) and criteria of origin (domestic-owned, foreign-owned, etc.). Introducing different thresholds for ownership structure (largest vs. controlling owners evident in Specification 2 and Specification 3 in Chapter 4), we are able to capture the robust presence of state ownership performance in comparison to privately-owned and foreign-owned companies that become even stronger if the state is a controlling owner. The comparison of the owners' behaviour and the impact on the firm performance in the case when they are the largest vs. controlling owner has been theoretically discussed previously but, to our knowledge, has not been empirically analysed.

5.4 Policy implications

Although the fundamentals of the ownership concentration-firm performance relationship date back to Berle and Means (1932), the associated empirical research is highly inconclusive. Mixed results tend to confuse policymakers with respect to which institutional

framework to implement, which blend of corporate governance mechanisms are most relevant to diminishing agency problems arising from the separation of ownership and management, and which corporate governance structures may be considered optimal. We do not claim that the application of MRA, which provides an objective and comprehensive quantitative synthesis of the empirical economic evidence on the subject based on the literature from developed economies, has the capacity to resolve all these questions successfully. However, it has the ability to provide some useful insights for policymakers that could enable them at the very least to come to a more objective assessment and, consequently, a direction for taking action.

Firstly, the empirical literature assessing the relationship between ownership concentration and firm performance suffers from persistent publication bias, suggesting that researchers have a strong incentive to conform to the prevailing theories. Therefore, conclusions drawn from the empirical literature needs to be circumspect with respect to policy advice on the preferable corporate governance structure. Furthermore, it appears that indeed the identity of owners does matter with respect to firm performance.

Secondly, once publication selection is controlled for, a positive authentic empirical effect of insider ownership concentration on firm performance emerges, which is consistent with the convergence-of-interest hypothesis between owners and managers developed by Jensen and Meckling (1976). Therefore, in developed corporate governance systems, it appears that ownership concentration of insiders still should not be discarded as a mechanism for the alignment of managers; and owners' interests.

Conversely, in the Pure Linear Outsiders subsample, when we control for positive publication bias, a negative authentic empirical effect emerges in the context of the impact on firm performance of outsider ownership concentration. Here, MRA suggests that the empirical effect supports the hypothesis that the large shareholder can expropriate assets at the expense of other shareholders (Thomsen et al., 2006; La Porta et al., 1999, among others). These effects seem to be diluted in the context of Anglo Saxon countries; i.e., the presence of a negative authentic empirical performance effect of ownership concentration is not as evident as it is in Continental European countries. Therefore, policy measures in the Continental European countries should more closely address the presence of private benefits of control experienced by large shareholders at the expense of minority shareholders.

Thirdly, regarding the success of the privatisation process in Montenegro, we find firm evidence that those companies that went through the process of MVP performed, on average, worse than those that were not part of MVP. Moreover, our results indicate that foreign owned companies, on average, perform worse compared to state-owned or domestically-owned firms. This suggests that the restructuring of companies in Montenegro is a time consuming and complex process which still has not reached its ultimate goal and optimum state. Consequently, ownership transition from state to private, especially in the case of large companies that are sold to foreign investors with substantial inherited problems of efficiency and solvency might not have produced the expected impact on firm performance in the period under investigation. An additional reason for not finding the anticipated (positive) impacts of foreign ownership on firm performance might be that some of the largest companies in Montenegro were the subject of controversial privatization based on direct sale negotiated between the Government and the foreign owner.

Fouthly, we suggest that the Council for Privatisation in Montenegro should press for more prudent and reliable evaluation of future investors in the processes of direct sales. The poor experiences with strategic foreign investors that assumed ownership of the largest privatized exporting firms raises the need for a more thorough assessment of foreign investors' aspirations and long-term investment orientation. Coupled with the fact that the size of the Montenegrin market does not allow for much "trial and error" privatisation, and given the importance of each privatised firm in the value added creation of the Montenegrin economy, we believe that stricter due diligence with respect to potential investors would contribute to a more efficient outcome of Montenegro's privatisation process.

Fifthly, a deep restructuring of the secondary market for securities, or its integration into a nearby regional centre is essential now. The secondary market for securities in Montenegro's post-privatisation period was influenced by an enormous asset bubble, which burst in 2008 resulting in an adverse effect on its deepening and overall development. The secondary securities market, consisting of 247 joint stock companies (with 12 are considered as "A" listed companies), poorly developed investment funds and seven broker-dealer houses, is too small and, from experience, easily subjected to speculative activities that may jeopardize financial stability in the country. Therefore, our general recommendation is that the strategy of a Stock Exchange merger with the more institutionalized neighbouring markets such as the

Stock Exchange in Ljubljana should be given serious consideration. This is supported by additional arguments based on the size of the country, an almost non-existent primary securities market, and heavy reliance on the SME sector -- all combined with debt financing practices of the corporate sector.

5.5 Limitations of the research

Our research strategy aimed to implement relevant and advanced methodologies in our investigation in order to strengthen the validity and credibility of our findings. Nonetheless, we are aware of some unavoidable limitations which are highlighted here.

In Chapter 3, we applied what is now widely recognised as best practice in meta-regression analysis (MRA). In one respect at least, MRA goes beyond previous approaches in meta-analysis: in particular, by incorporating measurement, analysis and control of publication bias, MRA can establish representative authentic empirical effects and/or sources of heterogeneity in such effects “beyond publication bias”. Moreover, in another respect, we have tried to contribute to MRA methodology. For the first time, to the best of our knowledge, we raise the possibility that widespread misspecification with respect to functional form in the primary regressions may leave a statistical trace in the form of misspecification with respect to functional form in the meta regression. However, within the confines of this thesis, this possibility is limited to a potential line of enquiry. Simultaneously, there is a limitation of the applied MRA due to the extensive volume of the literature. Therefore, we applied restrictive criteria that narrowed the choice of empirical literature coded for the purpose of MRA (published papers, developed corporate governance systems from each country that satisfies that criteria).

The analysis of Chapter 4 was made possible by the creation of a new primary dataset: the author assembled data from hitherto dispersed company records – often existing only in hard copy printouts – into a unique dataset for the Montenegrin corporate sector. In turn, this primary data enabled the first econometric analysis for Montenegro of the performance effect of ownership concentration. However, limitations of this primary dataset are reflected in limitations of model specification and econometric analysis; namely, no distinctions are made between insiders and outsiders with respect to ownership concentration or between managers

and other large shareholders. These distinctions should have been incorporated into our modelling strategy but unfortunately, the data to do so does not yet exist.

Another limitation of the findings in Chapter 4 arises from not taking into consideration the potential “cherry picking” approach in the companies’ availability for privatisation, often seen in different privatisation schemes and relevant for firms in our database. Selective choice of companies was present in the Montenegrin Mass Voucher Privatisation or sale to strategic (foreign) investors. We omitted identifying and capturing the nonrandomized selection of companies that are present in some empirical findings. Nonetheless, similarly to Hamm et al. (2012), we argue that non-randomized choice of companies for privatisation in Montenegro would be a difficult task due to the dubious quality of financial data that was used in the first place for firms’ selection.

In addition, in conducting the econometric analysis, we instrumented only what is essential (ownership concentration, the main variable of interest) rather than what in principle might be desirable (i.e. instrumenting in addition liquidity, solvency and size). For example, we can hypothesise potential simultaneity (endogeneity) between firm performance and solvency ratio. In majority of different specifications, however, the attempt to instrument this potentially endogenous variable increased the number of instruments in relation to the number of observations. (We discuss the problem of “too many instruments” in the context of system GMM estimation below.) This was evident in poor model diagnostics and the failure of the model to yield useful results. Still, Solvency appears to be an important indicator of firm performance in the context of the Montenegrin economy, and we underline that an argument can be made that this variable is potentially endogenous and that a precise quantitative interpretation of its estimated effect may not be valid.

Finally, following an argument that full confidence in the m_2 test requires rejection of the null hypothesis of no first-order autocorrelation in the differenced error terms (meaning that there *is* first order autocorrelation in the differenced error terms), in all three model specifications estimated by the GMM estimator, this problem arises, i.e., the m_1 test fails to provide sufficient evidence that there *is* serial autocorrelation in the differenced error term. Unfortunately, the literature is scarce and divided concerning the function and importance of the m_1 test and its implications in the case when the m_1 null does not hold.

In addition, the m_l test, in the context of our model specification, is sensitive to the upper and lower limits placed on our dependent variable (ROE). If we take only a slightly less conservative approach to removing outliers then, in the first two variant specifications of our model, the corresponding m_l tests uniformly reject the null hypothesis of no first-order autocorrelation in the differenced error terms. Given that estimation within a more restricted range of ROE yields results that are similar to those presented in the main discussion of Chapter 4 (presented in Appendix 4.3), we conclude that these presented results are not invalidated by the associated m_l statistics

5.6 Suggestions for further research

The empirical research reported in this dissertation identifies a need and direction for future research. A general suggestion for further empirical work is to examine the robustness of the empirical results after more data becomes available. In the context of MRA, extending the data set with additional (recent) papers would be very useful to check the robustness of our findings. Moreover, a special challenge is the application of MRA methodology to explore the ownership concentration-firm performance literature in the context of TE countries and its comparison with the findings reported in this thesis based on the experience of developed economies.

Another avenue for further research is to extend the sample size in order to check the robustness of results obtained from GMM estimation of the ownership concentration-firm performance relationship in the context of the Montenegrin economy. This would enable us to capture the impact of the financial crisis, which had a substantial negative impact on the Montenegrin corporate sector. Moreover, we would be interested to investigate whether privatisation of large export-oriented companies to strategic foreign investors finally resulted in successful deep restructuring plans and capacity-enhancing strategies without being restricted or pressured by special social agreements regarding, for example, gradual sub-optimal working labour dismissal, and wage scheme designs, etc. (Filatotchev et al., 2007). We hope to research whether the real effects of privatisation become evident three to six years after privatisation as is argued by Mickiewicz et al., 2005, given that most of the largest companies in the sample were privatised in the period 2004-2008 covered by our sample. Finally, much work also remains to be done in estimating the impact of insiders on firm

performance; i.e., tracing insider ownership in order to analyse whether managers exhibit entrenched behaviour with their increase of ownership, and what is the level of management, strategic independence and/or whether outsiders bound their decision-making. This would overwhelmingly contribute to a better understanding of managerial behaviour in the TE setting of Montenegro, as well as how much managers actually contribute to firm value.

5.7 Conclusion

This dissertation set out to investigate the impact of ownership concentration on firm performance and reveals a significant and positive impact of ownership concentration on firm performance in the context of one, hitherto not analysed transition economy. This relationship seems to be robust across different model specifications based on the inclusion of variables regarding the identity of the main shareholder. Our findings are in line with the argument that, in the setting of TEs, a significant ownership concentration should not be treated as an endogenous “amalgam of shareholdings owned by persons with different interests” unrelated to firm performance - characteristic of Anglo-Saxon countries -but rather as a viable substitute for a lacking or undeveloped country-level corporate governance framework. Furthermore, in the context of the Montenegrin economy, we find firm evidence that the choice of privatisation designs and supporting institutions do matter with respect to ownership structure, stability and final implications for firm performance.

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