



**Ownership Concentration: its Determinants and the Impact on
Firm Performance. Evidence from MENA Region**

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Declaration

Whilst registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

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Abstract

Effective corporate governance is an essential element in any country; it has a significant effect on a country's economic development because of its direct impact on a firm's performance. One form of corporate governance is the ownership structure, which has attracted a great deal of research – specifically regarding the agency costs that result from the conflict between the owners and managers. Additionally, numerous researchers have studied the impact of ownership concentration on a firm's value and have concluded that ownership concentration is an essential mechanism of corporate governance.

The determinants of ownership concentration have drawn the attention of many researchers, who based their arguments off of Demsetz (1983), who believed that ownership structure should be viewed as endogenous with a firms' performance. Nevertheless, the question of why ownership concentration varies across regions, countries, and firms remains unanswered. Two main lines of thought may influence the degree of ownership concentration within countries: laws and cultures (Holderness, 2017).

Capital markets in the Middle East and North Africa (MENA) region are characterised by a high ownership concentration, with a few listed firms and a large number of closed companies (Bolbol & Omran, 2005). Additionally, stock markets in the MENA countries are behind and need further development (Ben Naceur, Ghazouani, & Omran, 2008). Also, corporate governance in the MENA countries is weak and controlled by lenders, mainly banks, that play the main role in governance (Turki & Sedrine, 2012).

Therefore, this study investigates three critical dimensions in ownership concentration. First, the relationship between ownership concentration and firm performance, second the effects of ownership identity on firm performance, and finally, the determination of ownership structure in the MENA region. This study contributes to the existing literature not only as the first investigation on both the effects of ownership concentration on firm performance and the determination of ownership concentration in the MENA region, but also as the first to examine the effects that a significant political event, namely the Arab Spring movement, had on ownership concentration.

The data consists of 912 firms and 5,521 observations in 8 MENA countries – Turkey, Tunisia, Saudi Arabia, Qatar, Oman, Jordan, Egypt, and Bahrain – spanning between 2008 and 2014. The industry was divided into 3 main categories: a financial group, a manufacturing company, and a service group.

The study uses ordinary least squares, fixed effects model, random effects model, generalised method of moments, 2SLS, quantile regressions, instrumental variable quantile regressions, tobit regression and IV-tobit. It also applies a different approach to control countries, industries, and years effects. The study results prove that ownership concentration in the MENA region plays an effective role in mitigating agency problems and enhancing a firm's performance. Also, it is found that ownership types have different effects on a firms' performance. This study also highlighted that the degree of the role of law, and corruption control, have negative effects on ownership concentration. However, firm size, firm age, and Tobin's Q have significantly positive relations with ownership concentration. Moreover, the Arab Spring movement has a positive impact on firm performance, yet the average ownership concentration is decreased by the MENA nations' revolutions.

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List of Abbreviations

2SLS : Two-stage least squares analysis

CIPE : Centre for International Private Enterprise

CON : Total percentage of largest owners who won 5% or more of firm's equity

Financial Leverage : Total debt/Total equity

Firm Age : The number of years since firms have been founded

Firm Size : Total assets

GCC : Gulf Cooperation Council

GDP : Growth rate of gross domestic product

GDP : Growth rate of gross domestic product

GMM : Generalized the method of moments

HHI : Herfindahl Index, the squared sum of the largest ownerships

IPO : Initial public offerings

IVQR : The instrumental variables quantile regression

MBVR : Market value of equity to book value of equity

MENA : The Middle East and North Africa region

MTB : Market-to-book value

NIA : Net income to total assets ratio

NIA : Net income to total assets ratio

OECD: Organisation for Economic Co-operation and Development

OIA : Ordinary income to total assets ratio

OIA : Ordinary income to total assets ratio

OLS : Ordinary least squares regression

ROA : Return on asset

ROE : Return on equity

Chapter One : Introduction

1.1 Background (corporate governance)

Effective corporate governance is important for any country because it has a significant effect on the economic development of a country, due to its direct impact on the performance of firms. Therefore, it is important to have the appropriate corporate governance mechanisms in place to safeguard stakeholders' interests and to ensure effective and efficient performance.

Interest in the role of corporate governance and its impact on firm performance began attracting attention in the aftermath of the financial and economic problems around the globe. Such problems included the Asian crisis from 1997 to 1998, the corporate financial scandals of the early 2000s, and the recent subprime market crisis in the United States, which began in late 2007. Despite a significant number of research papers on the role of corporate governance, there has been no consensus regarding the mechanism that can best address the agency problem, ultimately ensuring good performance and sustainable growth in the economy (Sanda, Mikailu, & Garba, 2010).

Corporate governance is a highly debated topic, is very broad, and has been an interesting topic since 1930. Across numerous countries it has been agreed upon, that corporate governance is an essential element in the development of any country's financial market and firms' value (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997). Furthermore, better governance enables firms to access capital markets on better terms, which is valuable for firms intending to raise funds (Doidge, Andrew Karolyi, & Stulz, 2007). Moreover, Pathak, Ranajee, and Pradhan (2012) argued that corporate governance in the long term could affect the economic growth and financial stability of any country. Therefore, there have been many different interpretations for this topic throughout the decades, and its definitions and interpretations have varied widely across countries and firms.

The term corporate means a unique entity that is established either for profit or non-profit. It has legal rights and liabilities that are formed through legislation. However, the word governance is a way of governing that uses decisions to explain any expectations, power, and performance. Also, governance is the way of making a good enterprise environment maximise a firm's value (Bain & Band, 2016).

After the publication of the Cadbury (1992) report, many academics and researchers became more interested in corporate governance. The Cadbury Committee stated that freedom allowed firms to improve and succeed, but at the same time, this freedom needed to be legalised within frameworks and regulations. Therefore, the codes of governance expanded around the world based on the Cadbury code.

Also, the United States was more concerned about corporate governance. The United States became the world's leader in this topic after many scandals, especially the Enron collapse in late 2001. After the first round of scandals, the United States passed the Sarbanes–Oxley Act (Sarbanes, 2002) which is referred to as SOX 2002; is also known as the Public Company Accounting Reform and Investor Protection Act. SOX 2002 was designed to ensure that management would certify any financial statements published and guarantee their accuracy. In addition, external auditors were required to be independent and report the accuracy of corporate financial statements. Also, SOX 2002 gave significant power to the board of directors to review a firm's performance.

However, so far, there has been no formal definition of corporate governance around the world. The classical definition from Adam Smith (1776), which lasted until Berle and Means (1932), emphasised the idea of separating ownership and control between owners (principal) and managers (agent). This idea is known as the agency problem, and it was followed up in depth by Jensen and Meckling (1976). However, some academics gave broad definitions while others tended to give specific definitions that focused in one area. For example, the Cadbury Report (1992) defined corporate governance as the way companies are directed and controlled. Also, Thomsen (2008, p. 15) defined it as 'the control and direction of companies by ownership, borders, incentives, company law, and other mechanisms'.

Some definitions focused more on the stakeholders' benefits. For example, Shleifer and Vishny (1997) stated that corporate governance is how a firms' investors ensure the return of what they have invested in the company. Also, Tirole (2001) said that corporate governance is the way firms are designed to encourage management to safeguard the wealth of the firms' shareholders. Furthermore, Mitton (2002) described it as the way of protecting small shareholders from managers and other shareholders.

However, corporate governance also involves the interest of society. It is the inside and outside mechanisms that ensure the accuracy and accountability of the information given to

the firms' stakeholders. In addition, corporate governance involves the assurance of companies' responsibilities to society in all aspects of the firms' business activities (Solomon, Solomon, & Suto, 2004). However, there are no specific definitions for corporate governance, and the existing definitions limit the scope of corporate governance (Fazlzadeh, Hendi, & Mahboubi, 2011).

Many institutions believe that good governance can only be achieved by having the right relationships with all parties involved in a firm's business activities. According to the Organisation for Economic Co-operation and Development (OECD) 2004, corporate governance is the role of the organisation's stakeholders to make sure that objectives are well-defined and achieved by monitoring a firm's performance. Banks (2004) argued that a firm should create a cooperation structure between a firm's interested parties and its shareholders.

Nowadays, corporate governance has become more complicated because the expansion of enterprise and many different parties are involved in firms. Also, because of globalisation and high competition among companies in the market, there has been more concern about standardising common concepts of corporate governance among the countries (Strouhal, Bonaci, & Mustata, 2012). Modern corporate governance is not only about increasing shareholders wealth or securing investor returns, but it also focuses on enhancing corporate fairness, transparency, and accountability. Also, it focuses on shareholder value and how firms can adjust themselves to meet the needs of stakeholders.

Lastly, corporate governance is an important field of study that involves many factors, such as the legalities, social environment, and economics. More attention to this topic can help minimise the economic risks of fraud, misuse of power, or even a firm's collapse because of bad governance. Reviewing a country's code of corporate governance and changing them, can help reduce these threats.

Based on the literature about agency cost theory (covered in detail in Chapter 2), there are different forms of corporate governance mechanisms that can be implemented to reduce agency problems at the firm level (such as management–shareholder conflicts). One corporate governance mechanism is on the relationship between ownership concentration and firm performance, and this mechanism is the main focus of this research.

1.2 The Main Debates and Research Objectives

The question of why ownership concentration varies across regions, countries, and firms is debatable among that written in literature. Two areas may influence the degree of ownership concentration within countries: laws and cultures (Holderness, 2017). One study indicated that the level of the law that protects investors in public firms is negatively related to the degree of ownership concentration (La Porta, López de Silanes, Shleifer, & Vishny, 1998). However, Holderness (2009) doubted that the country-level factor has any significant effect on ownership concentration. Although he argued that legal protection has an effect on shaping ownership structure, he believed that law and ownership concentration are unpredictable to each other Holderness (2016).

Furthermore, the determinants of ownership concentration have drawn the attention of many researchers because of the argument of Demsetz (1983), who believed that ownership structure should be viewed as endogenous. Thus, ownership concentration is affected by several factors within firms and countries. This explains why ownership concentration fluctuates within firms within a single country (Bottasso & Sembenelli, 2004; Demsetz & Lehn, 1985) and within multiple countries (Faccio & Lang, 2002; Holderness & Sheehan, 1988; La Porta , Lopez-de-Silanes, & Shleifer, 1999; Seifert, Gonenc, & Wright, 2005; Thomsen & Pedersen, 1998).

Beck, Demirgüç-Kunt, and Levine (2003) also believed that legal protection plays an essential role in forming ownership concentration. However, they argued that countries with origins in common law provide a high level of protection to shareholders, leading to a lower ownership concentration. In contrast, countries based in civil law have inadequate ownership protection, consequently leaning toward a high ownership concentration.

Although causality indicates the direction between variables, many studies have shown that the relation between corporate governance mechanisms and firm performance could exist in both directions. For example, Kole (1996) demonstrated that high firm performance leads to increased ownership concentration. This means that although corporate governance affects firm performance, high firm performance may also attract and form different corporate governance mechanisms. Agrawal and Knoeber (1996) argued that corporate governance mechanisms depend on one another; one mechanism should not be treated in isolation from other mechanisms.

Some researchers have used ownership structure as an exogenous variable, which is supported by the path-dependence assumption that the ownership structure is stable. These researchers (Leech & Leahy, 1991; Morck, Shleifer, & Vishny, 1988; Shleifer & Vishny, 1986) do not consider any effects of performance on ownership structure. In contrast, other researchers argued that ownership structure are endogenous to firm performance. Thus, good firm performance leads to ownership concentration. Given the latter argument, ownership endogeneity is critical when studying the relationship between ownership structure and firm performance.

First research question: what are the determinates of ownership concentration?

The effects of ownership structure on firms' performance has attracted a great deal of research – specifically regarding three primary areas. (1) the agency costs that result from the conflict between the owners and managers (Berle & Means, 1932; Cubbin & Leech, 1983; Leech & Leahy, 1991); (2) the capacity for managers to personally benefit at the expense of the shareholders, especially in a diffused, uncontrolled, ownership structure (Fama & Jensen, 1983; Jensen & Meckling, 1976); and (3) the essential role large shareholders play in controlling and enhancing a firm's performance (Morck et al., 1988; Shleifer & Vishny, 1986).

Additionally, numerous researchers have studied the impact of ownership concentration on firm value and other performance measures (Short, 1994). Shleifer and Vishny (1997) found that ownership concentration is an essential element of the corporate governance mechanism because it enables larger shareholders to exert control over the firms in which they invest. Thomsen, Pedersen, and Kvist (2006) believed that there could be an ambiguous relationship between large owners and firm value. Despite all this, the question of whether or not ownership concentration has a positive impact on firm performance remains largely unanswered (Holderness, 2003).

This topic was first discussed by Berle and Means (1932), who suggested the existence of a connection between firm performance and shareholding dispersal as an effect of the agency theory. Offering another perspective, Demsetz (1983) believed that a firm's ownership structure should be viewed as an endogenous outcome of market share trading. This was supported by Loderer and Martin (1997), M. H. Cho (1998), Himmelberg, Hubbard, and Palia (1999), and Demsetz and Villalonga (2001). These researchers used simultaneous equation

models that showed a significant relationship between the ownership structure and the firm's performance.

Furthermore, Demsetz and Villalonga (2001) argued that the new ownership structure comes from owning firm shares and intending to maximise profit. The ownership structure is modified when the company's owner decides to sell part of his or her company to the public, which also carries a high chance of making that structure more diffuse. Demsetz and Villalonga (2001) argued that there should be no relationship between variations in ownership structure and firm performance. Similarly, Demsetz (1983) found no correlation between ownership concentration and profit.

Some studies have showed that blockholders play an essential role in reducing agency costs. However, others studies have indicated otherwise. For example, Nyman and Silberston (1978) argued that control should be viewed as structural rather than behavioural and that control is related to power. In other words, concentrated ownership gives shareholders the ability to control manager activities, which could help enhance management efficiency and improve firm performance.

Blockholders' ownership monitoring reduces the agency problems between shareholders and managers (Hartzell & Starks, 2003). According to Demsetz and Lehn (1985), ownership concentration allows owners to monitor managerial performance effectively. Thus, blockholder ownership protects minority shareholders from owners and managers expropriating the wealth (Fama & Jensen, 1983; Morck et al., 1988; Shleifer & Vishny, 1997). In addition, Jensen and Meckling (1976) suggested that managers in firms with a dispersed ownership structure, have an incentive to consume perquisites for themselves, and as a consequence, they fail to maximise shareholder wealth.

In countries that have a low level of investor protection, ownership concentration has a significant effect on firm performance (Denis & McConnell, 2003; La Porta et al., 1997; Shleifer & Vishny, 1997). Researchers on corporate governance found that ownership concentration plays an essential role in eliminating agency costs. Furthermore, where there are low levels of investor protection, blockholder ownership privilege produces private benefits that motivate owners to retain ownership of their firms (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000; Shleifer & Vishny, 1997). Also, private benefits for controlling shareholders reduces the incentives for giving up control (Bebchuk & Roe, 1999). Moreover,

having controlling shareholders in a firm can benefit the firm overall. Thus controlling shareholders have the power to monitor management and force them to make decisions that increase a firm's value, thereby benefitting all other shareholders (Jensen & Meckling, 1976; Shleifer & Vishny, 1986).

Second research question: does ownership concentration affect firm performance?

'Who owns the firm (the state, private ownership, foreign investors) has long been an important topic for research on organizations' (Xia & Walker, 2015, p. 1). Consequently, ownership concentration cannot be separated from ownership identity. Ownership structure can be classified into two main dimensions: ownership concentration and owner identity (Nazir & Malhotra, 2016).

Xia and Walker (2015) found that owner type is significant for a firm's performance. Some studies showed that managerial ownership works effectively in reducing agency costs. For example, (Jensen & Meckling, 1976) believed that managerial ownership increases firm performance by mitigating agency costs. Morck et al. (1988) found a positive relationship between managerial ownership and firm performance. However, the increase in insider ownership works negatively regarding firm performance (Demsetz, 1983) because large managerial ownership leads to managers being more concerned about their own interests instead of worrying about the interests of shareholders.

Other studies indicated that government ownership could solve the asymmetrical information exchange disclosed to investors and can align interests between managers and owners (Jensen & Meckling, 1976). Thus, the government has access to different sources of information and to different financing organisations and non-government firms (Eng & Mak, 2003). However, government cannot play an active role in monitoring its investments because it has weak monitoring over firms (Mak & Li, 2001). Moreover, the government has a political role over firms, rather than an economical one that could boost a firm's performance (Boycko, Shleifer, & Vishny, 1996). In the same context, foreign investors can help firms by supplying funds and avoiding risk-taking strategies (Nakano & Nguyen, 2013), and can provide technology, research and development, and managerial skills (Ferreira & Matos, 2008; Huang & Shiu, 2009).

Moreover, institutional ownership helps in improving firm performance by monitoring managerial activities (Agrawal & Knoeber, 1996). Large institutional investors have effective

monitoring that leads to a positive influence on a firm's market value (Shleifer & Vishny, 1986). Conversely, institutional ownership may have a negative effect on firm performance when institution representatives work alongside firm managers (Pound, 1988). Lastly, family ownership may have an agency problem with other shareholder groups (Claessens & Fan, 2002; Shleifer & Vishny, 1997). For example, a family member can acquire a top management position, enabling that person to have control over the firm's board of directors (Anderson & Reeb, 2003) and giving that person the opportunity to gain financial and other benefits at the expense of the minority shareholders.

Third research question: what are the effects of ownership identity on firm performance?

Therefore, the main objective of this thesis is to investigate the concentration of ownership in the MENA region by using listed firms. This main objective can be broken down into three separate objectives:

Objective 1: to investigate the factors that affect the determination of ownership concentration in the MENA region. This is undertaken by examining three important factors in shaping ownership structure: country, industry, and firm level. The significance of this objective is in revealing the similar and different determinants of ownership concentration between developed and emerging markets.

Objective 2: the effects of ownership concentration on firm performance in the MENA region by using five different ownership concentration indexes, and taking into consideration the endogeneity issue between ownership concentration and firm performance. The significance of this objective is in revealing the role of ownership concentration in the MENA region in enhancing firm performance and mitigating agency cost.

Objective 3: the effects of ownership identity on firm performance in the MENA region by examining four core groups: institutional ownership, private ownership, government ownership and foreign ownership. The significance of this objective is in revealing the effects of different ownership identity on firm performance.

1.3 Research Motivation

Most studies on ownership structure are conducted in an economically developed country that are characterised by a unique institutional environment, a market structure, and a legal system raising the need for a research in developing economics. MENA region is one of those developing countries that can be studied to answer the questions of the determinates and the effects of ownership concentration on firm performance, because of many reasons. Capital markets in the MENA region are characterised by a high ownership concentration, a few listed firms, and a large number of private companies (Bolbol & Omran, 2005). Moreover, privatisation in this region is slower compared to other developing countries, which can be explained by the failure of the capital markets to encourage privatisation, the scarcity of financial resources, weak private sectors, and poor regulations (Belkhir, Maghyereh, & Awartani, 2016). Also, the MENA stock markets face a modest flow of foreign investments (Öztürk & Volkan, 2015).

The economy of the MENA region depends mainly on the production of crude oil (Graham, Kiviahio, Nikkinen, & Omran, 2013). According to a World Bank report (2015), the region's economic growth dropped by 2.6% in 2015, and the growth forecast for the short term is 'cautiously pessimistic'. Furthermore, although most countries depend on private credit bureaus (PCBs) for a credit reporting method that grants inclusive credit information, the MENA countries still rely mainly on public credit registries (PCRs) that do not provide complete credit information (Belkhir et al., 2016).

Corporate governance in the MENA countries is weak and controlled by lenders, mainly banks that play the main governance role (Turki & Sedrine, 2012). According to recent reports by Transparency International and World Bank, the justice system, media, and legislative systems in many countries in the region are controlled by the political system. The World Bank and Transparency International reported (2015) that the public governance indicator in the MENA countries is below the international average, suggesting the need for significant actions to improve public governance. Similarly, governance indicators reported by the World Bank (2013) showed a low level of corruption control, inefficient regulations, and a weak rule of law (ROL), (Awartani, Belkhir, Boubaker, & Maghyereh, 2016). This situation may negatively affect the MENA countries' potential opportunities to obtain external finances (Belkhir et al., 2016).

1.4 Main Contributions of this Research

This study contributes to the current literature on the relationship between ownership structure and a firm's performance in many ways. First, this research contributes to the literature by filling in the gap of the shortage of studies in developing countries in both the factors that affect the determination of ownership concentration, and the effects of ownership concentration on firms in an emerging market.

Second, to the authors' best knowledge, this study is the first of its kind to investigate the effects of ownership concentration on firm performance in the MENA region, by using a large data set of eight countries for a period of seven years. Also, not only is there an examination of the effects of total ownership concentration on firm performance, but also an investigation into the role of ownership identity. Third, to the authors' best knowledge, it is the first study to examine the determination of ownership concentration in the MENA region. Finally, this research is the first of its kind to examine the effects of political factors, including the Arab revolution (Arab Spring), on the ownership structure and firm performance of the examined companies in the MENA region.

Overall, this study is a comprehensive research study of ownership concentration in the MENA region, making it unique. The study could be useful in two ways. The financial markets of public firms in the MENA region-characterised by a high ownership concentration. Thus, it is worth investigating the factors behind this concentration. Ownership right distribution is also an interesting topic for policy makers when they consider how economic sectors should behave and be formed. Identifying the determinants of ownership concentration may allow a legislative change to limit the control of economic resources by small investors.

1.5 Structure of the Thesis

This thesis is made up of five chapters. Chapter one introduces the topic and provides the study outline; it includes the background of corporate governance, the main debate regarding the subject, the importance of this study, and the main contributions of this research.

Chapter two has a summary of the different aspects that affect the MENA capital markets and gives an overview of the MENA economy, the capital markets in this area, corporate governance, and the Arab Spring and its economic impact on the MENA nations.

Chapter three investigates in both a theoretical and empirical way, the determinants of ownership concentration in the MENA region. Two main lines of thought that may influence the degree of ownership concentration within countries and their laws and cultures are considered. Also, the study has three levels: firm-, industry-, and country-level uses. This chapter covers the main debate about the determinants of ownership concentration, existing literature about this issue, methodology used in the study, and the results and discussion.

Chapter four investigates the effects of ownership concentration on firm performance in the MENA region. This chapter covers the effects of ownership concentration on firm performance, the existing literature about this issue, methodology used in the study, and finally the results and discussion. Moreover, this study uses five different ownership concentration indexes to give an overall understanding of how various ownership concentrations affect firm performance.

Chapter five highlights the effects of different ownership identities on firm performance. Ownership identities are categorized into four core groups: institutional ownership, private ownership, government ownership and foreign ownership. This chapter covers the main debate, about how different types of ownership, has different impacts on firm performance. It also covers the existing literature about this issue, methodology used in the study, results and discussion.

Finally, Chapter six presents a summary of the thesis. It provides a general idea of the conclusions drawn regarding the three main arguments of this study: the relationship between ownership concentration and firm performance, the effects of different ownership identity on firm performance, and the determinants of ownership concentration. Also, this chapter summarises the findings and highlights the limitations of the study.

Chapter Two : Economic, Stock Market and Corporate Governance in the MENA Region

2.1 Introduction

The capital markets of the MENA region can be separated into two economic groups. Capital importers stand for the lower-average-income countries and economies, that do not necessarily rely on oil, but underwent an economic restructuring in the 1990s called the economic reform program (Al-Omari, 2010). In these nations, security markets were reinitiated to perpetuate the implementation of privatisation programs and to provide a source for medium- and long-term funds (Dahawy & Samaha, 2010). Oil exporting nations are the second group and consist of the Gulf Cooperation Council (GCC) countries that contain 45% of the global oil reserves (Al-Shammari, Brown, & Tarca, 2008). Some MENA capital markets are not strong. This is because of the fact that there is political or economic imbalance or simply because these country's jurisdictions are in the early processes of economic reform, Centre for International Private Enterprise (CIPE, 2013).

This chapter provides a short summary of the various aspects that affect the MENA capital markets, and it forms the foundation needed for comprehension of the results of the empirical analysis in chapters three, four, and five. The other part of this chapter is organised in the following way. Section 3.1 gives an overview of the MENA economy, section 3.2 gives an overall idea of the capital market in this area, section 3.3 highlights the corporate governance structures, and section 3.4 goes over the Arab Spring Movement and its economic impact on Arab MENA nations.

2.2 MENA Economies

When the World Bank went through its estimates of economic growth of the MENA area in 2016, the growth rate dropped to 2.6%, which was 0.2% less than the October 2015 estimations. The major reasons behind this recent revision in the growth rate include the constant civil wars, terrorist acts, and reduced oil prices (World Bank, 2016). Economic growth in the MENA region is mainly characterised by crude oil. The difference created in any of the national equity markets can therefore be affected by a common source of

information and which can influence other markets in the region as well (Graham, Kiviaho, Nikkinen, & Omran, 2013). For instance, Zarour (2006) showed a progressive relationship between the increase in oil prices and stock returns in the MENA region. Previous studies showed that there is a negative relationship between financial associations and geographical proximity. Nations with a smaller cultural distance have improved stock market comovement (Lucey & Zhang, 2010). In addition, the Saudi-Iran disagreement intensified the tension in the area. If the disagreement is allowed to build up even more, there could be an increase in military money allocation, especially in the nations that are directly associated with Saudi Arabia and Iran. Because of the nature of government expenditures and the deteriorating oil prices, such a move would weaken the economies of these countries. In addition, this recent disagreement has impacted tourism, investments and trade, and led to more geopolitical risks in an area that is already unstable (World Bank, 2016).

MENA's oil importers, on the other hand, have been unable to maximise their profits on the low prices of oil, because they are experiencing the reverberations of civil wars and conflicts in the area, or because they are facing a lack of security, or both. During this time, oil exporters in the area were experiencing problems because of cheap oil. Most of the oil exporters, especially those in the GCC nations, were facing losses because oil prices dropped by a third in relation to the break-even price required to balance the budget (Devarajan & Mottaghi, 2015). If the prices do not change from around USD 30–45 p/b in 2016, these nations will face losses. Nonetheless, government expenditure does not decline because the majority of the population are government employees, and they are entitled to numerous benefits. This will allow the wealthy oil exporters in areas such as Saudi Arabia, a country that owns large reserves, to run deficits for a few years. The World Bank stated that at the present expenditure rates and a constant oil price of USD 40 per barrel, these nations will not have any more oil in 10 years. At this expenditure rate and constant policies, the GCC and their counterparts will experience budgetary deficits of about 9.4% of their total GDPs in 2016.

On the other hand, the IMF states that the MENA region's broad policy reaction has not been enough to maximise its potential. Looking into the future, the economic problem is worsened by the subdued outlook in the external environment. In this case, this section gives an overview of the policies of various nations, and a look back at the eight policy issues impacting almost all economies in the area. The nations are left with the task of in-depth

specification, prioritisation, sequencing, and analysis - these are beyond the objective of this paper (IMF, 2016).

Many countries in the area have undergone macroeconomic policy changes in the past few years, all of them concentrating on fiscal adjustments that favour a tight monetary policy. Because of the support from the IMF, these nations have made headlines in cutting down on their budget deficits and reducing inflation and increasing exports, the size of their account deficits, and the level of their foreign exchange reserves. This is a result of implementing structural changes. Major oil exporting nations in this area have also adopted these structural changes. In the beginning, these nations only concentrated on reducing expenditures in the case of low prices of oil and reduced investments, then focusing on increasing revenues brought in by non-oil products.

Also, numerous nations have created midterm programs through an identified path, for a greater reduction of deficits, structural changes, and human development policies, in a general framework, focusing more on the private sector in production and investment (IMF, 2016). In the MENA region, there has been a variation in development recently regarding handling macroeconomic imbalances and adopting comprehensive structural changes. Because of this, their commencing point and the nature of the remnant policy challenge may differ from nation to nation. Nonetheless, the region is faced with a strict economic and financial policy agenda. Even the developed countries have acknowledged that change is a continuous process. This process places a premium on keeping the momentum of an all-around approach, combining important policy initiatives correctly, adopting the necessary changes on time, especially in reaction to unexpected exogenous developments, and creating and maintaining the standard institutional support and human capabilities.

A lot of changes require short-term costs. As much as this hurts budgets, it cannot be avoided. Priority must be on reducing these costs by proper planning and combining of policies, compensating the costs with the gains realized by the changes, and protecting the most vulnerable members of the community.

Keeping in mind the aforementioned factors, the IMF has brought up eight points that the MENA region should work on to deal with this late economic recession. increasing the measures to privatise and de-regulate economic activity, changing public finances, strengthening human resources, bettering labour markets, increasing internal and external

investments, increasing financial intermediation, freeing up external trade payments, and making sure that there is a healthy macroeconomic policy mix.

2.3 MENA Stock Markets

Capital markets in the MENA region are characterised by a high ownership concentration, a few listed firms, and a large number of private companies (Bolbol & Omran, 2005). Moreover, privatisation in this region is slower compared to other developing countries, which can be explained by the failure of the capital markets to encourage privatisation, the scarcity of financial resources, weak private sectors, and poor regulations (Belkhir, Maghyreh, & Awartani, 2016).

In the past 20 years, the MENA region has gone through a phase of financial-sector liberalisation, which includes updating stock market legislation activities. The entire MENA region can be defined as a bank-based economy (Graham et al., 2013). Nonetheless, the vitality of capital markets for economic growth has been acknowledged. Because of this, the change objective has included rejuvenating the existing stock market in some nations and creating stock markets in others. Most of the MENA nations have legislated new capital market legislations to lure in private investors and enhance investor protection. The major conditions of these legislations include creating a new legal framework to administer specialised capital market organisations to reinforce financial disclosure, allowing external investors free access to the market, and reinforcing investor rights through conditions that bar unfair market prices (Ben Naceur, Ghazouani, & Omran, 2007).

As much as MENA nations have advanced in capital market growth, their efforts have gone unnoticed because of rapid changes in other parts of the globe. Amidst the backdrop of a much more globalised world, the problem facing MENA legislators in avoiding financially repressive policies will be to adopt wise macroeconomic policies and structural changes. In the same way, macrostabilising measures should be reinforced by establishing a favourable environment for financial growth; one that is inclusive of minimal government interference in credit disbursement and that has reinforced institutional qualities, especially in the legal system (IMF, 2016).

Despite the notable development in the region, stock markets in the majority of the MENA nations are faced by a lot of structural and regulatory challenges. These markets include Egypt, Israel, Iran, Turkey, major institutional holdings, and narrow free floats. Looking at the

backgrounds of the economic structures, diversification of the sectors is minimal, and the vulnerability to oil prices is high (Ben Naceur et al., 2007). Though there is a wide variety of legal, regulatory and supervisory developments, which have intensified market transparency in the past few years, major shortages linger regarding market supervision. The GCC nations, a minor set in the MENA region, have acquired international experience in recent years, mainly because of increased oil prices between 2003-2008, a compilation of petrodollars, and the worldwide investments of their sovereign wealth funds (SWF). The amassing of wealth and liquidity has also played a part in the rise of the formal trading of securities and the creation of stock markets in the area (Graham et al., 2013).

On the other hand, it is believed that financial system development brings down a firm's cost of external finances (Rajan & Zingales, 1998). MENA nations in the past couple of decades have been involved in a sequence of liberalisation steps with the objective of improving their financial sectors (Ben Naceur, Ghazouani, & Omran, 2008; Ben Naceur & Omran, 2011). Some of the most important steps taken include minimising government interference on deposit and lending rates and credit allocation, the eradication of high reserve requirements, and the need for external investors to acquire permission to buy shares in the stock market (Shiguang, Naughton, & Tian, 2010). These steps are expected to improve the financial development of the region, hence increasing the chances of companies obtaining foreign investments. However, most analyses indicated that these steps are far from reaching their desired targets (Bourgain, Pieretti, & Zanaj, 2012). It should, however, be noted that despite these changes, security markets in the MENA region are still far from developing a shortage of listed firms, limiting free float of shares, and having thin trading. Only countable nations such as the GCC nations have standard development and good banking (Creane, Mobarak, Goyal, & Sab, 2004). A majority of the other nations are faced with an influx of government-owned banks in the banking sector, inefficient risk management systems, and inefficiency in credit allocation. In the same way, most of these nations have a highly concentrated banking system, and there is limited freedom of new banks in their ability to enter into the market (Anzoategui, Martinez Peria, & Rocha, 2010; Turk-Ariss, 2009).

In addition, a report by the IMF showed that the majority of the countries in the MENA region perform quite well in regulation, supervision, and financial transparency. However, much more needs to be done to ensure the stability of the institutional environment and to support the growth of the non-bank financial sector. In the MENA region, development in the

financial sector has not been evenly spread among the nations. Some of the nations, mostly Kuwait, Oman, Qatar, Saudi Arabia, Bahrain, Lebanon, Jordan, and the UAE, have made major developments in their financial sectors' banking areas. Others, such as Egypt, have made significant developments, but more still needs to be done. The main results of the MENA region in reference to the six themes are as shown below:

2.3.1 Monetary Policy

More often than not, rates of return in the MENA region are not influenced by anything. There is use of indirect monetary policies, and government securities have been put in place. Use of open market operations is, however, problematic because of the low development or shortage of secondary markets for government securities. To add to this, there are not many nations that have an all-around framework for creating and managing monetary policies.

2.3.2 Banking Sector

In most of the GCC nations, there is a well-developed banking sector that generates profit and is reliable. However, in half of the MENA region, this does not apply. The banking sector is faced with massive government interference in the disbursement of credit, financial losses, interchange ability issues, and broad spreads in the rates of return. More than half of the nations' banks are crowded, with assets of the three largest banks taking up over 65% of the total asset. Also, there is the urgency to make strides towards modern banking and financial skills in the region.

2.3.3 Regulation and Supervision

Most of the MENA nations, such as Jordan, Lebanon, Morocco, and Tunisia, have reinforced their banking and supervision regulations, updated their procedures to occasionally collect important information, and inspected and audited banks. Measures have also been taken to change the international Basel standards, by putting more capital adequacy ratios and reducing loans that are non-performing. This has, however, not yielded the expected results because for most nations, 10–20% of their total loans are non-performing.

2.3.4 The Non-bank Financial Sector

There is a need for more development in the non-bank financial sector, for instance in pension expenditure, the stock market, insurance firms, and the corporate bond market. Where there

are such markets, there is normally very little in the way of trading activities. The growth of these markets is troubled by legal barriers regarding ownership and an established legal framework.

2.3.5 Financial Transparency

MENA nations have slowly opened both their current and capital accounts. More than half of the nations have opened their financial sectors; though many have limitations on foreign ownership of assets and return of earnings, whereas some nations continue to have many different currency rates or parallel exchange markets.

2.3.6 Institutional Environment

In most parts of the MENA region, the quality of institutions is not up to par. For example, in some nations, the judicial system is vulnerable to political pressure and delays, which leads to weak law enforcement. The adherence to property rights is also very low, and this challenges trading activities and development in general.

Table 2.1 MENA Comparative Financial Development Indicators

	Comprehensive Index	Banking Sector	Nonbank Financial Sector	Regulation and Supervision	Monetary Sector and Policy	Financial Openness	Institutional Environment
MENA average	5.4	5.3	4.8	6.5	5.4	6.1	4.7
World Average Scores							
High	7.5	7.3	6.7	8.9	7.3	8.9	5.9
Medium	5.3	5	4.1	6.5	5.6	6.1	4.8
Low	3.3	3.1	2.7	3.5	3.1	3.9	3.8

Source; IFM report 2014, within overall scale of 0–10, intermediate scales are as follows: High—above 6; Medium—4–6; Low—below 4.

2.4 Corporate Governance in MENA Region

Corporate governance in the MENA countries is weak and controlled by lenders, mainly banks that play the main governance role (Turki & Sedrine, 2012). According to recent reports by Transparency International and World Bank, the justice system, media, and legislative systems in many countries in this region are controlled by the political system. The World Bank and Transparency International reported (2015) that the public governance

indicator in the MENA countries is below the international average, suggesting the need for significant actions to improve public governance. Similarly, governance indicators reported by the World Bank (2013) showed a low level of corruption control, inefficient regulations, and a weak rule of law (ROL) (Awartani, Belkhir, Boubaker, & Maghyereh, 2016). Accordingly, ownership concentration can play a major role in corporate governance in this region, to monitor managerial performance (Demsetz & Lehn, 1985).

The credibility of corporate governance is one of the parameters that assure the economic agents that their claims and property rights are safe from misuse by the government or individuals. Thus, the level of the law that protects investors in public firms is negatively related to the degree of ownership concentration (La Porta, López de Silanes, Shleifer, & Vishny, 1998). In well-administered nations, the rule of law is upheld above any other legislation. Independent organisations are believed to be trustworthy and work towards adhering to property rights and contract enforcement. It is because of this that lenders have more trust that their capital will be given back, even in the case of defaulters, so they may be persuaded to extend credit at more favourable terms. Most of the legislation that manages the MENA markets, however, has been adopted recently and has been inspired by international practices. Because of this, the challenge of misuse of laws does not pose a threat now. On the other hand, there is a difference between legislation and its effective application in many world markets. The difference depends on the region (Sourial, 2004).

As much as the MENA nations keep increasing their efforts to better their public governance, these nations still harbour institutions that have deficiencies. Surveys by global organisations show that the political system has a strong grip on the judicial system, the media, and the legislature. In addition, it has been shown that the ability to gain access to quality public services and business opportunities can only be through nepotism, tribal affiliations, money, or patronage. Because of this, there is widespread corruption, poor follow-up on contracts, and a lot of property rights insecurity. This negatively affects a company's ability to obtain foreign investments (Belkhir et al., 2016).

Most of the MENA nations have markets that are small and tightly regulated, where government ownership is dominant, and market forces are limited (Turki & Sedrine, 2012). This can highly explain why the MENA region is characterised with high ownership concentration. In addition corporate governance in the MENA region having lack of a difference between the chair of the board and the CEO, the lack of board independence, and

inefficient protection of shareholder rights. Therefore, the corporate governance in the MENA region is a public policy concern of increasing importance.

Sourial (2004) believed that most of the key shareholders in the MENA region are politicians, individuals from a royal bloodline, or important organisations. There is a possibility of one family controlling numerous firms directly or indirectly. The managing shareholders have strong motives to keep tabs on the firm and its administration; they can also affect the administration of the firm positively. A disagreement is obvious when the shareholders embezzle the company's resources.

The corporate governance of MENA countries is similar to that of developing economies, mainly because of the underdeveloped form of the financial markets and the dominance of family-owned companies (Omran, Bolbol, & Fatheldin, 2008). They also showed that corporate legislature mainly depends on the civil law customs. The relationship between the legal origins and the financial arrangements is evidence of interference by a third party, which in most cases is the government. It is evident that in this case, the Arab nations perform poorly because their political nature is characterised by poor governance. The effects of this are passed over to the corporate administration because most Arabic companies are parastatals, or owned by families, and most stock markets are still incomplete. This, however, clearly shows that there have been developments in the MENA region over the past 20 years; many nations have taken up new corporate legislations, and many companies have gradually embraced corporate governance developments (International Finance Corporation, 2008). Despite all this, the MENA security markets have undergone changes in their administration. In the 1980s, the markets were either not managed or were managed by a committee that was picked from the board of exchange. In short, most of the functions were handled by the exchanges because of the small size of the market. Because of the increased vitality of the security markets, thanks to the economic change programs, there has been the need for an all-round, well-regulated market. Slow changes began in each market with management tasks being separated from the exchanges, while also creating government or security commissions to regulate and keep tabs on the market (Sourial, 2004).

These recently created regulatory committees took up any of the four administration models.

- A model administered by a board of directors and chaired by a minister, who is appointed by the president, royal decree, or prime minister

- The U.S.-commissioners-based model, administered by commissioners who are appointed full time
- The UK model containing a single regulator for the entire financial sector
- The traditional structure model in which a committee in the exchange takes up the regulatory functions

The MENA nations' objective of quality corporate administration is to minimise the agency conflict between the administration and the shareholders, while also reinstalling investor confidence. It is clear that most of the legislation in the MENA markets that uphold shareholders rights is stipulated in the laws and bylaws of security markets and company legislation. This legislation mainly focuses on the shareholders rights in acquiring ownership registration, taking part in elections during meetings, and also taking part in making key decisions involving major corporate changes. Because of a lack of equity culture and a lack of knowledge regarding investor's rights and the common qualities of all markets, there is little participation of shareholders in safeguarding their rights. The results are low participation from shareholders in meetings, creating a conducive environment for market abuse (Sourial, 2004).

2.5 Arab Spring and its Economic Effects.

The Arab Spring was the revolutionary wave that started at the end of 2010; it had the aim of changing the rule of local governments. There were many factors that led to this revolution, including human rights violations, political corruption, economic decline, unemployment, and poverty. The Arab Spring affected the MENA region both directly and indirectly. Countries with governments and legal systems that were directly reshaped by this revolution included Tunisia, Egypt, Libya, Jordan, Oman, Bahrain, Syria, and Yemen.

The reasons for the Arab spring include dictatorships, poverty, high rates of unemployment and a lack of job opportunities in the majority of the Arab countries. The economies in the majority of these Arab nations are controlled by the government, and for many years, the economy did not develop. On the 17th of December, there was a protest by a Tunisian trader that set himself ablaze to protest about harassment from the authorities. The Arab Spring movement had a negative effect on the economy in the majority of the Arab nations. Foreign investments have eluded the Arab region since the protests began, and this has resulted in Arab merchants transferring their wealth to other continents (Abumustafa, 2016). The Arab

stock market has proven to be unstable, even when there are no major upsets in the market. To reduce risk, Arab investors are advised to keep an open mind in terms of other markets and keep a long-term view of the markets. For a person to safely invest in Arab markets, mutual funds are the recommended buy. Also, because of the high cost and intensive labour in terms of research needed, the cost of annual funds may be higher than that of mutual funds (Abumustafa, 2007).

During the Arab Spring movement, there was a drastic decline in foreign direct investment into Arab nations. The decline was estimated at around 46% during the maiden year. In 2011, Egypt and Tunisia, both key stock markets in terms of capital, underwent huge losses of about 50% of the total market's value. The tension emanating from the political conflict discouraged investors. A survey of the Arab stock markets showed that the number of listed companies and required legislations were below standard while the market capitalisation was very low in comparison to other markets (Abumustafa, 2016).

In a recent survey carried out by Abumustafa (2016), the Arab Spring was shown to have a retrogressive effect on the economy in the years 2015 and 2016, in the majority of the Arab nations. However, the GCC nations, especially Saudi Arabia, experienced growth in their markets. The Arab spring has led to increased investment opportunities in the last 4 years, mostly in Egypt.

The Arab stock market is the best place for potential investors because of the high tensions in the majority of the Arab stock markets in the last 3 years and that expectation these tensions will continue for years to come. The financial system has been the main cause of problems for the economy and the stock markets in the Arab nations. In most cases, there is a limit to the number of foreigners who can control a firm. The second coming of the Arab Spring is expected to be worse than the previous one despite recent stability and profound interest by investors. (Ghosh, 2016) studied the effect of the Arab spring on the MENA region's banks. The study showed that profits decreased by 0.2% and risks increased by 0.4%. In addition, the study indicated that the performance and stability of the banks in the Arab countries were not affected by political unrest as originally thought.

2.6 Conclusion

This chapter provides an overview about the MENA region's economy, stock market, corporate governance and Arab Spring. To evaluate the MENA economy as a whole: most of the MENA countries depend on crude oil in its economy, as such, this region is facing very low growth due to the drop of the oil price. Capital markets in the MENA region are characterised by a high ownership concentration, a few listed firms, and a large number of private companies. In addition, privatisation in this region is slower compared to other developing countries, which can indicate the failure of the capital markets to encourage privatisation, the scarcity of financial resources, weak private sectors, poor regulations and weak corporate governance. Accordingly, this can support the theory, that ownership concentration can substitute the weakness of corporate governance in emerging markets. Also this can explain the hypothesis that legal factors which protect investors can affect companies' ownership concentration. The Arab Spring can be a proxy for political risk, because it is a revolutionary wave that started at the end of 2010 to change the rule of local governments. Many factors led to this revolution, such as human rights violations, political corruption, economic decline, unemployment, and poverty. Therefore, the Arab Spring factor, may affect both ownership concentration and firms' performance in this region.

Chapter Three : The Determinants of Ownership Concentration

3.1 Introduction

The determinants of ownership concentration have drawn the attention of many researchers. Demsetz (1983) believed that ownership structure should be viewed as endogenous to firm performance. In addition, ownership concentration is affected by several factors within firms and countries. This explains why ownership concentration fluctuates within the firms in a single country (Bottasso & Sembenelli, 2004; Demsetz & Lehn, 1985) and within multiple countries (Faccio & Lang, 2002; Holderness & Sheehan, 1988; La Porta et al., 1999; Seifert et al., 2005; Thomsen & Pedersen, 1998).

However, most of the studies covered countries that have devolved economic structures characterised by a unique institutional environment, market structure, and legal system. The purpose of this paper is to investigate the factors that affect the determination of ownership structure in the Middle East and North Africa (MENA) region, with its limited and rigidly regulated financial markets (Turki & Sedrine, 2012).

Nevertheless, the question of why ownership concentration varies across regions, countries, and firms remains unanswered. There are two main lines of thought that may influence the degree of ownership concentration within countries and their laws and cultures (Holderness, 2017). One finding was that the level of the law that protects investors in public firms is negatively related to the degree of ownership concentration (La Porta et al., 1998). However, Holderness (2009) doubted that the country-level factor has any significant effect on ownership concentration. Although legal protection has an effect on shaping ownership structure, he believed that law and ownership concentration are unpredictable (Holderness (2016).

However , Demsetz and Villalonga (2001, p. 228) believed the following.

Diffuse or concentrated, that are of approximate appropriateness for the firms they serve. These structures differ across firms because of differences in the circumstances facing firms, particularly in regard to scale economies, regulation, and the stability of

the environment in which they operate. If these structures were the outcomes of perfect markets for control, they would eliminate any systematic relation between firm performance and ownership structure. (p. 228)

Beck et al. (2003) also believed that legal protection plays an essential role in forming ownership concentration. However, they argued that countries with origins in common law have a higher level of protection for shareholders, leading to a lower concentration of ownership. In contrast, countries with a tradition based in civil law have inadequate ownership protection; consequently, they tend to have a high ownership concentration.

Moreover, Palia (2001) confirmed the endogeneity of ownership structure to firm value. According to Bhagat and Bolton (2008, pp. 257-258),

The relation between corporate governance and performance might be endogenous raising doubts about the causality explanation. There is a significant body of theoretical and empirical literature in accounting and finance that considers the relations among corporate governance, management turnover, corporate performance, corporate capital structure, and corporate ownership structure. Hence, from an econometric viewpoint, to study the relationship between any two of these variables one would need to formulate a system of simultaneous equations that specifies the relationships among these variables. (pp. 257–258)

Therefore, ignoring endogeneity when studying corporate governance, may result in making the coefficient inefficient and unreliable in any regression test.

Although causality indicates the impact and direction between variables, many studies indicated that the relationship between corporate governance mechanisms and firm performance could exist in both directions. For example, Kole (1996) demonstrated that high levels of firm performance leads to increased ownership concentration. This means that although corporate governance affects firm performance, high firm performance levels may also attract and form different corporate governance mechanisms. Agrawal and Knoeber (1996) argued that corporate governance mechanisms depend on one another; one mechanism should not be treated in isolation from other mechanisms. If this were to occur, a misleading conclusion could occur.

On the other hand, some studies had ownership structure as an exogenous variable, one supported by the path-dependent assumption that the ownership structure was stable. Such studies Leech and Leahy (1991), Morck et al. (1988) and Shleifer & Vishny (1986) do not consider any of the effects of performance on ownership structure. In contrast, other studies showed that some corporate governance mechanisms are endogenous to firm performance. Thus, firm performance may have better corporate governance. Given the latter argument, ownership endogeneity is critical when studying the relationship between ownership structure and firm performance.

Therefore, this chapter is an investigation into the factors that affect the determination of ownership structure of firms in the MENA region. This study is important for three reasons. First, it is an attempt to contribute to the literature by filling in the gap with further research into this issue. Second, to the authors' best knowledge it is the first study to comprehensively examine this matter in the MENA region, which will help in two ways. Public firms in the MENA region's financial markets are characterised by a high ownership concentration. Thus, it is worth investigating if a theoretical perspective lies behind this concentration. Ownership right distribution is also an interesting topic for policy makers. Ownership right distribution is also an interesting topic for policy makers when they consider how economic sectors should behave and be formed. Identifying the determinants of ownership concentration may allow a legislative change to limit the control of economic resources by small investors. Finally, this research is the first of its kind to examine the effects of political factors, including the Arab revolution (Arab Spring), on the ownership structure of the examined companies in the MENA region.

The rest of this chapter is structured as follows: a review of the existing literature that considers firm, industry, and country factors; a look at the variables and methodology used; a presentation of the results; and a discussion of the results.

3.2 Review of Existing Literature and Hypotheses Development

After the seminal study conducted by (Grossman & Hart, 1980), the idea of benefiting from controlling a firm's resources has drawn the attention of many researchers. Demsetz and Lehn (1985) argued that a firm's economic nature is relevant when determining the degree of ownership concentration. Firms with significant cash flow volatility tend to have a high

ownership concentration. In contrast, large businesses have a low ownership concentration because of their significant equity.

Demsetz and Lehn (1985) believed that profitable firms can refinance their operations and expansion projects with their earnings, without the need for equity financing. This makes their existing shareholders own more equity, therefore helping in the formation of ownership concentration. Looking at data from 39 countries, Dyck and Zingales (2004) used 393 sales blocks as controlling variables, to find if private benefits have a relationship with the degree of ownership concentration. Their findings showed that high private benefits are linked to a high level of ownership concentration. However, the authors argued that the existence of proper accounting standards, good protection for minority shareholders, and proper law enforcement, reduce ownership concentration.

Empirically, ownership concentration differs between public and non-public firms (Richter & Weiss, 2013). Thus, most of the small and medium firms are controlled by a limited number of individuals, families, or shareholder groups. However, the listed companies seem to have a dispersed ownership structure because of equity capital attracting several investors.

Examining how ownership structures change when companies are listed publicly, Bebchuk (1999) found that the benefits from private control determine the level of ownership concentration. When there is an expectation of large private benefits gained from having control, ownership concentration tends to be high. In countries where private control benefits are substantial, such as in Italy, enterprise founders lock up control when their firms are privatised (Bianchi, Bianco, & Enriques, 1997).

In their study on the difference of ownership structure in 12 European countries, Pedersen and Thomsen (1997) used the 100 largest companies and found that the degree of shareholder protection significantly affects the structure of ownership. They also concluded that company size and industry, shape the ownership structure. However, the factors influencing ownership concentration differed among the studied countries.

Using Canadian firms, Daniels and Iacobucci (2000, p. 90) argued that government protectionism and market power help form firms' ownership structures. They defined market power as 'the ability of firms to earn supra-competitive returns in their product markets' (p. 90). Moreover, La Porta et al. (1999) believed that the legal environment, particularly when the protection of minority shareholders is involved, plays an essential role in ownership

concentration. They argued that a low level of legal protection forces investors to concentrate their ownership on self-protection and ensure proper monitoring.

To find how investor protection shapes the ownership structure, Wolfenzon (1999) proposed two organisation types – pyramidal and horizontal. He found that countries with a low level of investor protection more frequently have a pyramidal structure and a high ownership concentration.

When examining 2,980 firms in East Asian countries, Claessens, Djankov, and Lang (2000) found that pyramidal structures are common in this area, and they are characterised by low legal investor protection and a high ownership concentration. The largest shareholder controls more than 60% of the sample in the study.

Van der Elst (2004) applied the rent-seeking theory, which states that company-level and industry-level parameters are factors that affect ownership concentration besides the level of owner protection. Using six European countries (United Kingdom, Germany, Spain, Italy, France, and Belgium), he found that the type of industry and a firm's investment risks, determine both the concentration level and the ownership identity.

Lim and Kim (2005) studied multi-firm conglomerates in Korea by using a regression model with 6,576 firm observations, to determine the unique structure of ownership. The authors discovered that the industry type and the debt size and level affect the structure of ownership in Koreans firms.

Many extant literature studies have a focus on the factors that may influence firm ownership concentration and take a look at concentration from different perspectives. One study indicated that the size of the firm and the firm-specific risk, impact ownership concentration (Mak & Li, 2001). Moreover, regulation environments in different industry sectors may be related to the differences in ownership concentration between firms (Bergström & Rydqvist, 1990). Holderness (2016) showed that a firm-level variable, such as company size, influences ownership concentration. However, the factors that influence ownership structure are mainly drawn from three levels – country, industry, and firm. The following subsections cover these three levels in detail, besides the summaries of empirical evidence regarding these perspectives.

3.2.1 Country level

According to the institutional view on corporate ownership that originated from Roe's political theory, the ownership structure highly depends on regulations and predominant institutions (Roe, 1991). Moreover, North (1990, p. 3) defined the institutional environment as comprising of 'the rules of the game in a society or, more formally, the humanly devised constraints that shape human interaction'. Moreover, legislation differences among countries shape their financial systems and ownership structures in many ways (Pedersen & Thomsen, 1997). For example, U.S. banks are not allowed by law to own large shares of industrial companies, while banks in Germany are not inhibited by this type of law.

Many theoretical and empirical studies have used country-level factors to examine the determination of ownership structure, particularly ownership concentration. These studies included different countries, using the assumption that the firms in each country have their own frameworks that regulate the responsibilities and rights of ownership (Richter & Weiss, 2013). Therefore, the country-level factors identify the protection level of minority shareholders and facilitate stock market development. Moreover, Doidge et al. (2007) argued that country-level factors have a high degree of influence on firm governance and ownership structures. However, the question of why public firms have different ownership concentrations across countries has not yet been answered (Stulz, 2005).

Using a sample of 540 companies from 27 countries, La Porta et al. (1999) found a negative relationship between ownership concentration and the level of shareholder protection. By using 5,232 firms from Western European countries, Faccio and Lang (2002) found that ownership concentration reacts negatively to shareholder protection levels. In their study about newly privatised firms, Boubakri, Cosset, and Guedhami (2005) concluded that investor protection has a direct effect on ownership concentration. Based on data from 304 companies in four Arab countries, Omran, Bolbol, and Fatheldin (2008a), reported that low investor protection explains the high concentration of ownership in those countries.

Conversely, Spamann (2010) found no relationship between ownership protection and the degree of ownership concentration. Holderness (2016) also doubted that countries with weak investor protection have a greater ownership concentration. In his study, he used samples from 32 countries and firm-level observations, including firm size, to determine ownership concentration and 16 broadly accepted indexes of legal protection. Noting the inconsistencies

between ownership concentration and the law, he concluded that there is no relationship between legal protection and ownership structure.

Moreover, in a unique study, Holderness (2017) implemented cultural factors (such as religion and trust) to find if these help in understanding the determination of ownership concentration. Using 8,076 firms from 32 countries, he did not find any relationship between cultural factors and ownership concentration, or between legal protection and ownership concentration.

Most of the studies concerning country-level factors follow the research of (La Porta et al., 1999; La Porta et al., 1998), who argued that ownership concentration is highly affected by a countries' legal origins. Thus, the degree of ownership protection differs between countries using common law and those governed by civil law.

However, Armour, Deakin, Sarkar, Siems, and Singh (2009) argued that the hypothesis regarding legal origins influencing ownership protection, should take time to be considered. They used panel data from developed and developing countries, covering a 10-year period (1995–2005), to examine the role of legal origins in ownership protection. They found that countries under common law have a relatively high shareholder protection, but countries ruled by civil law have experienced a rapid increase in shareholder protection. Therefore, legal origin might affect shareholder protection through the two explanation channels of 'adaptability' and 'political' types (Hayek, 1960).

Demirgüç-Kunt and Levine (2005) argued that regarding the 'adaptability channel', legal systems that apply common law can rapidly adapt themselves according to economic changes over time. However, legal systems based on civil law react slowly to economic changes because such systems' codes are seldom reviewed. Accordingly, countries under common law are ahead in adjusting shareholder protection compared to countries governed by civil law (La Porta et al., 1999; La Porta et al., 1998).

Regarding the 'political channel', Mahoney (2001) used a sample of 102 countries from 1960–1992 and found that countries using common law have higher legal protection for shareholders than countries using civil law. As a result, countries ruled by common law have fast economic growth because of property security and contract rights. However, concerning both explanation channels, Ahlering and Deakin (2007) doubted that legal origin has any

relation with the legal structures of any country. They believed that these structures are influenced more by the countries' political and economic development.

Moreover, Roe (2003) believed that the power given to employees in Continental European social democracies has had a considerable influence on corporate governance. Thus, for shareholders to offset these forces and ensure their interests, ownership needs to be concentrated. He argued that the best way to ensure their interests is by having major shareholders, which explains why Continental European countries have a higher ownership concentration than Anglo-American countries. Roe (2003) also contended that in countries employing common law, employee influences on firms are low, leading to diffused ownership structures. However, this assumption cannot be applied to ownership concentration. As reported by (Barca & Becht, 2001), although countries such as Germany and Austria have employee power in corporate governance, the ownership structure is not concentrated.

The legal origin hypothesis of (La Porta et al., 1999; La Porta et al., 1998) has gained empirical support from different studies. However, other studies indicate doubts about this assumption. Coffee Jr (1998) questioned (La Porta et al., 1999; La Porta et al., 1998) findings that the UK and U.S. markets are characterised by diffused ownership structures because they have high ownership protection. He even argued that a dispersed ownership structure should not be considered a result of strong protection. Braendle (2006) used the United States and Germany as case studies to find the relationship of legal origin with shareholder protection and observed no significant difference between civil and common law, in the level of shareholder protection. Furthermore, Chirinko, Van Ees, Garretsen, and Sterken (2004) concluded that investor protection under the legal origin hypothesis is not sustained. They found that firms perform effectively in the free market. Likewise, Spamann (2010) found no relationship between legal origin and ownership concentration.

Holderness (2009) used (La Porta et al., 1999; La Porta et al., 1998) concept to study how it can be applied in the United States, a country which has high ownership protection compared to other countries. Using 7,842 companies from 22 countries, he found that on average, ownership concentration in the United States is similar to averages of other countries. However, (Richter & Weiss, 2013) questioned the findings of Holderness' (2009) in two ways. First, a diffused ownership structure is not captured because he used only the largest shareholders, with 5% ownership as the measure of ownership concentration. Second, his

study omitted the firm sizes; most small businesses might have more ownership concentration than large firms.

Pedersen and Thomsen (1997) offered another perspective on the state-level variable; that is, the size and the development of a stock market in a country may have an effect on ownership concentration. They believed that a stock market's development can decrease capital costs and consequently have a positive impact on firms seeking financing options through equity markets. Accordingly, more companies in the stock exchange will look for financing associated with larger investors and will have more investment options. As a result, more businesses in the market increase the portfolios of investors, and a high number of investors, limits the availability of shares for each firm. Therefore, more firms and owners lead to increased dispersion of ownership. Pedersen and Thomsen (1997) empirically supported their argument, finding a positive relationship between market size and ownership dispersion. Consequently, I expect to find a negative relationship between country variables and ownership concentration, as stated in our first hypothesis:

H3a. Strong legal and investor protection have adverse effects on ownership concentration.

3.2.2 Industry level

Industry regulations are essential in controlling firms. However, in the absence of these regulations, larger shareholders may have controlling power over firms (Demsetz & Lehn, 1985). Thus, excessive regulations restrict larger ownership blocks from extracting firms' benefits for themselves, hence limiting their options. Therefore, industry regulations have a negative relationship with ownership concentration. In contrast, Kole and Lehn (1999) investigated how governance can change the ownership structure in a business environment. Reviewing the case of American Airline companies over a 22-year period, they noticed an increase in ownership concentration after the Deregulation Act in 1978. However, Crespi-Cladera (1996) could not find any significant relationship between regulated ownership concentration and the regulation of firms, when it came to Spanish public companies.

Nevertheless, how ownership concentration changes, following changes in industry regulations, is still arguable on theoretical and empirical grounds (Richter & Weiss, 2013). Van der Elst (2004) disputed the argument that because industry regulations differ among nations, the changes in ownership concentration, because of regulatory revisions, vary in all

countries. He clarified that industry factors depend on country-level conditions that affect ownership concentration.

Thomsen and Pedersen (1998) pointed out that three industry-level factors – industry life cycle, competition intensity, and information asymmetries, may affect ownership concentration. Regarding the effects of firms' life cycles, some authors argued that industries at an early stage tend to have a high ownership concentration (de Jong, 2013; Thomsen & Pedersen, 1998). However, this idea has not been empirically proven by researchers because of the disclosed shortage in entrepreneurial, young companies (Richter & Weiss, 2013).

Second, regarding competition intensity, Giroud and Mueller (2010) contended that firms under a high level of industry competition have owners who will evaluate and monitor their enterprises, by comparing the performance of other companies in the same industry. Therefore, agency problems because of dispersed ownership are reduced by strong competition and allow firms to have small ownership concentration (Nickell, Nicolitsas, & Dryden, 1997). On the other hand, strategic decision making in a company that faces high competition, needs to be prompt, which can be achieved in a highly concentrated ownership (Demsetz & Lehn, 1985).

Concerning the third factor, Zeckhauser and Pound (1990) believed that industries with intensive research and development (R&D) have greater information asymmetries than those with less R&D efforts, because it is hard to monitor such activities (Zeckhauser & Pound, 1990). Therefore, large shareholders have low levels of efficiency in monitoring firms that conduct considerable research, leading to a reduced ownership concentration. Conversely, (Makhija & Patton, 2004) investigated the effect of information asymmetries on ownership structure using Czech non-financial firms and showed that firms with high disclosure ambiguity attract ownership concentration. They also believed that ownership structures respond in different ways to each disclosure policy.

The findings of these studies seem to indicate an ambiguous relationship between the industry-level factors and ownership concentration. Empirical studies across countries do not report a significant relationship either (Richter & Weiss, 2013).

3.2.3 Firm level

Demsetz and Lehn (1985) argued that although firms with significant cash flow volatility tend to have a high ownership concentration, this cash volatility depends on the firm size. They believed that as firms grow larger, they need extra cash. Increasing the firms' equity requires additional investors, consequently decreasing ownership concentration in two ways.

On the one hand, firms' operational risks affect their ownership concentration. According to Alchian and Demsetz (1972), shareholders who have relatively high ownership shares in a firm with high operational risks, have incentives to monitor its management. This monitoring works effectively in ensuring the firm carries out effective operations. For this reason, firms facing more risks have increased monitoring and a need for more ownership concentration. Conversely, high risks can be the reason for a low ownership concentration (Demsetz & Lehn, 1985). Demsetz and Lehn (1985) argued that investors tend to have low stakes in firms with high risks to optimise their portfolio diversification. As a result, increasing risks has a negative impact on investors to own large shares in risky firms, hence reducing ownership concentration.

Additionally, Demsetz and Lehn (1985) found a U-shaped relationship between risks and ownership concentration. They argued that a low risk level is associated with a high incentive to monitor the firm. Thus, low-level risks do not affect investor portfolio diversification, but instead, they positively increase ownership concentration as an incentive for effective monitoring. On the contrary, higher risks render a low ownership concentration.

Using 500 Canadian firms in his study, Gedajlovic (1993) found that firm size affects ownership concentration, but no significant relationship exists between risk and ownership concentration. Similarly, based on a sample of public firms in Spain, Crespi-Cladera (1996) reported that firm size has a positive relationship with ownership concentration.

In Boubakri et al. (2005) study involving 209 privatised companies from 39 countries, they found that firm growth and size have direct effects on ownership concentration. Hatem (2014) used two countries in his study, the UK with its diffused ownership structure and Germany, with its concentrated ownership structure. He found that firm size and R&D are linked to ownership structure, but ownership structure is not affected by a firm's profitability.

However, Richter and Weiss (2013) doubted that using firm-level factors can determine ownership concentration. They argued that using a firm-level factor as the systematic variance is not realistic, because unsystematic variances that cannot be clarified by identifiable factors will exist. Consequently, using firm-level variables will possibly overstate their effects on ownership concentration. Consistent with these arguments, I anticipate positive effects of firm variables on the degree of ownership concentration, as expressed in the following hypotheses:

H3b. The larger the company in a developing country, the smaller the number of investors that control it.

H3c. The older the firm, the smaller the number of investors that control it.

H3d. There is a positive effect of firm performance on ownership concentration.

3.3 Empirical Approach

The previous sections covered the literature review and the empirical evidence concerning the determination of ownership concentration. This section aims to present the methodology and results used in this study.

3.3.1 Data

The data was drawn from Bloomberg, DataStream, and the annual financial statements of companies. In order to check the validity and reliability of the data, random data which is gathered from both Bloomberg and DataStream, is checked with the annual financial statement published formally by the firms. This gives our data the assurance of its validity and reliability. Data consists of a sample of publicly listed companies of eight countries from the MENA region (Turkey, Tunisia, Saudi Arabia, Qatar, Oman, Jordan, Egypt, and Bahrain) for the period spanning from 2008 to 2014. The initial data set contains 1,263 firms from different sectors and 8,841 firm-year observations.

The countries used in this study were chosen according to the availability of data in the database; some countries, such as Iran, have no data available in the databases. Also, because the recent political and economic situation has the potential to affect the credibility of the data and the performance of the firms, countries such as Iraq, Syria, and Palestine were excluded from the study.

Moreover, the study took into consideration broad cross-sections to cover the main parts of the MENA region, with at least two countries from each section used in the study. So Saudi Arabia, Qatar, Oman, and Bahrain covered the Gulf States; Turkey and Jordan covered the Mashreq countries; Tunisia and Egypt covered the Maghreb countries.

Companies were grouped in three types of industries: financial, manufacturing, and service companies. The financial group covers all financial institutions, including insurance companies but excluding banks. Banks are excluded because they are subject to different regulations and supervisions, different capital structures, and entirely different types of risks (liquidity, operational, capital adequacy, interest-rate, etc.), meaning their inclusion might distort the results. The manufacturing group comprises of all enterprises that produce goods for final use, including energy companies. The service group includes all businesses that provide services only, such as education, communications, technology, and utilities.

After excluding any sample that neither had no performance data or ownership structure data, 912 firms from different sectors and 5,521 firm-year observations remained. A description of the countries and industry data can be found in Table 3.1 and Figure 3.1.

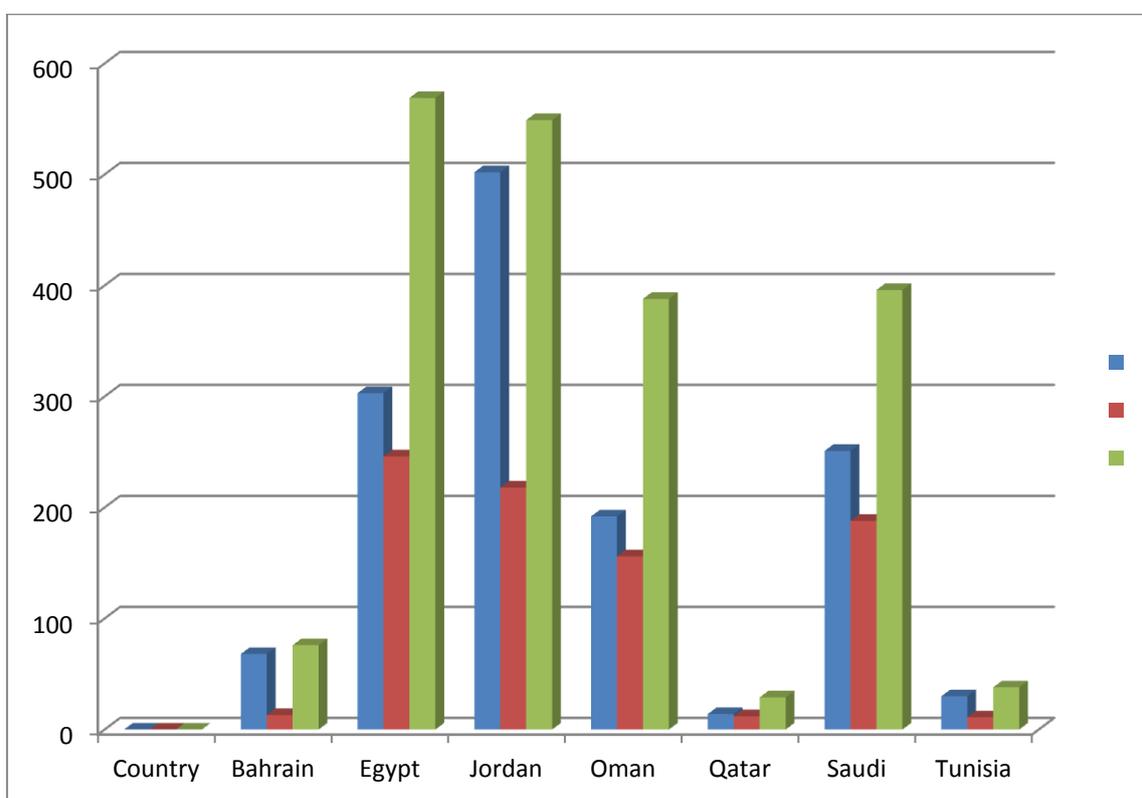
Turkey's data has 23% of the whole sample; this percentage is not surprising because Turkey has the biggest market in the area, with 468 companies (according to Bloomberg as of December 2014) in its exchange markets. Jordan and Egypt represent 22% and 20%, respectively, of the sample. Bahrain has a very low sample compared to the other countries, and this is because it has the smallest market. Although Tunisia has 173 companies listed in the exchange market (according to Bloomberg as of December 2014), these companies lack financial data. Saudi Arabia and Oman, representing the Gulf countries, have the largest exchange markets in the area and represent 28% of the complete sample data.

Concerning the industry types, service is represented at 51.5% of the total sample while manufacturing is the lowest at 20.47%. However, Jordan and Bahrain have approximately the same number of financial and service groups.

Table 3.1 Number of observations in each country

Country	Financial	Manufacturing	Service	Total
Bahrain	68	13	76	157
Egypt	303	246	569	1,118
Jordan	502	218	549	1,269
Oman	192	156	388	736
Qatar	14	12	29	55
Saudi	251	188	396	835
Tunisia	30	11	38	79
Total	1,550	1,130	2,841	5,521

Figure 3.1 Data observation according to countries and industries types.



3.3.2 Independents Variables

As discussed earlier, almost all studies about the relationship between ownership concentration, firm performance, or the determining factors of ownership concentration, use three types of levels – firm, industry, and country. However, different variables of the three

levels are used in the cited studies. This section only highlights the variables used in this study because of limitations in the sources of other variables.

3.3.2.1 Firm-level Variables

The firm-level variables are firm size, firm age, financial leverage, and firm performance. Based on the Demsetz and Lehn (1985) argument, this study has the aim of examining the relationship between ownership concentration and firm performance. However, many researchers measure firm size in different ways. For example, Demsetz and Villalonga (2001) used total assets as the firm size measurement, but Richter and Weiss (2013) used the logarithm of companies' total market capitalisation. In this study, the firms' total assets are used as the measure of firm size.

Mak and Li (2001) used firm size as an explanation factor for determining ownership concentration. Majumdar (1997) argued that old firms have experience that enables them to perform at superior levels when compared to younger firms. Moreover, Leech and Leahy (1991) believed that old firms have a long life cycle, enhancing their profits because of their years of experience and established reputations. Mueller (1972) stated that because young firms have uncertain life cycles, this creates barriers when trying to receive outside funds. Hatem (2014) also found that firm age has a significant, positive relationship with ownership concentration, arguing that older firms attract more investors than younger ones because they are better recognised.

According to Short (1994), the capital structure depends on the ownership structure. Likewise, Stulz (1988) pointed out that insider ownership tends to increase its leverage in avoidance of other shareholders taking control over the firm; that is, inside owners can strengthen their voting power when they increase their equity in the firm. However, Holderness (2003) found no empirical evidence to support Stulz's hypothesis. Moreover, according to both Demsetz and Lehn (1985) and Stulz (1988), high-leverage firms have a high risk that is linked to a given stake, which negatively impacts ownership concentration.

Causality indicates the impact direction among variables. However, many studies have shown that the relationship between corporate governance mechanisms and firm performance could occur in both directions. Demsetz (1983) viewed the relationship between ownership concentration and firm performance as endogenous. Bhagat and Bolton (2008) also doubted the causality explanation because of the endogeneity of the two factors (ownership

concentration and firm performance). Kole (1996) considered the causality between ownership structure and firm performance, showing that high firm performance is a cause of an increase in ownership. This means that although corporate governance affects firm performance, high firm performance may also attract and form different corporate governance mechanisms. Agrawal and Knoeber (1996) argued that corporate governance mechanisms depend on one another; one mechanism should not be held in isolation from other mechanisms.

Different researchers used various firm performance measurements because of the unique characteristics that each performance has; these also depend on the purpose of the study. Performance measurements can be categorised into two groups: backward-looking and forward-looking (Demsetz & Villalonga, 2001). Accounting ratios are considered backward-looking and are calculated under the standard constraints of firm accounts. In contrast, the market ratio is forward-looking and calculated under the market constraints of the investor community. However, many researchers use both accounting and market ratios as performance measures to find the relationship between corporate governance and firm performance. In this study, three ratios are used. ROA and ROE, representing the accounting ratio, and Tobin's Q, representing the market ratio.

3.3.2.2 Industry-level Variables

Omran, Bolbol, and Fatheldin (2008b) used sectoral affiliation to determine ownership concentration and did not find a significant relationship between the two. However, Welch (2003) documented that the media and financial industries have more ownership concentration than other industries. Moreover, a dummy variable for industry classification has frequently been used in ownership studies (Richter & Weiss, 2013; Thomsen & Pedersen, 1998; Van der Elst, 2004). Thus, this study categorises firms into three main industries: the financial group (FIN), the manufacturing group (MIN), and the service group (SEV).

3.3.2.3 Country-level Variables

In this study, a dummy variable is used to capture country differences. Also following the assumption of the essential ROL and ownership protection in ownership concentration, as argued by (La Porta et al., 1999; La Porta et al., 1998), two country-level variables are implemented: legal environment and corruption control.

For the legal environment, this study uses the ROL index. According to the World Justice Project, there are 44 indicators across eight categories: open government, constraints on government powers, fundamental rights, regulatory enforcement, criminal justice, civil justice, order and security, and absence of corruption. Based on a score range (between -2.5 and +2.5), a country with a high point total has a strong ROL. As a proxy for legal environment efficiency, the ROL index is used to replicate (La Porta et al., 1998) study.

To capture the degree of governance, the corruption control index is used in this study; it ranges from +2.5 to -2.5, with +2.5 being the highest degree of corruption control. The source of both indexes is the Global Economy's Web site (<http://www.theglobaleconomy.com>). The Web site 'provides interactive tools with economic data from multiple official sources such as the World Bank, the United Nations, the US Energy Information Administration, UNESCO, and the World Economic Forum'. Table 3.2 shows the descriptive statistics of these indexes.

Table 3.2 Average legal Environment Indexes

	Rule of Law	Corruption Control
Bahrain	0.415	0.307
Egypt	-0.360	-0.584
Jordan	0.335	1.742
Oman	0.606	0.211
Qatar	0.960	1.289
Saudi	0.220	-0.044
Tunisia	-0.102	-0.136
Turky	0.084	0.057
Total	0.157	0.336

Finally, for the country level, we used the Arab Spring movement to study the political effects on ownership concentration. The Arab Spring is a revolutionary wave that started at the end of 2010 and changed the rule of local governments. Many factors led to this revolution, such as human rights violations, political corruption, economic decline, unemployment, and poverty. The Arab Spring movement affected the MENA region either directly or indirectly. The countries that were influenced by this revolution and its reshaping of the national governments and laws are Tunisia, Egypt, Libya, Jordan, Oman, Bahrain, Syria, and Yemen.

The effects of both macroeconomic and political uncertainty on security markets have attracted a great deal of research. For example, Colak, Durnev and Qian (2016) found that initial public offerings (IPO) in many American states fall during the time of gubernatorial elections because of political uncertainty surrounding these elections. Moreover, Pástor and

Veronesi (2013) found that political uncertainty leads to high investment risk and falling asset prices. They argue that countries that combine high political uncertainty and a weaker economy are subject to higher market volatility.

(Mahboub & Abdou, 2012) used data from four Arab countries from 1995–2011 and concluded that economic conditions was the main cause of the Arab Spring movement. This revolution has had a negative impact on those countries, at least in the short term. Ghosh (2016) used 102 conventional banks and 26 Islamic banks from 12 MENA countries over a 3-year period, to study how the Arab Spring movement affected bank profitability. They found Islamic banks did not see a drop in performance because of these political effects; though, other banks had their profits fall by 0.2%.

Chau, Deesomsak, and Wang (2014) also examined the impact of the Arab Spring movement on conventional and Islamic banks. They showed there was a significant increase in the instability of Islamic indices and insignificant impacts on conventional banks. Moreover, Ghosh (2016) argued that investment risk increased because of the Arab Spring movement. Thus, the ownership concentration of firms were affected by investment risk (Demsetz & Lehn, 1985; Stulz, 1988; Van der Elst, 2004).

To capture the real effects of the Arab Spring movement, a dummy variable was used to explain the influences of this political movement. For 2011–2014, a value of 1 was assigned to Tunisia, Egypt, Jordan, Oman, and Bahrain, and a value of 0 was given for the other years. The value of 0 was also assigned for 2011–2014 to the other countries.

3.3.3 Ownership Concentration Measures

The study used a 5% or more, of a firm's equity owned by each shareholder, to define ownership concentration. Table 3.3 documents the descriptive statistics for ownership concentration in each country. Most countries in the study have more than a 50% average ownership concentration, except for Qatar and Saudi Arabia. This means that the MENA region has a large ownership concentration. This high ownership concentration has been reported by (Farooq & El Kacemi, 2011) and (Omran et al., 2008a).

Egypt has the highest average ownership concentration at about 60% while Saudi Arabia has the lowest average ownership concentration at about 37%. Moreover, the overall average of

the sample data is 55%. Table 3.3 shows that all the three industry types have at least 50% average ownership concentration each.

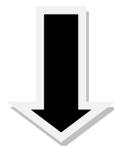
Also, the HHI is also used to capture the dispersion degree of the largest 20 shareholders. The index is calculated as the sum of squared ownership for each firm, and it ranges from 0 to 10,000 points. Cubbin and Leech (1983) said it is important to use the HHI to measure the degree of control and in empirical tests.

Table 3.3 Average Ownership Concentration in Each Country

	N	Mean	minimum	maximum	SD
Bahrain	157	59.46	7.85	99.55	22.32
Egypt	1118	60.89	0.00	99.88	25.02
Jordan	1269	57.57	5.52	99.75	22.31
Oman	736	59.17	5.80	99.70	22.36
Qatar	55	44.65	13.00	70.02	16.12
Saudi	835	37.21	0.00	94.44	22.08
Tunisia	79	52.12	14.69	98.52	22.72
Turkey	1272	57.33	0.00	99.00	23.47
Financial	1550	50.71	0.00	99.88	23.15
Service	2841	57.58	0.00	99.70	24.18
Manufacturing	1130	55.24	0.00	99.75	25.59
Total / Average	5521	55.17	0.00	99.88	24.37

Figure 3.2 Theoretical Framework. Determinates of ownership concentration

Firm levels	
Firm Size	Total assets
Firm Age	The number of years since firms have been founded
Financial Leverage	Total debt/Total equity
Firm Performance	ROA, ROE, and Tobin's Q
Industry level	
Sector Affiliation	Financial, Manufacturing, and Service
Country level	
Rule of Law	Confidence degree in the quality of contract enforcement, property rights, the police, and the courts, crime, and violence.
Corruption Control	Captures perceptions of the extent to which public power is exercised for private gain.



Ownership Concentration
<ul style="list-style-type: none"> • Total Concentration (CON) • Herfindahl Index (HHI)

3.3.4 Regression Model

The current study has two dependent variables. The first one is the total ownership concentration (CON) for the largest shareholders who own 5% or more of a firm's equity. Second is the HHI, which captures the dispersion degree of the largest shareholders; it is calculated as the sum of squared ownership for each firm.

3.3.4.1 Panel data analysis

A natural way to investigate the factors that affect ownership concentration is by using a model, such as the following one, which takes advantage of the panel structure of the data uses in this study, which are ordinary least squares (OLS), fixed effects model and random effects model :

$$\begin{aligned} \text{Ownership Concentration}_{it} = & \beta_0 + \beta_1 \text{firm performance}_{it} + \beta_2 \text{Age}_{it} + \\ & \beta_3 \text{Leverage}_{it} + \beta_4 \text{Size}_{it} + \beta_5 \text{Arab Spring}_{it} + \beta_6 \text{ROL}_{it} + \beta_7 \text{Corruption Control}_{it} + \\ & \beta_7 \text{Year Fixe effects}_{it} + \beta_8 \text{Industry Fixe effects}_{it} + \beta_9 \text{Country Fixe effects}_{it} + \varepsilon_{it} \end{aligned} \quad (7.1)$$

Where the following is true:

- Ownership concentration = Total percentage of largest shareholders (CON) and Herfindahl index (HHI)
- Firm size = Total firm assets
- Firm age = Period from a firm's establishment up to 2008, increasing by 1 each year afterwards
- Financial leverage = a firm's total debt or total assets
- ROL = rule of law
- Firm performance = ROA, ROE, and Tobin's Q, using the previous year's performance under the assumption that the performance of the current year affects the ownership structure of the upcoming year.

3.3.4.2 Dynamic Model, the generalised method of moments (GMM)

Using panel-data regressions presents a major problem when considering controlling for heterogeneity (unobservable characteristics) between explanatory variables. Thus, the repeated observations in this study, exploit time series variations in obtaining consistent estimates of the variables that effects ownership concentration. Accordingly, this study follows the classical generalised method of moments (GMM), in estimating the parameter vector by the value implied, by the corresponding sample moments, in order to control heterogeneity between explanatory variables. This method uses assumptions about specific moments of the random variables instead of assumptions about the entire distribution, which makes the GMM more robust than panel-data regressions.

The key in the GMM is a set of population moment conditions that are derived from the assumptions of the classical linear regression models as follows:

$$Y_{it} = X'_{it}\beta + \varepsilon_{it} \quad (7.2a)$$

Where the dependent variable Y_{it} and the independent variable is $X_{it} = (X_{1it}, \dots, X_{mit})$ is m-vector of explanatory variables and β is an m-vector of regression coefficients, and ε_{it} is an error term.

The moment condition is:

$$\mathbb{E} [(y_{it} - X'_{it}\beta)x_{ti}] = \mathbb{E} [e_{it} X_{ti}\beta] = 0 \quad (7.2b)$$

Given data on the observable variables the GMM model finds values for the model parameters such that corresponding sample moment conditions are satisfied as closely as possible. In this study, the only the single moment of conditions in equation (2b) is used, given T observations, the implied sample moment is:

$$\frac{1}{T} \sum_{t=1}^T (y_{it} - X'_{it}\beta)x_{ti} = 0 \quad (7.2c)$$

Given the fact that $T > m$, the empirical moment condition in the study model is:

$$\sum_{t=1}^T (y_{it} - X'_{it}\beta)X_{it} = X'y - (X'X)\beta \quad (7.2d)$$

Where y is the dependent variable which is ownership concentration measured by Total percentage of largest shareholders (CON) and the Herfindahl index (HHI). X is the independent variables which are: firm size, firm age, financial leverage, corruption control, rule of law, Arab Spring and firm performance, measured by ROA, ROE, and Tobin's Q .

3.3.4.2 2SLS regression model

However, using panel-data regressions presents a major problem when considering the exogenous relationship among the explanatory variables. Thus, the endogeneity issue between ownership concentration and firm performance is not addressed in these regressions. However, dealing with the endogeneity problem in studying ownership structure is critical (Cho, 1998; Demsetz, 1983; Himmelberg et al., 1999; Holderness, Kroszner, & Sheehan, 1999; Morck et al., 1988).

However, Himmelberg et al. (1999) believed that instrumental variables (IV) can control the endogeneity issue between ownership concentration and firm performance. So to mitigate the unobservable heterogeneity that may exist across firms, this study uses a 2SLS.

In this study, the possible causality between ownership concentration and the independent variables in our models can be found in firm performance variables (ROA, ROE, and Tobin's Q). In many studies, ownership concentration has different impacts on firm performance. So this study treats firm performances as an endogenous variable. In addition, we use GDP as an

instrumental variable; that is, GDP has been shown in a large number of studies to have a positive effect on firm performance. This IV was carefully chosen; it is highly correlated with firm performance and has no impact on ownership concentration. We ended up with the following 2SLS equation.

$$\begin{aligned} \text{Ownership Concentration}_{it} = & \beta_0 + \beta_1 \text{firm performance}_{it} + \beta_2 \text{Age}_{it} + \\ & \beta_3 \text{Leverage}_{it} + \beta_4 \text{Size}_{it} + \beta_5 \text{Arab Spring}_{it} + \beta_6 \text{ROL}_{it} + \beta_7 \text{Corruption Control}_{it} + \\ & \beta_8 \text{Year Fixe effects}_{it} + \beta_9 \text{Industry Fixe effects}_{it} + \beta_{10} \text{Country Fixe effects}_{it} + \varepsilon_{it} \end{aligned} \quad (7.3a)$$

$$\text{Firm performance}_{it} = \beta_0 + \beta_1 \text{LGDP}_{it} + \varepsilon_{it} \quad (7.3b)$$

Where: LGDP = Log of growth rate of gross domestic product

Given this 2SLS, first by estimating equation (3b) to obtain the value of the firm performance and then replacing this value in equation (3a) to examine the effects of firm performance on ownership concentration. However, putting a strong instrument in place is very important to avoid weak IV biases (Stock, Wright, & Yogo, 2002).

Thus, the first stage of the IV test is used to examine the weaknesses of the IV (firm performance = log GDP); following Stock and Yogo (2005) tabulation of the significant values for weak instruments test, the study rejects the null of a relative bias greater than 10%. The test's results show that the instruments are not weak and are valid in the model.

Also Table 3.4 presents the correlation coefficients of the variables used in the study, the correlations between ownership concentration and most of the independent variables are statistically significant. In addition the correlations between the independent variables are not high and this gives good indications that the explanatory variables are not affecting each other.

Table 3.4 Correlation Table

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) CON	1.0000									
(2) ROA	0.0555*	1.0000								
(3) ROE	0.0455*	0.8572*	1.0000							
(4) TOBIN Q	0.0477*	0.1837*	0.1511*	1.0000						
(5) Rule of Law	-0.1069*	-0.0619*	-0.0506*	-0.0588*	1.0000					
(6) Arab Spring	-0.2048*	0.0767*	0.0725*	0.1166*	-0.0334	1.0000				
(7) Firm Size	0.0314	0.0039	0.0571*	-0.0224	-0.0353*	0.0974*	1.0000			
(8) Firm Age	0.0404*	0.1452*	0.1315*	0.1119*	-0.3509*	0.1014*	0.0740*	1.0000		
(9) Financial leverage	0.0048	-0.0001	0.0012	-0.0018	0.0113	-0.0179	0.0004	-0.0206	1.0000	
(10) Corruption Control	-0.0102	-0.0011	-0.0033	-0.0082	0.0720	-0.0146	-0.0019	0.0099	-0.0001	1.0000

*Significant at 1% ; CON = total percentage of largest owners who won 5% or more of firm's equity ; ROA = Return on asset ;ROE = Return on equity ; Firm Size = Total assets ; Firm Age = The number of years since firms have been founded ; Financial Leverage = Total debt/Total equity ; Arab Spring Dummy variable used to explain the effects of the political movement ; Rule of Law = Confidence degree in the quality of contract enforcement, property rights, the police, and the courts, crime, and violence ; Corruption Control = Captures perceptions of the extent to which public power is exercised for private gain.

3.3.5 Robustness Checks

For robustness checks, to check the validity of the study models, a multicollinearity test was conducted by calculating the variance inflation factor (VIF). Table 3.5 shows the results of VIF test; the highest value is 1.14, which is below the suggested largest value of 10. Therefore, multicollinearity does not exist in the study's regression models.

Table 3.5 Multicollinearity Test by Calculating the Variance Inflation Factor (VIF)

Variable	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
ROA	1.07	0.933				
ROE			1.03	0.968		
Tobin_Q					1.03	0.973
Rule of Law	1.13	0.888	1.13	0.888	1.13	0.887
Corruption Control	1.00	0.999	1.00	0.999	1.00	0.999
Arab Spring	1.05	0.949	1.05	0.950	1.06	0.941
Firm Size	1.03	0.971	1.03	0.968	1.03	0.970
Firm Age	1.14	0.879	1.13	0.883	1.13	0.887
Financial leverage	1.06	0.944	1.02	0.977	1.01	0.985
Mean VIF	1.07		1.06		1.06	

3.4 Results

In order to capture different results from different regression models, the study uses a panel-data analysis that implements five regression types: ordinary least squares, fixed effects model, random effects model, GMM, and 2SLS. Also because of the difference between countries and their varying economic environments, labour markets, and capital structures, capturing the country effects is important for obtaining good results. As well as controlling different industry effects due to product market competition which this study does. Moreover, year effects are controlled to find a logical explanation about how each variable is affected by time. So, the results in this section are showed in five subsections, subsection 3.4.1 shows the Results without Controlling for Country, Industry and Year Effects. Subsection 3.4.2, 3.4.3, and 3.4.4 illustrate the results after controlling industry effects, country effects and year effects respectively. In addition to collinearity between the variables, Subsection 3.4.5 explains the results by using firm variables separately from the other variables, and each country variable separately from the other variables.

3.4.1 Results without Controlling for Country, Industry and Year Effects.

Tables 3.6, 3.7 and 3.8 show different regression results regarding the determinates of ownership concentration. Regarding the effects of firm performance, it seems that all ratios (ROA, ROE, and Tobin's Q) have some degree of effect on ownership concentration, as measured by both CON and HHI. However, not all regression models show the same significance levels; in table 3.6 and 3.7 ROA and ROE show a positive significance at the 1% level on both CON and HHI when using OLS and GMM regressions. In table 3.8 Tobin's Q appears to have a significant and positive impact on CON in four regression models. Nevertheless, none of these performance ratios show any significance after controlling for endogeneity and using the 2SLS model.

Concerning firm factors, firm size shows a different positive significance level with CON and HHI every model, except for in fixed effects, which shows that firm size does not have any impact on HHI. Also, firm age shows positive significant effects on CON and HHI. Financial leverage also shows some level of positive significance with ownership concentration indexes, but this does not occur in all regression models. These results indicate that firm level is an important part in determining ownership concentration.

Rule of law shows a 1% significant negative effect on CON and HHI in all models. However, corruption control shows a negative significance at the 1% level with CON in all models, except for OLS; it has a different level of significance in different regression models with HHI. These results show that rule of law plays an essential role in shaping ownership concentration.

The Arab Spring variable also demonstrates a negative impact on ownership concentration in CON at a 1% level of significance in all five models. However, with HHI as the dependent variable, the significance level of the Arab Spring variable is different between the models, and 2SLS shows the Arab Spring variable having no effect on HHI.

In conclusion, it is apparent that the different independent variables affect ownership concentration at different significance levels. However, these results do not capture the effects of industry, country, and year-fixed effects, which may change the results after controlling for them. So the next three sections investigate the impact of controlling for industry, country, and year.

Table 3.6 Different Regressions Results using ROA as firms' performance measure, without an industries, countries and years effects.

This table presents different regressions results to find the deterrents of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROA	0.178*** (5.23)	0.026 (1.05)	0.03 (1.25)	0.178*** (5.30)	0.182 (0.48)	0.125*** (4.18)	0.049 (1.83)	0.053* (2.02)	0.125*** (4.24)	0.136 (0.41)
Firm Size	0.001*** (3.53)	0.001* (2.28)	0.001*** (3.92)	0.001*** (4.41)	0.001*** (5.08)	0.001*** (5.05)	0.001* (1.22)	0.001** (2.86)	0.001*** (4.66)	0.001*** (5.17)
Firm Age	0.040* (2.00)	0.094** (3.19)	0.062* (2.48)	0.040* (1.92)	0.032* (0.86)	0.069*** (3.93)	0.055*** (3.46)	0.058*** (3.94)	0.069*** (3.90)	0.082* (2.50)
Financial leverage	0.302** (2.84)	0.068 (0.78)	0.028 (0.34)	0.302** (2.79)	0.392 (1.36)	0.360*** (3.87)	0.022 (0.29)	0.036 (0.48)	0.360*** (3.97)	0.216 (0.86)
Rule of Law	-4.981*** (-4.93)	-25.252*** (-12.35)	-19.931*** (-12.38)	-4.981*** (-5.15)	-4.425*** (-4.25)	-8.141*** (-9.21)	-10.132*** (-7.36)	-9.936*** (-7.87)	-8.141*** (-8.99)	-8.371*** (-8.64)
Corruption Control	-0.01 (-0.84)	-0.003*** (-14.29)	-0.004*** (-14.96)	-0.010*** (-14.17)	-0.010*** (-15.38)	-0.001 (-0.10)	-0.001** (-2.60)	-0.001* (-2.36)	-0.001 (-1.77)	-0.001 (-1.87)
Arab Spring	-10.542*** (-15.53)	-4.372*** (-9.03)	-5.191*** (-10.63)	-10.542*** (-15.91)	-11.301*** (-13.01)	-1.411* (-2.38)	-1.419*** (-4.02)	-1.425*** (-4.05)	-1.411* (-2.43)	-1.423 (-1.86)
Intercept	59.845*** (74.59)	58.792*** (57.58)	58.703*** (51.92)	59.845*** (74.70)	60.204*** (46.51)	19.182*** (27.33)	21.171*** (35.79)	20.824*** (24.66)	19.182*** (26.58)	20.036*** (17.38)
Adjusted R-sqr	0.057	0.146	0.144	0.057	0.064	0.055	0.120	0.056	0.054	0.043
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.7 Different Regressions Results using ROE as firms' performance measure, without industries, countries and years effects .

This table presents different regressions results to find the detorments of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROE	0.076*** (3.97)	0.02 (1.32)	0.022 (1.51)	0.076*** (3.98)	0.091 (0.48)	0.048** (2.85)	0.027 (1.74)	0.029 (1.89)	0.048** (2.92)	0.068 (0.41)
Firm Size	0.001*** (3.38)	0.001* (2.27)	0.001*** (3.88)	0.001*** (4.23)	0.001*** (4.01)	0.001*** (4.94)	0.001 (1.16)	0.001** (2.76)	0.001*** (4.56)	0.001*** (4.83)
Firm Age	0.045* (2.23)	0.093** (3.18)	0.062* (2.47)	0.045* (2.14)	0.036* (1.10)	0.073*** (4.15)	0.054*** (3.44)	0.058*** (3.93)	0.073*** (4.14)	0.080** (2.86)
Financial leverage	0.226* (2.16)	0.066 (0.77)	0.028 (0.33)	0.226* (2.18)	0.317* (2.03)	0.305*** (3.32)	0.019 (0.25)	0.032 (0.43)	0.305*** (3.39)	0.271* (1.99)
Rule of Law	-5.038*** (-4.98)	-25.279*** (-12.38)	-19.967*** (-12.39)	-5.038*** (-5.21)	-4.459*** (-4.36)	-8.188*** (-9.26)	-10.105*** (-7.35)	-9.913*** (-7.85)	-8.188*** (-9.05)	-8.346*** (-8.78)
Corruption Control	-0.01 (-0.84)	-0.003*** (-14.27)	-0.004*** (-14.93)	-0.010*** (-14.13)	-0.010*** (-15.38)	-0.001 (-0.09)	-0.001** (2.74)	-0.001* (2.51)	-0.001 (-1.68)	-0.001* (-2.01)
Arab Spring	-10.465*** (-15.41)	-4.391*** (-9.03)	-5.207*** (-10.62)	-10.465*** (-15.77)	-11.253*** (-13.85)	-1.345* (-2.27)	-1.428*** (-4.04)	-1.432*** (-4.08)	-1.345* (-2.31)	-1.459* (-2.04)
Intercept	60.041*** (74.95)	58.773*** (57.55)	58.685*** (51.91)	60.041*** (75.01)	60.355*** (56.31)	19.342*** (27.61)	21.195*** (35.97)	20.848*** (24.72)	19.342*** (26.74)	19.924*** (20.81)
Adjusted R-sqr	0.055	0.146	0.144	0.055	0.062	0.044	0.110	0.056	0.054	0.044
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.8 Different Regressions Results using ROE as firms' performance measure, without industries, countries and years effects.

This table presents different regressions results to find the determinants of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
TOBIN_Q	1.322*** (4.99)	0.596** (2.63)	0.614** (2.86)	1.322*** (4.79)	2.454 (0.48)	1.420*** (6.14)	0.251 (1.84)	0.300* (2.32)	1.420*** (5.16)	1.83 (0.41)
Firm Size	0.001*** (3.79)	0.001* (2.27)	0.001*** (3.93)	0.001*** (4.75)	0.001*** (4.17)	0.001*** (5.35)	0.001 (1.18)	0.001** (2.85)	0.001*** (4.96)	0.001*** (4.02)
Firm Age	0.045* (2.25)	0.092** (3.13)	0.061* (2.41)	0.045* (2.15)	0.032* (0.77)	0.070*** (3.96)	0.054*** (3.38)	0.058*** (3.86)	0.070*** (3.96)	0.083* (2.38)
Financial leverage	0.189 (1.82)	0.073 (0.85)	0.036 (0.43)	0.189 (1.84)	0.267* (2.38)	0.282** (3.10)	0.004 (0.05)	0.017 (0.22)	0.282** (3.15)	0.309** (3.14)
Rule of Law	-4.906*** (-4.85)	-25.270*** (-12.38)	-19.935*** (-12.39)	-4.906*** (-5.09)	-4.145** (-3.10)	-8.003*** (-9.07)	-9.969*** (-7.17)	-9.797*** (-7.71)	-8.003*** (-8.90)	-8.580*** (-7.04)
Corruption Control	-0.01 (-0.82)	-0.003*** (-14.30)	-0.004*** (-14.94)	-0.010*** (-13.75)	-0.010*** (-8.03)	-0.001 (-0.07)	-0.001** (2.65)	-0.001* (2.44)	-0.001 (-1.20)	-0.001 (-1.37)
Arab Spring	-10.702*** (-15.70)	-4.451*** (-9.20)	-5.270*** (-10.78)	-10.702*** (-16.11)	-11.820*** (-6.72)	-1.670** (-2.81)	-1.404*** (-4.09)	-1.412*** (-4.14)	-1.670** (-2.86)	-1.037 (-0.68)
Intercept	58.874*** (69.28)	58.155*** (55.03)	58.031*** (49.76)	58.874*** (69.05)	57.978*** (10.17)	17.951*** (24.20)	21.037*** (34.54)	20.620*** (23.92)	17.951*** (23.06)	21.695*** (4.36)
Adjusted R-sqr	0.056	0.148	0.146	0.056	0.059	0.045	0.101	0.056	0.053	0.042
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

3.4.2 Results Controlling for Industry Effects.

Different regression results for determinates of ownership concentration, after controlling for industry effects are shown in Tables 3.9, 3.10, and 3.11. Concerning the effects on firm performance, it seems that even after controlling for the effects the different industry types could have, all ratios (ROA, ROE, and Tobin's Q) have some degree of effect on ownership concentration, as measured by both CON and HHI. However, like the results above, not all the regression models show the same significance level. The results in table 3.9 and 3.10 demonstrate that ROA and ROE show positive significance both in CON and HHI only by using OLS and GMM regressions. While the results in table 3.11 shows that Tobin's Q appears to have a significant positive impact on CON in four regression models. Nevertheless, none of these performance ratios show any significance after controlling for endogeneity by using the 2SLS model.

Regarding firm factors, even using a model that accounts for the effects of different industry types, firm size shows different positive significance levels with CON and HHI. Also firm age shows positive significant effects on ownership concentration indexes in some regression models and does so at different significance levels. Also, financial leverage shows some level of positive significance with CON and HHI, but not in all regression models. These results support the findings above and indicate that firm size is an important part in determining ownership concentration.

There is no change in the results regarding the rule of law. The rule of law negatively correlates with CON and HHI at the 1% significance level in all models. Also, corruption control shows a negative significance at the 1% level with CON in all models, except for OLS, and shows a different level of significance in different regression models with HHI. It seems that controlling for the industry effect does not change how rule of law and corruption control affects ownership concentration.

The significance of the Arab Spring movement in this model does not change as before, making it obvious that it has a negative impact on ownership concentration, as measured by CON and HHI. Thus, controlling for industry effects does not affect the significance of Arab Spring movement on ownership concentration.

Table 3.9 Different Regressions Results using ROA as firms' performance measure, with industries effects only.

This table presents different regressions results to find the determinants of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROA	0.132*** (3.85)	0.026 (1.05)	0.026 (1.09)	0.132*** (3.89)	0.2 (0.54)	0.081** (2.68)	0.049 (1.83)	0.051 (1.93)	0.081** (2.68)	0.118 (0.37)
Firm Size	0.001** (3.13)	0.001* (2.28)	0.001*** (3.79)	0.001*** (3.91)	0.001*** (4.59)	0.001*** (4.72)	0.001 (1.22)	0.001** (2.76)	0.001*** (4.34)	0.001*** (4.83)
Firm Age	0.015 (0.75)	0.094** (3.19)	0.056* (2.23)	0.015 (0.72)	0.005 (0.16)	0.044* (2.50)	0.055*** (3.46)	0.054*** (3.71)	0.044* (2.53)	0.049 (1.81)
Financial leverage	0.311** (2.94)	0.068 (0.78)	0.027 (0.32)	0.311** (2.70)	0.444 (1.60)	0.370*** (4.00)	0.022 (0.29)	0.037 (0.49)	0.370*** (3.94)	0.275 (1.16)
Rule of Law	-4.993*** (-4.98)	-25.252*** (-12.35)	-19.798*** (-12.31)	-4.993*** (-5.18)	-4.353*** (-4.21)	-8.168*** (-9.31)	-10.132*** (-7.36)	-9.883*** (-7.85)	-8.168*** (-9.09)	-8.313*** (-8.69)
Corruption Control	-0.008 (-0.68)	-0.003*** (-14.29)	-0.003*** (-14.62)	-0.008*** (-11.05)	-0.008*** (-9.64)	-0.001 (-0.09)	-0.001** (-2.60)	-0.001* (-2.56)	-0.001 (-1.47)	-0.001 (-1.43)
Arab Spring	-10.814*** (-16.03)	-4.372*** (-9.03)	-5.234*** (-10.71)	-10.814*** (-16.48)	-11.633*** (-14.28)	-1.665** (-2.82)	-1.419*** (-4.02)	-1.446*** (-4.11)	-1.665** (-2.89)	-1.796* (-2.50)
Intercept	56.390*** (63.44)	58.792*** (57.58)	54.810*** (35.82)	56.390*** (64.45)	56.903*** (61.17)	15.960*** (20.54)	21.171*** (35.79)	16.788*** (13.95)	15.960*** (20.36)	16.350*** (19.54)
Adjusted R-sqr	0.070	0.146	0.144	0.070	0.076	0.051	0.055	0.056	0.051	0.043
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.10 Different Regressions Results using ROE as firms' performance measure, with industries effects only.

This table presents different regressions results to find the determents of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROE	0.056** (2.94)	0.02 (1.32)	0.021 (1.40)	0.056** (2.96)	0.1 (0.54)	0.029 (1.73)	0.027 (1.74)	0.028 (1.83)	0.029 (1.78)	0.059 (0.37)
Firm Size	0.001** (3.01)	0.001* (2.27)	0.001*** (3.76)	0.001*** (3.77)	0.001*** (3.61)	0.001*** (4.65)	0.001 (1.16)	0.001** (2.66)	0.001*** (4.28)	0.001*** (4.53)
Firm Age	0.018 (0.87)	0.093** (3.18)	0.056* (2.22)	0.018 (0.83)	0.007 (0.26)	0.046** (2.61)	0.054*** (3.44)	0.054*** (3.69)	0.046** (2.64)	0.048 (1.96)
Financial leverage	0.256* (2.46)	0.066 (0.77)	0.026 (0.30)	0.256* (2.31)	0.364* (2.35)	0.334*** (3.67)	0.019 (0.25)	0.033 (0.44)	0.334*** (3.61)	0.322* (2.45)
Rule of Law	-5.036*** (-5.02)	-25.279*** (-12.38)	-19.830*** (-12.32)	-5.036*** (-5.23)	-4.390*** (-4.32)	-8.201*** (-9.35)	-10.105*** (-7.35)	-9.862*** (-7.83)	-8.201*** (-9.14)	-8.291*** (-8.81)
Corruption Control	-0.008 (-0.67)	-0.003*** (-14.27)	-0.003*** (-14.60)	-0.008*** (-10.94)	-0.008*** (-11.67)	-0.001 (-0.09)	-0.001** (-2.74)	-0.001* (-2.71)	-0.001 (-1.63)	-0.001 (-1.60)
Arab Spring	-10.767*** (-15.96)	-4.391*** (-9.03)	-5.253*** (-10.71)	-10.767*** (-16.40)	-11.594*** (-14.91)	-1.627** (-2.76)	-1.428*** (-4.04)	-1.453*** (-4.14)	-1.627** (-2.82)	-1.819** (-2.65)
Intercept	56.422*** (63.44)	58.773*** (57.55)	54.792*** (35.83)	56.422*** (64.59)	56.930*** (62.19)	15.988*** (20.57)	21.195*** (35.97)	16.771*** (13.94)	15.988*** (20.38)	16.333*** (19.79)
Adjusted R-sqr	0.069	0.146	0.144	0.069	0.074	0.050	0.055	0.056	0.050	0.046
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.11 Different Regressions Results using Tobin's Q as firms' performance measure, with industries effects only.

This table presents different regressions results to find the deterrents of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
TOBIN_Q	1.181*** (4.48)	0.596** (2.63)	0.603** (2.83)	1.181*** (4.43)	2.707 (0.54)	1.287*** (5.60)	0.251 (1.84)	0.294* (2.27)	1.287*** (4.68)	1.594 (0.36)
Firm Size	0.001*** (3.35)	0.001* (2.27)	0.001*** (3.80)	0.001*** (4.20)	0.001*** (3.80)	0.001*** (4.98)	0.001 (1.18)	0.001** (2.75)	0.001*** (4.59)	0.001*** (3.76)
Firm Age	0.016 (0.80)	0.092** (3.13)	0.055* (2.16)	0.016 (0.76)	0.002 (0.06)	0.042* (2.37)	0.054*** (3.38)	0.054*** (3.62)	0.042* (2.40)	0.051 (1.64)
Financial leverage	0.229* (2.21)	0.073 (0.85)	0.033 (0.39)	0.229* (2.09)	0.309** (2.59)	0.320*** (3.54)	0.004 (0.05)	0.018 (0.24)	0.320*** (3.46)	0.354*** (3.55)
Rule of Law	-4.904*** (-4.89)	-25.270*** (-12.38)	-19.798*** (-12.32)	-4.904*** (-5.11)	-4.042** (-3.05)	-8.014*** (-9.15)	-9.969*** (-7.17)	-9.749*** (-7.69)	-8.014*** (-8.98)	-8.496*** (-7.06)
Corruption Control	-0.008 (-0.65)	-0.003*** (-14.30)	-0.003*** (-14.60)	-0.008*** (-10.57)	-0.008*** (-7.69)	-0.001 (-0.12)	-0.001** (-2.65)	-0.001* (-2.65)	-0.001 (-1.97)	-0.001 (-0.74)
Arab Spring	-11.005*** (-16.25)	-4.451*** (-9.20)	-5.318*** (-10.87)	-11.005*** (-16.75)	-12.221*** (-7.21)	-1.946** (-3.29)	-1.404*** (-4.09)	-1.436*** (-4.21)	-1.946*** (-3.35)	-1.45 (-0.99)
Intercept	55.303*** (59.61)	58.155*** (55.03)	54.150*** (35.04)	55.303*** (60.90)	54.285*** (10.44)	14.719*** (18.18)	21.037*** (34.54)	16.483*** (13.55)	14.719*** (17.90)	17.891*** (3.96)
Adjusted R-sqr	0.071	0.148	0.145	0.071	0.070	0.055	0.054	0.055	0.055	0.045
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

3.4.3 Results Controlling for Country Effects.

Tables 3.12, 3.13, and 3.14 illustrate the different regression results regarding the determinates of ownership concentration after controlling for country effects. The effects on firm performance remain unchanged; all performance ratios have some degree of effect on CON and HHI. In addition, like the results in the last two sections, the significance level on the effect on firm performance and ownership concentration differ in the five regression models; thus, using only OLS and GMM regressions, as seen in, in tables 3.12 and 3.13, prove that ROA and ROE have a positive and significant relationship with CON and HHI. However, Tobin's Q as shown in table 3.14, have a significant and positive impact on CON in four regression models. Also, after endogeneity was accounted for using the 2SLS model, the ratios did not show any significant effects on ownership concentration.

Furthermore, firm size and firm age have the same positive effects on ownership concentration after considering the country differences. However, the financial leverage shows no significant relationship with CON in the models that previously showed significance. This finding can be seen as supporting the discovery in the last two sections and indicates that only firm size and firm age are essential parts in the determination of ownership concentration.

The effects of the country-level variables stay the same, even after controlling for country-fixed effects. That is, rules of law and corruption control negatively correlate with CON at the 1% significance level. However, only rules of law negatively affect this significance level on HHI, while corruption control has a different significance level on HHI, depending on the regression model used. These results maintain the findings that rules of law and corruption control are key parts in the determination of ownership concentration.

The Arab Spring variable remains unchanged. This result proves the important effects of this factor in ownership concentration measured by CON and HHI. Thus, even when controlling for country effects, the Arab Spring has a negative and significant relationship with ownership concentration.

Table 3.12 Different Regressions Results using ROA as firms' performance measure, with countries effects only.

This table presents different regressions results to find the deterrents of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROA	0.210*** (6.30)	0.026 (1.05)	0.043 (1.79)	0.210*** (6.30)	0.391 (0.66)	0.139*** (4.72)	0.049 (1.83)	0.054* (2.09)	0.139*** (4.63)	0.441 (0.85)
Firm Size	0.001*** (6.30)	0.001* (2.28)	0.001*** (4.66)	0.001*** (5.04)	0.001*** (5.46)	0.001*** (6.47)	0.001 (1.22)	0.001** (3.04)	0.001*** (4.30)	0.001*** (4.52)
Firm Age	0.101*** (5.04)	0.094** (3.19)	0.100*** (3.93)	0.101*** (4.82)	0.084 (1.92)	0.077*** (4.33)	0.055*** (3.46)	0.060*** (4.08)	0.077*** (4.33)	0.051 (1.36)
Financial leverage	0.264* (2.56)	0.068 (0.78)	0.039 (0.44)	0.264* (2.37)	0.469 (0.99)	0.268** (2.93)	0.022 (0.29)	0.033 (0.44)	0.268** (2.94)	0.522 (1.29)
Rule of Law	-24.240*** (-8.40)	-25.252*** (-12.35)	-25.204*** (-12.34)	-24.240*** (-8.07)	-24.171*** (-6.38)	-11.130*** (-4.36)	-10.132*** (-7.36)	-10.191*** (-7.40)	-11.130*** (-4.03)	-11.942*** (-3.49)
Corruption Control	-0.009 (-0.84)	-0.003*** (-14.29)	-0.003*** (-15.48)	-0.009*** (-21.70)	-0.010*** (-10.90)	-0.001 (-0.15)	-0.001** (-2.60)	-0.001* (-2.34)	-0.001*** (-3.63)	-0.002* (-2.40)
Arab Spring	-4.541*** (-5.32)	-4.372*** (-9.03)	-4.377*** (-9.03)	-4.541*** (-5.34)	-5.433*** (-4.77)	-1.651* (-2.19)	-1.419*** (-4.02)	-1.409*** (-3.99)	-1.651* (-2.27)	-2.231* (-2.28)
Intercept	66.587*** (30.23)	58.792*** (57.58)	68.106*** (15.46)	66.587*** (29.97)	65.851*** (20.64)	17.848*** (9.16)	21.171*** (35.79)	19.110*** (6.62)	17.848*** (10.73)	16.740*** (6.41)
Adjusted R-sqr	0.142	0.146	0.147	0.142	0.150	0.104	0.055	0.056	0.104	0.093
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.13 Different Regressions Results using ROE as firms' performance measure, with countries effects only.

This table presents different regressions results to find the determinants of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index(HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROE	0.083*** (4.42)	0.02 (1.32)	0.028 (1.87)	0.083*** (4.26)	0.212 (0.65)	0.048** (2.87)	0.027 (1.74)	0.029 (1.92)	0.048** (2.81)	0.239 (0.85)
Firm Size	0.001*** (6.10)	0.001* (2.27)	0.001*** (4.63)	0.001*** (4.92)	0.001*** (4.32)	0.001*** (6.34)	0.001 (1.16)	0.001** (2.95)	0.001*** (4.23)	0.001*** (3.75)
Firm Age	0.106*** (5.27)	0.093** (3.18)	0.100*** (3.92)	0.106*** (5.05)	0.088* (2.30)	0.081*** (4.55)	0.054*** (3.44)	0.060*** (4.06)	0.081*** (4.56)	0.056 (1.71)
Financial leverage	0.171 (1.69)	0.066 (0.77)	0.04 (0.47)	0.171 (1.61)	0.327 (1.22)	0.201* (2.25)	0.019 (0.25)	0.028 (0.38)	0.201* (2.21)	0.362 (1.58)
Rule of Law	-23.937*** (-8.29)	-25.279*** (-12.38)	-25.208*** (-12.35)	-23.937*** (-7.95)	-23.958*** (-6.62)	-10.880*** (-4.26)	-10.105*** (-7.35)	-10.155*** (-7.38)	-10.880*** (-3.93)	-11.698*** (-3.58)
Corruption Control	-0.009 (-0.82)	-0.003*** (-14.27)	-0.003*** (-15.43)	-0.009*** (-21.36)	-0.010*** (-13.44)	-0.001 (-0.14)	-0.001** (-2.74)	-0.001* (-2.49)	-0.001*** (-3.39)	-0.002** (-2.73)
Arab Spring	-4.496*** (-5.25)	-4.391*** (-9.03)	-4.394*** (-9.03)	-4.496*** (-5.27)	-5.500*** (-4.53)	-1.600* (-2.12)	-1.428*** (-4.04)	-1.417*** (-4.01)	-1.600* (-2.19)	-2.308* (-2.21)
Intercept	67.016*** (30.39)	58.773*** (57.55)	68.141*** (15.46)	67.016*** (30.24)	66.395*** (24.92)	18.166*** (9.32)	21.195*** (35.97)	19.184*** (6.65)	18.166*** (10.93)	17.353*** (8.19)
Adjusted R-sqr	0.139	0.146	0.147	0.139	0.144	0.102	0.055	0.056	0.102	0.085
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.14 Different Regressions Results using Tobin's Q as firms' performance measure, with countries effects only.

This table presents different regressions results to find the determinants of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
TOBIN_Q	2.408*** (9.40)	0.596** (2.63)	0.761** (3.09)	2.408*** (5.55)	4.041 (0.65)	2.168*** (9.59)	0.251 (1.84)	0.341** (2.67)	2.168*** (6.99)	4.553 (0.85)
Firm Size	0.001*** (6.92)	0.001* (2.27)	0.001*** (4.70)	0.001*** (5.40)	0.001*** (4.01)	0.001*** (7.10)	0.001 (1.18)	0.001** (3.05)	0.001*** (4.63)	0.001*** (3.84)
Firm Age	0.102*** (5.12)	0.092** (3.13)	0.099*** (3.88)	0.102*** (4.86)	0.090* (2.50)	0.075*** (4.26)	0.054*** (3.38)	0.060*** (3.99)	0.075*** (4.26)	0.058 (1.88)
Financial leverage	0.125 (1.24)	0.073 (0.85)	0.051 (-0.60)	0.125 (1.18)	0.183 (1.57)	0.177* (2.00)	0.004 (0.05)	0.013 (0.17)	0.177 (1.94)	0.200* (1.97)
Rule of Law	-23.692*** (-8.26)	-25.270*** (-12.38)	-25.180*** (-12.34)	-23.692*** (-7.87)	-23.089*** (-7.41)	-10.834*** (-4.28)	-9.969*** (-7.17)	-10.026*** (-7.22)	-10.834*** (-3.93)	-10.720*** (-3.75)
Corruption Control	-0.009 (-0.78)	-0.003*** (-14.30)	-0.003*** (-15.47)	-0.009*** (-20.04)	-0.009*** (-7.93)	-0.001 (-0.09)	-0.001** (2.65)	-0.001* (2.42)	-0.001* (-2.31)	-0.001 (-0.60)
Arab Spring	-4.661*** (-5.48)	-4.451*** (-9.20)	-4.463*** (-9.22)	-4.661*** (-5.50)	-5.595*** (-4.25)	-1.824* (-2.43)	-1.404*** (-4.09)	-1.403*** (-4.09)	-1.824* (-2.53)	-2.414* (-2.13)
Intercept	65.366*** (29.71)	58.155*** (55.03)	67.661*** (15.35)	65.366*** (29.01)	63.926*** (11.26)	16.558*** (8.53)	21.037*** (34.54)	19.066*** (6.61)	16.558*** (9.79)	14.571** (3.02)
Adjusted R-sqr	0.150	0.148	0.148	0.150	0.153	0.116	0.054	0.055	0.116	0.100
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

3.4.4 Results Controlling for Year Effects.

Results of the determination of ownership concentration after controlling for year effects are illustrated in tables 3.15, 3.16, and 3.17. ROA, ROE, and Tobin's Q have some degree of effects on ownership concentration, as measured by both CON and HHI, even after controlling for year effects. Like the other results, tables 3.15 and 3.16 illustrate that both ROA and ROE have a positive significance in both CON and HHI, but only when using OLS and GMM regressions; there is no significance with the other regressions. However, as shown in table 3.17 Tobin's Q appears to have a significant and positive impact on CON in three regression models. None of the firm performance ratios show any significance after using the 2SLS model.

Firm size shows no significant relationship with CON and HHI in the fixed and random regression models. Moreover, firm age and financial leverage have no significant effects on CON. However, firm age still positively affects HHI in all regression models, save for the fixed effects model. These results show that controlling the year effects in the regression model has an impact on the significance of the relationship, between firm factors and ownership concentration.

Controlling year effects does not change how rule of law and corruption control affect CON and HHI. That is, the rule of law still has a negative relationship at the 1% significance level with ownership concentration. Also, the effects of corruption control on CON and HHI do not change after controlling for year effects. The effects of both rule of law and corruption control on ownership concentration are constant in these different situations. The significant relationship with the Arab Spring variable and its effect on CON does not change after controlling for year effects; there is also no significant effect on HHI.

Table 3.15 Different Regressions Results using ROA as firms' performance measure, with year effects only.

This table presents different regressions results to find the deterrents of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of years fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROA	0.172*** (5.10)	-0.005 (-0.23)	0.004 (0.19)	0.172*** (5.12)	0.171 (0.47)	0.122*** (4.10)	0.037 (1.42)	0.042 (1.67)	0.122*** (4.15)	-0.133 (-0.42)
Firm Size	0.001** (3.12)	0.001 (0.67)	0.001 (1.52)	0.001*** (4.01)	0.001*** (4.68)	0.001*** (4.86)	0.001 (-0.28)	0.001 (1.15)	0.001*** (4.51)	0.001*** (5.00)
Firm Age	0.03 (1.51)	0.022 (0.89)	0.017 (0.76)	0.03 (1.44)	0.021 (0.57)	0.065*** (3.70)	0.026 (1.84)	0.035** (2.67)	0.065*** (3.68)	0.076* (2.40)
Financial leverage	0.268* (2.55)	0.102 (1.37)	0.077 (1.05)	0.268* (2.51)	0.343 (1.23)	0.347*** (3.73)	0.008 (0.11)	0.02 (0.26)	0.347*** (3.83)	0.198 (0.81)
Rule of Law	-3.561*** (-3.54)	-10.694*** (-5.13)	-9.250*** (-5.67)	-3.561*** (-3.72)	-3.176** (-3.08)	-7.574*** (-8.51)	-4.216** (-2.94)	-4.956*** (-3.78)	-7.574*** (-8.32)	-7.828*** (-8.05)
Corruption Control	-0.006 (-0.49)	-0.002*** (-7.85)	-0.002*** (-6.87)	-0.006*** (-7.42)	-0.006*** (-7.88)	-0.001 (-0.07)	-0.003*** (-11.08)	-0.003*** (-10.95)	-0.001 (-1.02)	-0.001 (-0.94)
Arab Spring	-8.037*** (-11.20)	-0.42 (-1.00)	-0.826* (-1.99)	-8.037*** (-11.60)	-8.679*** (-9.59)	-0.418 (-0.66)	-0.175 (-0.48)	-0.195 (-0.54)	-0.418 (-0.68)	-0.296 (-0.37)
Intercept	50.619*** (40.05)	46.953*** (43.18)	46.234*** (37.11)	50.619*** (38.45)	51.133*** (31.97)	15.480*** (13.83)	16.332*** (22.35)	15.973*** (17.36)	15.480*** (14.17)	16.537*** (11.70)
Adjusted R-sqr	0.083	0.369	0.370	0.083	0.090	0.073	0.150	0.151	0.072	0.080
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.16 Different Regressions Results using ROE as firms' performance measure, with year effects only.

This table presents different regressions results to find the deterrents of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of years fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
ROE	0.075*** (3.96)	0.01 (0.71)	0.014 (1.06)	0.075*** (3.96)	0.085 (0.47)	0.047** (2.83)	0.023 (1.55)	0.025 (1.75)	0.047** (2.89)	-0.066 (-0.42)
Firm Size	0.001** (2.96)	0.001 (0.67)	0.001 (1.50)	0.001*** (3.83)	0.001*** (3.72)	0.001*** (4.74)	0.001 (-0.32)	0.001 (1.05)	0.001*** (4.41)	0.001*** (4.70)
Firm Age	0.034 (1.72)	0.021 (0.88)	0.016 (0.74)	0.034 (1.64)	0.024 (0.75)	0.069*** (3.91)	0.025 (1.82)	0.035** (2.65)	0.069*** (3.90)	0.074** (2.71)
Financial leverage	0.195 (1.89)	-0.094 (-1.26)	-0.07 (-0.96)	0.195 (1.91)	0.273 (1.77)	0.292** (3.19)	0.008 (0.10)	0.018 (0.24)	0.292** (3.26)	0.253 (1.87)
Rule of Law	-3.606*** (-3.58)	-10.801*** (-5.20)	-9.322*** (-5.72)	-3.606*** (-3.77)	-3.202** (-3.15)	-7.613*** (-8.55)	-4.204** (-2.94)	-4.937*** (-3.77)	-7.613*** (-8.37)	-7.808*** (-8.14)
Corruption Control	-0.006 (-0.48)	0.002*** (7.86)	0.002*** (6.89)	-0.006*** (-7.30)	-0.006*** (-7.90)	-0.001 (-0.07)	-0.003*** (-11.20)	-0.003*** (-11.08)	-0.001 (-1.13)	-0.001 (-0.80)
Arab Spring	-7.950*** (-11.07)	-0.456 (-1.08)	-0.860* (-2.06)	-7.950*** (-11.46)	-8.620*** (-10.33)	-0.344 (-0.54)	-0.164 (-0.46)	-0.186 (-0.52)	-0.344 (-0.56)	-0.342 (-0.46)
Intercept	50.763*** (40.15)	46.892*** (43.06)	46.178*** (37.03)	50.763*** (38.54)	51.240*** (34.38)	15.608*** (13.94)	16.323*** (22.29)	15.966*** (17.34)	15.608*** (14.26)	16.454*** (12.68)
Adjusted R-sqr	0.081	0.369	0.370	0.081	0.088	0.076	0.150	0.152	0.071	0.076
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.17 Different Regressions Results using Tobin's Q as firms' performance measure, with years effects only.

This table presents different regressions results to find the deterrents of ownership concentration in the MENA region; To avoid collinearity this model use one firm's performance with other country and industry variables. This model captures only the effects of years fixed effects; z-statistics are within parentheses.

	Dependent variable : Total Concentration (CON)					Dependent variable : Herfindahl Index (HHI)				
	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS	Pooled OLS	Fixed Effect	Random Effect	GMM	2SLS
TOBIN_Q	1.111*** (4.24)	0.296 (1.80)	0.324* (2.05)	1.111*** (4.23)	2.425 (0.47)	1.340*** (5.79)	0.127 (0.89)	0.18 (1.35)	1.340*** (4.83)	-1.88 (-0.42)
Firm Size	0.001*** (3.36)	0.001 (0.68)	0.001 (1.52)	0.001*** (4.34)	0.001*** (3.63)	0.001*** (5.15)	0.001 (-0.31)	0.001 (1.13)	0.001*** (4.80)	0.001*** (3.72)
Firm Age	0.036 (1.80)	0.021 (0.86)	0.016 (0.71)	0.036 (1.73)	0.019 (0.48)	0.066*** (3.77)	0.025 (1.80)	0.035** (2.63)	0.066*** (3.77)	0.077* (2.26)
Financial leverage	0.159 (1.55)	-0.097 (-1.31)	-0.076 (-1.05)	0.159 (1.56)	0.227* (2.01)	0.270** (2.97)	-0.006 (-0.07)	0.003 (0.04)	0.270** (3.02)	0.288** (2.91)
Rule of Law	-3.548*** (-3.53)	-10.842*** (-5.21)	-9.327*** (-5.71)	-3.548*** (-3.72)	-2.969* (-2.40)	-7.488*** (-8.43)	-4.068** (-2.77)	-4.835*** (-3.62)	-7.488*** (-8.28)	-7.990*** (-6.97)
Corruption Control	-0.006 (-0.47)	0.002*** (7.81)	0.002*** (6.84)	-0.006*** (-7.21)	-0.006*** (-6.70)	-0.001 (-0.08)	-0.003*** (-11.21)	-0.003*** (-11.09)	-0.001 (-1.27)	-0.001 (-0.53)
Arab Spring	-8.195*** (-11.34)	-0.496 (-1.16)	-0.896* (-2.13)	-8.195*** (-11.77)	-9.344*** (-4.44)	-0.73 (-1.14)	-0.202 (-0.57)	-0.219 (-0.62)	-0.73 (-1.17)	-0.22 (0.12)
Intercept	50.087*** (39.04)	46.628*** (43.32)	45.894*** (36.96)	50.087*** (37.47)	49.487*** (10.81)	14.615*** (12.89)	16.300*** (22.20)	15.889*** (17.23)	14.615*** (13.16)	17.813*** (4.36)
Adjusted R-sqr	0.082	0.369	0.370	0.082	0.083	0.072	0.149	0.150	0.069	0.070
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

3.4.5 Testing The Determinates of Ownership Concentration Using the Random Effects Model.

To control the collinearity between the variables, this study used each firm variable separately from the other variables, and each country variable separately from the other variables. However, because of the size of the data sample, this test uses CON as the measure of ownership constraint and one regression model only. The Housman test and the Breach-Pagan test are applied and show that the random effects model is the best one for explaining the determination of ownership structure.

Tables 3.18 demonstrates the effects of firm-level variables on CON and show that firm age and firm size are statistically significant at the 1% and 10% levels, respectively. However, after controlling for year effects, none of those variables have a significant relationship with ownership concentration. There is no effect regarding financial leverage on CON when using this methodology. Regarding the country variables, Table 3.19 shows the relationship between rule of law, corruption control, Arab Spring and ownership concentration. The results show that all country variables are statistically significant at the 1% level with CON, even after controlling for country, industry, and year-fixed effects.

In conclusion, this study uses different methodologies and different regression models to show the factors that may influence ownership concentration in the MENA region. The study indicated that firm performance (ROA, ROE, and Tobin's Q), firm age, and firm size have positive effects on ownership concentration. However, rule of law, corruption control, and the Arab Spring movement have significantly negative relationships with ownership concentration.

Table 3.18 Random Regressions Results using Total Concentration (CON) as dependent viable with single firm variable.

This table presents Random regressions results to find the deterrents of ownership concentration in the MENA region; this model test the effects of each firm level with other country variables ; z-statistics are within parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 11	Model 12	Model 13
Firm Size	0.001*** (3.75)			0.001*** (3.64)			0.001*** (4.41)			0.001 (1.41)		
Firm Age		0.064* (2.53)			0.057* (2.27)			0.100*** (3.93)			0.016 (0.75)	
Financial leverage			-0.025 (-0.29)			-0.022 (-0.26)			-0.037 (-0.42)			-0.074 (-1.00)
Rule of Law	-20.067*** (-12.43)	-19.780*** (-12.25)	-19.975*** (-12.37)	-19.896*** (-12.35)	-19.641*** (-12.19)	-19.798*** (-12.28)	-24.865*** (-12.08)	-24.890*** (-12.19)	-24.791*** (-12.04)	-9.241*** (-5.65)	-9.154*** (-5.60)	-9.200*** (-5.62)
Corruption Control	-0.003*** (-15.18)	-0.004*** (-15.00)	-0.003*** (-15.21)	-0.003*** (-14.84)	-0.003*** (-14.64)	-0.003*** (-14.86)	-0.003*** (-15.20)	-0.003*** (-15.48)	-0.003*** (-15.29)	-0.003*** (7.05)	-0.003*** (6.95)	-0.003*** (7.06)
Arab Spring	-5.237*** (-10.75)	-5.141*** (-10.60)	-5.253*** (-10.75)	-5.282*** (-10.83)	-5.195*** (-10.70)	-5.299*** (-10.83)	-4.549*** (-9.39)	-4.347*** (-9.02)	-4.592*** (-9.45)	-0.820* (-1.98)	-0.790* (-1.90)	-0.827* (-1.99)
constant	60.518*** (71.92)	59.070*** (54.67)	60.984*** (70.16)	56.077*** (39.85)	54.955*** (36.57)	56.392*** (39.46)	71.026*** (16.43)	68.441*** (15.53)	71.334*** (16.41)	46.489*** (44.50)	46.146*** (37.91)	46.812*** (44.42)
Adjusted R-sqr	0.141	0.141	0.138	0.141	0.14	0.138	0.143	0.143	0.14	0.369	0.369	0.369
Industry effect	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO
Year Effects	NO	Yes	Yes	Yes								
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1 – 3 : does not capture the effects of industries, countries and years effects

Models 4 – 6 : only capture industries effects

Models 7 – 9 : only capture countries effects

Models 10 – 13 : only capture years effects

Variables Explanation in Table 7.3

Table 3.19 Random Regressions Results using Total Concentration (CON) as dependent viable with single country variable.

This table presents Random regressions results to find the detorments of ownership concentration in the MENA region; this model test the effects of each country level with other

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 11	Model 12	Model 13
Rule of Law	-24.583*** (-14.61)			-24.498*** (-14.59)			-29.859*** (-14.17)			-9.683*** (-5.69)		
Corruption Control		-0.004*** (-27.33)			-0.004*** (-26.09)			-0.004*** (-30.76)			-0.002*** (-7.91)	
Arab Spring			-7.061*** (-13.05)			-7.105*** (-13.14)			-6.761*** (-12.19)			-1.277** (-2.86)
Firm Size	0.001*** (3.90)	0.001*** (3.63)	0.001*** (3.68)	0.001*** (3.77)	0.001*** (3.48)	0.001*** (3.54)	0.001*** (4.72)	0.001*** (4.57)	0.001*** (4.48)	0.001 (1.44)	0.001 (1.08)	0.001 (1.19)
Firm Age	0.090*** (3.47)	0.126*** (4.27)	0.082** (3.10)	0.085** (3.26)	0.121*** (4.06)	0.075** (2.82)	0.131*** (4.94)	0.143*** (4.72)	0.093*** (3.47)	0.02 (0.92)	0.024 (1.10)	0.02 (0.88)
Financial leverage	-0.01 (-0.12)	0.038 (0.47)	-0.019 (-0.24)	-0.007 (-0.08)	0.041 (0.50)	-0.016 (-0.19)	-0.034 (-0.39)	0.033 (0.41)	-0.022 (-0.27)	-0.076 (-1.04)	-0.062 (-0.88)	-0.069 (-0.97)
constant	55.350*** (50.73)	50.699*** (45.14)	56.591*** (51.83)	51.826*** (33.89)	47.011*** (31.63)	52.328*** (35.87)	67.789*** (15.47)	55.037*** (12.74)	59.051*** (13.69)	45.530*** (38.73)	43.114*** (38.33)	44.398*** (38.59)
Adjusted R-sqr	0.122	0.11	0.103	0.122	0.11	0.103	0.123	0.12	0.104	0.37	0.358	0.359
Industry effect	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1 – 3 : does not capture the effects of industries, countries and years fixed effects

Models 4 – 6 : only capture industries fixed effects

Models 7 – 9 : only capture countries fixed effects

Models 10 – 13 : only capture years fixed effects

Variables Explanation in Table 7.3

3.5 Other robustness checks

In order to ensure the robustness of our model in this chapter and like the previous empirical chapters (5 and 6), this chapter also completes seven robustness tests as shown in tables 3.20, 3.21 and 3.22. Each table use single firm performance: ROA, ROE and Tobin's Q respectively. Column (1) shows the regression results when industry is replaced with firm fixed effects. Column (2) presents the results using Year-level clustering. Column (3) reports the results using two-way clustering by industry and year. As shown in table 4.1 in chapter four, Turkey and Egypt represents respectively, 23% and 20% of the total study sample. In order to validate the results and to ensure that one country does not affect the results, columns (4 and 5) report the results model after excluding Turkey and Egypt. In addition, to eliminate the biases of effect of firms' market capitalisation, firms are divided into two groups, Group A with high market capitalisation (above firm size mean) and Group B with low market capitalisation (below firm size mean). Results are presented in Columns (6 and 7) by running regression for each group only. As noticed in the different regressions outcomes, the results are mostly constant in the seven tests, and this strongly supports the robustness of the study results.

3.6 Quantile Regressions

As an additional test, in this chapter I compare the results of classical least squares (OLS) on the effects of different firms performance on two ownership concentration indexes (CON = Total percentage of largest owners who won 5% or more of firm's equity, HHI = Herfindahl Index, the squared sum of the largest ownership) by using different quantile distributions and using quantile regression outcomes. The purpose of regression is to test the effects of firm performance in each ownership concentration quantile, distributed by (10th, 25th, 50th, 75th and 90th percentile). The results are shown in tables 3.23, 3.24 and 3.25 – each table use single firm performance: ROA, ROE and Tobin's Q respectively.

Table 3.20 Robustness tests, using ROA as firms' performance measure

	Dependent variable : Total Concentration (CON)							Dependent variable : Herfindahl Index (HHI)						
	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ROA	0.132*** (3.85)	0.172*** (9.47)	0.190*** (4.30)	0.152*** (3.94)	0.178*** (4.69)	0.284*** (5.14)	0.216*** (4.89)	0.081** (2.68)	0.122*** (10.24)	0.131*** (3.77)	0.098** (3.10)	0.157*** (4.93)	0.037*** (0.71)	0.206*** (5.67)
Firm Size	0.001** (3.13)	0.001** (5.40)	0.001** (3.17)	0.001** (5.36)	0.001** (3.78)	0.001** (4.47)	0.001** (2.16)	0.001** (4.72)	0.001** (14.74)	0.001** (2.62)	0.001** (9.43)	0.001** (5.12)	0.001** (4.82)	0.001** (0.26)
Firm Age	0.015 (0.75)	0.03 (2.02)	0.092*** (4.79)	0.064** (-2.67)	0.045** (1.93)	0.022** (0.85)	0.140*** (4.45)	0.044* (2.50)	0.065** (4.64)	0.073*** (3.76)	-0.031 (-1.59)	0.070*** (3.63)	0.028 (1.13)	0.137*** (5.28)
Financial leverage	0.311** (2.94)	0.268*** (6.67)	0.231* (2.07)	0.239* (2.00)	0.211* (1.70)	0.493*** (3.41)	0.449** (2.78)	0.370*** (4.00)	0.347** (5.46)	0.254** (3.02)	0.269** (2.74)	0.264* (2.54)	0.131 (0.97)	0.678*** (5.12)
Rule of Law	-4.993*** (-4.98)	-3.561 (-2.27)	-9.918*** (-3.61)	-4.564*** (-4.43)	1.175*** (-0.63)	-29.025*** (-12.23)	3.699** (2.60)	-8.168*** (-9.31)	-7.574*** (-9.82)	-5.231** (-2.90)	-7.050*** (-8.35)	-9.991*** (-6.35)	-27.766*** (-12.50)	-2.535* (-2.17)
Corruption Control	-0.008 (-0.68)	-0.006*** (-8.72)	-0.005*** (-5.73)	-0.011 (-0.92)	-0.011 (-0.91)	16.820*** (7.55)	-0.012 (-1.01)	-0.001 (-0.09)	-0.001 (-1.29)	-0.001 (-0.86)	-0.002 (-0.21)	-0.001 (-0.14)	16.689*** (8.00)	-0.002 (-0.24)
Arab Spring	-10.814*** (-16.03)	-8.037** (-5.74)	-0.419 (-0.38)	-13.666*** (-18.30)	-10.972*** (-13.27)	-11.185*** (-10.56)	-9.297*** (-10.14)	-1.665** (-2.82)	-0.418 (-0.65)	0.021 (0.02)	-5.853*** (-9.56)	-1.845** (-2.66)	-1.113 (-1.12)	-2.489*** (-3.31)
Intercept	56.390*** (63.44)	50.619*** (31.19)	49.369*** (30.59)	62.583*** (71.89)	59.185*** (49.39)	62.079*** (44.85)	57.667*** (48.50)	15.960*** (20.54)	15.480*** (17.15)	10.632*** (5.72)	21.790*** (30.54)	20.345*** (20.22)	24.591*** (18.98)	16.349*** (16.78)
AdjR-sqr	0.07	0.083	0.18	0.09	0.065	0.103	0.089	0.093	0.08	0.113	0.062	0.067	0.066	0.073
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

z-statistics are within parentheses

Variables Explanation in Table 7.3

Table 3.21 Robustness tests, using ROE as firms' performance measure

	Dependent variable : Total Concentration (CON)							Dependent variable : Herfindahl Index (HHI)						
	Firm FE	Cluster by	Two-way	Exclude	Exclude	Firms	Firms	Firm FE	Cluster by	Two-way	Exclude	Exclude	Firms	Firms
	(1)	Year	clustering	Turky	Egypt	Group A	Group B	(1)	Year	clustering	Turky	Egypt	Group A	Group B
ROE	0.056**	0.075***	0.075**	0.061**	0.076***	0.115***	0.124***	0.029	0.047**	0.044*	0.032	0.060***	0.032***	0.094***
	(2.94)	(6.62)	(2.87)	(2.76)	(3.57)	(4.19)	(4.48)	(1.73)	(3.80)	(2.30)	(1.79)	(3.36)	(1.23)	(4.15)
Firm Size	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**
	(3.01)	(4.97)	(3.05)	(5.27)	(3.64)	(4.27)	(2.10)	(4.65)	(13.69)	(2.54)	(9.37)	(4.99)	(4.78)	(0.46)
Firm Age	0.018	0.034	0.096***	-0.059*	0.049*	0.027	0.144***	0.046**	0.069**	0.077***	-0.027	0.075***	0.028	0.142***
	(0.87)	(2.19)	(4.99)	(-2.47)	(2.11)	(1.00)	(4.57)	(2.61)	(4.95)	(3.96)	(-1.39)	(3.86)	(1.12)	(5.50)
Financial leverage	0.256*	0.195**	0.146	0.168	0.133	0.319*	0.439**	0.334***	0.292**	0.191*	0.221*	0.191	0.114	0.641***
	(2.46)	(4.55)	(1.42)	(1.43)	(1.09)	(2.30)	(2.71)	(3.67)	(4.44)	(2.16)	(2.29)	(1.87)	(0.88)	(4.82)
Rule of Law	-5.036***	-3.606	-9.533**	-4.615***	-1.206	-28.938***	3.830**	-8.201***	-7.613***	-4.906**	-7.093***	-9.957***	-27.877***	-2.508*
	(-5.02)	(-2.31)	(-3.47)	(-4.48)	(-0.64)	(-12.17)	(2.68)	(-9.35)	(-9.82)	(-2.72)	(-8.39)	(-6.31)	(-12.54)	(-2.14)
Corruption Control	-0.008	-0.006***	-0.004***	-0.011	-0.011	16.644***	-0.012	0.001	0.001	0.001	-0.002	-0.001	16.738***	-0.002
	(-0.67)	(-8.82)	(-5.52)	(-0.91)	(-0.90)	(7.46)	(-1.00)	(0.09)	(1.42)	(1.01)	(-0.20)	(-0.13)	(8.03)	(-0.22)
Arab Spring	-10.767***	-7.950**	-0.345	-13.580***	-10.894***	-11.043***	-9.275***	-1.627**	-0.344	0.096	-5.778***	-1.755*	-1.099	-2.457**
	(-15.96)	(-5.76)	(-0.31)	(-18.18)	(-13.17)	(-10.41)	(-10.11)	(-2.76)	(-0.55)	(0.11)	(-9.44)	(-2.52)	(-1.11)	(-3.26)
Intercept	56.422***	50.763***	49.654***	62.762***	59.381***	62.679***	57.621***	15.988***	15.608***	10.850***	21.926***	20.513***	24.513***	16.334***
	(63.44)	(31.51)	(30.87)	(72.22)	(49.51)	(45.70)	(48.42)	(20.57)	(16.96)	(5.80)	(30.78)	(20.36)	(19.13)	(16.71)
AdjR-sqr	0.096	0.081	0.1756	0.089	0.065	0.107	0.102	0.05	0.08	0.11	0.061	0.065	0.067	0.065
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

z-statistics are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.22 Robustness tests, using TOBIN_Q as firms' performance measure

	Dependent variable : Total Concentration (CON)							Dependent variable : Herfindahl Index (HHI)						
	Firm FE	Cluster by	Two-way	Exclude	Exclude	Firms	Firms	Firm FE	Cluster by	Two-way	Exclude	Exclude	Firms	Firms
	(1)	Year	clustering	Turky	Egypt	Group A	Group B	(1)	Year	clustering	Turky	Egypt	Group A	Group B
TOBIN_Q	1.181*** (4.48)	1.111** (5.92)	2.200*** (5.30)	1.221*** (4.01)	1.371*** (3.95)	1.896*** (3.85)	1.292*** (4.10)	1.287*** (5.60)	1.340*** (8.12)	2.084*** (7.68)	1.198*** (4.81)	1.095*** (3.75)	1.215** (2.65)	1.660*** (6.45)
Firm Size	0.001** (3.35)	0.001** (5.74)	0.001** (3.45)	0.001** (5.54)	0.001** (4.05)	0.001** (4.55)	0.001** (-1.38)	0.001** (4.98)	0.001** (14.82)	0.001** (2.87)	0.001** (9.64)	0.001** (5.38)	0.001** (4.94)	0.001** (1.25)
Firm Age	0.016 (0.80)	0.036 (2.44)	0.093*** (4.93)	-0.060* (-2.51)	0.049* (2.14)	0.024 (0.89)	0.141*** (4.47)	0.042* (2.37)	0.066** (5.03)	0.071*** (3.80)	-0.032 (-1.63)	0.075*** (3.88)	0.024 (0.97)	0.133*** (5.15)
Financial leverage	0.229* (2.21)	0.159** (4.06)	0.104 (1.10)	0.149 (1.27)	0.097 (0.80)	0.310* (2.23)	0.267 (1.68)	0.320*** (3.54)	0.270** (4.07)	0.169 (1.92)	0.209* (2.18)	0.163 (1.60)	0.124 (0.96)	0.497*** (3.83)
Rule of Law	-4.904*** (-4.89)	-3.548 (-2.27)	-9.696*** (-3.48)	-4.431*** (-4.30)	3.355*** (-0.19)	-28.615*** (-12.05)	3.854** (2.70)	-8.014*** (-9.15)	-7.488*** (-9.38)	-5.277** (-2.84)	-6.873*** (-8.14)	-9.281*** (-5.91)	-27.978*** (-12.63)	-2.204 (-1.89)
Corruption Control	-0.008 (-0.65)	-0.006*** (-8.78)	-0.004*** (-5.51)	-0.01 (-0.89)	-0.01 (-0.88)	16.473*** (7.39)	-0.011 (-0.97)	0.001 (0.12)	0.001 (1.65)	0.001 (1.43)	-0.002 (-0.18)	-0.001 (-0.11)	16.807*** (8.08)	-0.002 (-0.18)
Arab Spring	-11.005*** (-16.25)	-8.195** (-5.79)	-0.59 (-0.53)	-13.900*** (-18.44)	-11.036*** (-13.29)	-11.491*** (-10.76)	-9.704*** (-10.48)	-1.946** (-3.29)	-0.73 (-1.09)	-0.225 (-0.25)	-6.167*** (-10.00)	-1.870** (-2.68)	-1.396 (-1.40)	-3.041*** (-4.02)
Intercept	55.303*** (59.61)	50.087*** (29.06)	48.660*** (30.59)	61.613*** (66.49)	57.808*** (45.93)	61.596*** (42.20)	56.348*** (45.45)	14.719*** (18.18)	14.615*** (14.65)	9.831*** (5.17)	20.720*** (27.32)	19.257*** (18.21)	23.426*** (17.20)	14.620*** (14.43)
AdjR-sqr	0.071	0.082	0.187	0.091	0.065	0.106	0.089	0.089	0.075	0.123	0.065	0.063	0.068	0.63
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

z-statistics are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.23 Results of using standard quantile regression, using ROA as firms' performance measure

	Dependent variable : Total Concentration (CON)						Dependent variable : Herfindahl Index (HHI)					
	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9
ROA	0.178** (0.03)	0.128** (0.05)	0.214** (0.05)	0.166** (0.05)	0.204** (0.04)	0.108** (0.04)	0.125** (0.03)	0.019* (0.01)	0.064** (0.02)	0.125** (0.03)	0.157** (0.04)	0.344** (0.11)
Firm Size	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)	.001** (0.01)
Firm Age	0.04** (0.02)	-0.025 (0.03)	0.001 (0.03)	0.098** (0.03)	0.073** (0.03)	-0.014 (0.02)	0.069** (0.02)	0.004 (0.01)	0.004 (0.01)	0.081** (0.02)	0.154** (0.03)	0.202** (0.07)
Financial leverage	0.302** (0.11)	0.198 (0.15)	0.355** (0.16)	0.268* (0.15)	0.491** (0.13)	0.035 (0.13)	0.36** (0.09)	0.148** (0.04)	0.151** (0.05)	0.374** (0.10)	0.465** (0.14)	0.709** (0.35)
Rule of Law	-4.981** (1.01)	1.896 (1.45)	-4.186** (1.56)	-6.957** (1.44)	-8.101** (1.23)	-4.427** (1.21)	-8.141** (0.88)	0.143 (0.33)	-1.195** (0.45)	-4.513** (0.95)	-8.635** (1.28)	-26.473** (3.30)
Corruption Control	-0.01 (0.01)	0.004 (0.02)	-0.003 (0.02)	-0.011 (0.02)	-0.016 (0.01)	-0.025* (0.01)	-0.001 (0.01)	0.006 (0.00)	0.004 (0.01)	0.001 (0.01)	-0.003 (0.02)	-0.013 (0.04)
Arab Spring	-10.542** (0.68)	-13.882** (0.98)	-15.816** (1.05)	-11.299** (0.97)	-8.598** (0.83)	-6.273** (0.81)	-1.411** (0.59)	-1.821** (0.22)	-2.179** (0.30)	-2.289** (0.64)	-0.872 (0.86)	-3.266 (2.22)
Intercept	59.845** (0.80)	29.889** (1.15)	45.834** (1.24)	60.571** (1.14)	72.305** (0.98)	91.002** (0.96)	19.182** (0.70)	2.923** (0.27)	6.459** (0.36)	11.902** (0.75)	19.627** (1.02)	47.623** (2.62)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.24 Results of using standard quantile regression, using ROE as firms' performance measure

	Dependent variable : Total Concentration (CON)						Dependent variable : Herfindahl Index (HHI)					
	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9
ROE	0.076** (0.02)	0.085** (0.03)	0.097** (0.03)	0.097** (0.03)	0.063** (0.02)	0.043* (0.02)	0.048** (0.02)	0.015** (0.01)	0.03** (0.01)	0.063** (0.02)	0.069** (0.03)	0.043 (0.06)
Firm Size	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001 (0.01)	0.001 (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001 (0.01)
Firm Age	0.045** (0.02)	-0.03 (0.03)	0.012 (0.03)	0.101** (0.03)	0.076** (0.03)	-0.009 (0.02)	0.073** (0.02)	0.003 (0.01)	0.007 (0.01)	0.091** (0.02)	0.159** (0.03)	0.233** (0.07)
Financial leverage	0.226** (0.11)	0.165 (0.15)	0.265 (0.16)	0.143 (0.15)	0.377** (0.13)	-0.04 (0.12)	0.305** (0.09)	0.147** (0.03)	0.134** (0.05)	0.276** (0.10)	0.323** (0.14)	0.434 (0.34)
Rule of Law	-5.038** (1.01)	0.982 (1.43)	-4.22** (1.57)	-7.015** (1.40)	-8.385** (1.28)	-4.605** (1.19)	-8.188** (0.88)	0.435 (0.33)	-1.106** (0.44)	-4.509** (0.96)	-8.993** (1.32)	-25.989** (3.31)
Corruption Control	-0.01 (0.01)	0.004 (0.02)	-0.003 (0.02)	-0.011 (0.02)	-0.016 (0.02)	-0.025* (0.01)	-0.001 (0.01)	0.006 (0.00)	0.004 (0.01)	0.001 (0.01)	-0.003 (0.02)	-0.013 (0.04)
Arab Spring	-10.465** (0.68)	-13.675** (0.96)	-15.874** (1.05)	-11.256** (0.94)	-8.285** (0.86)	-6.232** (0.80)	-1.345** (0.59)	-1.822** (0.22)	-2.2** (0.29)	-2.253** (0.65)	-0.902 (0.89)	-3.176 (2.22)
Intercept	60.041** (0.80)	29.996** (1.13)	46.107** (1.24)	60.785** (1.11)	72.777** (1.02)	91.169** (0.94)	19.342** (0.70)	2.845** (0.26)	6.402** (0.35)	11.927** (0.76)	20.066** (1.05)	48.341** (2.62)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

Table 3.25 Results of using standard quantile regression, using TOBIN_Q as firms' performance measure

	Dependent variable : Total Concentration (CON)						Dependent variable : Herfindahl Index (HHI)					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	0.1	0.25	0.5	0.75	0.9	OLS	0.1	0.25	0.5	0.75	0.9
TOBIN_Q	1.322** (0.27)	0.172 (0.36)	1.367** (0.42)	1.96** (0.38)	2.352** (0.35)	1.459** (0.35)	1.42** (0.23)	0.038 (0.09)	0.112 (0.12)	0.996** (0.25)	1.7** (0.33)	3.849** (0.83)
Firm Size	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001 (0.01)	0.001 (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001** (0.01)	0.001* (0.01)
Firm Age	0.045** (0.02)	-0.011 (0.03)	0.012 (0.03)	0.095** (0.03)	0.088** (0.03)	-0.004 (0.03)	0.07** (0.02)	0.004 (0.01)	0.005 (0.01)	0.097** (0.02)	0.172** (0.03)	0.205** (0.06)
Financial leverage	0.189* (0.10)	0.201 (0.14)	0.168 (0.17)	0.086 (0.15)	0.377** (0.14)	-0.064 (0.14)	0.282** (0.09)	0.135** (0.04)	0.146** (0.05)	0.216** (0.10)	0.313** (0.13)	0.404 (0.33)
Rule of Law	-4.906** (1.01)	1.748 (1.37)	-3.542** (1.62)	-7.652** (1.44)	-7.752** (1.32)	-3.6** (1.35)	-8.003** (0.88)	0.331 (0.34)	-0.982** (0.44)	-3.949** (0.95)	-8.397** (1.26)	-24.535** (3.16)
Corruption Control	-0.01 (0.01)	0.004 (0.02)	-0.003 (0.02)	-0.01 (0.02)	-0.016 (0.02)	-0.025 (0.02)	-0.001 (0.01)	0.006 (0.00)	0.004 (0.01)	0.001 (0.01)	-0.002 (0.02)	-0.013 (0.04)
Arab Spring	-10.702** (0.68)	-14.078** (0.93)	-15.838** (1.09)	-11.279** (0.97)	-8.574** (0.89)	-6.515** (0.91)	-1.67** (0.60)	-1.868** (0.23)	-2.257** (0.30)	-2.109** (0.64)	-0.691 (0.85)	-3.972* (2.13)
Intercept	58.874** (0.85)	29.616** (1.15)	44.963** (1.36)	59.24** (1.21)	69.765** (1.11)	89.066** (1.13)	17.951** (0.74)	2.967** (0.29)	6.456** (0.37)	10.652** (0.80)	17.878** (1.06)	43.934** (2.66)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 7.3

3.7 Tobit Regression Model

This study applies the Tobit Regression Model (TRM) as an additional technique of data analysis, because of the nature of the dependent variable. In this study the dependent variables (CON and HHI) have limited values, i.e. ownership concentration percentage range from 0 to 99% only. TRM is more appropriate for the study estimation, because it allows to account for the specific distribution of the limited dependent variable (Wooldridge, 2010). In addition, Tobit regression is more powerful than other regressions because it make use of all observations regardless of whether they are at the limit or above (Jizi, Salama, Dixon, & Stratling, 2014). Also, in order to address endogeneity issues, this study use IV-Tobit and the Postestimation technique in IV-Tobit.

Tables 3.26 and 3.27 presents the results of Tobit, IV-Tobit and Postestimation IV-Tobit. These results confirm the same results found previously using random effects and 2SLS regressions. The results show that country- and firm-level factors partially explain the significant segment of ownership concentration. Regarding the country-level factors, ROL and has negative effects on both the CON and the HHI. The Arab Spring shows a negative relationship with both the CON and the HHI. Firm-level factors play an essential role in the degree of ownership concentration. Both firm size and firm age have significantly positive relations with ownership concentration. Concerning financial performance, like the results found when using random regressions, only Tobin's Q has a significant positive effect on increasing ownership concentration in both the CON and the HHI. However, because of the nature of Tobit regression, the coefficient doesn't reflect the concrete effects of independent variables. Therefore, the study runs Tobit marginal effects in order to understand the effects of independent variables using Tobit regression. The coefficient results are different between Tobit regression and Tobit marginal effects, however the significance of independent variables doesn't change in both regression models.

Table 3.26 Different Tobit regressions results, Dependent variables. Total Concentration (CON)

	Dependent variable : Total Concentration (CON)								
	Tobit	IV-Tobit	IV-Tobit Postestimation	Tobit	IV-Tobit	IV-Tobit Postestimation	Tobit	IV-Tobit	IV-Tobit Postestimation
ROA	0.193 (4.45)	0.002 (0.00)	0.001 (0.00)						
ROE				0.089 (3.69)	0.005 (0.02)	0.038 (0.02)			
TOBIN_Q							1.119** (2.90)	0.406 (0.07)	0.174 (0.07)
Firm Size	0.001*** (4.29)	0.001*** (4.48)	0.001*** (4.48)	0.001*** (4.17)	0.001*** (4.29)	0.001*** (4.29)	0.001*** (4.45)	0.001*** (4.24)	0.001*** (4.24)
Firm Age	0.056*** (1.26)	0.067** (0.92)	0.008** (0.92)	0.068*** (1.42)	0.065*** (1.05)	0.008** (1.05)	0.070*** (1.53)	0.073** (0.80)	0.009** (0.80)
Financial leverage	0.242 (1.67)	0.267 (0.75)	0.114 (0.75)	0.161 (1.14)	0.259 (1.24)	0.069 (1.24)	0.115 (0.82)	0.246 (1.52)	0.015 (1.52)
Rule of Law	-4.602*** (-3.41)	-3.979** (-2.74)	-1.703** (-2.74)	-4.640*** (-3.44)	-3.943** (-2.76)	-1.981** (-2.76)	-4.553*** (-3.37)	-3.862* (-2.17)	-1.654* (-2.17)
Corruption Control	-0.011 (-0.90)	-0.012 (-0.93)	-0.005 (-0.93)	-0.011 (-0.89)	-0.012 (-0.93)	-0.005 (-0.93)	-0.011 (-0.88)	-0.012 (-0.92)	-0.012 (-0.92)
Arab Spring	-13.309*** (-14.80)	-14.092*** (-12.26)	-6.033*** (-12.26)	-13.233*** (-14.72)	-14.102*** (-12.99)	-5.651*** (-12.99)	-13.418*** (-14.78)	-14.259*** (-6.63)	-6.109*** (-5.63)
Intercept	63.017*** (56.77)	63.868*** (38.39)		63.205*** (57.02)	63.867*** (45.11)		62.364*** (53.08)	63.499*** (9.39)	
AdjR-sqr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,522	5,523	5,524	5,522	5,523	5,524	5,522	5,523	5,524

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Table 3.27 Different Tobit regressions results, Dependent variables. Herfindahl Index (HHI)

	Dependent variable : Herfindahl Index (HHI)								
	Tobit	IV-Tobit	IV-Tobit Postestimation	Tobit	IV-Tobit	IV-Tobit Postestimation	Tobit	IV-Tobit	IV-Tobit Postestimation
ROA	0.11 (4.51)	0.115 (0.44)	0.0138 (0.44)						
ROE				0.044 (3.23)	0.057 (0.44)	0.056 (0.44)			
TOBIN_Q							0.913*** (4.53)	1.503 (0.42)	0.189 (0.42)
Firm Size	0.001*** (6.01)	0.001*** (6.52)	0.001*** (6.52)	0.001*** (5.88)	0.001*** (6.07)	0.001*** (6.07)	0.001*** (6.25)	0.001*** (5.08)	0.001*** (5.08)
Firm Age	0.069*** (4.75)	0.078** (3.03)	0.009** (3.03)	0.072*** (4.97)	0.076*** (3.46)	0.009** (3.46)	0.071*** (4.95)	0.079** (2.87)	0.010** (2.87)
Financial leverage	0.322*** (4.06)	0.204 (1.01)	0.041 (1.01)	0.271*** (3.50)	0.247* (2.18)	0.034* (2.18)	0.249** (3.23)	0.277** (3.29)	0.035** (3.29)
Rule of Law	-6.076*** (-8.39)	-6.305*** (-8.05)	-0.763*** (-8.05)	-6.117*** (-8.44)	-6.286*** (-8.18)	-0.768*** (-8.18)	-6.024*** (-8.31)	-6.485*** (-6.54)	-0.819*** (-6.54)
Corruption Control	-0.001 (-0.07)	-0.001 (-0.07)	-0.001 (-0.07)	-0.001 (-0.06)	-0.001 (-0.07)	-0.001 (-0.07)	-0.001 (-0.05)	-0.001 (-0.10)	-0.001 (-0.10)
Arab Spring	-1.200* (-2.47)	-1.208 (-1.91)	-0.151 (-1.91)	-1.147* (-2.36)	-1.238* (-2.09)	-0.144* (-2.09)	-1.324** (-2.71)	-0.891 (-0.72)	-0.113 (-0.72)
Intercept	17.411*** (30.19)	18.133*** (19.68)		17.549*** (30.50)	18.045*** (23.58)		16.706*** (27.14)	19.492*** (4.91)	19.492*** (4.91)
AdjR-sqr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,522	5,523	5,524	5,522	5,523	5,524	5,522	5,523	5,524

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

3.8 Discussion and Conclusion

This study seeks to provide a logical explanation of the factors that determine ownership concentration in firms in the MENA region. Exclusively, the study contains a look at the importance of three main factors (country, industry, and firm levels) in shaping ownership structure in this region. There has been a consideration of the two main lines of thought that can influence the degree of ownership concentration within countries: their laws and cultures (Holderness, 2017).

The results show that country- and firm-level factors partially explain the significant segment of ownership concentration. Regarding the country-level factors, ROL and corruption control have negative effects on both CON and HHI as proposed in the hypothesis (H3a). These results align with (La Porta et al., 1999; La Porta et al., 1998) theory, which states the degree of the law that protects investors in public firms and is negatively related to the level of ownership concentration. These results give clear evidence that shareholders are not confident with the law and legalisation that protects their investment in MENA region; accordingly, shareholders increase their voting right in the firms they are invested in. Thus, shareholders will have the ability and the power to protect their investment from a firms' management and mitigate agency problems. This can explain why public firms in MENA countries are characterised by high level of ownership concentration.

Moreover, the Arab Spring movement has a negative relationship with both the CON and HHI. Thus, the average ownership concentration is decreased by the MENA nations' revolutions. This may be caused by the investment risk of the affected countries. That is, countries that combine high political uncertainty and weaker economy are subject to higher market volatility (Pástor & Veronesi, 2013). Owners who have doubts about the legal system want to protect their investments, so it is possible that when investors face high investment risk in this situation, the shareholders decrease their investments. This finding supports that of Pedersen and Thomsen (1997), who argued that the degree of shareholder protection affects the ownership structure.

This study also indicates that firm-level factors play an essential role in affecting the degree of ownership concentration. Both firm size and firm age affect significantly and positively ownership concentration, as stated in the hypothesis (H3b and H3c). Thus, this study's results are in line with other research found in U.S and Europe (e.g. Gedajlovic (1993) and Crespi-

Cladera (1996)), showing that industry and firm size affect ownership structure and provide the first evidence of these effects in MENA region.

Concerning financial performance, all firm performances have positive effects but in different degrees of significance as proposed in hypothesis (H3d). Tobin's Q has a significant positive effect on increasing ownership concentration in both the CON and HHI. This may explain why future market performance attracts investors more than past performance does (ROA and ROE). In addition, according to Jovanovic and Rousseau (2002) in their Q-theory of mergers, the rate of a firm's investment is increased by a high Q ratio. In addition, Shim and Okamuro (2011) believed that firms with a high Tobin's Q value have positive impacts on other firms regarding merger probability. Duggal and Millar (1999) believed that investors search for efficient firms to invest in, thus Tobin's Q is the measure of efficiency utilised (Lang, Stulz, & Walkling, 1989; Servaes, 1991).

The effects of firm performances show contradictory results when using the random effects and 2SLS models. This indicates that firm performance may have some degree of influence on ownership structure. However, the relationship between ownership structure and firm performance can be endogenous, which was supported by Demsetz (1983).

In conclusion, the study has investigated the determinants of ownership concentration in the MENA region and employed three types of levels, comprising of firm-, industry- and country-level. It has found the endogenous relationship between firm performance and ownership structure. Moreover, the ownership structure in the public firms in MENA countries is highly affected by the degree of law in this region. Finally, this study confirms that the revolution called the Arab Spring has an effect on the degree of ownership concentration.

Chapter Four : The Effects of Ownership Concentration on Firm Performance.

4.1 Introduction

The agency theory is about the problems between two main parties in the firms (owner and manager). A conflict of interest between them is defined as the 'agency cost', and there are mechanisms that mitigate these costs (Eisenhardt, 1989). However, many researchers argued that agency relations and agency costs are the basis of corporate governance.

Adam Smith (1776) stated the following:

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.

The agency problem starts when there is someone who acts on behalf of somebody to accomplish something (Thomsen, 2008). Specifically, it is the relation between the owner of a property, called the principal, who gives another person the authority to run that property, called the agent. Because both parties (the principal and the agent) have different goals and different behaviours and decisions, this creates differences in the way work is done and the attitude taken toward risks.

This issue was discussed many centuries ago and was first highlighted by Adam Smith. In his book, *Wealth of Nations*, published in 1776, Adam Smith realized that when one or more groups of people act on behalf of the owner to run the firm, they either do not achieve the principal goals or the objectives are likely to be diluted. After recognising this agency problem, other, more recent theories have been developed.

Berle and Means (1932) stated that agency problem starts when there is a separation between ownership and control. Later, the idea was followed up in depth by Jensen and Meckling (1976). They came up with a more in-depth concern of ownership-control separation that is related to the economic theory of the firm. They first identified the manager as the 'agent'

who is hired by the owner of the firm (principal) to increase the owner's wealth. However, because the agent does not own the firm's resources, the agent may try to find a way to use the firm's resources for his or her personal benefit. Also, an agency problem occurs because agents intend to hide some important information from the owner for their own benefit (Jensen & Meckling, 1976).

One way of preventing agents from misusing the resources of the firm for their personal gain is by closely monitoring their actions. Nevertheless, shareholders with a small portion of firm equity either have no incentive or no power to monitor the firm. A larger shareholder works effectively in this matter. This chapter shows the role of ownership concentration in the agency problem by empirically investigating the effects of ownership concentration on firm performance.

The relation between the structure of ownership and firm performance has been debated over in corporate governance literature. In fact, this topic has received a considerable amount of research (Jiang, 2004). Thus, there are many pieces of literature on this topic that have different results and opinions. However, the impact of ownership structure on firm performance can be affected by different factors among countries, like prevailing institutional, legal and economic (Demsetz & Villalonga, 2001). Moreover, (Karaca & Ekşi, 2012) argued that there are two implications in ownership structure: ownership identity and ownership concentration.

This topic was first discussed by Berle and Means (1932), who suggested that there is a connection between negative firm performance and the broad dispersion of shareholdings, because of the agency problem. According to (Tsegba & Ezi-Herbert, 2011), ownership structure is a part of corporate governance that ensures the ethical behaviour of managers. Equally important, Turki and Sedrine (2012) believed that ownership structure works as a controlling mechanism of corporate governance and enhances firm performance and the wealth of shareholders. Furthermore, Zhuang (1999) argued that ownership structure is a critical factor of corporate governance. Similarly, Fazlzadeh et al. (2011) believed that ownership structure has major effects on enhancing firm performance and the corporate governance system. The ownership structure is a mechanism that can be used to minimise the asymmetric flow of information in the markets between insiders and outsiders (Shah & Hussain, 2012).

However, Demsetz (1983) stated that the ownership structure of a firm should be viewed as endogenous, that ownership concentration is an outcome of trading of shares on the market. Similarly, Lee (2008) argued that an ownership structure is formed by market forces as a result of profit-maximising incentives. Also, ownership structure is modified when the company's owner decides to sell part of the company to the public (Demsetz & Villalonga, 2001).

Lee (2008) argued that if there is no endogenous relationship between ownership structure and firm performance, then the effects of ownership concentration on firm performance should be systematic, and there should be no mixed evidence in this relation. Also, Demsetz and Villalonga (2001) believed that there is no relationship between variations in ownership structure and variations in firm performance. Likewise, Demsetz (1983) disagreed that there is a relationship between ownership concentration and firm profit.

The roles of ownership structure in enhancing firm performance were addressed in theoretical, practical, and empirical studies. Corporate ownership structures include the dominant or largest shareholder, concentrated ownership, insider (board or managerial) ownership, foreign ownership, institutional ownership, and government ownership (Tsegba & Ezi-Herbert, 2011).

Some studies indicated that blockholders play an essential role in reducing agency costs; however, other studies showed different results. Nyman and Silberston (1978) argued that control should be viewed from a power standpoint rather than a structural one. Thus, concentrated ownership will give the power to shareholders and allow them to control managers' activities, enhancing the efficiency in management and improving firm performance (Shleifer & Vishny, 1986). In the same way, Shleifer and Vishny (1997) believed that ownership concentration is an essential element of the corporate governance mechanism, one that blockholders have the control over in their invested firms. Moreover, (Fama & Jensen, 1983; Jensen & Meckling, 1976) stated that manager behaviour cannot be controlled in a diffused ownership structure and that managers with no direct supervision from owners enable them to work toward benefitting themselves.

Moreover, Zhuang (1999) argued that ownership concentration shows the distribution of power between the shareholders and managers. He believed that shareholder monitoring becomes weak if the ownership is diffused, and this results in low control over the firm.

Furthermore, blockholder monitoring reduces agency problems between shareholders and managers (Hartzell & Starks, 2003). According to Demsetz and Lehn (1985), ownership concentration gives owners an effective way to monitor managerial performance. Accordingly, larger shareholders are likely to put pressure on managers to act towards maximising the firm's value (Pivovarsky, 2003). Additionally, Ehikioya (2009) argued that the best way to safeguard the shareholders' wealth in markets with weak legal systems is by having concentrated ownership.

Jensen and Meckling (1976) believed that shareholders will target their interests if the ownership is concentrated and consequently, there will be agency costs involved. Nevertheless, very high ownership concentration gives the opportunity for dominant shareholders to have the power to prevent expropriation from minority shareholders (La Porta et al., 1999). Furthermore, according to Zhuang (1999), the main issue with concentrated ownership is the conflict between the major shareholders and the minority ones. He argued that large shareholders may use their power over the firm to get what they want at the expense of the minority shareholders.

However, blockholders' roles differ over time and places, according to the legal system and different regulations available in each country (Fauzi & Locke, 2012). Also, according to Demsetz and Villalonga (2001), ownership structure varies across corporations because of different situations facing firms, such as economic scale and environment stability. In addition, the governance needed for each corporation is affected by the presence or absence of a dominant or largest shareholder with a material interest in the firm (Bebchuk & Roe, 1999). Also, Becker, Cronqvist, and Fahlenbrach (2011) argued that large shareholders reduce the market liquidity of a firm's publicly traded shares.

This chapter investigates the relationship between ownership concentration and firm performance in the MENA region. This study contributes to the existing literature in two ways. Firstly, to the best knowledge of the author, it is the first study to comprehensively examine this matter in the MENA region. Also, this research is the first of its kind to examine the effects of political factors, including the Arab revolution (Arab Spring), on firm performance of companies in the MENA region.

The rest of this chapter is structured as follows. There is a review of the existing literature that considers firm, industry, and country factors. Next, the variables and methodology used in

this study are explored. The results are given. And finally, there is a discussion of the results and a conclusion.

4.2 Review of Existing Literature and Hypotheses Development

In the UK, Leech and Leahy (1991) investigated the relationship between ownership concentration and company behaviour and performance. They believed that this relationship depends of the definition used to identify the ownership concentration – whether it is the total percentage of equity owned by largest shareholder or if it is the degree of control by blockholders. Regardless of the ownership concentration identification types, they found that ownership concentration has significant effects on firm performance. The study indicated that control is exogenous, but ownership concentration is endogenous; ownership concentration depends on firm size, diversifiable risk, and product diversification, while the control classification is independent of the size of the firm.

Pedersen and Thomsen (1999) studied the causes and the effects of concentration ownership and firm performance in European countries. They found that both economics and national systems have a significant effect on ownership concentration. Thus, the size of the firms decrease the concentration of ownership, but profit volatility increases it. Furthermore, institutional differences, such as financial market size and the size of the banks involved, have a strong effect on ownership concentration. The study also showed that institutions, law, and culture have an important role in shaping ownership structure and corporate governance. This study did not show any relationship between ownership concentration and firm performance when measuring the relationship by return on asset (ROE). The authors believed a causal relationship between ownership structure and firm performance exists within national boundaries. Knowing these causal mechanisms may help firms find the best ownership structure.

In another study done by Becker et al. (2011), the authors examined the relationship between non-managerial individual shareholders and firm performance, and they looked at this relationship using the geographic criteria of firm location in publicly traded U.S. firms. They found that blockholders are systematically allocated to firms rather than randomly allocated, and this is based on where the blockholders can increase their monitoring for more significant benefits. The authors found that large shareholders have significant economical and statistical effects. They influence firm policies and reduce both the firm's investments and corporate

cash holdings, increase the payments for shareholders and reduce total top-executive pay. But the authors pointed out that large shareholders can be a disadvantage to firms because they reduce firm liquidity by lowering firms' shares trading in exchange markets.

Ellili (2011) conducted research in the United States and found that blockholders have negative effects on firm performance. He found that blockholders do not attempt to have ownership in firms with high level of debt because of the high risk of bankruptcy. (Demsetz & Villalonga, 2001), using 2SLS regression to control for endogeneity, conducted research in the United States and documented no significant relationship between the largest shareholder and firm performance. They used a previous data sample from a study done by (Demsetz & Lehn, 1985) who concluded a negative effect of large shareholder on firm performance by using OLS and without taking endogeneity between ownership concentration and firms performance into consideration.

Francia, Porter, and Sobngwi (2011) studied 302 U.S. trucking firms to find how public and private equity influence the financial performance (ROA) of these firms. The study found that ownership structure had no role in determining the profitability difference in the trucking industry. However, they found that growth of public firms is faster than private firms. In addition, they also found that private firms stop growing after reaching a positive growth point, while public firms keep growing.

In Greece, Kapopoulos and Lazaretou (2007) used data from 175 firms to investigate the relationship between concentration ownership and firm performance. They used two firms performance measures: Tobin's Q and the accounting profit rate. They found that ownership concentration lead to more discipline in management behaviour, which leads to better performance. When they used the Herfindahl index as a proxy of concentration degree, they found no significant relationship between concentration ownership and firm performance.

However, Hamadi (2010) investigated the relationship between powerful controlling shareholders and firm performance using Belgian-listed firms. The author used Tobin's Q to measure how controlling shareholders in family-owned firms and non-family-owned firms can influence firm performance. He found that the largest shareholders have a negative relation with firm performance and the second largest shareholder has no impact on performance. However, large shareholders have positive effects on family-owned firms. But

when large shareholders have more control over these firms, the effect turns out to be negative.

To control ownership endogeneity and to reduce any unobservable heterogeneity, De Miguel, Pindado, and De La Torre (2004) used the generalised method of moments (GMM) to investigate the relationship between concentration ownership and the value of Spanish firms; they did this using the market value of equity as the value proxy. The researchers found that ownership between 0–87% has positive effects on firm value, and beyond this percentage, it affects a firm negatively. However, the researchers also found that a high level of ownership concentration in Spanish firms has the power to expropriate the minority shareholders' wealth. They concluded that despite controlling endogeneity, ownership structure matters, and there are different relationships between ownership structure and firm value across countries.

Gedajlovic and Shapiro (1998) conducted a comparative study and examined the relationship between ownership concentration and firm profitability, as measured by ROA. The researchers used five countries (Canada, France, Germany, the United Kingdom, and the United States) to find how different institutions and economies affect corporate governance. They found a negative relation in both the United States and Germany. In the UK, there was a positive relationship, and managers in concentrated firms were found to be more effective in resolving agency problems. In both France and Canada, there was no relationship found between ownership concentration and firm profitability. The researchers documented that the type of institution plays a major role in forming corporate governance and strategic behaviour. The researchers also concluded that there are different relationships between ownership concentration and firm profitability across countries, because of the different constraints facing managers in different institutional contexts.

Thomsen et al. (2006) conducted another comparative study and used the Granger test to examine the relationship between blockholder ownership and firm value in the European Union and the United States. The researchers found that a relationship exists when blockholder ownership is more than 10%. They found no relationship between blockholder ownership and firm value either in the United States or the UK. But there is a negative relationship in the other countries of the EU. The researchers suggested conflicts of interest between blockholders and minority investors. Although blockholders have the power to monitor management behaviour, which benefits the firm and the other shareholders, the

blockholders use this power to take advantage of the firm's resources for their own benefit at the expense of other shareholders.

Balsmeier and Czarnitzki (2017) used non-listed firms in 28 Central and Eastern European countries. They found significant effects of ownership concentration on firm performance; however, this was found to be a U-shape relationship. They gave evidence that supported the agency problem regarding the distribution of ownership concentration that leads to the problem of 'private benefits of control' with the increase of ownership concentration.

Contrary to the previous studies, Krivogorsky (2006) found that concentration positively affects firm profitability (ROE, ROA, and MTB). The author used 87 European firms acting as foreign U.S. registrants between 2000-2001; the author's goal was to understand the harmonisation of accounting practices. Also, Thomsen and Pedersen (2000) used 435 companies from 12 European countries to examine the relationship between ownership concentration and company economic performance. To control any other factors that may influence corporate control, the researchers took into consideration the capital structure, industry, and nation effect. The study found a bell-shape relationship of ownership concentration on the asset returns and market-to-book values. They believed that ownership identities (family, bank, institutional investor, or government) have an important role in a firm's strategy and performance. That is, the market-to-book values have a positive relation with institutional ownership and a negative relation with family ownership or government ownership. On the other hand, family ownership has a positive effect on sales growth. Although this study addressed the ownership endogeneity and causal effects, the study did not have a definite answer about the direction of causality.

In Croatia, Dzanic (2012) used 119 firms and their data from between 2003–2009, to examine the relationship between ownership concentration and firm performance. The researcher found that ownership concentration has negative effects on Tobin's Q when blockholders own more than 30% of the firm's equity, but there is no relationship with ROE. However, Tomicic, Coric, and Calopa (2012) examined the effects of ownership concentration on Croatian banks. The researchers used 32 banks and chose return on average assets (ROAA) and return on average equity (ROAE) as the banks' performance indicators. Banks in Croatia have a very high concentration of ownership, and 89% of the banks' equity is controlled by the top 10 largest owners. The first largest owner controlled, on average, 60% of the bank's equity. The researchers found a significant relationship between ownership structure and the

banks' performance. The authors believed that other corporate governance factors, such as innovation rate, market share, and time to market, should be studied further.

Cabeza-Garcia and Gomez-Anson (2011) tried to find the link between ownership concentration in post-privatisation firms and the efficiency levels of ownership concentration. They used 126 Spanish firms and set controls for market competitiveness, economic cycle, firm size, and prior performance, to control any endogeneity between firms' performance and ownership concentration. They believed that ownership structure in a post-privatisation company could be endogenously determined by other factors such as public information that comes out during the process of the privatisation. The study found a positive relationship between ownership concentration and the firm's efficiency measure, which was measured by real sales relative to the number of employees. However, the researchers also found that the way a company is privatised, industry type, the size of the firm, and level of risk, determine the differences of ownership concentration.

Setia-Atmaja (2009) studied the effects of ownership concentration on board and audit committee independence, and how this influenced the studied Australian firms' performance, as measured by Tobin's Q. The researcher found that there is no significant relation between ownership concentration and audit committee independence, but there is a negative relation with board independence. The author argued that large shareholders may not want any interruption from independent boards, which is the 'the rent extraction argument'. In addition, the power that concentrated ownership has in monitoring management may substitute for the need for independent directors on the board, which is 'the substitution argument'. Moreover, Gaur, Bathula, and Singh (2015) used firms listed in New Zealand between the years 2004–2007 and found that firms with a high ownership concentration perform better than firms lacking this concentration.

Furthermore, Fauzi and Locke (2012) argued that a higher level of blockholders increases the agency problem because of the power they have to influence decisions made by the board. They used the Durbin-Wu-Hausman test for endogeneity control and found there is no endogeneity between corporate governance and firm performance for the studied firms in New Zealand. They concluded that a higher proportion of blockholder ownership decreases firm performance.

On the other hand, Reyna, Vázquez, and Valdés (2012) examined the relationship between concentration ownership and firm performance in Mexico. They used a two-stage least squares (2SLS) analysis and generalised the method of moments (GMM) to control the ownership structure endogenously, and to give the suitable environment characteristics in which the company operates. They reported that 44% of Mexican firms are concentrated in families. However, this family concentration increased the Mexican firm's use of additional governance mechanisms, such as debt or board structure, to protect their interests. The researchers concluded that high levels of ownership concentration, especially when it involves families, have a positive relationship with firm performance.

In Japan, Gedajlovic and Shapiro (2002) found a positive relationship between ownership concentration and firm performance; they used 334 Japanese corporations between 1986–1991. The researchers suggested that ownership concentration in Japanese firms can enhance firm performance in two ways. Blockholders have the effectiveness to monitor top management. Also, they have the ability to shift financial resources from profitable firms to poorly performing firms. The authors also found that investors play a big role in firm performance. However, this identity depends on the investment objectives and the capacity to control firm behaviour.

Hu and Izumida (2009) used the Granger causality test on Japanese manufacturing firms to examine the causal relationship between the concentration of ownership and firm performance. The researchers used Tobin's Q and ROA as the performance indicators, and both investment and leverage were used as transmission mechanisms. They found U-shaped effects of ownership concentration on firm performance, but no effect on performance regarding the concentration of ownership. The authors believed that ownership concentration is exogenous to a firm's performance, and that in a market with non-liquid securities, large shareholders are not willing to change their portfolios as a change in firm performance. They also argued that in a weak regulated market, powerful shareholders take action to establish the 'rules of the game'.

Harada and Nguyen (2011) used a large sample of Japanese firms to find the link between the concentration of ownership and firm dividend policy. They used the dividends-to-book value of equity (DIVEQT) and dividends to operating income (DIVTOI) as the measures of this relationship; ownership endogeneity was taken into consideration. The researchers found that ownership concentration has significantly lower dividends in both the variables used in the

study. This relationship even exists with high-earning firms that have less debt. The authors suggested that a free-cash-flow problem is not controlled using a dividends policy in firms with a high ownership concentration. Moreover, the agency problem exists when there are conflicts of interest between large (majority) and small (minority) shareholders.

Z. Chen, Cheung, Stouraitis, and Wong (2005) analysed 412 publicly listed Hong Kong firms, using data between 1995–1998, to find if concentrated family ownership affects firm operating performance and value. They did not show any positive relationship between family ownership and ROA, ROE, or Tobin's Q. They documented that concentration ownership has no connection to better firm value or performance. In fact, they found that in family-controlled firms, there is more CEO duality, and this duality has a negative impact on firm performance. In addition, they concluded that in small firms, a significant negative relationship exists between family ownership and dividend pay-outs when the family has less than 10% of the firm's equity, and there is a positive relationship when the family has 10–35% equity.

In South Korea, Lee (2008) used 579 firms' panel data from between 2000–2006, and he found that when ownership concentration increases, it positively affects firm financial performance, which was measured by the net income to total assets ratio (NIA) and ordinary income to total assets ratio (OIA). However, the relationship between ownership concentration and firm performance was found to be a hump-shaped relationship. Thus, the best firm financial performance was recorded when the ownership concentration was at the intermediate level.

Gul, Kim, and Qiu (2010) studied the effects of concentration ownership and the quality of the auditors in firm information, and how this information affects share price, as measured by stock price synchronicity in the Chinese market. The researchers found that synchronicity increases when ownership concentration increases to some level, and beyond that level, it starts to decrease. They found that the big four auditors mitigate synchronicity and that these auditing firms ensure reliable and accurate financial reports. The authors believed that information from a firm's capitalisation can be maintained by reducing ownership concentration. However, K. Li, Lu, Mittoo, and Zhang (2015) used 1,241 Chinese firms, and they chose ROA and Tobin's Q as the performance measures. They found that ownership concentration is positively related to corporate performance. The authors argued that

ownership structure is an efficient corporate governance mechanism that enhances Chinese firms' performance.

Also in China, Shiguang, Naughton, and Tian (2010) investigated the effect of ownership concentration on firm performance by categorising concentration ownership as tradable or non-tradable. Thus, in China's new emerging market, approximately 67% of the shares are non-tradable. Because of this, shareholders cannot sell their shares, and so they have an incentive to monitor management. However, they do not have the power to control management's behaviour. Tradable shareholders can influence management behaviour because they have the right to sell their shares, which leads to a decrease in share prices and increase in capital costs. Furthermore, 10 large shareholders in most chain firms control about 90% of the firms' shares. The researchers found that both total ownership and tradable ownership concentration positively affect firm performance. The authors argued that tradable and non-tradable shareholders are complementary to each other in monitoring and controlling management's behaviour.

Wang and Shailer (2015) used meta-analytical techniques for analysing 28 studies that were conducted in 18 developing countries; their goal was to find the effects of ownership concentration on firm performance. After they adjusted for the differences in the sample studies, such as modelling choices and endogeneity problems, they found a negative relationship between ownership concentration and firm performance.

In Taiwan, Yang, Chen, Kweh, and Chen (2013) used electronics firms to find if there was any relationship between separation of control and ownership in firm efficiency; they used total sale and market value as the performance measures. The researchers found that both discrepancy between voting rights and cash flow rights have significantly negative effects on firm efficiency. They believed that factors across countries, such as regulatory and economic environments, may affect the relationship between separation of control and ownership in firm efficiency.

Also in Taiwan, Lo, Chiu, and Shih (2016) used the electronic industry and data between 1997–2013. They found that ownership concentration has a positive effect on ROE and Tobin's Q. However, Hoang, Nguyen, and Hu (2016) used manufacturing firms from Vietnam and employed a GMM regression to address the relationship between the

endogeneity of ownership concentration and firm performance. The researchers did not find any significant correlations between ownership concentration and firm performance.

Hanafi, Santi, and Muazaroh (2013) investigated the impacts of ownership concentration and commissioners on Indonesian banks' risk-taking and profitability. They found that ownership concentration has a significant effect on reducing bank risk (standard deviation of return on equity) and increases both the capital adequacy ratio (CAR) and ROA. The researchers also found that large commissioners reduce bank risks and improve profitability accordingly. They believed that large commissioners help to increase bank managers' power, so managers tend to be risk averse; types of commissioners have important impacts on bank risk. They argued that having fewer shareholders works effectively in monitoring bank activities and leads to good firm performance, as well as helping to regulate firm size and duality.

Vemala and Nguyen (2013) used 136 Indian firms' data from between 2005–2007, to find how ownership concentration, agency costs (expense ratio), and liquidity (share turnover) interacted with each other and affected firm value. They believed these three factors are related to each other and cannot be separated when studying the corporate control. In this study, they used a partial least squares regression (PLS) to control for multicollinearity and to gain a greater generalisability. They argued that a PLS regression better accounts for correlated comparing with (OLS) regression that increases standard error of estimated coefficients. The researchers found a significant relationship between the three factors and the firm value, as measured by Tobin's Q. The authors argued that firms could achieve high firm value by adopting a balance of ownership concentration while reducing agency costs and increasing liquidity.

Haldar and Rao (2011) analysed an unbalanced panel of BSE-500 Index firms to empirically examine the relationship between concentration ownership and firm performance. They found that when the founders of the firm have the majority of the shares, there is a positive and significant effect on the firm's performance. Also, Ganguli and Guha Deb (2016) investigated the impact of the structure of ownership on firm performance by using Indian firms' data between 2009–2013. They found that ownership concentration has a positive effect on firm performance, as measured by market and accounting ratios.

However, Javid and Iqbal (2008) found that Pakistani firms have high ownership concentration, and the endogenous response of a poor legal environment seems to have a

significant effect on firm performance. Although they found that the concentration of ownership positively affects firm profitability, it negatively affects information disclosures and transparency. The researchers found that the type of ownership plays a major role in Pakistani firms. Thus family, foreign, and management ownership are positively related with firm performance, but there is no relationship when there is individual ownership.

Abbas, Naqvi, and Mirza (2013) studied 100 non-financial Pakistani firms and the relationship between large shareholders and firm performance. The researchers used ROA and ROE as the performance indicators and the total percentage of ownership as the ownership concentration. They found a significant positive relationship between concentrated ownership and firm performance because of active monitoring by large shareholders. This relationship exists when owners have more than 10% of the firm's equity. However, when the concentration goes beyond the controlling level (over 50% of the firm's equity), there are adverse effects. According to the authors, this is because large owners may take advantage of their positions, using their power to receive private benefits at the expense of the firm.

In addition, Chandrapala (2013) examined the effect of ownership concentration and firm size on Pakistani firms' value; the author used two accounting variables: earnings and book value. The researcher found that a firm with a higher ownership concentration has a greater value than a firm with a non-concentrated ownership. Also, large firms show higher earnings and book value than small firms. Furthermore, the author found that the size of the firms play a major role in accounting for information quality and size. In addition, by controlling ownership structure and firm size, book earnings information is less than earnings information. However, Afgan, Gugler, and Kunst (2016) used Pakistani-listed firms to study how investment performance is affected by ownership concentration. They controlled for the endogeneity problem and reverse causality by using panel-data econometrics, and they found that ownership concentration negatively affects Tobin's Q.

Tsegba and Ezi-Herbert (2011) used 73 companies listed on the Nigerian Stock Exchange and their data from between 2001–2007. They found that there is a negative but not significant relationship that exists between concentrated ownership and firm performance. There are no relationships between the dominant shareholder and firm performance. Moreover, Mollah, Al Farooque, and Karim (2012) studied the impact between ownership identity and Botswana firm performance. They used Tobin's Q, ROA, ROE, and market capitalisation (LnMktCap) for firm performance. The researchers found that only LnMktCap performance measures fit

the prescribed OLS model. They found a negative relationship between ownership concentration and firm performance. The authors argued that dispersed ownership can control the agency problem and improve firm performance in markets such as Botswana.

Karaca and Ekşi (2012) investigated the relationship between ownership concentration and corporate performance of 50 manufacturing companies listed on the Istanbul Stock Exchange. Using both Tobin's Q and profit before tax dividends by total assets, they found that concentration of ownership has a positive effect on PBT and no relation to Tobin's Q.

In Turkey, Mandacı and Gumus (2010b) examined the relationship of concentration on non-financial firm performance. After controlling for size, growth, leverage, and investment intensity, the researchers found a positive relationship between ownership concentration and firm value. The study supported Shleifer and Vishny (1997), who argued that in countries where investor protection is low, ownership concentration can be an active corporate governance mechanism that solves the agency problem. They argued that firms in Turkey could improve firm performance by having more ownership concentration.

In Iran, Fazlzadeh et al. (2011) used 137 firms on the Tehran stock exchange to find the effect of ownership concentration and institutional ownership concentration on firm performance. The researchers found that ownership concentration has no impact on firm performance while concentrated institutional ownership has a negative relationship. The researchers stated that although institutional ownership can improve firm performance, more share equity in an institutional ownership structure can lead to an adverse reaction. The authors argued that large blocks of institutional investors use their power to pursue their own benefits at the expense of other shareholders. They argued that when institutional shareholders have the majority of the firm's equity, management only work towards satisfying the institutional shareholders, which leads to poor firm performance.

In the MENA region, Omran et al. (2008a) used 304 firms from four countries to examine the effect of ownership concentration on firm performance; they used ROE, ROA, and Tobin's Q. They concluded that there is no significant relationship between the concentration of ownership and firm performance when using the accounting ratios, neither does the separation between the CEO and chairperson position have any significant relationship to these ratios. They found that ownership concentration has a positive relationship with a market-based measure (Tobin's Q).

In the MENA region again, Farooq and El Kacemi (2011) used data from eight countries to find the effect of ownership concentration on selecting firms' auditors and how this selection affects firm performance. Although they documented that there is no significant relationship between the concentrations of ownership and firm performance, they found that the firms with a high ownership concentration appointed one of the largest four auditors as their external auditors. They argued that firms with high ownership concentrations realised the agency problem and hence chose a well-known auditor to secure highly reliable information.

Further study of the effects of ownership concentration on firm performance in the MENA region was done by Samir (2013), who investigated how risks in banks (conventional and Islamic) was affected by ownership structure. He used two measures of risk: Z-score and the ratio of non-performing loans to total loans. The researcher found that ownership concentration has a negative effect on risk, however different ownership identity has different effects in banks' risks.

In Egypt, Omran (2009) examined how ownership structure in the post-privatisation market affects firm performance. After controlling for ownership endogeneity and based on return on sales (ROS), ROA, ROE, and Tobin's Q, the researcher found that ownership concentration, especially foreign ownership, had a positive impact on firm performance.

Turki and Sedrine (2012) examined the causal relationship between ownership structure and firm performance using data from 23 non-financial companies listed on the Tunisian Stock Exchange. The researchers found that ownership concentration has a negative relationship with firm performance when measuring by market-to-book value (MTB). Firm performance negatively affects MTB, but this is dependent on ownership concentration. Therefore, the researchers proved that endogeneity exists in the Tunisian Stock Exchange, and there is a reverse causation between ownership structure and firm performance. The authors believed that blockholders have conflicts of interest with minority shareholders, and ownership concentrations increase this conflict, leading to a reduction in the liquidity of the firms.

Zeitun (2009) examined the relationship between ownership structure and the performance firms in Jordan. The researcher found that a high concentration ownership has a negative impact on the ROA but has a positive effect on firm performance, as measured by MBVR. Contrary to this, Zeitun and Tian (2007) used Jordanian publicly traded firms and found that the concentration of ownership has a positive and significant relationship with firm

performance, as measured by ROE and ROA. They clarified that ownership concentration has the power to influence management behaviour, and this kind of power does not exist with individual shareholders.

Najjar (2013), using data from Bahrain insurance companies, found no significant relationship between ownership concentration and firm performance. However, they found that better performance was achieved in large-size firms. On the contrary, Almudehki and Zeitun (2012) used 29 non-financial firms listed on the Qatar Exchange and used Tobin's Q, ROA, and ROE as firm performance measures. The researchers found that ownership concentration has a positive and significant effect on ROA and ROE.

Having reviewed the existing empirical evidence, there are contradictory results regarding the relationship between ownership concentrations and firm performance. However, these conflicting results make sense when considering the different characteristics between countries, such as culture, legal system, economic development, and financial market development. Accordingly and based on the agency theory, the first hypothesis to examine effects of ownership concentration on firm performance in this study is:

H1: Ownership concentration in MENA region has positive effects on firm performance.

4.3 Methodology

The previous sections covered the literature review and the empirical evidence concerning the effects of ownership concentration on firm performance. This section aims to present the methodology and results used in this study.

4.3.1 Data

Like the previous chapter (chapter three), this chapter also uses the same data sample (see section 3.3.1 in chapter three for more details); the study's data consists of 912 firms from different sectors and 5,521 firm-year observations from eight countries from the MENA region. The period within which the data were collected is between 2008–2014. The industries were categorised into three main areas. a financial group that covers all financial institutions in addition to insurance companies, save for banks, a manufacturing group that covers all enterprises that are producing goods for final use, save for service and energy companies, and the service group covers all businesses that provide services only such as education, communication, technology, and utilities.

4.3.2 Dependent Variables

Different researchers used various firm performance measures because of the characteristics of these measures. However, performance measures can be categorised into two groups: backward-looking and forward-looking (Demsetz & Villalonga, 2001). Thus, accounting ratios are considered to be backward-looking and are calculated under the standard constraints of firms' accounts. Tobin's Q is forward-looking and is calculated under the market constraints of investor perceptions.

Beside of this, it is very important to choose the appropriate financial measures to achieve the objective of this research. This section will cover the two main groups of firm performance measures: accounting measures and market measures.

4.3.2.1 Accounting Ratios

Accounting measures can be applied to all firms, even if they are not listed in the financial markets, because these measures do not require market value. The advantage of this method is that it can be used for small and private firms. Moreover, accounting-related profitability ratios are not affected by market expectations.

In the literature on ownership structures, ROA and ROE are mostly used as the accounting performance measures. ROA is the percentage of profit (after tax and interest expenses) on the total assets of the firm. It shows how efficient firms are in using their assets to generate earnings. ROE is the percentage of return (after tax and interest expenses) on the total shareholders' equity; it helps to point out how efficient firms are in investing shareholders' money. However, ROA is a widely used proxy because it is not affected by extraordinary items and leverage (Core, Guay, & Rusticus, 2006).

Many studies in corporate governance have used both accounting measures and indicated the same results for firm performance. However, other studies showed different results by applying both measures. In addition, return on investment (ROI) and earnings per share (EPS) are also used in some literature to measure ownership structures, but this was not frequently done.

4.3.2.2 Market Ratio (Tobin's Q)

Tobin's Q was first introduced in 1969 by James Tobin and William Brainard. It is a replacement value of a firm's assets by the ratio of the market value. Tobin's Q combines both accounting information and market information to measure the ability of a firm's reproduction. Dybvig and Warachka (2010) believed that Tobin's Q is the best performance proxy when studying the relationship between corporate governance and firm performance.

However, finding Tobin's Q is not that easy and needs complex procedures to calculate the 'Q' value (Chung & Pruitt, 1994). Also, it is more complicated to use Tobin's Q for companies that record assets as a purchase value instead of a current value. Eventually, both (Chung & Pruitt, 1994; Lindenberg & Ross, 1981) came up with new approaches to avoid any practical problems when calculating Tobin's Q.

Lindenberg and Ross (1981) represented the market value of the firm by using common stock, preferred stock, and the sum of the market value of the outstanding debt. They also represented the total replacement costs of the firm's production capacity by using the sum of the replacement values for both fixed assets and inventories, and the book values of the other assets. Although this approach generates highly accurate estimates of the 'Q' value, it is not easy to implement because it needs a large data input and sophisticated programming (DaDalt, Donaldson, & Garner, 2003).

(Chung & Pruitt, 1994) also introduced a new method for calculating Tobin's Q, which only needs basic financial and accounting information. They assumed that the replacement costs of the equipment, plant, and inventory are equal with their book values. For the market value, they used debt as the book value for both long- and short-term, less the book value of short-term assets. Even though this approach is easy to use, applying it to high-leverage firms may lead to deceptive results (DaDalt et al., 2003).

Both measures appear to be used widely in different studies. However, it seems that there is no definite answer for the best measurement to use when finding the relationship between firm performance and corporate governance. Tobin's Q is a future profitability evaluation whereas accounting ratios are past performance measures (Demsetz & Villalonga, 2001). Accounting measures depend on the accounting standards that are affected by accounting practices, and they assess tangible and intangible methods and different methods of

depreciation. Similarly, Tobin's Q is also affected by investor psychology and how they estimate future events (Kapopoulos & Lazaretou, 2007).

Although it is true that accounting ratios are affected by different accounting practices, Tobin's Q is also affected by these practices (Demsetz & Villalonga, 2001). Thus, for example, different depreciation methods create different book values of fixed assets, consequently distorting the 'Q' value that is used for the book value of total assets in the denominator of the proxy 'Q' (Tsai & Zheng, 2007). In addition, intangible assets that investors have no control over, affect the estimation of Tobin's Q (Lindenberg & Ross, 1981). According to (Himmelberg et al., 1999), firms that do not record intangible assets report a low book value of assets, leading to an overestimation of Tobin's Q. Therefore, they show an invalid correlation between Tobin's Q and ownership structure. Furthermore, it is not easy to appraise replacement costs (Kapopoulos & Lazaretou, 2007).

Both measures have advantages and disadvantages. However, a considerable number of researchers used both accounting and market ratios as performance measures to find the relationship between corporate governance and firm performance. So three performance ratios, ROA, ROE, and Tobin's Q, are used in the current study, table 4.1 give statistics information about these ratios.

Table 4.1 Descriptive Data of Firms' Performance

	ROA				ROE				Tobin's Q			
	mean	min	max	sd	mean	min	max	sd	mean	min	max	sd
Bahrain	6.30	-13.25	24.65	6.13	9.47	-21.64	42.08	9.14	1.07	0.39	2.33	0.39
Egypt	6.01	-29.45	62.82	9.48	11.05	-52.16	76.00	16.09	1.51	0.10	40.77	1.76
Jordan	0.53	-46.70	82.53	9.54	0.19	-59.83	78.15	14.90	1.14	0.07	11.38	0.72
Oman	4.46	-46.43	43.41	9.28	10.15	-59.99	73.07	16.95	1.27	0.29	5.32	0.58
Qatar	8.45	0.39	26.72	7.37	21.55	0.44	51.38	12.25	1.68	0.95	2.96	0.60
Saudi	4.85	-43.20	51.27	10.03	7.65	-53.25	60.93	17.24	1.97	0.63	12.94	1.22
Tunisia	6.64	-1.44	24.72	6.62	15.64	-5.24	52.21	11.10	2.02	0.46	5.78	1.30
Turkey	4.19	-46.70	57.12	9.61	7.57	-60.97	78.98	18.18	1.43	0.25	13.78	1.26
Financial	0.95	-46.70	54.99	8.39	3.15	-57.67	76.00	15.13	1.27	0.25	12.94	0.99
Service	4.91	-46.43	82.53	9.79	8.54	-60.97	78.98	17.49	1.49	0.07	40.77	1.32
Manufacturing	5.85	-32.11	41.65	10.02	9.61	-54.28	75.78	16.95	1.56	0.14	22.54	1.22
Average	3.99	-46.70	82.53	9.66	7.24	-60.97	78.98	16.94	1.44	0.07	40.77	1.22

4.3.3 Ownership Concentration Measures

Most previous studies defined the concentration ownership variables as the total ownership percentage of the largest number of shareholders. The study used 5% or more of a firm's equity owned by each shareholder as ownership concentration. Table 4.2 documents the descriptive statistics for ownership concentration in each country. Most countries in the study have more than 50% average ownership concentration, except for Qatar and Saudi Arabia. This means that the MENA region has a large ownership concentration. This high ownership concentration was reported by (Farooq & El Kacemi, 2011) and (Omran et al., 2008a).

Egypt has the highest average ownership concentration of about 60% while Saudi Arabia has the lowest average ownership concentration of about 37%. Moreover, the overall average of the sample data is 55%. The three types of industry have at least 50% average ownership concentration each.

Table 4.2 Average Ownership Concentration in Each Country

	N	Mean	minimum	maximum	SD
Bahrain	157	59.46	7.85	99.55	22.32
Egypt	1118	60.89	0.00	99.88	25.02
Jordan	1269	57.57	5.52	99.75	22.31
Oman	736	59.17	5.80	99.70	22.36
Qatar	55	44.65	13.00	70.02	16.12
Saudi	835	37.21	0.00	94.44	22.08
Tunisia	79	52.12	14.69	98.52	22.72
Turkey	1272	57.33	0.00	99.00	23.47
Financial	1550	50.71	0.00	99.88	23.15
Service	2841	57.58	0.00	99.70	24.18
Manufacturing	1130	55.24	0.00	99.75	25.59
Total / Average	5521	55.17	0.00	99.88	24.37

4.3.3.1 Statistics of the Number of Ownership Concentration

Table 4.3 shows the number of owners who have at least 5% of the firm's equity (largest shareholders). Only 30 observations show no ownership concentration, which represents less than 1% of the total sample. However, firms that have only two owners owning 5% or more of the firm's equity are a quarter of the total sample. Also, firms with one, two, and three

owners represent approximately 70% of the total sample, and this gives an indication that the MENA region not only has a high ownership concentration, but also that there are a few large owners who control these firms.

Nevertheless, the data show that the maximum largest ownership in the entire sample does not exceed 12 owners. However, only one firm in Egypt has 12 owners (largest ownership), and companies that have the six largest owners do not reach 4% of the total sample. This percentage gives a strong indication that a small number of owners dominate firms in the MENA region.

Most of the companies in Turkey are controlled by a maximum of the three largest owners. This means that 90% of Turkey's firms are controlled by one, two, and three owners only. However, Jordan has a good distribution of the largest ownership in its firms.

Table 4.3 Parentage of Largest Owner With 5% of More of Firm's Shares.

	Number of Largest owners					
	0	1	2	3	4 to 6	7 to 12
Bahrain	0.00	5.10	29.30	17.20	39.49	8.91
Egypt	0.54	24.15	21.02	17.89	32.47	3.94
Jordan	0.00	8.75	18.12	26.16	40.97	5.99
Oman	0.00	19.43	28.26	19.02	28.53	4.76
Qatar	0.00	63.64	25.45	10.91	0.00	0.00
Saudi	2.63	20.36	31.02	20.72	21.67	3.60
Tunisia	0.00	6.33	22.78	46.84	24.05	0.00
Turkey	0.16	48.19	30.74	12.11	8.25	0.55
Financial	0.45	19.74	23.81	19.23	32.33	4.44
Manufacturing	0.71	27.17	23.36	21.86	22.57	4.33
Service	0.53	26.12	27.03	18.44	24.78	3.10
Total	0.54	24.54	25.38	19.36	26.44	3.73

4.3.3.2 Concentration Percentage Statistics

For statistics purpose only and to give overview of ownership concentration in MENA region, this study classified the largest ownership into four groups according to the percentage of shares the largest owner has in a firm. Less than 25% of the companies' shares, between 25–50%, between 50–75%, and exceeds (>) 75%. Table 4.4 summarises these variables.

Table 4.4 Definitions variables using total ownership concentration

Variable	Description
DC1	firm has total concentration percentage (<) 25%
DC2	firm has total concentration percentage between (26 - 50%)
DC3	firm has total concentration percentage between (51 - 75%)
DC4	firm has total concentration percentage exceeds (>) 75%

Table 4.5 shows the percentage of firms that have different ownership concentrations. It is worth noting that over 65% of the sample has the largest owner, owning over 50% of the firm's shares. Moreover, 37% of the samples are companies that have the largest owner owning between 50–75% of the firm's shares. Also, 23% of the companies controlled by the largest owner have over 75% of the shares controlled by that owner.

Individually, Egypt and Bahrain have the highest percentage of firms where the largest owner has more than 50% of the firm's equity, with this percentage appearing in approximately 70% of the samples. Unlike Saudi Arabia, which has only 28% of its firms are concentrated by owners owning over 50% of firm's equity. Turkey and Jordan have a high percentage of companies where the largest owner owns between 50–75% of the firm's equity, with this percentage occurring approximately 42% of the time for both countries.

Table 4.5 Percentage of ownership concentration group in each county

	Percentage of observation				
	DC1	DC2	DC3	DC4	DC3 + DC4
Bahrain	8.28	22.93	48.41	20.38	68.79
Egypt	11.09	18.78	35.6	33.99	69.59
Jordan	8.59	26	42.63	22.77	65.4
Oman	6.39	28.13	36.14	29.35	65.49
Qatar	10.91	52.73	36.36	0	36.36
Saudi	34.37	34.61	22.63	5.75	28.38
Tunisia	8.86	35.44	37.97	17.72	55.69
Turkey	12.19	20.68	42.22	24.76	66.98
Total	13.55	25.21	37.26	23.44	60.7

Other ownership concentration index used in the study is HHI because it captures the dispersion degree of the largest shareholders. The index, calculated as the sum of squared ownership for each firm, ranges from 0–10,000 points and represents the monopoly power of ownership concentration. Cubbin and Leech (1983) argued the importance of using HHI to measure the degree of control and how this measure is critical in empirical tests. They also developed a variable that measures the controlling power of ownership; thus, HHI is defined as the following:

$$H = \sum_{i=1}^N P_i^2$$

Where N equals the number of shareholders and Pi is the percentage of shareholder equity holdings in a firm.

According to the United States Department of Justice, companies with a HHI between 1,000 and 1,800 have moderate concentration, while an excess of 2,500 points is highly concentrated. Ownership percentage can be measured using the Herfindahl index. The study follows the classification of the United States Department of Justice regarding the HHI degree concentration. There are three degrees of concentration: unconcentrated HHI of less than 1,000 points, moderately concentrated HHI of between 1,000–1,800 points, and highly concentrated HHI of over 1,800 points. Table 4.6 summarises the different statistics using HHI.

Table 4.6 Definitions variables using Herfindahl index

Variable	Description
HHI1	firm has a total Herfindahl index (<) 1,000
HHI 2	firm has a total Herfindahl index between (1,000–1,800)
HHI 3	firm has a total Herfindahl index that exceeds (>) 1,800

The degree of concentration that is measured using the Herfindahl index is shown in Table 4.7 Overall, the averages highlighted a critical issue for this study, showing that 40% of the firms have HHIs exceeding 1,800 points. These companies are classified as having highly

concentrated ownership. Also 17.6% of them have a moderate concentration ownership. However, only 41% of the firms are unconcentrated firms.

Individually, Turkey has the highest percentage of companies that are highly concentrated, with around 60% of its firms having an HHI that exceeds 1,800 points. Also, 58% of Qatar's firms are highly concentrated. However, 70% of businesses in Saudi Arabia are unconcentrated firms.

Table 4.7 Percentage of Ownership Concentration Group in Each County Using Herfindahl Index

	HHI 1	HHI 2	HHI 3
Bahrain	37.58	33.76	28.66
Egypt	34.79	18.52	46.69
Jordan	46.18	20.8	33.02
Oman	38.59	22.42	38.99
Qatar	30.91	10.91	58.18
Saudi	70.06	12.34	17.6
Tunisia	49.37	15.19	35.44
Turkey	27.36	12.89	59.75
Total	41.79	17.64	40.57

In addition, the largest shareholders may play one of two roles, both of which can either positively or negatively affect firm performance. Maury and Pajuste (2005) claimed that the existence of multiple large shareholders checks the largest owner's dominance over the firm. Thus, firm performance is improved. On the other hand, this means that the largest shareholders can potentially form a coalition that gives them the power to control the firm. This power could help them extract private benefits at the expense of the company. Consequently, the existence of a large shareholder clout could also negatively affect firm performance.

Therefore, Maury and Pajuste (2005) recommended two indexes to measure the power gained by the largest shareholders' coalition. The first is H_DIFF, which is the squared difference between the largest and second largest ownership percentage added to the squared difference of the second and third largest ownership percentages. The second is H_CON, which is calculated by adding the squared ownership percentage of the three largest owners.

In addition a dichotomous-type variable is also used in this study; many previous studies on ownership concentration used fixed rules to classify ownership concentration. However, different criteria were applied in those studies depending on the researchers' points of view. In this study, the dichotomous variable is used to classify the power of the largest three owners who have voting percentage of at least 51% of the common stock. This ownership concentration index is symbolised as CON51, and it is a dummy variable that uses 1 for a firm that has at most three owners owning at least 51% of the firm's equity. Table 4.8 summarises these measurements.

Figure 4.1 shows the average C51 in each country. Overall, approximately 40% of the companies are controlled by the three largest owners only. However, Turkey has approximately 60% of its firms owned by a maximum of its three largest owners. These percentages give another indication that the MENA region does not only have a high ownership concentration as shown previously (see Table 4.5), but it also shows that only a few owners control this concentration.

Figure 4.1 Percentage of maximum of three owners having 51% or more the firm's equity

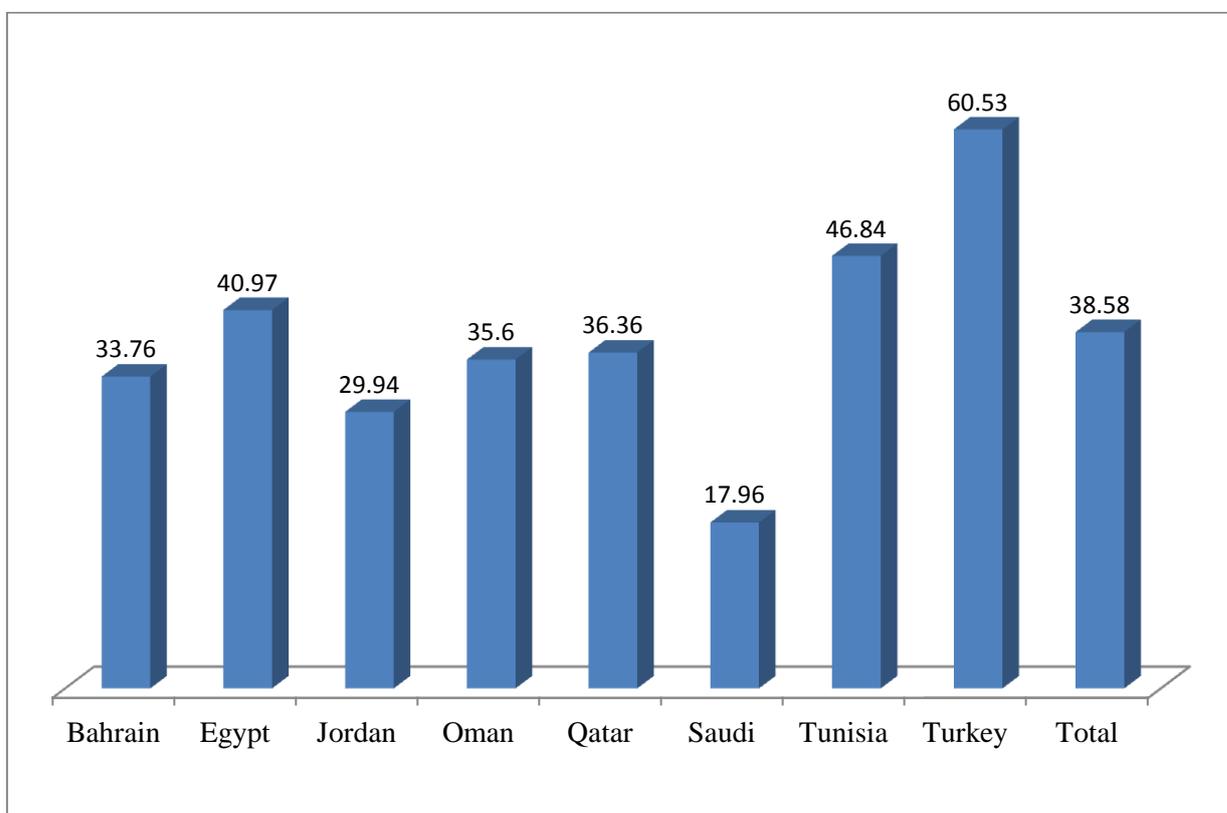


Table 4.8 Definitions of Ownership Concentration Measures

Variable	Description
CON	= Total percentage of largest owners who won 5% or more of firm's equity
HHI	= Herfindahl Index, the squared sum of the largest ownership.
H_diff	= $(LS1 - LS2)^2 + (LS2 - LS3)^2$
H_con	= $LS1^2 + LS2^2 + LS3^2$
CON51	= Three owners or less owning 51% or more of the firm's equity .
<i>LS1. Largest shareholder; LS2. Second largest shareholder; LS3. Third largest shareholder</i>	

4.3.4 Independent Variables

Almost all the studies about the relationship between ownership concentration and firm performance used three types: firm, industry, and country levels. However, different variables of the three types are used in the cited studies. This section only highlights the variables used in the current study because of the limitations in the sources of the other variables.

4.3.4.1 Firm-level variables

The current study uses firm size as a control variable, which is, the total assets of the firm. It is very important to control firm size when studying the relationship between ownership structure and firm performance (Krivogorsky, 2006; Leech & Leahy, 1991). That is, large firms have the ability to diversify both risk and products, which enables them to operate smoothly and make large profits (Leech & Leahy, 1991). Fama and French (1995) documented that large firms have a higher ROE than small firms. Moreover, Pedersen and Thomsen (1999) found direct and positive effects of firm size in relation to firm performance.

According to Short and Keasey (1999), the size of firm can have a positive impact on firm performance because of two reasons. First, large firms can internally gain sufficient funds to run their projects without any external intervention. Consequently, firms can reduce any financial constraints and generate more profit. Second, entry barriers can be created by economies of scale that large firms have, leading to positive effects in firm performance.

Moreover, large firms can provide information at a lower cost compared to small firms (Basu, 1977). Also, large firms have a better flow of information than small firms, which allows for better quality information (Mueller, 1972).

Pedersen and Thomsen (1999) argued that economies of scale may have a negative impact on firm performance and that the firm's large size reduces growth because of the reduction of managerial benefits. Banz (1981) argued that there is a negative relationship between firm size and firm performance. He found that small firms have higher common stock returns than large firms. Contrary to this, Donald (1983) found no relation between firm size and common stock returns. Moreover, it seems that firm size has a negative impact on ownership concentration (Gugler & Weigand, 2003). Thus, as Demsetz and Lehn (1985) pointed out, it is more difficult to own a given portion of the firm when the firm is big and has large capital resources.

Also, firm age is used as a firm control variable; firm age is the number of years between the observation year and the firm's establishment. There is a debate among researchers about the critical role firm age plays regarding firm performance. Majumdar (1997) argued that old firms have experience that enables them to perform at superior levels when compared to young firms. Furthermore, older firms have information history and a reputation, which ensures access to bank loans (Diamond, 1991). These firms have the sufficient liquidity to run effectively.

On the other hand, Mueller (1972) stated that because young firms have uncertain life cycles, this creates barriers when trying to receive outside funds. As a result, both managers and owners align their interests to gain trust and reputation, which enables them to receive outside loans. Consequently, firms improve their performance by reducing their agency costs. In addition, some literature indicates that when firms grow older, the ownership concentration is reduced, leading to loss of individual control. This has a negative impact on ownership control (Leech & Leahy, 1991).

Another firm-control variable is the financial leverage ratio; it is calculated by dividing long-term debt by total assets. Jensen (1986) argued that a firm with high financial leverage has good performance. This is because of the incentive debt holders have to monitor the firm's activities, leading to reduced agency costs. Likewise, Stiglitz (1985) suggested that banks have more power to control management behaviour than shareholders. Jensen (1986) also

argued that more debt forces managers to put more effort into repaying the debt by maximising profits.

According to Grossman and Hart (1982), firms that have high debt levels have positive firm value and management. This is because the firms have the trust of external debtors and the appropriate cash flows to run the firms effectively and meet the interest owed. In addition, Ross (1977) argued that debt is related to a firm's market value because of the increased market perception when the firm leverage is increased, which mean that the firms should have high credibility in order to secure high debts.

On the other hand, Myers (1977) argued that firms should have low financial leverage and should depend on their internal funds. That is, controlling leverage is important because both financial risks and a firm's credit risks are increased by increasing the firm's borrowing (Krivogorsky, 2006). According to both Demsetz and Lehn (1985) and Stulz (1988), firms with high leverage have a high risk and this has a negative impact on the firm's market ratios. Moreover, Weinstein and Yafeh (1998) argued that firms with high debt have to pay high interest rates, which reduce profits.

The firm's independent variable in this study is the type of external auditors, because I believe it is important when studying ownership effects in firm performance we need to take into consideration the type of auditors hired by firms for many reasons. Fan and Wong (2005) claimed that using one of the four biggest auditors increases the monitoring efficiency and reduces agency conflicts. Also, Farooq and El Kacemi (2011) argued that well-known auditors are one of the mechanisms in corporate governance that reduces agency conflicts.

Fan and Wong (2005) found that most East Asian firms that have high ownership rights are most likely to use one of the largest four auditors. Likewise, Farooq and El Kacemi (2011) found that firms with high ownership concentrations in the MENA region are more likely to appoint one of the largest four auditors. Mitton (2002) found that having one of the largest four auditors is linked to superior performance in stock price and returns. He clarified that firms audited by one of the largest four auditors have higher disclosure qualities, this increases transparency and mitigating expropriation. In addition, firms that hire one of the largest four auditors are showing the market that they are disclosing reliable information (Farooq & El Kacemi, 2011).

Michaely and Shaw (1995) stated that these large auditors do not want to lose their reputations. As result, they will ensure transparency and try to eradicate any mistakes in a firm's financial statements. These auditors are more independent than other auditing firms and also are more likely to have greater legal liabilities if they make a mistake (Dye, 1993). In addition, Farooq and El Kacemi (2011) believed that the independency of the big auditors improves their audit performance when compared to smaller auditors. Moreover, big auditors may give assurance to investors regarding the reports' disclosure quality (Rahman, 1998).

4.3.4.2 Industry-level variables

An industry dummy variable is an important factor to control for because of the possible correlation between firm performance and ownership structure, that occurs because of industry impacts (Demsetz & Lehn, 1985). According to Thomsen and Pedersen (1998), there is a significant influence of type of industry in firms performance because of the Life Cycle in different industries, and the accounting methods used in different industries. In addition, firm performance may be affected by the macroeconomic sensitivity of some industries and affected by industry specific political factors (Short & Keasey, 1999).

Moreover, Black, Jang, and Kim (2006) argued that firms choose different governance structures, and this has causal links between governance and performance. Welch (2003) documented that media and financial industries have more ownership concentration than other industries. Also, Omran et al. (2008a) found that industrial firms have better performance when compared to other industries. However, Haniffa and Hudaib (2006) found that the construction sector has better performance than other sectors.

4.3.4.3 Country -level variables

The study samples were from different countries and times, which meant they were affected by varying economic cycles; the current study used GDP growth rate in the empirical models to control for the impact of economic cycles. According to the neoclassical investment theory, GDP growth rate influences investments positively (Fielding, 1997; Greene & Villanueva, 1991). This is because countries with a high level of income have high domestic savings that are normally used in investments (Greene & Villanueva, 1991). The source of GDP growth came from the World Bank .

Finally, for the country-level variables, the study uses Arab Spring data to study the political effects on ownership concentration. To capture the real effects of the Arab Spring on the study sample, a dummy variable is used to explain the effects of this political movement. For Tunisia, Egypt, Jordan, Oman, and Bahrain, we assigned a 1 for the years 2011–2014 and a 0 for the other years; for the other countries, we assigned a 0 for the years 2008–2014. (The Arab Spring movement is covered in chapter three.) Table 4.9 summarises these controlling variables.

Table 4.9 Independent variables summary

Control variables	
Firm Size	Total assets
Firm Age	The number of years since firms have been founded
Financial Leverage	Total debt/Total equity
Sector Affiliation	Financial, manufacturing, and service
GDP	Growth rate of gross domestic product
Auditor	1 if firms' external auditors is one of the big four auditors and 0 otherwise.
Arab Spring	Dummy variable used to explain the effects the political movement.

4.3.5 Regression Model

As mentioned in previous sections, the study uses three dependent variables to measure firm performance. Accounting ratios, which are ROA and ROE, and market ratio, which is Tobin's Q. For ownership concentration, the study uses five indexes (CON, HHI, H_DIFF, H_CON, and CON51). In addition, the study uses many independent variables as explained in section 4.3.4 above.

4.3.5.1 Panel data analysis

A natural way to investigate the effect of ownership concentration on firm performance is to use a model such as the following one, which takes advantage of the panel structure of the data it uses in this study, which are ordinary least squares (OLS), fixed effects model and random effects model:

$$Firm\ Performance_{it} = \beta_0 + \beta_1 ownership\ concentration_{it} + \beta_2 Firm\ Age_{it} + \beta_3 Firm\ Size_{it} + \beta_4 Leverage_{it} + \beta_5 Auditors_{it} + \beta_6 GDP_{it} + \beta_7 Arab\ Spring_{it} + \beta_8 Industry\ Dummy_{it} + \beta_9 Country\ Dummy_{it} + \beta_{10} Year\ Dummies_{it} + \varepsilon_{it}$$

(5.1)

Where the following is true:

- Firm performance = ROA, ROE, and Tobin's Q.
- Ownership concentration = CON, HHI, H_DIFF, H_CON, and CON51 (As explained in Table 4.8)
- Firm size = total firm assets
- Firm age = period from a firm's establishment up to 2008, increasing by one each year afterward
- Financial leverage = a company's total debt / total assets
- Auditors. Dummy variable taking 1 if a big four auditor is the firm's external auditors and 0 otherwise
- Arab Spring: Dummy variable used to explain the effects the political movement.
- GDP = Growth rate of gross domestic product

4.3.5.1 Dynamic Model, the generalised method of moments (GMM)

Using panel-data regressions presents a major problem when considering controlling for heterogeneity (unobservable characteristics) between explanatory variables. Thus, the repeated observations in this study, exploit time series variations in obtaining consistent estimates of the effects of ownership concentration on firm performance. Accordingly, this study follows the classical generalised method of moments (GMM) in estimating the parameter vector, by the value implied by the corresponding sample moments, in order to control heterogeneity between explanatory variables. This method uses assumptions about specific moments of the random variables instead of assumptions about the entire distribution, which makes the GMM more robust than panel-data regressions.

The key in the GMM is a set of population moment conditions that are derived from the assumptions of the classical linear regression models as follow:

$$Y_{it} = X'_{it}\beta + \varepsilon_{it} \tag{5.2a}$$

Where the dependent variable Y_{it} and the independent variable is $X_{it} = (X_{1it}, \dots, X_{mit})$ is m-vector of explanatory variables and β is an m-vector of regression coefficients, and ε_{it} is an error term.

The moment condition is:

$$\mathbb{E} [(y_{it} - X'_{it}\beta)x_{ti}] = \mathbb{E} [e_{it} X_{ti}\beta] = 0 \quad (5.2b)$$

Given data on the observable variables the GMM model finds values for the model parameters such that corresponding sample moment conditions are satisfied as closely as possible. In this study, the only the single moment of conditions in equation (2b) is used, given T observations, the implied sample moment is:

$$\frac{1}{T} \sum_{t=1}^T (y_{it} - X'_{it}\beta)x_{ti} = 0 \quad (5.2c)$$

Given the fact that $T > m$, the empirical moment condition in the study model is:

$$\sum_{t=1}^T (y_{it} - X'_{it}\beta)X_{it} = X'y - (X'X)\beta \quad (5.2d)$$

Where y is the dependent variable which is firm performance measure by ROA, ROE, and Tobin's Q. X is the independent variables which are: ownership concentration, firm size, firm age, financial leverage, auditors, Arab Spring and GDP.

Table 4.10 presents the correlation coefficients of the variables used in the study; the correlations between firm performance indexes and ownership concentration are statistically significant. In addition the correlations between the independent variables are not high and this gives good indications that the explanatory variable are not affecting each other.

Table 4.10 Correlation Table

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) CON	1.00													
(2) HHI	0.73*	1.00												
(3) H_Con	0.67*	0.94*	1.00											
(4) H_Diff	0.49*	0.89*	0.94*	1.00										
(5) CON51	0.44*	0.72*	0.68*	0.66*	1.00									
(6) ROA	0.05*	0.06*	0.06*	0.05*	0.06*	1.00								
(7) ROE	0.04*	0.05*	0.05*	0.05*	0.06*	0.85*	1.00							
(8) Tobin_Q	0.04*	0.08*	0.08*	0.08*	0.06*	0.18*	0.15*	1.00						
(9) Firm Size	0.01	0.07*	0.07*	0.09*	0.02	0.05*	0.13*	-0.02	1.00					
(10) Firm Age	0.04*	0.10*	0.10*	0.10*	0.11*	0.14*	0.13*	0.10*	0.14*	1.00				
(11) leverage	0.02	0.04*	0.04	0.04*	0.03	-0.2*	-0.0*	-0.01	0.17*	0.01	1.00			
(12) Auditor	-0.05*	-0.10*	-0.11*	-0.11*	-0.08*	0.04*	0.08*	0.04	0.17*	0.01	0.05*	1.00		
(13) GDP	-0.08*	-0.06*	-0.04*	-0.03	-0.04	0.06*	0.07*	0.06*	0.08*	-0.04*	0.01	0.11*	1.00	
(14) Arab Spring	-0.20*	-0.03	-0.01	0.04*	0.01	0.07*	0.07*	0.11*	0.17*	0.08*	-0.01	-0.03	0.30*	1.00

*Significant at 1% ; CON = total percentage of largest owners who won 5% or more of firm's equity ; HHI is Herfindahl index = the sum of squared largest shareholders ; H_CON measure the power gained by the largest shareholders calculated by adding the square ownership percentage of the three largest owners ; H_DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages ; CON51 measure the power gained by the largest shareholders which is a dummy variable of taking 1 if the firm has 3 owners or less owning 51% or more of it equity ; Firm Size = Total assets ; Firm Age = The number of years since firms have been founded ; Financial Leverage = Total debt/Total equity ; GDP = Growth rate of gross domestic product ; Auditor = 1 if firms' external auditors is one of the big four auditors and 0 otherwise. Arab Spring Dummy variable used to explain the effects of the political movement.

4.3.6 Robustness checks

For robustness checks, to measure the validity of the study's model, a multicollinearity test was conducted by calculating the variance inflation factor (VIF). The test uses one ownership concentration index, which is (CON), with only one firm performance. Table 4.11 shows the results of the VIF test, and the highest value is 1.2, which is below the suggested largest value of 10. Therefore, multicollinearity does not exist in the study's regression models.

Table 4.11 Multicollinearity Test by calculating the variance inflation factor (VIF)

Variable	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
Con	1.06	0.95						
HHI			1.04	0.97				
H_Con					1.03	0.97		
H_Diff							1.04	0.96
Firm Size	1.12	0.89	1.13	0.88	1.13	0.88	1.13	0.88
Firm Age	1.04	0.97	1.04	0.96	1.04	0.96	1.04	0.96
Financial leverage	1.04	0.97	1.04	0.97	1.04	0.97	1.04	0.97
Auditor	1.06	0.94	1.07	0.93	1.07	0.93	1.07	0.93
GDP	1.13	0.88	1.13	0.88	1.13	0.88	1.13	0.88
Arab Spring	1.20	0.83	1.16	0.87	1.15	0.87	1.15	0.87
Average		1.09		1.09		1.09		1.09

4.4 Results

The study follows the argument of Wang and Shailer (2015) who argue that studying ownership concentration can be bias depending on how ownership concentration is calculated and the type of regression model used. So in order to make clear understanding of the effect of ownership concentration on firm performance, this study uses five concentration indexes (CON, HHI, H_Con, H_Diff, and CON51) as described in table 4.8 above, and use panel-data analysis that implements four regression types: ordinary least squares (OLS), fixed effects model, random effects model, and generalised method of moments (GMM). To capture the different characteristics between countries and industries among different times, the study uses a different approach to control for country, industry, and year effects. So, the results in this section are illustrated in six subsections; subsection 4.4.1 shows the Results without controlling for country, industry and year effects. Subsection 4.4.2, 4.4.3, and 4.4.4 illustrate the results after controlling industry effects, country effects and year effects respectively, and subsection 4.4.5 shows the Results when controlling for country, industry and year effects.

4.4.1 Results Without Controlling for Country, Industry and Year effects.

Tables 4.12, 4.13, 4.14, 4.15 and 4.16 show the effects of ownership concentration on firm performance, and the tables use five concentration indexes separately (CON, HHI, H_Con, H_Diff, and CON51). Tables 4.13 show that CON has significant effects on firm performance at 10% and 1% level of significance when using OLS and GMM regression models

respectively. Ownership concentration measured by HHI as shown in table 4.13 demonstrates a significant effect on firm performance on both ROA and Tobin's Q at 1 % level of significance. Tables 4.14 and 4.15 show that both H_Con and H_Diff have some degrees of effect on ROA and ROE when using random and fixed regression models. Regarding the ownership index (CON51), table 4.16 demonstrates that his index has a positive significant effect on firm performance at 1 % level of significance when using the GMM model.

Regarding firm factors, firm size shows a different significance level in all firm performance measures in all the models. It has significant positive effects on ROA when using OLS and GMM at 10% and 1% significance levels, respectively. Also, firm size has a significant positive relationship with ROE at a 1% significance level in all regression models except for the fixed effect model. However, the size of the company has significant negative effects on Tobin's Q at the 1% significance level when using OLS, GMM, and random effects.

Firm age shows 1% significance for positive effects on ROA, ROE, and Tobin's Q in all regressions models except for the fixed effect model. However, financial leverage affects both ROA and ROE negatively at the 1% level of significance using all regression models. Also, it has negative effects on Tobin's Q, yet this effect is not significant. Moreover, the largest four auditors are shown to have a positive relationship with firm performance, as measured by ROA, ROE, and Tobin's Q. This relationship is at the 1% and 10 % levels of significance in GMM and OLS, respectively.

GDP growth has positive impacts on all firm performance measures; it has a 1% level of significance in all the regression models. Also, the Arab Spring demonstrates that GDP growth has a positive impact on all firm performance measures at the different levels of significance, depending on the regression model. However, most of the regression results of the Arab Spring factor are at the 1% level of significance.

In summary, it is clear that the different levels of the independent variables affect firm performance at different significance levels. However, these results do not capture the consequences of industry, country, and year effects that may have some implications after controlling for them. So the next three sections investigate the impact of controlling for industry, country, and year effects.

Table 4.12 Results - Different Regressions Results using CON as ownership concentration index without controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON = total percentage of largest owners who won 5% or more of firm's equity . This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON	0.029** (3.27)	0.003 (0.24)	0.013 (1.72)	0.029*** (5.58)	0.041** (2.64)	0.001 (0.02)	0.025 (1.77)	0.041*** (4.40)	0.004** (2.91)	0.003 (1.92)	0.004** (2.84)	0.004*** (4.71)
Firm Size	0.018* (2.34)	0.025 (0.78)	0.016 (1.92)	0.018*** (4.36)	0.071*** (4.08)	0.099 (1.58)	0.082*** (4.49)	0.071*** (8.54)	-0.003*** (-4.60)	-0.001 (-0.69)	-0.003** (-3.25)	-0.003*** (-8.56)
Firm Age	0.817*** (5.76)	0.163 (1.07)	0.514*** (4.62)	0.817*** (10.55)	1.216*** (5.04)	0.345 (1.10)	0.778*** (3.66)	1.216*** (9.08)	0.078*** (3.84)	0.029 (1.18)	0.051** (2.66)	0.078*** (5.98)
Financial leverage	-0.688*** (-5.49)	-0.425*** (-4.48)	-0.498*** (-4.77)	-0.688*** (-6.50)	-0.623* (-2.55)	-0.662*** (-3.75)	-0.649*** (-3.89)	-0.623*** (-4.21)	0.001 (-0.08)	-0.01 (-1.16)	-0.007 (-1.21)	0.001 (-0.14)
Auditor	1.019* (2.18)	0.521 (1.22)	0.212 (0.61)	1.019*** (3.83)	2.362** (2.84)	0.788 (0.90)	0.746 (1.12)	2.362*** (4.87)	0.149** (2.67)	0.017 (0.40)	0.093* (2.32)	0.149*** (4.83)
GDP	0.161*** (4.39)	0.110*** (3.37)	0.123*** (3.87)	0.161*** (3.71)	0.326*** (4.66)	0.215*** (3.43)	0.244*** (3.98)	0.326*** (4.07)	0.014*** (3.38)	0.012*** (3.46)	0.012*** (3.62)	0.014** (2.65)
Arab Spring	1.108** (3.00)	1.417*** (4.21)	1.467*** (4.78)	1.108*** (3.91)	1.318* (2.07)	2.862*** (5.05)	2.632*** (5.17)	1.318** (2.66)	0.323*** (6.69)	0.205*** (3.86)	0.230*** (4.82)	0.323*** (9.73)
constant	1.996* (2.00)	3.704** (3.23)	0.191 (0.23)	1.996** (3.29)	3.763* (-2.23)	2.976 (1.25)	0.707 (-0.46)	3.763*** (-3.69)	0.597*** (4.23)	0.984*** (6.12)	0.861*** (6.61)	0.597*** (6.52)
AdjR-sqr	0.08	0.14	0.13	0.08	0.06	0.12	0.11	0.06	0.08	0.14	0.13	0.08
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.13 Results - Different Regressions Results using HHI as ownership concentration index without controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; HHI is Herfindahl index = the sum of squared largest shareholders. This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
HHI	0.029** (2.72)	0.036 (1.35)	0.031* (2.42)	0.029*** (4.72)	0.038* (2.05)	0.061 (1.27)	0.048* (2.12)	0.038*** (3.53)	0.006** (2.66)	0.003 (1.05)	0.005* (2.32)	0.006*** (4.21)
Firm Size	0.018* (2.24)	0.029 (0.89)	0.014 (1.75)	0.018*** (4.19)	0.070*** (4.04)	0.094 (1.51)	0.081*** (4.36)	0.070*** (8.45)	-0.004*** (-4.58)	-0.001 (-0.36)	-0.003** (-3.23)	-0.004*** (-8.36)
Firm Age	0.807*** (5.64)	0.143 (0.94)	0.495*** (4.46)	0.807*** (10.37)	1.206*** (4.98)	0.315 (1.00)	0.752*** (3.54)	1.206*** (8.99)	0.075*** (3.84)	0.03 (1.24)	0.050** (2.63)	0.075*** (6.00)
Financial leverage	-0.690*** (-5.50)	-0.425*** (-4.47)	-0.500*** (-4.78)	-0.690*** (-6.56)	-0.626* (-2.55)	-0.662*** (-3.75)	-0.652*** (-3.90)	-0.626*** (-4.24)	-0.001 (-0.21)	-0.01 (-1.19)	-0.007 (-1.25)	-0.001 (-0.35)
Auditor	1.063* (2.25)	0.579 (1.35)	0.252 (0.72)	1.063*** (3.96)	2.409** (2.88)	0.882 (1.02)	0.801 (1.19)	2.409*** (4.93)	0.165** (3.04)	0.016 (0.36)	0.098* (2.44)	0.165*** (5.55)
GDP	0.164*** (4.50)	0.108*** (3.34)	0.123*** (3.89)	0.164*** (3.79)	0.330*** (4.72)	0.213*** (3.41)	0.245*** (4.00)	0.330*** (4.12)	0.015*** (3.51)	0.012*** (3.44)	0.012*** (3.64)	0.015** (2.80)
Arab Spring	0.846* (2.30)	1.513*** (4.60)	1.434*** (4.74)	0.846** (3.00)	0.943 (1.47)	2.996*** (5.39)	2.546*** (5.03)	0.943 (1.92)	0.294*** (6.26)	0.191*** (3.69)	0.214*** (4.73)	0.294*** (9.27)
constant	0.768 (0.91)	2.960** (2.67)	0.392 (0.54)	0.768 (1.48)	1.986 (1.43)	1.93 (0.84)	0.145 (0.11)	1.986* (2.36)	0.723*** (5.99)	1.087*** (7.21)	0.971*** (8.18)	0.723*** (9.09)
AdjR-sqr	0.07	0.13	0.12	0.07	0.05	0.11	0.10	0.05	0.07	0.13	0.12	0.07
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.14 Results - Different Regressions Results using H_CON as ownership concentration index without controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_CON measure the power gained by the largest shareholders calculated by adding the square ownership percentage of the three largest owners . This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Con	0.001** (2.81)	0.001 (1.88)	0.001** (2.84)	0.001*** (4.86)	0.001* (2.22)	0.001* (2.01)	0.001** (2.72)	0.001*** (3.78)	0.001* (2.54)	0.001 (0.29)	0.001 (1.88)	0.001*** (4.01)
Firm Size	0.018* (2.23)	0.033 (1.01)	0.014 (1.66)	0.018*** (4.16)	0.070*** (4.01)	0.086 (1.38)	0.079*** (4.27)	0.070*** (8.40)	-0.004*** (-4.56)	-0.001 (-0.28)	-0.003** (-3.14)	-0.004*** (-8.32)
Firm Age	0.807*** (5.63)	0.146 (0.94)	0.494*** (4.41)	0.807*** (10.36)	1.203*** (4.96)	0.317 (1.00)	0.745*** (3.49)	1.203*** (8.95)	0.075*** (3.86)	0.032 (1.30)	0.051** (2.70)	0.075*** (6.03)
Financial leverage	-0.689*** (-5.50)	-0.421*** (-4.49)	-0.497*** (-4.79)	-0.689*** (-6.57)	-0.625* (-2.55)	-0.653*** (-3.75)	-0.648*** (-3.90)	-0.625*** (-4.24)	-0.001 (-0.17)	-0.01 (-1.18)	-0.007 (-1.19)	-0.001 (-0.27)
Auditor	1.081* (2.28)	0.533 (1.25)	0.296 (0.85)	1.081*** (4.02)	2.446** (2.92)	0.807 (0.93)	0.891 (1.35)	2.446*** (5.00)	0.166** (3.04)	0.021 (0.48)	0.100* (2.49)	0.166*** (5.57)
GDP	0.163*** (4.45)	0.105** (3.23)	0.121*** (3.82)	0.163*** (3.75)	0.328*** (4.68)	0.207*** (3.30)	0.241*** (3.94)	0.328*** (4.10)	0.014*** (3.45)	0.012*** (3.43)	0.012*** (3.58)	0.014** (2.74)
Arab Spring	0.823* (2.24)	1.483*** (4.50)	1.404*** (4.63)	0.823** (2.92)	0.917 (1.43)	2.956*** (5.18)	2.508*** (4.88)	0.917 (1.86)	0.288*** (6.21)	0.184*** (3.76)	0.207*** (4.74)	0.288*** (9.20)
constant	0.761 (-0.91)	2.727* (2.51)	0.3 (0.41)	0.761 (-1.47)	2.018 (-1.46)	1.333 (0.57)	0.41 (-0.31)	2.018* (-2.40)	0.733*** (6.13)	1.132*** (7.74)	0.990*** (8.38)	0.733*** (9.30)
AdjR-sqr	0.09	0.15	0.14	0.09	0.07	0.14	0.13	0.06	0.09	0.16	0.14	0.09
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.15 Results - Different Regressions Results using H_ DIFF as ownership concentration index without controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_ DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages . This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Diff	0.001* (2.28)	0.001 (1.77)	0.001* (2.41)	0.001*** (3.88)	0.001 (1.89)	0.001* (1.99)	0.001* (2.41)	0.001** (3.20)	0.001* (2.32)	0.001 (0.27)	0.001 (1.82)	0.001*** (3.62)
Firm Size	0.018* (2.27)	0.031 (0.95)	0.014 (1.66)	0.018*** (4.22)	0.070*** (4.03)	0.089 (1.44)	0.079*** (4.26)	0.070*** (8.43)	-0.004*** (-4.47)	-0.001 (-0.26)	-0.003** (-3.10)	-0.004*** (-8.10)
Firm Age	0.816*** (5.64)	0.16 (1.03)	0.501*** (4.46)	0.816*** (10.42)	1.213*** (4.98)	0.345 (1.09)	0.755*** (3.54)	1.213*** (9.01)	0.076*** (3.89)	0.032 (1.30)	0.052** (2.74)	0.076*** (6.09)
Financial leverage	-0.688*** (-5.51)	-0.421*** (-4.51)	-0.498*** (-4.80)	-0.688*** (-6.58)	-0.625* (-2.55)	-0.654*** (-3.77)	-0.649*** (-3.92)	-0.625*** (-4.25)	-0.001 (-0.20)	-0.01 (-1.18)	-0.007 (-1.20)	-0.001 (-0.32)
Auditor	1.046* (2.21)	0.545 (1.28)	0.283 (0.82)	1.046*** (3.89)	2.407** (2.87)	0.833 (0.96)	0.879 (1.33)	2.407*** (4.93)	0.164** (3.03)	0.021 (0.48)	0.099* (2.48)	0.164*** (5.55)
GDP	0.163*** (4.46)	0.106** (3.25)	0.122*** (3.85)	0.163*** (3.75)	0.328*** (4.69)	0.207*** (3.31)	0.243*** (3.96)	0.328*** (4.10)	0.014*** (3.46)	0.012*** (3.45)	0.012*** (3.60)	0.014** (2.76)
Arab Spring	0.758* (2.06)	1.437*** (4.28)	1.357*** (4.43)	0.758** (2.69)	0.824 (1.28)	2.866*** (5.05)	2.423*** (4.73)	0.824 (1.67)	0.275*** (6.07)	0.183*** (3.86)	0.202*** (4.79)	0.275*** (9.01)
constant	0.481 (0.59)	2.932** (2.79)	0.579 (0.82)	0.481 (0.95)	1.644 (-1.22)	1.629 (0.72)	0.036 (0.03)	1.644* (-2.01)	0.776*** (6.90)	1.137*** (8.00)	1.016*** (8.95)	0.776*** (10.56)
AdjR-sqr	0.08	0.12	0.11	0.08	0.06	0.09	0.09	0.06	0.07	0.10	0.09	0.07
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.16 Results - Different Regressions Results using CON51 as ownership concentration index without controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON51 measure the power gained by the largest shareholders which is a dummy variable of taking 1 if the firm has 3 owners or less owning 51% or more of it equity . This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON51	1.438** (2.68)	0.483 (0.52)	0.963 (1.70)	1.438*** (4.74)	2.563** (2.67)	0.516 (0.38)	1.655 (1.87)	2.563*** (4.66)	0.187* (2.19)	0.05 (0.45)	0.125 (1.53)	0.187*** (3.59)
Firm Size	0.019* (2.47)	0.027 (0.83)	0.016 (1.95)	0.019*** (4.58)	0.072*** (4.16)	0.098 (1.57)	0.083*** (4.53)	0.072*** (8.70)	-0.003*** (-4.36)	-0.001 (-0.28)	-0.002** (-3.06)	-0.003*** (-8.28)
Firm Age	0.803*** (5.58)	0.159 (1.04)	0.506*** (4.52)	0.803*** (10.28)	1.183*** (4.87)	0.343 (1.09)	0.768*** (3.59)	1.183*** (8.78)	0.077*** (3.83)	0.032 (1.29)	0.052** (2.68)	0.077*** (5.96)
Financial leverage	-0.689*** (-5.47)	-0.424*** (-4.48)	-0.497*** (-4.78)	-0.689*** (-6.55)	-0.627* (-2.55)	-0.661*** (-3.75)	-0.649*** (-3.90)	-0.627*** (-4.24)	-0.001 (-0.11)	-0.01 (-1.18)	-0.007 (-1.19)	-0.001 (-0.19)
Auditor	1.021* (2.17)	0.523 (1.23)	0.235 (0.68)	1.021*** (3.82)	2.406** (2.89)	0.786 (0.90)	0.787 (1.18)	2.406*** (4.97)	0.149** (2.72)	0.021 (0.49)	0.094* (2.36)	0.149*** (4.93)
GDP	0.164*** (4.46)	0.109*** (3.36)	0.123*** (3.87)	0.164*** (3.76)	0.332*** (4.74)	0.215*** (3.42)	0.244*** (3.99)	0.332*** (4.14)	0.014*** (3.40)	0.012*** (3.48)	0.012*** (3.65)	0.014** (2.70)
Arab Spring	0.774* (2.10)	1.446*** (4.35)	1.383*** (4.54)	0.774** (2.75)	0.843 (1.31)	2.873*** (5.07)	2.467*** (4.81)	0.843 (1.71)	0.280*** (6.10)	0.184*** (3.81)	0.205*** (4.74)	0.280*** (9.07)
constant	0.424 (0.52)	3.494*** (3.37)	0.779 (1.11)	0.424 (0.84)	1.605 (1.21)	2.902 (1.35)	0.431 (0.35)	1.605* (1.99)	0.801*** (7.40)	1.138*** (8.70)	1.037*** (9.61)	0.801*** (11.55)
AdjR-sqr	0.10	0.16	0.15	0.10	0.08	0.14	0.13	0.08	0.10	0.14	0.13	0.10
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

4.4.2 Results Controlling for Industry effects.

Different regression results regarding the effects of ownership concentration on firm performance, after controlling for industry effects are covered in this section. The results in tables 4.17 and 4.21 show that CON and CON51 have a significant positive effects on ROA, ROE, and Tobin's Q in two regression models only: OLS and GMM. However, tables 4.18, 4.19 and 4.20, which use HHI, H_Con and H_Diff respectively, demonstrate that ownership concentration affect ROA and ROE and Tobin's Q 5% significance level.

Regarding firm factors, even using a model that accounts for the effects of different industry types, firm size shows a different significance level in all firm performance measures in all the models. It shows a significant positive relationship with ROA and ROE and a negative significant relationship with Tobin's Q. The age of the company also shows a 1% level of significant positive effects on ROA, ROE, and Tobin's Q in all regression models, save for the fixed effect model.

The same as before controlling for the industry effects, financial leverage has negative effects on both ROA and ROE at a 1% level of significance, when using all regression models. However, this effect is not significant with Tobin's Q. Moreover, the big four auditors have the same results; this variable has a positive relationship with all the firms' performance levels.

The effects of GDP growth on firm performance does not change after taking into consideration industry effects. It has a positive impact at the 1% level of significance in all firm performance measures. Also, the importance of the Arab Spring movement remains unchanged; this shows that it has a positive impact on ROA, ROE, and Tobin's Q at the 1% level of significance, in most of the regression results.

In short, it is obvious that controlling for industry effects does not change firm performance. Thus, the level of significance remains the same, yet there are small variations in the coefficient value of some variables.

Table 4.17 Results - Different Regressions Results using CON as ownership concentration index by controlling industries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON = total percentage of largest owners who won 5% or more of firm's equity . This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON	0.022* (2.55)	0.003 (0.24)	0.01 (1.29)	0.022*** (4.31)	0.032* (2.06)	0.001 (0.02)	0.02 (1.44)	0.032*** (3.43)	0.003** (2.63)	0.003 (1.92)	0.003** (2.70)	0.003*** (4.30)
Firm Size	0.017* (2.22)	0.025 (0.78)	0.014 (1.79)	0.017*** (4.17)	0.070*** (4.00)	0.099 (1.58)	0.080*** (4.39)	0.070*** (8.38)	-0.004*** (-4.66)	-0.001 (-0.69)	-0.003*** (-3.35)	-0.004*** (-8.61)
Firm Age	0.608*** (4.26)	0.163 (1.07)	0.401*** (3.65)	0.608*** (7.87)	0.936*** (3.74)	0.345 (1.10)	0.629** (2.95)	0.936*** (6.80)	0.068** (3.13)	0.029 (1.18)	0.046* (2.32)	0.068*** (4.96)
Financial leverage	-0.663*** (-5.53)	-0.425*** (-4.48)	-0.493*** (-4.81)	-0.663*** (-6.60)	-0.590* (-2.44)	-0.662*** (-3.75)	-0.639*** (-3.89)	-0.590*** (-4.09)	-0.001 (-0.13)	-0.01 (-1.16)	-0.007 (-1.16)	-0.001 (-0.21)
Auditor	1.364** (2.94)	0.521 (1.22)	0.424 (1.22)	1.364*** (5.19)	2.825*** (3.41)	0.788 (0.90)	1.018 (1.53)	2.825*** (5.88)	0.166** (2.97)	0.017 (0.40)	0.102* (2.57)	0.166*** (5.42)
GDP	0.157*** (4.27)	0.110*** (3.37)	0.124*** (3.90)	0.157*** (3.62)	0.320*** (4.60)	0.215*** (3.43)	0.246*** (4.01)	0.320*** (4.01)	0.013*** (3.32)	0.012*** (3.46)	0.012*** (3.64)	0.013** (2.62)
Arab Spring	0.877* (2.36)	1.417*** (4.21)	1.365*** (4.41)	0.877** (3.08)	1.008 (1.57)	2.862*** (5.05)	2.496*** (4.86)	1.008* (2.03)	0.312*** (6.50)	0.205*** (3.86)	0.226*** (4.72)	0.312*** (9.40)
constant	3.063** (3.16)	3.704** (3.23)	1.671* (2.01)	3.063*** (5.02)	5.195** (3.15)	2.976 (1.25)	3.107* (2.07)	5.195*** (5.08)	0.545*** (3.96)	0.984*** (6.12)	0.770*** (6.00)	0.545*** (6.03)
AdjR-sqr	0.11	0.15	0.14	0.11	0.08	0.14	0.13	0.08	0.07	0.13	0.12	0.07
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.18 Results - Different Regressions Results using HHI as ownership concentration index by controlling industries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; HHI is Herfindahl index = the sum of squared largest shareholders . This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
HHI	0.021* (1.97)	0.036 (1.35)	0.025 (1.95)	0.021*** (3.38)	0.027 (1.46)	0.061 (1.27)	0.04 (1.77)	0.027* (2.51)	0.005* (2.44)	0.003 (1.05)	0.005* (2.18)	0.005*** (3.90)
Firm Size	0.017* (2.16)	0.029 (0.89)	0.013 (1.64)	0.017*** (4.05)	0.069*** (3.98)	0.094 (1.51)	0.079*** (4.29)	0.069*** (8.33)	-0.004*** (-4.63)	-0.001 (-0.36)	-0.003*** (-3.33)	-0.004*** (-8.37)
Firm Age	0.601*** (4.20)	0.143 (0.94)	0.388*** (3.55)	0.601*** (7.77)	0.929*** (3.71)	0.315 (1.00)	0.611** (2.87)	0.929*** (6.76)	0.065** (3.12)	0.03 (1.24)	0.045* (2.30)	0.065*** (4.94)
Financial leverage	-0.664*** (-5.52)	-0.425*** (-4.47)	-0.495*** (-4.82)	-0.664*** (-6.65)	-0.590* (-2.44)	-0.662*** (-3.75)	-0.642*** (-3.90)	-0.590*** (-4.10)	0.001 (-0.01)	-0.01 (-1.19)	-0.007 (-1.20)	0.001 (-0.01)
Auditor	1.394** (2.98)	0.579 (1.35)	0.453 (1.30)	1.394*** (5.26)	2.854*** (3.44)	0.882 (1.02)	1.059 (1.57)	2.854*** (5.90)	0.181*** (3.32)	0.016 (0.36)	0.106** (2.68)	0.181*** (6.10)
GDP	0.159*** (4.36)	0.108*** (3.34)	0.125*** (3.92)	0.159*** (3.68)	0.322*** (4.64)	0.213*** (3.41)	0.247*** (4.03)	0.322*** (4.04)	0.014*** (3.45)	0.012*** (3.44)	0.012*** (3.65)	0.014** (2.76)
Arab Spring	0.671 (1.81)	1.513*** (4.60)	1.345*** (4.41)	0.671* (2.37)	0.706 (1.10)	2.996*** (5.39)	2.428*** (4.76)	0.706 (1.43)	0.286*** (6.10)	0.191*** (3.69)	0.210*** (4.64)	0.286*** (9.01)
constant	2.113** (2.58)	2.960** (2.67)	1.507* (2.09)	2.113*** (4.02)	3.798** (2.82)	1.93 (0.84)	2.601* (2.02)	3.798*** (4.49)	0.662*** (5.69)	1.087*** (7.21)	0.879*** (7.61)	0.662*** (8.52)
AdjR-sqr	0.10	0.13	0.12	0.10	0.08	0.12	0.11	0.08	0.07	0.12	0.11	0.07
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.19 Results - Different Regressions Results using H_CON as ownership concentration index by controlling industries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_CON measure the power gained by the largest shareholders calculated by adding the square ownership percentage of the three largest owners. This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Con	0.001* (2.09)	0.001 (1.88)	0.001* (2.39)	0.001*** (3.58)	0.001 (1.66)	0.001* (2.01)	0.001* (2.39)	0.001** (2.83)	0.001* (2.33)	0.001 (0.29)	0.001 (1.73)	0.001*** (3.71)
Firm Size	0.017* (2.14)	0.033 (1.01)	0.012 (1.55)	0.017*** (4.02)	0.069*** (3.96)	0.086 (1.38)	0.077*** (4.20)	0.069*** (8.28)	-0.004*** (-4.61)	-0.001 (-0.28)	-0.003** (-3.24)	-0.004*** (-8.33)
Firm Age	0.601*** (4.19)	0.146 (0.94)	0.387*** (3.51)	0.601*** (7.75)	0.926*** (3.69)	0.317 (1.00)	0.606** (2.83)	0.926*** (6.73)	0.065** (3.13)	0.032 (1.30)	0.046* (2.35)	0.065*** (4.96)
Financial leverage	-0.663*** (-5.53)	-0.421*** (-4.49)	-0.493*** (-4.84)	-0.663*** (-6.66)	-0.590* (-2.44)	-0.653*** (-3.75)	-0.639*** (-3.90)	-0.590*** (-4.11)	0.001 (0.04)	-0.01 (-1.18)	-0.007 (-1.14)	0.001 (0.07)
Auditor	1.410** (3.01)	0.533 (1.25)	0.49 (1.41)	1.410*** (5.31)	2.889*** (3.48)	0.807 (0.93)	1.137 (1.71)	2.889*** (5.97)	0.181*** (3.33)	0.021 (0.48)	0.108** (2.73)	0.181*** (6.13)
GDP	0.158*** (4.32)	0.105** (3.23)	0.123*** (3.86)	0.158*** (3.65)	0.321*** (4.62)	0.207*** (3.30)	0.244*** (3.97)	0.321*** (4.03)	0.014*** (3.39)	0.012*** (3.43)	0.012*** (3.60)	0.014** (2.70)
Arab Spring	0.657 (1.78)	1.483*** (4.50)	1.324*** (4.34)	0.657* (2.33)	0.694 (1.08)	2.956*** (5.18)	2.402*** (4.65)	0.694 (1.41)	0.280*** (6.07)	0.184*** (3.76)	0.204*** (4.66)	0.280*** (8.96)
constant	2.115** (2.60)	2.727* (2.51)	1.584* (2.21)	2.115*** (4.04)	3.837** (2.86)	1.333 (0.57)	2.818* (2.19)	3.837*** (4.55)	0.670*** (5.81)	1.132*** (7.74)	0.894*** (7.78)	0.670*** (8.70)
AdjR-sqr	0.11	0.15	0.14	0.11	0.08	0.14	0.13	0.08	0.07	0.13	0.12	0.07
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.20 Results - Different Regressions Results using H_ DIFF as ownership concentration index by controlling industries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_ DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages . This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent Variable :ROA				Dependent Variable :ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Diff	0.001 (1.66)	0.001 (1.77)	0.001* (2.05)	0.001** (2.82)	0.001 (1.43)	0.001* (1.99)	0.001* (2.16)	0.001* (2.40)	0.001* (2.15)	0.001 (0.27)	0.001 (1.70)	0.001*** (3.39)
Firm Size	0.017* (2.17)	0.031 (0.95)	0.012 (1.55)	0.017*** (4.06)	0.069*** (3.97)	0.089 (1.44)	0.077*** (4.17)	0.069*** (8.29)	-0.004*** (-4.53)	-0.001 (-0.26)	-0.003** (-3.20)	-0.004*** (-8.12)
Firm Age	0.605*** (4.20)	0.16 (1.03)	0.392*** (3.54)	0.605*** (7.79)	0.931*** (3.70)	0.345 (1.09)	0.612** (2.86)	0.931*** (6.75)	0.066** (3.15)	0.032 (1.30)	0.046* (2.38)	0.066*** (4.99)
Financial leverage	-0.663*** (-5.54)	-0.421*** (4.51)	-0.493*** (-4.85)	-0.663*** (-6.67)	-0.590* (-2.44)	-0.654*** (-3.77)	-0.640*** (-3.92)	-0.590*** (-4.12)	-0.001 (-0.02)	-0.01 (-1.18)	-0.007 (-1.15)	-0.001 (-0.03)
Auditor	1.389** (2.97)	0.545 (1.28)	0.483 (1.39)	1.389*** (5.24)	2.868*** (3.46)	0.833 (0.96)	1.133 (1.71)	2.868*** (5.93)	0.181*** (3.34)	0.021 (0.48)	0.108** (2.73)	0.181*** (6.15)
GDP	0.158*** (4.33)	0.106** (3.25)	0.124*** (3.89)	0.158*** (3.65)	0.321*** (4.63)	0.207*** (3.31)	0.245*** (4.00)	0.321*** (4.03)	0.014*** (3.39)	0.012*** (3.45)	0.012*** (3.62)	0.014** (2.73)
Arab Spring	0.608 (1.66)	1.437*** (4.28)	1.283*** (4.16)	0.608* (2.16)	0.623 (0.97)	2.866*** (5.05)	2.326*** (4.51)	0.623 (1.26)	0.268*** (5.94)	0.183*** (3.86)	0.199*** (4.71)	0.268*** (8.79)
constant	1.928* (2.41)	2.932** (2.79)	1.376* (1.96)	1.928*** (3.74)	3.585** (2.74)	1.629 (0.72)	2.466* (1.96)	3.585*** (4.36)	0.707*** (6.50)	1.137*** (8.00)	0.916*** (8.26)	0.707*** (9.83)
AdjR-sqr	0.10	0.13	0.12	0.10	0.08	0.12	0.11	0.08	0.07	0.12	0.11	0.07
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.21 Results - Different Regressions Results using CON51 as ownership concentration index by controlling industries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON51 measure the power gained by the largest shareholders which is a dummy variable of taking 1 if the firm has 3 owners or less owning 51% or more of it equity . This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent Variable :ROA				Dependent Variable :ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON51	1.157* (2.19)	0.483 (0.52)	0.796 (1.42)	1.157*** (3.84)	2.188* (2.29)	0.516 (0.38)	1.44 (1.63)	2.188*** (3.99)	0.173* (2.01)	0.05 (0.45)	0.117 (1.42)	0.173*** (3.31)
Firm Size	0.018* (2.32)	0.027 (0.83)	0.014 (1.80)	0.018*** (4.32)	0.071*** (4.06)	0.098 (1.57)	0.080*** (4.42)	0.071*** (8.49)	-0.003*** (-4.47)	-0.001 (-0.28)	-0.002** (-3.20)	-0.003*** (-8.41)
Firm Age	0.594*** (4.13)	0.159 (1.04)	0.394*** (3.58)	0.594*** (7.64)	0.903*** (3.60)	0.343 (1.09)	0.619** (2.89)	0.903*** (6.55)	0.066** (3.10)	0.032 (1.29)	0.046* (2.33)	0.066*** (4.90)
Financial leverage	-0.663*** (-5.51)	-0.424*** (-4.48)	-0.493*** (-4.82)	-0.663*** (-6.65)	-0.593* (-2.44)	-0.661*** (-3.75)	-0.639*** (-3.90)	-0.593*** (-4.12)	-0.001 (-0.11)	-0.01 (-1.18)	-0.007 (-1.14)	-0.001 (-0.19)
Auditor	1.378** (2.96)	0.523 (1.23)	0.445 (1.28)	1.378*** (5.23)	2.882*** (3.49)	0.786 (0.90)	1.058 (1.58)	2.882*** (6.01)	0.168** (3.06)	0.021 (0.49)	0.104** (2.63)	0.168*** (5.59)
GDP	0.159*** (4.34)	0.109*** (3.36)	0.124*** (3.91)	0.159*** (3.67)	0.325*** (4.68)	0.215*** (3.42)	0.246*** (4.02)	0.325*** (4.08)	0.014*** (3.34)	0.012*** (3.48)	0.012*** (3.66)	0.014** (2.66)
Arab Spring	0.618 (1.68)	1.446*** (4.35)	1.302*** (4.25)	0.618* (2.20)	0.635 (0.99)	2.873*** (5.07)	2.360*** (4.57)	0.635 (1.29)	0.272*** (5.96)	0.184*** (3.81)	0.202*** (4.67)	0.272*** (8.83)
constant	1.894* (2.38)	3.494*** (3.37)	1.247 (1.79)	1.894*** (3.69)	3.563** (2.75)	2.902 (1.35)	2.198 (1.78)	3.563*** (4.38)	0.726*** (6.91)	1.138*** (8.70)	0.931*** (8.71)	0.726*** (10.61)
AdjR-sqr	0.11	0.15	0.14	0.11	0.08	0.14	0.13	0.08	0.07	0.13	0.12	0.07
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

4.4.3 Results Controlling for Country Effects.

The illustration of different regression results regarding the effects of ownership concentration on firm performance after controlling for country effects are presented in tables 4.22, 4.23, 4.24, 4.25 and 4.26. The effects of ownership concentration remain unchanged; thus, CON, HHI, H_Con, H_Diff, and CON51 affect firm performance both significantly and positively. Like the other results, these effects depend on the regression models used.

The effects of firm size also do not change when controlling for the effects of different countries; it demonstrates a significant positive relationship with ROA when using a GMM regression only. However, it has significant positive effects on ROE and a negative significant relationship with Tobin's Q in all regressions, except for fixed effects.

Firm age lost its significance in Tobin's Q after taking into consideration country effects. However, firm age in both ROA and ROE remain unchanged at a 1% significance level in OLS, random effects, and GMM regression models. Though financial leverage effects on firm performance do not change, leverage negatively affects ROA and ROE at the 1% level of significance using all regression models. Auditor type has no effect on Tobin's Q after controlling for country effects. Nevertheless, it still affects the accounting ratios positively.

GDP growth results remain the same in all regressions, even after controlling for country effects; it has a 1% level of significance that positively affects firm performance. Furthermore, the Arab Spring effects remain unchanged; this variable has a positive impact on ROA, ROE, and Tobin's Q at the 1% level of significance in most of the regression results.

In summary, controlling for country effects has no impact on the significance levels of the dependent variables when investigating their relationship to firm performance. However, the role of the big four auditors is affected when controlling for country differences; this variable no longer affects Tobin's Q.

Table 4.22 Results - Different Regressions Results using CON as ownership concentration index by controlling countries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON = total percentage of largest owners who won 5% or more of firm's equity . This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON	0.029** (3.19)	0.003 (0.24)	0.014 (1.88)	0.029*** (5.39)	0.032 (1.95)	0.001 (0.02)	0.022 (1.53)	0.032** (3.24)	0.007*** (5.29)	0.003 (1.92)	0.005*** (4.20)	0.007*** (8.36)
Firm Size	0.012 (1.66)	0.025 (0.78)	0.009 (1.11)	0.012** (2.84)	0.064*** (4.11)	0.099 (1.58)	0.077*** (4.39)	0.064*** (8.01)	-0.006*** (-5.36)	-0.001 (-0.69)	-0.005*** (-5.18)	-0.006*** (-11.56)
Firm Age	0.513*** (3.39)	0.163 (1.07)	0.383*** (3.33)	0.513*** (5.96)	0.703** (2.63)	0.345 (1.10)	0.606** (2.70)	0.703*** (4.64)	0.037 (1.63)	0.029 (1.18)	0.026 (1.26)	0.037* (2.49)
Financial leverage	-0.729*** (-5.54)	-0.425*** (-4.48)	-0.511*** (-4.77)	-0.729*** (-6.51)	-0.737** (-2.91)	-0.662*** (-3.75)	-0.679*** (-3.95)	-0.737*** (-4.68)	-0.001 (-0.10)	-0.01 (-1.16)	-0.006 (-1.12)	-0.001 (-0.16)
Auditor	0.811 (1.49)	0.521 (1.22)	0.037 (0.10)	0.811* (2.49)	2.401** (2.68)	0.788 (0.90)	0.38 (0.53)	2.401*** (4.35)	0.015 (0.25)	0.017 (0.40)	0.031 (0.80)	0.015 (0.44)
GDP	0.119*** (3.54)	0.110*** (3.37)	0.112*** (3.46)	0.119** (2.67)	0.234*** (3.64)	0.215*** (3.43)	0.219*** (3.50)	0.234** (2.84)	0.011** (2.70)	0.012*** (3.46)	0.012*** (3.33)	0.011* (2.03)
Arab Spring	1.659*** (4.79)	1.417*** (4.21)	1.594*** (4.80)	1.659*** (4.82)	3.096*** (5.43)	2.862*** (5.05)	3.064*** (5.54)	3.096*** (5.27)	0.196*** (3.56)	0.205*** (3.86)	0.209*** (4.01)	0.196*** (3.79)
constant	1.476 (1.05)	3.704** (3.23)	3.196** (2.62)	1.476 (1.85)	0.733 (0.34)	2.976 (1.25)	2.63 (1.38)	0.733 (0.56)	0.449* (2.57)	0.984*** (6.12)	0.580*** (3.71)	0.449*** (4.10)
AdjR-sqr	0.12	0.16	0.15	0.12	0.10	0.15	0.13	0.10	0.09	0.13	0.12	0.09
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.23 Results - Different Regressions Results using HHI as ownership concentration index by controlling countries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; HHI is Herfindahl index = the sum of squared largest shareholders . This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
HHI	0.026* (2.33)	0.036 (1.35)	0.032* (2.41)	0.026*** (3.97)	0.023 (1.20)	0.061 (1.27)	0.045 (1.91)	0.023* (2.06)	0.008*** (3.64)	0.003 (1.05)	0.007** (3.12)	0.008*** (5.60)
Firm Size	0.012 (1.73)	0.029 (0.89)	0.008 (0.97)	0.012** (2.98)	0.065*** (4.17)	0.094 (1.51)	0.076*** (4.27)	0.065*** (8.15)	-0.006*** (-5.20)	-0.001 (-0.36)	-0.005*** (-5.00)	-0.006*** (-11.07)
Firm Age	0.527*** (3.44)	0.143 (0.94)	0.375** (3.26)	0.527*** (6.08)	0.722** (2.69)	0.315 (1.00)	0.598** (2.66)	0.722*** (4.76)	0.038 (1.72)	0.03 (1.24)	0.027 (1.33)	0.038** (2.63)
Financial leverage	-0.730*** (-5.55)	-0.425*** (-4.47)	-0.512*** (-4.79)	-0.730*** (-6.56)	-0.738** (-2.91)	-0.662*** (-3.75)	-0.682*** (-3.97)	-0.738*** (-4.69)	-0.001 (-0.00)	-0.01 (-1.19)	-0.007 (-1.18)	-0.001 (-0.00)
Auditor	0.853 (1.56)	0.579 (1.35)	0.062 (0.17)	0.853** (2.62)	2.452** (2.74)	0.882 (1.02)	0.348 (0.49)	2.452*** (4.44)	0.023 (0.38)	0.016 (0.36)	0.03 (0.77)	0.023 (0.67)
GDP	0.119*** (3.55)	0.108*** (3.34)	0.111*** (3.44)	0.119** (2.67)	0.234*** (3.64)	0.213*** (3.41)	0.218*** (3.49)	0.234** (2.85)	0.011** (2.71)	0.012*** (3.44)	0.012*** (3.31)	0.011* (2.02)
Arab Spring	1.527*** (4.48)	1.513*** (4.60)	1.570*** (4.78)	1.527*** (4.44)	2.939*** (5.19)	2.996*** (5.39)	3.019*** (5.48)	2.939*** (5.00)	0.171** (3.17)	0.191*** (3.69)	0.190*** (3.74)	0.171*** (3.34)
constant	2.757* (2.20)	2.960** (2.67)	3.609** (3.21)	2.757*** (3.86)	2.172 (1.15)	1.93 (0.84)	3.297 (1.91)	2.172 (1.86)	0.721*** (4.67)	1.087*** (7.21)	0.781*** (5.44)	0.721*** (7.45)
AdjR-sqr	0.12	0.17	0.15	0.12	0.10	0.15	0.14	0.10	0.10	0.16	0.15	0.10
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.24 Results - Different Regressions Results using H_CON as ownership concentration index by controlling countries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_CON measure the power gained by the largest shareholders calculated by adding the square ownership percentage of the three largest owners. This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Con	0.001* (2.38)	0.001 (1.88)	0.001** (2.78)	0.001*** (4.05)	0.001 (1.35)	0.001* (2.01)	0.001* (2.45)	0.001* (2.28)	0.001*** (3.51)	0.001 (0.29)	0.001** (2.66)	0.001*** (5.39)
Firm Size	0.012 (1.71)	0.033 (1.01)	0.007 (0.85)	0.012** (2.94)	0.065*** (4.14)	0.086 (1.38)	0.074*** (4.17)	0.065*** (8.11)	-0.006*** (-5.20)	-0.001 (-0.28)	-0.005*** (-4.93)	-0.006*** (-11.04)
Firm Age	0.526*** (3.43)	0.146 (0.94)	0.375** (3.23)	0.526*** (6.07)	0.719** (2.68)	0.317 (1.00)	0.594** (2.63)	0.719*** (4.74)	0.039 (1.74)	0.032 (1.30)	0.029 (1.39)	0.039** (2.66)
Financial leverage	-0.729*** (-5.55)	-0.421*** (-4.49)	-0.509*** (-4.80)	-0.729*** (-6.56)	-0.738** (-2.91)	-0.653*** (-3.75)	-0.678*** (-3.97)	-0.738*** (-4.70)	-0.001 (-0.06)	-0.01 (-1.18)	-0.006 (-1.10)	-0.001 (-0.09)
Auditor	0.865 (1.58)	0.533 (1.25)	0.032 (0.09)	0.865** (2.66)	2.461** (2.75)	0.807 (0.93)	0.385 (0.54)	2.461*** (4.46)	0.026 (0.43)	0.021 (0.48)	0.037 (0.95)	0.026 (0.77)
GDP	0.117*** (3.50)	0.105** (3.23)	0.109*** (3.36)	0.117** (2.64)	0.232*** (3.62)	0.207*** (3.30)	0.214*** (3.43)	0.232** (2.83)	0.011** (2.62)	0.012*** (3.43)	0.011** (3.23)	0.011 (1.96)
Arab Spring	1.497*** (4.41)	1.483*** (4.50)	1.535*** (4.67)	1.497*** (4.36)	2.917*** (5.15)	2.956*** (5.18)	2.978*** (5.34)	2.917*** (4.97)	0.160** (3.04)	0.184*** (3.76)	0.180*** (3.67)	0.160** (3.20)
constant	2.781* (2.22)	2.727* (2.51)	3.557** (3.16)	2.781*** (3.90)	2.17 (1.15)	1.333 (0.57)	3.137 (1.81)	2.17 (1.86)	0.733*** (4.78)	1.132*** (7.74)	0.795*** (5.57)	0.733*** (7.66)
AdjR-sqr	0.13	0.16	0.14	0.13	0.10	0.14	0.13	0.10	0.09	0.13	0.12	0.09
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.25 Results - Different Regressions Results using H_ DIFF as ownership concentration index by controlling countries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_ DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages . This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Diff	0.001 (1.85)	0.001 (1.77)	0.001* (2.36)	0.001** (3.10)	0.001 (1.14)	0.001* (1.99)	0.001* (2.25)	0.001 (1.91)	0.001** (2.94)	0.001 (0.27)	0.001* (2.38)	0.001*** (4.46)
Firm Size	0.013 (1.80)	0.031 (0.95)	0.008 (0.92)	0.013** (3.08)	0.065*** (4.17)	0.089 (1.44)	0.074*** (4.18)	0.065*** (8.16)	-0.006*** (-5.13)	-0.001 (-0.26)	-0.005*** (-4.86)	-0.006*** (-10.84)
Firm Age	0.536*** (3.48)	0.16 (1.03)	0.386*** (3.32)	0.536*** (6.16)	0.728** (2.71)	0.345 (1.09)	0.610** (2.70)	0.728*** (4.79)	0.041 (1.82)	0.032 (1.30)	0.03 (1.47)	0.041** (2.79)
Financial leverage	-0.730*** (-5.56)	-0.421*** (-4.51)	-0.510*** (-4.81)	-0.730*** (-6.57)	-0.738** (-2.92)	-0.654*** (-3.77)	-0.679*** (-3.98)	-0.738*** (-4.71)	-0.001 (-0.00)	-0.01 (-1.18)	-0.007 (-1.12)	-0.001 (-0.00)
Auditor	0.87 (1.58)	0.545 (1.28)	0.036 (30.10)	0.870** (2.67)	2.465** (2.75)	0.833 (0.96)	0.376 (0.52)	2.465*** (4.47)	0.027 (0.45)	0.021 (0.48)	0.037 (0.94)	0.027 (0.79)
GDP	0.118*** (3.53)	0.106** (3.25)	0.110*** (3.39)	0.118** (2.67)	0.233*** (3.63)	0.207*** (3.31)	0.215*** (3.44)	0.233** (2.84)	0.011** (2.68)	0.012*** (3.45)	0.011** (3.28)	0.011* (2.00)
Arab Spring	1.469*** (4.33)	1.437*** (4.28)	1.499*** (4.53)	1.469*** (4.28)	2.890*** (5.11)	2.866*** (5.05)	2.920*** (5.25)	2.890*** (4.93)	0.153** (2.94)	0.183*** (3.86)	0.175*** (3.65)	0.153** (3.09)
constant	3.005* (2.43)	2.932** (2.79)	3.876*** (3.50)	3.005*** (4.27)	2.389 (1.28)	1.629 (0.72)	3.629* (2.14)	2.389* (2.08)	0.796*** (5.51)	1.137*** (8.00)	0.841*** (6.18)	0.796*** (8.91)
AdjR-sqr	0.10	0.13	0.12	0.10	0.10	0.12	0.11	0.10	0.10	0.12	0.11	0.10
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.26 Results - Different Regressions Results using CON51 as ownership concentration index by controlling countries effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON51 measure the power gained by the largest shareholders which is a dummy variable of taking 1 if the firm has 3 owners or less owning 51% or more of it equity . This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON51	1.304* (2.42)	0.483 (0.52)	0.998 (1.72)	1.304*** (4.19)	2.055* (2.12)	0.516 (0.38)	1.633 (1.81)	2.055*** (3.67)	0.255** (3.01)	0.05 (0.45)	0.165* (2.03)	0.255*** (4.76)
Firm Size	0.014* (1.98)	0.027 (0.83)	0.01 (1.24)	0.014*** (3.39)	0.066*** (4.23)	0.098 (1.57)	0.078*** (4.48)	0.066*** (8.30)	-0.005*** (-5.04)	-0.001 (-0.28)	-0.005*** (-4.87)	-0.005*** (-10.91)
Firm Age	0.523*** (3.42)	0.159 (1.04)	0.385*** (3.34)	0.523*** (6.04)	0.703** (2.64)	0.343 (1.09)	0.609** (2.70)	0.703*** (4.64)	0.04 (1.76)	0.032 (1.29)	0.03 (1.42)	0.040** (2.70)
Financial leverage	-0.730*** (-5.53)	-0.424*** (-4.48)	-0.510*** (-4.78)	-0.730*** (-6.55)	-0.741** (-2.92)	-0.661*** (-3.75)	-0.679*** (-3.96)	-0.741*** (-4.71)	-0.001 (-0.06)	-0.01 (-1.18)	-0.007 (-1.12)	-0.001 (-0.09)
Auditor	0.843 (1.56)	0.523 (1.23)	0.025 (0.07)	0.843** (2.60)	2.415** (2.72)	0.786 (0.90)	0.401 (0.56)	2.415*** (4.38)	0.024 (0.39)	0.021 (0.49)	0.038 (0.97)	0.024 (0.69)
GDP	0.119*** (3.54)	0.109*** (3.36)	0.112*** (3.45)	0.119** (2.67)	0.233*** (3.63)	0.215*** (3.42)	0.218*** (3.49)	0.233** (2.84)	0.011** (2.76)	0.012*** (3.48)	0.012*** (3.37)	0.011* (2.04)
Arab Spring	1.495*** (4.39)	1.446*** (4.35)	1.522*** (4.61)	1.495*** (4.35)	2.934*** (5.17)	2.873*** (5.07)	2.958*** (5.31)	2.934*** (5.00)	0.157** (2.97)	0.184*** (3.81)	0.179*** (3.66)	0.157** (3.14)
constant	2.994* (2.42)	3.494*** (3.37)	3.895*** (3.53)	2.994*** (4.26)	2.357 (1.26)	2.902 (1.35)	3.671* (2.18)	2.357* (2.05)	0.798*** (5.45)	1.138*** (8.70)	0.842*** (6.19)	0.798*** (8.90)
AdjR-sqr	0.12	0.15	0.14	0.12	0.10	0.14	0.13	0.10	0.09	0.13	0.12	0.09
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

4.4.4 Results Controlling for Year effects.

Regression results of the effects of ownership concentration on firm performance after controlling for year are presented in tables 4.27, 4.28, 4.29, 4.30 and 4.31. Regarding the consequences of ownership concentration, it appears that even after controlling for the effects of different years, all concentration indexes used in this study have significant positive effects on ROA, ROE, and Tobin's Q, when using OLS and GMM at the 10% and 1% levels of significance, respectively. Also tables 4.30 and 4.31 show that H_Con and H_Diff respectively, have some effect on ROA and ROE when using random and fixed regression models at the 5% level of significance.

For firm factors, despite using a model that accounted for the effects of different years, firm size has a different significance level with all firm performance measures in all the models, depending on the regression type. It shows a significant positive relationship with ROA and ROE and a negative significant association with Tobin's Q. Firm age also shows effects on ROA, ROE, and Tobin's Q at the 1% level of significance and is positive in most regression models, save for the fixed effect model.

Similar to other results when controlling for industry and country effects, financial leverage negatively affects ROA and ROE at the 1% level of significance using all regression models, but this effect is not significant with Tobin's Q. Also, the effects of auditors on firm performance do not change after controlling for year effects; it has a positive relationship with ROA, ROE, and Tobin's Q.

GDP growth effect on firm performance does not change after controlling for year effects. It positively affects ROA, ROE, and Tobin's Q at the 1% level of significance. Also, the Arab Spring variable remains unchanged after controlling for year effects; it confirms a positive relationship with ROA, ROE, and Tobin's Q at the 1% level of significance in most of the regression results.

Briefly, even though years were controlled for, the year effects did not have any impact on the significance effects of independent variables on firm performance. As a result, the level of significance remains the same, with small variations in the coefficient value of some variables.

Table 4.27 Results - Different Regressions Results using CON as ownership concentration index by controlling year effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON = total percentage of largest owners who won 5% or more of firm's equity . This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON	0.029** (3.11)	0.011 (0.87)	0.013 (1.47)	0.029*** (5.43)	0.043** (2.61)	0.002 (0.10)	0.031* (1.96)	0.043*** (4.44)	0.003* (2.38)	0.002 (1.14)	0.003* (1.98)	0.003*** (3.88)
Firm Size	0.018* (2.33)	0.029 (-0.87)	0.016 (1.92)	0.018*** (4.34)	0.072*** (4.09)	0.099 (1.58)	0.083*** (4.51)	0.072*** (8.55)	-0.004*** (-4.75)	-0.002 (-0.80)	-0.003*** (-3.43)	-0.004*** (-8.83)
Firm Age	0.818*** (5.72)	0.151 (0.99)	0.518*** (4.62)	0.818*** (10.46)	1.228*** (5.07)	0.358 (1.14)	0.799*** (3.77)	1.228*** (9.12)	0.075*** (3.64)	0.028 (1.13)	0.050** (2.61)	0.075*** (5.69)
Financial leverage	-0.688*** (-5.49)	-0.427*** (-4.53)	-0.500*** (-4.79)	-0.688*** (-6.51)	-0.624* (-2.54)	-0.666*** (-3.77)	-0.651*** (-3.90)	-0.624*** (-4.21)	-0.001 (-0.09)	-0.01 (-1.15)	-0.007 (-1.19)	-0.001 (-0.14)
Auditor	1.018* (2.17)	0.529 (1.23)	0.224 (0.64)	1.018*** (3.82)	2.378** (2.85)	-0.763 (-0.87)	0.805 (1.21)	2.378*** (4.91)	0.143** (2.60)	0.022 (0.50)	0.094* (2.35)	0.143*** (4.72)
GDP	0.166*** (4.49)	0.112*** (3.47)	0.126*** (4.01)	0.166*** (3.77)	0.333*** (4.65)	0.216*** (3.38)	0.247*** (3.99)	0.333*** (4.07)	0.015*** (3.70)	0.014*** (3.82)	0.014*** (4.00)	0.015** (2.94)
Arab Spring	1.091** (2.77)	1.508*** (4.37)	1.459*** (4.67)	1.091*** (3.64)	1.117 (1.60)	2.799*** (4.83)	2.426*** (4.67)	1.117* (2.11)	0.380*** (6.96)	0.216*** (3.48)	0.254*** (4.51)	0.380*** (10.12)
constant	1.985* (2.03)	3.928** (3.24)	0.145 (0.17)	1.985** (2.87)	3.450* (-2.02)	2.992 (1.22)	0.615 (-0.39)	3.450** (-2.90)	0.416** (2.87)	0.947*** (5.48)	0.788*** (5.59)	0.416*** (4.13)
AdjR-sqr	0.14	0.20	0.25	0.14	0.13	0.20	0.19	0.13	0.12	0.18	0.18	0.12
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.28 Results - Different Regressions Results using HHI as ownership concentration index by controlling year effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; HHI is Herfindahl index = the sum of squared largest shareholders . This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
HHI	0.029** (2.66)	0.034 (1.19)	0.031* (2.34)	0.029*** (4.63)	0.038* (2.04)	0.071 (1.40)	0.051* (2.23)	0.038*** (3.52)	0.005* (2.47)	0.002 (0.55)	0.004* (1.96)	0.005*** (3.93)
Firm Size	0.017* (2.23)	0.029 (0.89)	0.014 (1.74)	0.017*** (4.15)	0.071*** (4.04)	0.100 (1.59)	0.081*** (4.38)	0.071*** (8.45)	-0.004*** (-4.75)	-0.001 (-0.71)	-0.003*** (-3.46)	-0.004*** (-8.64)
Firm Age	0.805*** (5.59)	0.143 (0.94)	0.498*** (4.47)	0.805*** (10.27)	1.214*** (4.99)	0.345 (1.10)	0.770*** (3.64)	1.214*** (9.01)	0.071*** (3.62)	0.028 (1.13)	0.048* (2.55)	0.071*** (5.67)
Financial leverage	-0.691*** (-5.49)	-0.426*** (-4.50)	-0.501*** (-4.80)	-0.691*** (-6.57)	-0.626* (-2.55)	-0.666*** (-3.77)	-0.655*** (-3.92)	-0.626*** (-4.24)	-0.001 (-0.22)	-0.01 (-1.17)	-0.007 (-1.23)	-0.001 (-0.36)
Auditor	1.057* (2.23)	0.569 (1.32)	0.264 (0.76)	1.057*** (3.94)	2.416** (2.88)	0.841 (0.97)	0.852 (1.26)	2.416*** (4.95)	0.160** (2.97)	0.02 (0.46)	0.099* (2.46)	0.160*** (5.44)
GDP	0.170*** (4.62)	0.111*** (3.45)	0.127*** (4.03)	0.170*** (3.87)	0.338*** (4.72)	0.213*** (3.36)	0.248*** (4.01)	0.338*** (4.13)	0.016*** (3.86)	0.014*** (3.80)	0.014*** (4.02)	0.016** (3.11)
Arab Spring	0.870* (2.17)	1.516*** (4.39)	1.426*** (4.57)	0.870** (2.90)	0.792 (1.12)	2.794*** (4.83)	2.348*** (4.51)	0.792 (1.49)	0.358*** (6.63)	0.214*** (3.49)	0.248*** (4.54)	0.358*** (9.94)
constant	0.883 (1.01)	2.932* (2.58)	0.339 (0.44)	0.883 (1.39)	1.801 (1.21)	2.046 (0.87)	0.139 (0.10)	1.801 (1.68)	0.509*** (4.02)	1.014*** (6.32)	0.851*** (6.65)	0.509*** (5.68)
AdjR-sqr	0.13	0.19	0.23	0.13	0.12	0.19	0.19	0.12	0.11	0.18	0.18	0.11
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.29 Results - Different Regressions Results using H_CON as ownership concentration index by controlling year effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_CON measure the power gained by the largest shareholders calculated by adding the square ownership percentage of the three largest owners. This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Con	0.001** (2.80)	0.001 (1.86)	0.001** (2.83)	0.001*** (4.85)	0.001* (2.22)	0.001* (2.05)	0.001** (2.74)	0.001*** (3.78)	0.001* (2.50)	0.001 (0.11)	0.001 (1.80)	0.001*** (3.96)
Firm Size	0.017* (2.20)	0.035 (1.07)	0.013 (1.61)	0.017*** (4.09)	0.070*** (4.01)	0.088 (1.41)	0.079*** (4.28)	0.070*** (8.39)	-0.004*** (-4.74)	-0.001 (-0.68)	-0.003*** (-3.41)	-0.004*** (-8.63)
Firm Age	0.802*** (5.56)	0.139 (0.90)	0.493*** (4.38)	0.802*** (10.21)	1.208*** (4.96)	0.337 (1.06)	0.758*** (3.56)	1.208*** (8.95)	0.071*** (3.61)	0.028 (1.15)	0.049* (2.57)	0.071*** (5.66)
Financial leverage	-0.690*** (-5.50)	-0.422*** (-4.53)	-0.500*** (-4.82)	-0.690*** (-6.59)	-0.626* (-2.55)	-0.658*** (-3.77)	-0.652*** (-3.92)	-0.626*** (-4.24)	-0.001 (-0.19)	-0.01 (-1.16)	-0.007 (-1.19)	-0.001 (-0.32)
Auditor	1.073* (2.26)	0.537 (1.25)	0.303 (0.87)	1.073*** (3.99)	2.448** (2.92)	0.775 (-0.89)	0.927 (1.40)	2.448*** (5.01)	0.161** (2.99)	0.022 (0.50)	0.100* (2.50)	0.161*** (5.47)
GDP	0.169*** (4.57)	0.107*** (3.32)	0.125*** (3.95)	0.169*** (3.84)	0.337*** (4.69)	0.206** (3.24)	0.245*** (3.93)	0.337*** (4.11)	0.016*** (3.82)	0.014*** (3.76)	0.014*** (3.95)	0.016** (3.07)
Arab Spring	0.882* (2.21)	1.544*** (4.50)	1.447*** (4.66)	0.882** (2.94)	0.812 (1.15)	2.847*** (4.90)	2.386*** (4.58)	0.812 (1.53)	0.358*** (6.65)	0.214*** (3.44)	0.250*** (4.52)	0.358*** (9.97)
constant	0.97 (-1.10)	2.655* (2.38)	0.164 (0.21)	0.97 (-1.52)	1.948 (-1.30)	1.517 (0.64)	0.213 (-0.15)	1.948 (-1.81)	0.499*** (3.88)	1.036*** (6.54)	0.849*** (6.50)	0.499*** (5.50)
AdjR-sqr	0.13	0.20	0.24	0.13	0.12	0.19	0.19	0.12	0.12	0.18	0.18	0.12
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.30 Results - Different Regressions Results using H_ DIFF as ownership concentration index by controlling year effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_ DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages . This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Diff	0.001* (2.27)	0.001 (1.77)	0.001* (2.41)	0.001*** (3.86)	0.001 (1.89)	0.001* (2.02)	0.001* (2.44)	0.001** (3.20)	0.001* (2.28)	0.001 (0.15)	0.001 (1.78)	0.001*** (3.58)
Firm Size	0.017* (2.24)	0.034 (1.03)	0.013 (1.61)	0.017*** (4.15)	0.070*** (4.03)	0.091 (1.46)	0.079*** (4.26)	0.070*** (8.42)	-0.004*** (-4.65)	-0.001 (-0.70)	-0.003*** (-3.37)	-0.004*** (-8.42)
Firm Age	0.811*** (5.57)	0.152 (0.98)	0.499*** (4.42)	0.811*** (10.28)	1.218*** (4.98)	0.364 (1.15)	0.767*** (3.60)	1.218*** (9.01)	0.071*** (3.64)	0.028 (1.15)	0.049** (2.60)	0.071*** (5.72)
Financial leverage	-0.689*** (-5.51)	-0.423*** (-4.54)	-0.500*** (-4.83)	-0.689*** (-6.60)	-0.626* (-2.55)	-0.659*** (-3.79)	-0.653*** (-3.94)	-0.626*** (-4.25)	-0.001 (-0.22)	-0.01 (-1.16)	-0.007 (-1.20)	-0.001 (-0.36)
Auditor	1.038* (2.19)	0.548 (1.28)	0.289 (0.83)	1.038*** (3.87)	2.410** (2.87)	0.801 (0.92)	0.915 (1.38)	2.410*** (4.94)	0.159** (2.97)	0.022 (0.50)	0.100* (2.49)	0.159*** (5.45)
GDP	0.169*** (4.59)	0.108*** (3.35)	0.126*** (4.00)	0.169*** (3.85)	0.338*** (4.70)	0.208** (3.27)	0.247*** (3.97)	0.338*** (4.12)	0.016*** (3.83)	0.014*** (3.79)	0.014*** (3.98)	0.016** (3.11)
Arab Spring	0.814* (2.03)	1.498*** (4.30)	1.401*** (4.46)	0.814** (2.71)	0.713 (1.00)	2.751*** (4.74)	2.301*** (4.42)	0.713 (1.34)	0.345*** (6.55)	0.214*** (3.53)	0.245*** (4.57)	0.345*** (9.91)
constant	0.703 (-0.81)	2.836** (2.61)	0.42 (0.55)	0.703 (-1.11)	1.589 (1.08)	1.797 (0.78)	0.204 (0.15)	1.589 (1.49)	0.541*** (4.45)	1.036*** (6.79)	0.872*** (6.99)	0.541*** (6.31)
AdjR-sqr	0.13	0.19	0.22	0.13	0.12	0.19	0.20	0.12	0.12	0.18	0.18	0.12
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.31 Results - Different Regressions Results using CON51 as ownership concentration index by controlling year effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON51 measure the power gained by the largest shareholders which is a dummy variable of taking 1 if the firm has 3 owners or less owning 51% or more of it equity . This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON51	1.428** (2.65)	0.413 (0.44)	0.94 (1.66)	1.428*** (4.69)	2.574** (2.66)	0.57 (0.42)	1.7 (1.92)	2.574*** (4.66)	0.177* (2.06)	0.021 (0.20)	0.107 (1.34)	0.177*** (3.38)
Firm Size	0.019* (2.44)	0.03 (0.92)	0.016 (1.91)	0.019*** (4.52)	0.073*** (4.17)	0.099 (1.57)	0.083*** (4.54)	0.073*** (8.69)	-0.004*** (-4.55)	-0.001 (-0.71)	-0.003*** (-3.35)	-0.004*** (-8.64)
Firm Age	0.800*** (5.52)	0.149 (0.98)	0.505*** (4.50)	0.800*** (10.15)	1.190*** (4.88)	0.358 (1.14)	0.781*** (3.66)	1.190*** (8.80)	0.072*** (3.60)	0.028 (1.15)	0.049* (2.56)	0.072*** (5.63)
Financial leverage	-0.690*** (-5.47)	-0.426*** (-4.51)	-0.500*** (-4.80)	-0.690*** (-6.56)	-0.628* (-2.54)	-0.665*** (-3.78)	-0.652*** (-3.92)	-0.628*** (-4.24)	-0.001 (-0.13)	-0.01 (-1.16)	-0.007 (-1.19)	-0.001 (-0.21)
Auditor	1.014* (2.15)	0.528 (1.23)	0.241 (0.69)	1.014*** (3.80)	2.410** (2.89)	0.759 (0.87)	0.824 (1.24)	2.410*** (4.98)	0.144** (2.66)	0.022 (0.51)	0.094* (2.36)	0.144*** (4.84)
GDP	0.170*** (4.58)	0.112*** (3.47)	0.127*** (4.02)	0.170*** (3.85)	0.340*** (4.75)	0.215*** (3.38)	0.248*** (3.99)	0.340*** (4.16)	0.016*** (3.76)	0.014*** (3.83)	0.014*** (4.03)	0.016** (3.02)
Arab Spring	0.816* (2.04)	1.521*** (4.41)	1.421*** (4.55)	0.816** (2.72)	0.705 (0.99)	2.799*** (4.83)	2.337*** (4.48)	0.705 (1.33)	0.349*** (6.56)	0.214*** (3.48)	0.247*** (4.54)	0.349*** (9.88)
constant	0.615 (0.71)	3.375** (3.15)	0.625 (0.83)	0.615 (0.97)	1.486 (-1.01)	3.009 (1.36)	0.6 (0.44)	1.486 (-1.40)	0.567*** (4.87)	1.037*** (7.42)	0.895*** (7.57)	0.567*** (6.92)
AdjR-sqr	0.14	0.20	0.25	0.14	0.13	0.20	0.19	0.13	0.12	0.18	0.18	0.12
Industry effect	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

4.4.5 Results with Controlling for Country, Industry and Year effects.

Tables 4.32, 4.33, 4.34, 4.35 and 4.36 show how the significance of independent variables are used to indicate firm performance change when regression models take into account the effects of country, industry, and years together. The results prove that the effects of ownership concentration change depending on concentration indexes and regressions type. Tables 4.32 and 4.33 show that, although CON and HHI still affects ROA and Tobin's Q in some regression types, they show no significant effects on ROE. A noticeable change in this methodology is that all concentration indexes affect Tobin's Q positively and significantly in all regression models, save for the fixed effect regression. Tables 4.34 and 4.35 demonstrate that both H_Con and H_Diff have some degrees of effect on firm performance.

The significance effect on firm size also changed, but this change is one seen in one firm performance variable, ROA. However, all concentration indexes show a significant effect on ROA when using GMM only. All concentration indexes positively affect ROE and negatively affect Tobin's Q in all regression models, save for the fixed effect regression.

Firm age lost its significant effect on Tobin's Q after taking into consideration country, industry, and year effects together. Although firm age still affects both ROA and ROE, the level of significance decreased. Nevertheless, financial leverage affects ROA, and its effect on ROE did not change; it still affects them negatively at 1% level of significant using all regression models. Auditor type shows no change regarding its effect on ROA and ROE; though, it no longer affects Tobin's Q.

GDP growth results remain the same in all regressions, even after controlling for country, industry, and year effects together; it has a 1% level of significance that positively affects all firm performance measures. Furthermore, the Arab Spring variable remains unchanged; it shows a positive impact on ROA, ROE, and Tobin's Q at the 1% level of significance in most of the regression results.

In summary, it is noticeable that controlling industries, countries and years in the one regression model, has dramatic impacts on the significance effects of the dependent variables. This was not applied to financial leverage, GDP growth, and the big four auditors, which have the same effects on ROA, ROE, and Tobin's Q. Thus, controlling for all the effects in one regression shows the effects of the independent variables in each industry type in a single country for a single year.

Table 4.32 Results - Different Regressions Results using CON as ownership concentration index by controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON = total percentage of largest owners who won 5% or more of firm's equity . This model capture the effects of industries, countries and years fixed effects; z- statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON	0.022* (2.28)	0.011 (0.87)	0.01 (1.09)	0.022*** (3.92)	0.022 (1.29)	0.002 (0.10)	0.02 (1.23)	0.022* (2.18)	0.006*** (4.54)	0.002 (1.14)	0.005*** (3.52)	0.006*** (7.44)
Firm Size	0.012 (1.67)	0.029 (0.87)	0.009 (1.13)	0.012** (2.87)	0.064*** (4.09)	0.099 (1.58)	0.076*** (4.35)	0.064*** (8.02)	-0.006*** (-5.36)	-0.002 (-0.80)	-0.005*** (-5.19)	-0.006*** (-11.48)
Firm Age	0.309* (2.04)	0.151 (0.99)	0.280* (2.45)	0.309*** (3.63)	0.44 (1.63)	0.358 (1.14)	0.483* (2.15)	0.440** (2.89)	0.027 (1.12)	0.028 (1.13)	0.021 (0.99)	0.027 (1.73)
Financial leverage	-0.698*** (-5.55)	-0.427*** (-4.53)	-0.506*** (-4.84)	-0.698*** (-6.61)	-0.698** (-2.78)	-0.666*** (-3.77)	-0.671*** (-3.97)	-0.698*** (-4.57)	-0.002 (-0.39)	-0.01 (-1.15)	-0.006 (-1.02)	-0.002 (-0.60)
Auditor	1.224* (2.27)	0.529 (1.23)	0.16 (0.43)	1.224*** (3.82)	2.935** (3.29)	0.763 (0.87)	0.646 (0.90)	2.935*** (5.36)	0.037 (0.62)	0.022 (0.50)	0.043 (1.14)	0.037 (1.11)
GDP	0.119*** (3.58)	0.112*** (3.47)	0.115*** (3.57)	0.119** (2.66)	0.232*** (3.57)	0.216*** (3.38)	0.220*** (3.47)	0.232** (2.77)	0.012** (2.95)	0.014*** (3.82)	0.013*** (3.66)	0.012* (2.23)
Arab Spring	1.625*** (4.59)	1.508*** (4.37)	1.569*** (4.59)	1.625*** (4.28)	3.076*** (5.24)	2.799*** (4.83)	2.906*** (5.09)	3.076*** (4.74)	0.213** (3.29)	0.216*** (3.48)	0.216*** (3.46)	0.213*** (3.40)
constant	0.815 (0.62)	3.928** (3.24)	1.765 (1.50)	0.815 (0.96)	0.072 (0.04)	2.992 (1.22)	1.003 (0.53)	0.072 (0.05)	0.321 (1.80)	0.947*** (5.48)	0.445** (2.67)	0.321** (2.64)
AdjR-sqr	0.14	0.30	0.32	0.14	0.13	0.29	0.30	0.13	0.14	0.26	0.27	0.14
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.33 Results - Different Regressions Results using HHI as ownership concentration index by controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; HHI is Herfindahl index = the sum of squared largest shareholders . This model capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
HHI	0.017 (1.55)	0.034 (1.19)	0.026 (1.88)	0.017** (2.65)	0.012 (0.63)	0.071 (1.40)	0.039 (1.63)	0.012 (1.07)	0.007** (3.27)	0.002 (0.55)	0.006** (2.68)	0.007*** (5.11)
Firm Size	0.012 (1.73)	0.029 (0.89)	0.008 (0.98)	0.012** (2.99)	0.065*** (4.16)	0.1 (1.59)	0.075*** (4.25)	0.065*** (8.15)	-0.006*** (-5.23)	-0.001 (-0.71)	-0.005*** (-5.07)	-0.006*** (-11.04)
Firm Age	0.318* (2.08)	0.143 (0.94)	0.274* (2.40)	0.318*** (3.70)	0.451 (1.67)	0.345 (1.10)	0.479* (2.13)	0.451** (2.96)	0.028 (1.18)	0.028 (1.13)	0.021 (1.00)	0.028 (1.81)
Financial leverage	-0.699*** (-5.54)	-0.426*** (-4.50)	-0.507*** (-4.86)	-0.699*** (-6.65)	-0.698** (-2.78)	-0.666*** (-3.77)	-0.673*** (-3.99)	-0.698*** (-4.57)	-0.002 (-0.28)	-0.01 (-1.17)	-0.006 (-1.08)	-0.002 (-0.43)
Auditor	1.258* (2.32)	0.569 (1.32)	0.134 (0.36)	1.258*** (3.91)	2.978*** (3.34)	0.841 (0.97)	0.614 (0.86)	2.978*** (5.43)	0.043 (0.72)	0.02 (0.46)	0.041 (1.07)	0.043 (1.29)
GDP	0.119*** (3.58)	0.111*** (3.45)	0.114*** (3.55)	0.119** (2.66)	0.232*** (3.57)	0.213*** (3.36)	0.219*** (3.45)	0.232** (2.77)	0.012** (2.94)	0.014*** (3.80)	0.013*** (3.63)	0.012* (2.22)
Arab Spring	1.605*** (4.54)	1.516*** (4.39)	1.557*** (4.55)	1.605*** (4.21)	3.051*** (5.19)	2.794*** (4.83)	2.882*** (5.04)	3.051*** (4.70)	0.210** (3.25)	0.214*** (3.49)	0.212*** (3.43)	0.210*** (3.36)
constant	1.608 (1.33)	2.932* (2.58)	2.036 (1.86)	1.608* (1.99)	0.75 (0.40)	2.046 (0.87)	1.631 (0.93)	0.75 (0.56)	0.532*** (3.34)	1.014*** (6.32)	0.600*** (3.97)	0.532*** (4.84)
AdjR-sqr	0.13	0.28	0.30	0.13	0.13	0.26	0.28	0.13	0.12	0.27	0.29	0.12
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.34 Results - Different Regressions Results using H_CON as ownership concentration index by controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_CON measure the power gained by the largest shareholders calculated by adding the square ownership percentage of the three largest owners . This model capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Con	0.001 (1.69)	0.001 (1.86)	0.001* (2.37)	0.001** (2.88)	0.001 (0.84)	0.001* (2.05)	0.001* (2.18)	0.001 (1.43)	0.001** (3.23)	0.001 (0.11)	0.001* (2.42)	0.001*** (5.02)
Firm Size	0.012 (1.70)	0.035 (1.07)	0.007 (0.84)	0.012** (2.95)	0.064*** (4.12)	0.088 (1.41)	0.073*** (4.14)	0.064*** (8.09)	-0.006*** (-5.23)	-0.001 (-0.68)	-0.005*** (-5.01)	-0.006*** (-11.03)
Firm Age	0.316* (2.07)	0.139 (0.90)	0.272* (2.36)	0.316*** (3.68)	0.448 (1.65)	0.337 (1.06)	0.472* (2.09)	0.448** (2.94)	0.028 (1.18)	0.028 (1.15)	0.021 (1.02)	0.028 (1.81)
Financial leverage	-0.699*** (-5.55)	-0.422*** (-4.53)	-0.505*** (-4.88)	-0.699*** (-6.66)	-0.698** (-2.78)	-0.658*** (-3.77)	-0.671*** (-3.99)	-0.698*** (-4.58)	-0.002 (-0.33)	-0.01 (-1.16)	-0.006 (-1.03)	-0.002 (-0.50)
Auditor	1.265* (2.33)	0.537 (1.25)	0.15 (0.40)	1.265*** (3.93)	2.980*** (3.34)	0.775 (0.89)	0.633 (0.88)	2.980*** (5.44)	0.046 (0.77)	0.022 (0.50)	0.046 (1.20)	0.046 (1.37)
GDP	0.118*** (3.54)	0.107*** (3.32)	0.112*** (3.47)	0.118** (2.63)	0.231*** (3.55)	0.206** (3.24)	0.215*** (3.39)	0.231** (2.76)	0.012** (2.84)	0.014*** (3.76)	0.013*** (3.54)	0.012* (2.14)
Arab Spring	1.621*** (4.59)	1.544*** (4.50)	1.576*** (4.62)	1.621*** (4.25)	3.069*** (5.23)	2.847*** (4.90)	2.914*** (5.09)	3.069*** (4.73)	0.213** (3.28)	0.214*** (3.44)	0.214*** (3.43)	0.213*** (3.39)
constant	1.555 (1.28)	2.655* (2.38)	1.925 (1.75)	1.555 (1.92)	0.688 (0.37)	1.517 (0.64)	1.426 (0.81)	0.688 (0.51)	0.519** (3.21)	1.036*** (6.54)	0.592*** (3.86)	0.519*** (4.67)
AdjR-sqr	0.13	0.20	0.24	0.13	0.12	0.26	0.28	0.12	0.12	0.25	0.23	0.12
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.35 Results - Different Regressions Results using H_ DIFF as ownership concentration index by controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_ DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages . This model capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
H_Diff	0.001 (1.30)	0.001 (1.77)	0.001* (2.06)	0.001* (2.17)	0.001 (0.73)	0.001* (2.02)	0.001* (2.06)	0.001 (1.22)	0.001** (2.74)	0.001 (0.15)	0.001* (2.22)	0.001*** (4.20)
Firm Size	0.012 (1.76)	0.034 (1.03)	0.007 (0.89)	0.012** (3.04)	0.065*** (4.14)	0.091 (1.46)	0.073*** (4.14)	0.065*** (8.12)	-0.006*** (-5.18)	-0.001 (-0.70)	-0.005*** (-4.97)	-0.006*** (-10.88)
Firm Age	0.321* (2.09)	0.152 (0.98)	0.280* (2.42)	0.321*** (3.73)	0.452 (1.67)	0.364 (1.15)	0.485* (2.15)	0.452** (2.96)	0.03 (1.23)	0.028 (1.15)	0.023 (1.07)	0.03 (1.90)
Financial leverage	-0.699*** (-5.55)	-0.423*** (-4.54)	-0.505*** (-4.89)	-0.699*** (-6.66)	-0.699** (-2.79)	-0.659*** (-3.79)	-0.672*** (-4.01)	-0.699*** (-4.59)	-0.002 (-0.28)	-0.01 (-1.16)	-0.006 (-1.04)	-0.002 (-0.43)
Auditor	1.273* (2.34)	0.548 (1.28)	0.149 (0.40)	1.273*** (3.95)	2.985*** (3.35)	0.801 (0.92)	0.628 (0.87)	2.985*** (5.45)	0.048 (0.80)	0.022 (0.50)	0.046 (1.20)	0.048 (1.43)
GDP	0.119*** (3.57)	0.108*** (3.35)	0.113*** (3.51)	0.119** (2.65)	0.232*** (3.56)	0.208** (3.27)	0.216*** (3.41)	0.232** (2.76)	0.012** (2.91)	0.014*** (3.79)	0.013*** (3.60)	0.012* (2.19)
Arab Spring	1.605*** (4.54)	1.498*** (4.30)	1.548*** (4.51)	1.605*** (4.21)	3.056*** (5.20)	2.751*** (4.74)	2.864*** (5.02)	3.056*** (4.71)	0.207** (3.22)	0.214*** (3.53)	0.210*** (3.42)	0.207*** (3.33)
constant	1.679 (1.40)	2.836** (2.61)	2.150* (1.98)	1.679* (2.09)	0.798 (0.43)	1.797 (0.78)	1.803 (1.04)	0.798 (0.60)	0.567*** (3.70)	1.036*** (6.79)	0.627*** (4.29)	0.567*** (5.39)
AdjR-sqr	0.15	0.30	0.32	0.15	0.14	0.28	0.30	0.14	0.14	0.26	0.28	0.14
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Table 4.36 Results - Different Regressions Results using CON51 as ownership concentration index by controlling industries, countries and years effects

This table presents different regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON51 measure the power gained by the largest shareholders which is a dummy variable of taking 1 if the firm has 3 owners or less owning 51% or more of it equity . This model capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM	Pooled OLS	Fixed Effect	Random Effect	GMM
CON51	1.035 (1.95)	0.413 (0.44)	0.83 (1.45)	1.035*** (3.35)	1.717 (1.77)	0.57 (0.42)	1.476 (1.64)	1.717** (3.06)	0.234** (2.75)	0.021 (0.20)	0.14 (1.77)	0.234*** (4.39)
Firm Size	0.013 (1.89)	0.03 (0.92)	0.009 (1.18)	0.013** (3.26)	0.065*** (4.16)	0.099 (1.57)	0.077*** (4.41)	0.065*** (8.19)	-0.005*** (-5.13)	-0.001 (-0.71)	-0.005*** (-5.02)	-0.005*** (-11.07)
Firm Age	0.311* (2.04)	0.149 (0.98)	0.277* (2.42)	0.311*** (3.63)	0.432 (1.60)	0.358 (1.14)	0.480* (2.13)	0.432** (2.84)	0.028 (1.17)	0.028 (1.15)	0.022 (1.04)	0.028 (1.81)
Financial leverage	-0.699*** (-5.54)	-0.426*** (-4.51)	-0.505*** (-4.86)	-0.699*** (-6.65)	-0.702** (-2.79)	-0.665*** (-3.78)	-0.671*** (-3.99)	-0.702*** (-4.59)	-0.002 (-0.36)	-0.01 (-1.16)	-0.006 (-1.03)	-0.002 (-0.55)
Auditor	1.250* (2.33)	0.528 (1.23)	0.163 (0.44)	1.250*** (3.90)	2.935*** (3.32)	0.759 (0.87)	0.658 (0.92)	2.935*** (5.36)	0.046 (0.77)	0.022 (0.51)	0.048 (1.24)	0.046 (1.38)
GDP	0.119*** (3.57)	0.112*** (3.47)	0.115*** (3.56)	0.119** (2.65)	0.231*** (3.55)	0.215*** (3.38)	0.219*** (3.46)	0.231** (2.76)	0.013** (2.99)	0.014*** (3.83)	0.013*** (3.70)	0.013* (2.23)
Arab Spring	1.610*** (4.55)	1.521*** (4.41)	1.562*** (4.57)	1.610*** (4.23)	3.062*** (5.21)	2.799*** (4.83)	2.891*** (5.05)	3.062*** (4.72)	0.209** (3.23)	0.214*** (3.48)	0.212*** (3.42)	0.209*** (3.33)
constant	1.701 (1.42)	3.375** (3.15)	2.142* (1.98)	1.701* (2.11)	0.85 (0.45)	3.009 (1.36)	1.787 (1.03)	0.85 (0.63)	0.567*** (3.64)	1.037*** (7.42)	0.626*** (4.25)	0.567*** (5.32)
AdjR-sqr	0.14	0.30	0.32	0.14	0.13	0.29	0.30	0.13	0.14	0.26	0.27	0.14
Industry effect	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

4.4.6 Testing the Effects of Blockholders Number on firms' performance.

It is important to know if the number of the largest shareholders has any effect on firm performance. Ownership indexes HHI, H_Con, H_Diff, and CON51 have shown to have positive and significant effects on firm performance, and those indexes take into account the power of the largest owners. However, to test these results, I must include the number of the largest owner in the regression model to observe how this number could change the results.

To do this, the study uses only CON as the ownership index because it is the only index that does not capture the power of the largest shareholders. All other dependent and independent variables remain the same, and the following regression model was used.

$$\begin{aligned} \text{Firm Performance}_{it} = & \beta_0 + \beta_1 \text{CON}_{it} + \beta_2 \text{Number_Owner}_{it} + \beta_3 \text{Firm Age}_{it} + \\ & \beta_5 \text{Firm Size}_{it} + \beta_6 \text{Leverage}_{it} + \beta_7 \text{Auditors}_{it} + \beta_8 \text{GDP}_{it} + \beta_9 \text{Arab Spring}_{it} + \\ & \beta_{10} \text{IndustryDummy}_{it} + \beta_{11} \text{CountryDummy}_{it} + \beta_{12} \text{YearDummies}_{it} + \varepsilon_{it} \end{aligned}$$

(5.3)

Where the following is true:

- Number_Owner. Is the number of the largest owner.

Unlike the tests in previous sections and because of the extensive data, only one regression model, the Housman test, and the Breach-Pagan test is applied; this shows that the random regression model is the best one to explain the determination of ownership structure.

Table 4.37 shows the random regression results of the relationship between the number of largest shareholders and firm performance after controlling for the effects of country, industry, and years separately. Regarding the total ownership concentration percentage, CON shows significant positive effects on all companies' performance measures at the 1% level. However, some larger owners show significant adverse effects at the 10% significance level, especially when ROA was used and year effects were controlled. Other models show the negative effects regarding the number of larger owners and firm performance, yet these effects are not significant.

To control for the possible effects between variables when they are used together in one regression model, another test was conducted by taking two variables separately with CON and the number of owners in each regression, and undertaken in 12 different models. Tables 4.38, 4.39, and 4.40 show the results of those regressions.

The number of owners show contradictory results depending on the model; it shows a significant negative relationship with ROA, ROE, and Tobin's Q when the models do not control for country, industry, and year effects. However, when the models are taking into account the effects of country, the number of owners has a negative effect on firm performance, yet none of these effects are significant.

On the other hand, approximately 70% of the whole sample has a maximum of three owners only. So, although not all the regression models show significant effects regarding the number of owners and firm performance, these results still indicate that a low number of large owners has a positive effect on firm performance. These results align with previous empirical findings, that both H_Con and H_Diff both positively and significantly affect firm performance. That is, ownership concentration indexes control for the largest three owners only and indicate that firms with fewer owners with a large concentration percentage, influence firms more positively than firms that have many larger owners.

In summary, this section attempts to find the role of the number of blockholders on firms' performance. Different regression models indicate that the number of owners has a negative impact on ROA, ROE, and Tobin's Q. Therefore, a small number of owners can control a firm, and in the study results, this influence benefits the firm.

Table 4.37 Random regressions results of the effects of the largest owner number in firms performance using all independents variables together.

This table presents Random regressions results to find if number of largest owner (Number_Owner) effects firm performance in the MENA region; ; CON = total percentage of largest owners who won 5% or more of firm's equity ; Dependent Variable : ROA ; z-statistics are within parentheses.

	Dependent Variable : ROA				Dependent Variable : ROE				Dependent Variable :Tobin_Q			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
CON	0.018*	0.014	0.020*	0.018*	0.028	0.022	0.023	0.034*	0.003*	0.003*	0.005***	0.002
	(5.86)	(4.46)	(5.39)	(5.76)	(4.63)	(3.56)	(3.09)	(4.70)	(5.63)	(5.06)	(9.67)	(4.77)
Number_Owner	-0.151	-0.093	-0.034	-0.153*	-0.211	-0.133	0.098	-0.215	-0.007	-0.005	-0.01	-0.007
	(-1.95)	(-1.22)	(-0.44)	(-1.97)	(-1.54)	(-0.98)	(0.71)	(-1.57)	(-0.74)	(-0.46)	(-0.99)	(-0.68)
Firm Size	0.018***	0.017***	0.012*	0.018***	0.070***	0.069***	0.064***	0.071***	-0.003***	-0.004***	-0.006***	-0.004***
	(3.60)	(3.49)	(2.29)	(3.59)	(8.08)	(8.00)	(7.18)	(8.12)	(-5.53)	(-5.57)	(-8.78)	(-5.84)
Firm Age	0.804***	0.602***	0.512***	0.805***	1.198***	0.927***	0.705***	1.211***	0.078***	0.068***	0.037***	0.074***
	(10.42)	(7.72)	(6.09)	(10.40)	(8.73)	(6.65)	(4.76)	(8.79)	(7.78)	(6.64)	(3.41)	(7.42)
Financial leverage	-0.690***	-0.664***	-0.729***	-0.690***	-0.626***	-0.592***	-0.737***	-0.627***	-0.001	-0.001	-0.001	-0.001
	(-16.73)	(-16.30)	(-17.82)	(-16.73)	(-8.55)	(-8.12)	(-10.24)	(-8.55)	(-0.11)	(-0.13)	(-0.11)	(-0.11)
Auditor	1.080***	1.399***	0.816**	1.079***	2.447***	2.875***	2.387***	2.464***	0.152***	0.167***	0.016	0.146***
	(3.99)	(5.21)	(2.58)	(3.99)	(5.09)	(5.99)	(4.29)	(5.12)	(4.35)	(4.77)	(0.40)	(4.18)
GDP	0.165***	0.159***	0.119**	0.171***	0.331***	0.323***	0.233**	0.339***	0.014*	0.014*	0.011*	0.016**
	(3.89)	(3.80)	(2.72)	(3.95)	(4.39)	(4.32)	(3.02)	(4.41)	(2.53)	(2.48)	(1.98)	(2.80)
Arab Spring	0.980***	0.800**	1.642***	0.955**	1.140*	0.898	3.143***	0.926	0.317***	0.308***	0.191***	0.374***
	(3.37)	(2.78)	(4.73)	(3.08)	(2.20)	(1.75)	(5.14)	(1.68)	(8.43)	(8.20)	(4.29)	(9.33)
constant	1.557**	2.785***	1.579	1.545*	3.150**	4.797***	0.437	2.827*	0.619***	0.559***	0.479***	0.435***
	(2.62)	(4.67)	(1.66)	(2.25)	(2.98)	(4.50)	(0.26)	(2.32)	(8.05)	(7.17)	(3.92)	(4.92)
AdjR-sqr	0.08	0.11	0.12	0.15	0.06	0.09	0.11	0.14	0.08	0.11	0.12	0.13
Industry effect	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO
Year Effects	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.38 Random regressions results of the effects of the largest owner number in firms performance. Dependent variable is ROA.

This table presents Random regressions results to find the relationship between ownership structure and firm performance in the MENA region; this model test the effects of different variables separately; Number_Owner is the number of largest owner CON = total percentage of largest owners who won 5% or more of firm's equity; Dependent Variable : ROA; z-statistics are within parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 11	Model 12	Model 13
CON	0.009 (4.04)	0.013 (5.94)	0.019* (5.83)	0.004 (2.63)	0.008 (4.18)	0.014 (3.93)	0.011 (4.67)	0.015 (5.67)	0.020* (5.73)	0.017 (4.27)	0.019* (5.97)	0.018 (5.56)
Number_Owner	-0.156* (-2.03)	-0.355*** (-4.71)	-0.169* (-2.14)	-0.071 (-0.94)	-0.242** (-3.25)	-0.071 (-0.91)	-0.086 (-1.06)	-0.098 (-1.24)	-0.044 (-0.54)	-0.147 (-1.91)	-0.352*** (-4.65)	-0.169* (-2.14)
Firm Size	0.012* (2.46)			0.012** (2.58)			0.001 (0.24)			0.012* (2.49)		
Firm Age	0.817*** (10.32)			0.600*** (7.51)			0.526*** (6.08)			0.824*** (10.39)		
Financial leverage		-0.663*** (-16.05)			-0.634*** (-15.64)			-0.724*** (-17.81)			-0.663*** (-16.04)	
Auditor		1.422*** (5.32)			1.776*** (6.73)			1.056*** (3.36)			1.436*** (5.36)	
GDP			0.155*** (3.57)			0.165*** (3.86)			0.118** (2.62)			0.162*** (3.65)
Arab Spring			1.392*** (4.69)			1.068*** (3.65)			1.695*** (4.74)			1.468*** (4.65)
constant	1.045* (1.97)	4.395*** (11.86)	1.206** (2.60)	2.371*** (4.44)	1.495*** (3.60)	1.185* (2.43)	2.406* (2.55)	5.484*** (6.52)	3.397*** (3.87)	0.872 (1.44)	4.575*** (9.53)	0.853 (1.43)
Adjusted R-sqr	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	0.13	0.15	0.15	0.15
Industry effect	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1 – 3 : does not capture the effects of industries, countries and years fixed effects

Models 4 – 6 : only capture industries fixed effects

Models 7 – 9 : only capture countries fixed effects

Models 10 – 12 : only capture years fixed effects

Table 4.39 Random regressions results of the effects of the largest owner number in firms performance. Dependent variable is ROE.

This table presents Random regressions results find the relationship between ownership structure and firm performance in the MENA region; this model test the effects of diffrent variables seprety ; Number_Owner is the number of largest owner CON = total percentage of largest owners who won 5% or more of firm's equity ; Dependent Variable : ROE; z-statistics are within parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 11	Model 12	Model 13
CON	0.01 (3.20)	0.019 (4.93)	0.033* (5.04)	0.004 (2.16)	0.012 (3.50)	0.025 (3.56)	0.008 (2.57)	0.017 (3.70)	0.031 (4.28)	0.031 (3.52)	0.037* (5.10)	0.037* (4.85)
Number_Owner	-0.178* (-1.33)	-0.588*** (-4.38)	-0.293* (-2.12)	-0.071 (-0.53)	-0.428** (-3.20)	-0.163 (-1.18)	0.017 (0.12)	-0.045 (-0.33)	-0.066 (-0.47)	-0.159 (-1.18)	-0.577*** (-4.28)	-0.295* (-2.12)
Firm Size	0.073*** (8.66)			0.073*** (8.79)			0.055*** (6.19)			0.073*** (8.69)		
Firm Age	1.190*** (8.61)			0.912*** (6.49)			0.725*** (4.84)			1.206*** (8.71)		
Financial leverage		-0.523*** (-7.11)			-0.484*** (-6.65)			-0.672*** (-9.35)			-0.522*** (-7.09)	
Auditor		3.489*** (7.32)			3.992*** (8.43)			3.112*** (5.60)			3.531*** (7.40)	
GDP			0.354*** (4.64)			0.367*** (4.86)			0.233** (2.98)			0.363*** (4.67)
Arab Spring			2.053*** (3.95)			1.622** (3.14)			3.147*** (5.08)			2.106*** (3.81)
constant	1.155 (1.25)	6.394*** (9.69)	2.703*** (3.32)	2.846** (3.03)	2.313** (3.10)	0.468 (0.54)	3.293* (2.02)	6.914*** (4.65)	4.560** (2.99)	0.694 (0.65)	6.849*** (8.00)	2.347* (2.24)
Adjusted R-sqr	0.06	0.06	0.06	0.09	0.09	0.09	0.11	0.11	0.11	0.14	0.14	0.14
Industry effect	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1 – 3 : does not capture the effects of industries, countries and years fixed effects

Models 4 – 6 : only capture industries fixed effects

Models 7 – 9 : only capture countries fixed effects

Models 10 – 12 : only capture years fixed effects

Table 4.40 Random regressions results of the effects of largest owner number in firms performance. Dependent variable is Tobin's_Q.

This table presents Random regressions results find the relationship between ownership structure and firm performance in the MENA region; this model test the effects of diffrent variables sepretyly ; Number_Owner is the number of largest owner CON = total percentage of largest owners who won 5% or more of firm's equity ; Dependent Variable :Tobin_Q ; z-statistics are within parentheses.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 11	Model 12	Model 13
CON	0.002 (3.65)	0.002 (4.42)	0.003* (5.56)	0.002 (3.11)	0.002 (3.61)	0.003* (4.78)	0.004*** (9.27)	0.004** (8.64)	0.005*** (8.99)	0.002 (3.19)	0.002 (3.89)	0.002 (4.59)
Number_Owner	-0.022* (-2.24)	-0.032** (-3.25)	-0.006* (-0.59)	-0.018 (-1.83)	-0.025* (-2.58)	-0.001 (-0.11)	-0.015 (-1.52)	-0.012 (-1.21)	-0.007 (-0.72)	-0.023* (-2.33)	-0.032*** (-3.33)	-0.005 (-0.49)
Firm Size	-0.002*** (-3.29)			-0.002** (-3.24)			-0.006*** (-8.84)			-0.002*** (-3.31)		
Firm Age	0.081*** (8.03)			0.070*** (6.85)			0.034** (3.13)			0.080*** (7.92)		
Financial leverage		-0.006 (-1.05)			-0.004 (-0.73)			-0.008 (-1.50)			-0.006 (-1.06)	
Auditor		0.125*** (3.61)			0.145*** (4.19)			-0.023 (-0.56)			0.122*** (3.54)	
GDP			0.013* (2.29)			0.013* (2.38)			0.011 (1.89)			0.014* (2.56)
Arab Spring			0.304*** (8.16)			0.288*** (7.73)			0.182*** (4.06)			0.362*** (9.15)
constant	1.003*** (14.94)	1.333*** (27.86)	1.004*** (17.19)	0.940*** (13.74)	1.165*** (21.39)	0.886*** (14.24)	0.659*** (5.62)	0.774*** (7.15)	0.601*** (5.46)	0.927*** (12.04)	1.245*** (20.09)	0.787*** (10.52)
Adjusted R-sqr	0.08	0.08	0.08	0.011	0.011	0.011	0.12	0.12	0.12	0.14	0.14	0.14
Industry effect	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes	NO	NO	NO
Year Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	Yes	Yes	Yes
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1 – 3 : does not capture the effects of industries, countries and years fixed effects

Models 4 – 6 : only capture industries fixed effects

Models 7 – 9 : only capture countries fixed effects

Models 10 – 12 : only capture years fixed effects

4.4.7 Testing the Endogeneity of Ownership Concentration and Firm Performance

Using panel-data regressions presents a major problem when considering the exogenous relationship between explanatory variables. Thus, the endogeneity issue between ownership concentration and firm performance is not addressed in these regressions. Many researchers in this field have stated that ownership concentration should be viewed as endogenous. Thus, ownership concentration is also affected by firm performance. Therefore, dealing with the endogeneity problem when studying ownership structure is critical (Cho, 1998; Demsetz, 1983; Himmelberg et al., 1999; Holderness et al., 1999; Morck et al., 1988).

However, Himmelberg et al. (1999) believed that instrumental variables (IV) can control the endogeneity issue between ownership concentration and firm performance. So to mitigate the unobservable heterogeneity that may exist across firms, this study uses a 2SLS.

It has been argued in many studies that firm performance can influence ownership concentration. So this study treats ownership concentration as an endogenous variable. Also, the study uses rule of law (explained in detail in chapter seven) as an instrumental variable. The rule of law has been shown in some studies to positively affect ownership concentration. This instrument variable was carefully chosen; it is highly correlated with ownership concentration but has no impact on firm performance. The study ended up with the following 2SLS equation:

$$\begin{aligned} Firm\ Performance_{it} = & \beta_0 + \beta_1 Ownership\ Concentration_{it} + \beta_2 Firm\ Age_{it} + \\ & \beta_3 Firm\ Size_{it} + \beta_4 Leverage_{it} + \beta_5 Auditors_{it} + \beta_6 GDP_{it} + \beta_7 Arab\ Spring_{it} + \\ & \beta_8 Industry\ Dummy_{it} + \beta_9 Year\ Dummies_{it} + \varepsilon_{it} \end{aligned} \quad (5.4a)$$

$$Ownership\ Concentration = \beta_0 + \beta_1 ROL_{it} + \varepsilon_{it} \quad (5.4b)$$

Where, ROL equals the role of law index, which is the confidence degree in the quality of contract enforcement, property rights, the police, the courts, crime, and violence.

Given this 2SLS, first by estimating equation (4a) to obtain the value of ownership concentration, and then replacing this value in equation (4b) to examine the relationship between ownership concentration and firm performance. However, putting a strong instrument in place is very important to avoid weak instrumental variable biases (Stock et al., 2002). Accordingly, the first stage IV test is used to examine the weakness of the instrumental variable (CON = rule of law); following Stock and Yogo (2005) tabulation of the significant

values for weak instruments tests, the study rejects the null of a relative bias greater than 10%, and the test's results show that the instruments are not weak and are valid in the model.

Tables 4.41, 4.42, 4.43, 4.44, and 4.45 show 2SLS regression results for the relationship between ownership concentration and firm performance after controlling for endogeneity. The study uses five concentration indexes: CON, HHI, H_Con, H_Diff, and CON51 respectively. Also, it takes into account the effects of industry and year separately that model with country effects show weakness and excluded from the study. The results show that all concentration indexes used in this study have significant positive effects on ROA, ROE, and Tobin's Q.

Regarding firm factors, firm size shows a different significance level. Although the size of the firm still affects ROA positively, this effect is only significant in the model that uses CON51 as the ownership concentration index. However, firm size has a significant positive impact on ROE and a significant negative effect on Tobin's Q at the 1% significance level in most models.

Firm age shows significant positive effects on ROA and ROE in all models, save for the model that uses CON51 as the ownership concentration index. Nevertheless, the age of the firm does not show any significant effects on Tobin's Q. Financial leverage affects both ROA and ROE negatively at the 1% level of significance using all regression models; nonetheless, this effect is not significant with Tobin's Q.

The auditor variable shows a positive relationship with ROA, ROE, and Tobin's Q in all models at a 1% significance level. Also, GDP growth has a positive impact on all firm performance measures; mostly, it has a 1% level of significance with ROA and ROE and a 5% level of significance with Tobin's Q. The Arab Spring variable has a positive impact on Tobin's Q in all models at a 1% level of significance. It also has significant positive effects on ROA and ROE, but with models that have CON, HHI, and H_Con as their ownership concentration index.

Table 4.41 Results of using 2SLS regression models, CON is ownership concentration index.

This table presents 2SLS regressions results to find the relationship between ownership structure and firm performance in the MENA region; CON = total percentage of largest owners who won 5% or more of firm's equity ; This model capture the effects of industries, countries and years fixed effects seprety; z-statistics are within parentheses.

	Dependent Variable : ROA			Dependent Variable : ROE			Dependent Variable :Tobin_Q		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
CON	0.485** (2.62)	0.492** (3.01)	0.93 (1.64)	0.905** (2.67)	0.884** (3.02)	1.797 (1.66)	0.083** (2.91)	0.076** (3.24)	0.138 (1.69)
Firm Size	0.001 (0.11)	0.001 (0.01)	0.011 (-0.53)	0.034 (1.76)	0.039* (2.29)	0.014 (0.33)	-0.007*** (-4.31)	-0.006*** (-4.84)	-0.008** (-2.63)
Firm Age	0.433* (2.19)	0.378* (2.57)	0.245 (0.60)	0.489 (1.36)	0.519* (1.97)	0.112 (0.14)	0.012 (0.38)	0.032 (1.41)	-0.011 (-0.18)
Financial leverage	-0.772*** (-5.87)	-0.767*** (-5.79)	-0.840*** (-4.50)	-0.783*** (-3.85)	-0.779*** (-3.81)	-0.919** (-2.85)	-0.015 (-1.38)	-0.015 (-1.46)	-0.023 (-1.13)
Auditor	2.685*** (3.35)	2.706*** (4.28)	4.524 (1.95)	5.517*** (3.76)	5.258*** (4.65)	9.210* (2.07)	0.437*** (3.59)	0.373*** (4.20)	0.667* (2.00)
GDP	0.216** (3.01)	0.215** (3.01)	0.231* (1.97)	0.429** (3.23)	0.426** (3.29)	0.459* (2.04)	0.023* (2.14)	0.022* (2.24)	0.025 (1.49)
Arab Spring	6.086** (2.94)	6.134** (3.26)	8.425 (1.81)	10.748** (2.85)	10.534** (3.15)	15.407 (1.73)	1.183*** (3.72)	1.123*** (4.15)	1.476* (2.20)
constant	28.630** (2.64)	29.167** (3.21)	46.652 (1.66)	54.212** (2.74)	52.504** (3.24)	90.485 (1.69)	4.005* (2.41)	3.484** (2.67)	6.26 (1.55)
AdjR-sqr	0.08	0.14	0.13	0.06	0.12	0.11	0.08	0.14	0.13
Industry effect	NO	YES	NO	NO	YES	NO	NO	YES	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

First stage IV test shows that model with country effects are weakness by greater than 10 percent and excluded from the study.

Models 1, 4 and 7 : does not capture the effects of industries, countries and years fixed effects

Models 2, 5 and 8 : only capture industries fixed effects

Models 3, 6 and 9 : only capture years fixed effects

Table 4.42 Results of using 2SLS regression models, HHI is ownership concentration index.

This table presents 2SLS regressions results to find the relationship between ownership structure and firm performance in the MENA region; HHI is Herfindahl index = the sum of squared largest shareholders ; This model capture the effects of industries, countries and years fixed effects seprety; z- statistics are within parentheses.

	Dependent Variable : ROA			Dependent Variable : ROE			Dependent Variable :Tobin_Q		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
HHI	0.284*** (3.37)	0.307*** (3.81)	0.323** (3.20)	0.531*** (3.47)	0.552*** (3.82)	0.624*** (3.36)	0.049*** (4.07)	0.048*** (4.31)	0.048*** (3.58)
Firm Size	0.001 (0.01)	0.002 (0.21)	0.001 (0.16)	0.037* (2.53)	0.036* (2.57)	0.033* (2.08)	-0.007*** (-6.00)	-0.006*** (-6.32)	-0.007*** (-5.82)
Firm Age	0.501*** (3.72)	0.349** (2.99)	0.481*** (3.33)	0.615* (2.55)	0.465* (2.25)	0.567* (2.16)	0.023 (1.16)	0.028 (1.57)	0.024 (1.16)
Financial leverage	-0.755*** (-6.79)	-0.746*** (-6.81)	-0.763*** (-6.75)	-0.751*** (-4.44)	-0.742*** (-4.37)	-0.771*** (-4.42)	-0.012 (-1.90)	-0.012 (-1.91)	-0.012 (-1.83)
Auditor	2.431*** (4.33)	2.738*** (5.41)	2.661*** (4.07)	5.050*** (4.95)	5.317*** (5.86)	5.613*** (4.65)	0.395*** (5.18)	0.379*** (5.75)	0.392*** (4.66)
GDP	0.223*** (4.16)	0.226*** (4.15)	0.234*** (4.12)	0.442*** (4.45)	0.445*** (4.45)	0.466*** (4.35)	0.024*** (3.34)	0.024*** (3.37)	0.026*** (3.48)
Arab Spring	1.415*** (3.83)	1.375*** (3.62)	1.133** (3.12)	2.040** (3.15)	1.997** (3.02)	1.317* (2.00)	0.389*** (8.00)	0.390*** (8.00)	0.396*** (8.42)
constant	5.097*** (3.35)	6.260*** (4.86)	4.696** (3.17)	10.342*** (3.84)	11.401*** (5.13)	9.401*** (3.52)	0.003 (0.01)	0.05 (0.28)	0.044 (0.22)
AdjR-sqr	0.07	0.13	0.12	0.05	0.11	0.10	0.07	0.13	0.12
Industry effect	NO	YES	NO	NO	YES	NO	NO	YES	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

First stage IV test shows that model with country effects are weakness by greater than 10 percent and excluded from the study.

Models 1, 4 and 7 : does not capture the effects of industries, countries and years fixed effects

Models 2, 5 and 8 : only capture industries fixed effects

Models 3, 6 and 9 : only capture years fixed effects

Table 4.43 Results of using 2SLS regression models, H_CON is ownership concentration index.

This table presents 2SLS regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_CON measure the power gained by the largest shareholders calculated by adding the square ownership percentage of the three largest owners ; This model capture the effects of industries, countries and years fixed effects seprely; z-statistics are within parentheses.

	Dependent Variable : ROA			Dependent Variable : ROE			Dependent Variable :Tobin_Q		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
H_Con	0.003** (3.25)	0.003*** (3.66)	0.003** (3.19)	0.006*** (3.33)	0.006*** (3.67)	0.006*** (3.36)	0.001*** (3.87)	0.001*** (4.12)	0.001*** (3.58)
Firm Size	0.003 (0.35)	0.005 (0.56)	0.003 (0.39)	0.031 (1.89)	0.03 (1.96)	0.029 (1.75)	-0.007*** (-5.59)	-0.007*** (-5.94)	-0.007*** (-5.72)
Firm Age	0.469** (3.16)	0.327** (2.59)	0.465** (3.10)	0.555* (2.08)	0.426 (1.90)	0.537* (1.96)	0.018 (0.82)	0.025 (1.30)	0.022 (1.03)
Financial leverage	-0.753*** (-6.90)	-0.745*** (-6.91)	-0.755*** (-6.90)	-0.747*** (-4.48)	-0.738*** (-4.41)	-0.755*** (-4.48)	-0.012 (-1.76)	-0.012 (-1.78)	-0.011 (-1.72)
Auditor	2.738*** (4.12)	3.032*** (5.11)	2.759*** (4.05)	5.616*** (4.65)	5.841*** (5.52)	5.798*** (4.63)	0.446*** (4.83)	0.423*** (5.39)	0.406*** (4.63)
GDP	0.213*** (3.89)	0.215*** (3.85)	0.218*** (3.93)	0.424*** (4.16)	0.425*** (4.15)	0.434*** (4.13)	0.023** (3.02)	0.022** (3.04)	0.023** (3.26)
Arab Spring	1.172*** (3.35)	1.117** (3.09)	1.176** (3.22)	1.584* (2.56)	1.531* (2.42)	1.396* (2.11)	0.347*** (7.48)	0.349*** (7.53)	0.401*** (8.48)
constant	5.460** (3.27)	6.530*** (4.68)	5.313** (3.24)	11.008*** (3.71)	11.876*** (4.94)	10.579*** (3.57)	0.062 (0.26)	0.01 (0.05)	0.131 (0.60)
AdjR-sqr	0.09	0.15	0.14	0.07	0.14	0.13	0.09	0.16	0.14
Industry effect	NO	YES	NO	NO	YES	NO	NO	YES	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

First stage IV test shows that model with country effects are weakness by greater than 10 percent and excluded from the study.

Models 1, 4 and 7 : does not capture the effects of industries, countries and years fixed effects

Models 2, 5 and 8 : only capture industries fixed effects

Models 3, 6 and 9 : only capture years fixed effects

Table 4.44 Results of using 2SLS regression models; H_ DIFF is ownership concentration index.

This table presents 2SLS regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_ DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages ; This model capture the effects of industries, countries and years fixed effects seprety; Standard errors are within parentheses.

	Dependent viable : ROA			Dependent viable : ROE			Dependent viable :Tobin_Q		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
H_Diff	0.003*** (3.47)	0.003*** (3.90)	0.003*** (3.40)	0.005*** (3.59)	0.005*** (3.93)	0.005*** (3.62)	0.001*** (4.19)	0.001*** (4.40)	0.001*** (3.83)
Firm Size	0.001 (0.12)	0.004 (0.48)	0.001 (0.17)	0.035* (2.39)	0.032* (2.24)	0.033* (2.24)	-0.007*** (-6.05)	-0.007*** (-6.28)	-0.007*** (-6.15)
Firm Age	0.560*** (4.62)	0.384*** (3.46)	0.556*** (4.55)	0.725*** (3.36)	0.528** (2.69)	0.714** (3.24)	0.034 (1.84)	0.033* (1.96)	0.035* (1.99)
Financial leverage	-0.751*** (-7.14)	-0.741*** (-7.25)	-0.753*** (-7.14)	-0.743*** (-4.68)	-0.732*** (-4.62)	-0.751*** (-4.69)	-0.011 (-1.93)	-0.011 (-1.90)	-0.01 (-1.86)
Auditor	2.394*** (4.43)	2.787*** (5.48)	2.416*** (4.35)	4.976*** (5.11)	5.402*** (5.99)	5.135*** (5.09)	0.388*** (5.37)	0.385*** (5.86)	0.355*** (5.10)
GDP	0.214*** (4.12)	0.217*** (4.09)	0.223*** (4.20)	0.425*** (4.40)	0.429*** (4.39)	0.444*** (4.43)	0.023** (3.28)	0.023** (3.29)	0.024*** (3.56)
Arab Spring	0.459 (1.37)	0.319 (0.93)	0.415 (1.13)	0.255 (0.42)	0.098 (0.16)	-0.075 (-0.11)	0.226*** (5.26)	0.226*** (5.37)	0.288*** (6.31)
constant	2.484** (3.01)	3.688*** (5.03)	2.443** (2.77)	5.457*** (3.90)	6.775*** (5.63)	5.030** (3.27)	0.445*** (3.88)	0.449*** (4.52)	0.294* (2.52)
AdjR-sqr	0.08	0.12	0.11	0.06	0.09	0.09	0.07	0.10	0.09
Industry effect	NO	YES	NO	NO	YES	NO	NO	YES	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

First stage IV test shows that model with country effects are weakness by greater than 10 percent and excluded from the study.

Models 1, 4 and 7 : does not capture the effects of industries, countries and years fixed effects

Models 2, 5 and 8 : only capture industries fixed effects

Models 3, 6 and 9 : only capture years fixed effects

Table 4.45 Results of using 2SLS regression models, CON51 is ownership concentration index.

This table presents 2SLS regressions results to find the relationship between ownership structure and firm performance in the MENA region; H_ DIFF measure the power gained by the largest shareholders which is the square difference between the largest and second largest ownership percentage added to the square difference of the second and third largest ownership percentages ; This model capture the effects of industries, countries and years fixed effects sepretry; z-statistics are within parentheses.

	Dependent Variable : ROA			Dependent Variable : ROE			Dependent Variable :Tobin_Q		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
H_Diff	0.003*** (3.47)	0.003*** (3.90)	0.003*** (3.40)	0.005*** (3.59)	0.005*** (3.93)	0.005*** (3.62)	0.001*** (4.19)	0.001*** (4.40)	0.001*** (3.83)
Firm Size	0.001 (0.12)	0.004 (0.48)	0.001 (0.17)	0.035* (2.39)	0.032* (2.24)	0.033* (2.24)	-0.007*** (-6.05)	-0.007*** (-6.28)	-0.007*** (-6.15)
Firm Age	0.560*** (4.62)	0.384*** (3.46)	0.556*** (4.55)	0.725*** (3.36)	0.528** (2.69)	0.714** (3.24)	0.034 (1.84)	0.033* (1.96)	0.035* (1.99)
Financial leverage	-0.751*** (-7.14)	-0.741*** (-7.25)	-0.753*** (-7.14)	-0.743*** (-4.68)	-0.732*** (-4.62)	-0.751*** (-4.69)	-0.011 (-1.93)	-0.011 (-1.90)	-0.01 (-1.86)
Auditor	2.394*** (4.43)	2.787*** (5.48)	2.416*** (4.35)	4.976*** (5.11)	5.402*** (5.99)	5.135*** (5.09)	0.388*** (5.37)	0.385*** (5.86)	0.355*** (5.10)
GDP	0.214*** (4.12)	0.217*** (4.09)	0.223*** (4.20)	0.425*** (4.40)	0.429*** (4.39)	0.444*** (4.43)	0.023** (3.28)	0.023** (3.29)	0.024*** (3.56)
Arab Spring	0.459 (1.37)	0.319 (0.93)	0.415 (1.13)	0.255 (0.42)	0.098 (0.16)	-0.075 (-0.11)	0.226*** (5.26)	0.226*** (5.37)	0.288*** (6.31)
constant	2.484** (3.01)	3.688*** (5.03)	2.443** (2.77)	5.457*** (3.90)	6.775*** (5.63)	5.030** (3.27)	0.445*** (3.88)	0.449*** (4.52)	0.294* (2.52)
AdjR-sqr	0.08	0.12	0.11	0.06	0.09	0.09	0.07	0.10	0.09
Industry effect	NO	YES	NO	NO	YES	NO	NO	YES	NO
Country effects	NO	NO	NO	NO	NO	NO	NO	NO	NO
Year Effects	NO	NO	YES	NO	NO	YES	NO	NO	YES
Observations	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

First stage IV test shows that model with country effects are weakness by greater than 10 percent and excluded from the study.

Models 1, 4 and 7 : does not capture the effects of industries, countries and years fixed effects

Models 2, 5 and 8 : only capture industries fixed effects

Models 3, 6 and 9 : only capture years fixed effects

4.5 Other robustness checks

The study carries out seven robustness tests as shown in Tables 4.46, 4.47 and 4.48. Each table has different dependent variable: ROA, ROE and Tobin's_Q respectively. The first five columns in the robustness test follow the work done by (Kim, Miller, Wan, & Wang, 2016); Column (1) shows the regression results when industry is replaced with firm fixed effects. Column (2) presents the results using Year-level clustering. Column (3) reports the results using two-way clustering by industry and year. As shown in table 4.2, Turkey and Egypt represent respectively 23% and 20% of the total study sample. In order to validate the results and to ensure that one country does not affect the results, the study follows the methodology of (DeFond, Hung, & Trezevant, 2007). Columns (4 and 5) reports the results model after excluding Turkey and Egypt. In addition, to eliminate the biases of effect of firms market capitalisation, firms are divided into two groups, Group A with high market capitalisation (above firm size mean) and Group B with low market capitalisation (below firm size mean). Results presented in Columns (6 and 7) are by running regression for each group only. As noticed in the different regressions outcomes, the results are mostly constant in the seven tests and this strongly supports the robustness of the study results.

Table 4.46 Robustness tests, Dependent Variable: ROA

	Dependent Variable : ROA													
	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CON	0.022*** (4.29)	0.029*** (10.83)	0.029*** (3.91)	0.024*** (3.93)	0.030*** (5.03)	0.028*** (4.43)	0.038*** (4.67)							
HHI								0.021*** (3.47)	0.029*** (11.81)	0.025** (3.40)	0.023** (3.15)	0.036*** (5.01)	0.001** (0.07)	0.057*** (5.74)
Firm Size	0.017*** (3.59)	0.018*** (7.43)	0.012* (2.49)	0.017** (2.80)	0.025*** (4.83)	-0.007 (-1.59)	0.734*** (8.55)	0.017*** (3.47)	0.017*** (7.18)	0.012** (2.70)	0.015* (2.56)	0.024*** (4.64)	-0.005 (-1.11)	0.707*** (8.26)
Firm Age	0.608*** (7.82)	0.818*** (10.40)	0.513*** (5.82)	0.941*** (10.63)	0.662*** (7.55)	0.270** (2.80)	0.768*** (6.27)	0.601*** (7.71)	0.805*** (10.22)	0.525*** (5.73)	0.934*** (10.54)	0.642*** (7.30)	0.286** (2.96)	0.731*** (5.95)
Financial leverage	-0.663*** (-16.27)	-0.688*** (-10.20)	-0.730*** (-6.42)	-0.625*** (-13.27)	-0.730*** (-15.14)	-0.755*** (-15.84)	-0.748*** (-11.04)	-0.664*** (-16.28)	-0.691*** (-10.31)	-0.732*** (-6.50)	-0.625*** (-13.27)	-0.732*** (-15.17)	-0.751*** (-15.70)	-0.767*** (-11.32)
Auditor	1.364*** (5.11)	1.018** (3.76)	0.815* (2.18)	0.920** (3.04)	1.392*** (4.68)	0.175* (0.56)	0.021* (0.05)	1.394*** (5.20)	1.057** (3.88)	0.852* (2.31)	0.947** (3.13)	1.464*** (4.89)	0.035** (0.11)	0.132** (0.29)
GDP	0.157*** (3.75)	0.166 (2.03)	0.120* (2.37)	0.277*** (3.99)	0.128** (2.99)	0.198*** (4.34)	0.153* (2.01)	0.159*** (3.79)	0.17 (2.12)	0.120* (2.39)	0.281*** (4.05)	0.132** (3.07)	0.192*** (4.19)	0.164* (2.16)
Arab Spring	0.877** (3.13)	1.091*** (8.45)	1.702** (3.16)	0.897* (2.53)	1.397*** (4.20)	0.614* (1.65)	0.252* (0.59)	0.671* (2.44)	0.870** (5.57)	1.680** (3.18)	0.707* (2.03)	1.092*** (3.36)	0.254* (0.70)	0.039* (0.09)
constant	3.063*** (5.56)	1.985 (2.25)	1.571 (1.35)	2.658*** (4.14)	2.002** (3.26)	3.745*** (4.88)	6.535*** (7.45)	2.113*** (4.44)	0.883 (1.11)	2.626* (2.66)	1.653** (3.04)	0.798 (1.55)	5.479*** (8.03)	5.092*** (6.72)
AdjR-sqr	0.105	0.08	0.113	0.056	0.065	0.103	0.089	0.104	0.079	0.111	0.078	0.081	0.097	0.091
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

CON = Total percentage of largest owners who won 5% or more of firm's equity , HHI = Herfindahl Index, the squared sum of the largest ownership ; z-statistics are within parentheses

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.47 Robustness tests, Dependent Variable: ROE

	Dependent Variable : ROE													
	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CON	0.032*** (3.43)	0.043*** (6.63)	0.031* (2.37)	0.029*** (2.80)	0.044*** (4.10)	0.028*** (4.43)	0.054*** (4.14)							
HHI								0.027* (2.50)	0.038** (5.15)	0.022* (1.80)	0.023* (1.83)	0.044*** (3.49)	0.020* (0.07)	0.069*** (4.31)
Firm Size	0.070*** (8.10)	0.072*** (15.66)	0.064*** (6.30)	0.059*** (5.69)	0.081*** (8.90)	-0.007 (-1.59)	1.117*** (8.10)	0.069*** (8.01)	0.071*** (15.64)	0.065*** (6.53)	0.058*** (5.54)	0.081*** (8.78)	-0.005 (-1.11)	1.081*** (7.85)
Firm Age	0.936*** (6.73)	1.228*** (8.91)	0.704*** (4.47)	1.451*** (9.47)	0.922*** (5.90)	0.270** (2.80)	1.143*** (5.81)	0.929*** (6.66)	1.214*** (8.74)	0.721*** (4.48)	1.444*** (9.42)	0.902*** (5.75)	0.286** (2.96)	1.110*** (5.62)
Financial leverage	-0.590*** (-8.10)	-0.624*** (-5.29)	-0.739*** (-4.29)	-0.384*** (-4.72)	-0.696*** (-8.10)	-0.755*** (-15.84)	-1.217*** (-11.17)	-0.590*** (-8.10)	-0.626*** (-5.36)	-0.741*** (-4.32)	-0.384*** (-4.71)	-0.698*** (-8.12)	-0.751*** (-15.70)	-1.237*** (-11.34)
Auditor	2.825*** (5.92)	2.378** (4.48)	2.409*** (3.90)	2.243*** (4.29)	3.187*** (6.01)	0.175** (0.56)	0.699** (0.95)	2.854*** (5.95)	2.416** (4.65)	2.454*** (4.03)	2.265*** (4.33)	3.242*** (6.07)	0.035** (0.11)	0.853* (1.17)
GDP	0.320*** (4.28)	0.333* (2.53)	0.233** (2.79)	0.636*** (5.30)	0.255*** (3.34)	0.198*** (4.34)	0.293* (2.40)	0.322*** (4.30)	0.338* (2.60)	0.233** (2.78)	0.640*** (5.34)	0.260*** (3.39)	0.192*** (4.19)	0.307* (2.52)
Arab Spring	1.008* (2.01)	1.117* (1.64)	3.175** (2.93)	0.596* (0.97)	1.860** (3.14)	0.614* (1.65)	0.099* (0.14)	0.706* (1.44)	0.792* (1.13)	3.149** (2.92)	0.324 (0.54)	1.409* (2.43)	0.254* (0.70)	0.234* (0.35)
constant	5.195*** (5.28)	3.45 (2.16)	0.895 (0.44)	5.384*** (4.85)	3.890*** (3.56)	3.745*** (4.88)	9.917*** (7.04)	3.798*** (4.46)	1.801 (1.23)	2.058 (1.16)	4.040*** (4.29)	2.020* (2.20)	5.479*** (8.03)	7.712*** (6.32)
AdjR-sqr	0.08	0.075	0.104	0.07	0.065	0.103	0.089	0.075	0.065	0.103	0.056	0.065	0.103	0.089
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

CON = Total percentage of largest owners who won 5% or more of firm's equity , HHI = Herfindahl Index, the squared sum of the largest ownership ; z-statistics are within parentheses

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

Table 4.48 Robustness tests, Dependent Variable: Tobin's_Q

	Dependent Variable : TOBIN_Q													
	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CON	0.003*** (5.08)	0.003*** (6.04)	0.006*** (6.96)	0.003*** (4.25)	0.003*** (4.58)	0.003*** (4.26)	0.004*** (3.72)							
HHI								0.005*** (6.79)	0.005** (4.81)	0.008*** (5.29)	0.005*** (5.50)	0.004*** (4.92)	0.003*** (3.42)	0.009*** (6.75)
Firm Size	-0.004*** (-5.56)	-0.004*** (-10.58)	-0.006*** (-8.80)	-0.003*** (-4.10)	-0.003*** (-5.12)	-0.002*** (-4.35)	-0.026* (-2.09)	-0.004*** (-5.89)	-0.004*** (-9.95)	-0.006*** (-8.25)	-0.003*** (-4.56)	-0.003*** (-5.30)	-0.002*** (-4.27)	-0.029* (-2.41)
Firm Age	0.068*** (6.69)	0.075*** (6.15)	0.037** (2.71)	0.086*** (7.66)	0.082*** (8.53)	0.044*** (4.07)	0.126*** (7.25)	0.065*** (6.40)	0.071*** (6.20)	0.038** (2.81)	0.085*** (7.54)	0.079*** (8.27)	0.045*** (4.12)	0.117*** (6.73)
Financial leverage	0.001 (0.14)	0.001 (-0.45)	0.001 (0.20)	0.003 (0.52)	0.005 (-1.02)	0.016 (-2.95)	0.018 (1.87)	0.001 (0.01)	0.001 (1.26)	0.001 (0.01)	0.003 (0.46)	0.006 (-1.06)	0.015 (2.86)	0.014 (1.49)
Auditor	0.166*** (4.75)	0.143** (4.09)	0.016 (0.49)	0.093* (2.43)	0.193*** (5.94)	0.216*** (6.17)	0.101 (1.56)	0.181*** (5.16)	0.160** (4.63)	0.023 (0.70)	0.101** (2.63)	0.202*** (6.18)	0.219*** (6.17)	0.115 (1.78)
GDP	0.013* (2.46)	0.015* (2.35)	0.013* (2.03)	0.012* (1.40)	0.013** (2.80)	0.012* (2.38)	0.012* (1.11)	0.014** (2.61)	0.016* (2.49)	0.012* (2.06)	0.012* (1.34)	0.014** (2.89)	0.012* (2.37)	0.014* (1.27)
Arab Spring	0.312*** (8.51)	0.380*** (10.84)	0.217*** (3.73)	0.455*** (10.08)	0.353*** (9.73)	0.308*** (7.42)	0.380*** (6.27)	0.286*** (7.97)	0.358*** (10.69)	0.214*** (3.65)	0.443*** (10.01)	0.323*** (9.10)	0.276*** (6.81)	0.364*** (6.11)
constant	0.545*** (7.58)	0.416*** (7.00)	0.361** (2.94)	0.669*** (8.19)	0.562*** (8.39)	0.775*** (9.04)	0.465*** (3.73)	0.662*** (10.66)	0.509*** (8.48)	0.584*** (5.37)	0.769*** (11.12)	0.677*** (12.06)	0.898*** (11.81)	0.592*** (5.51)
AdjR-sqr	0.075	0.065	0.081	0.07	0.065	0.079	0.089	0.065	0.06	0.083	0.056	0.06	0.06	0.065
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

CON = Total percentage of largest owners who won 5% or more of firm's equity , HHI = Herfindahl Index, the squared sum of the largest ownership ; z-statistics are within parentheses
 *** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 5.5

4.6 Instrumental Variable Quantile Regressions

Quantile regression model (QRM) is the way of estimating the conditional quantile functions (Koenker & Bassett Jr, 1978; Koenker & Hallock, 2001). According to Li (2015), QRM can be very functional for management research, thus results from QRM are estimated from the whole range of quantile functions. Unlike other model that minimise the mean square error and predict one part only of the distribution of the outcome, QRM gives the options for the researchers to group the outcomes. For example, QRM can easily compare the conditional mean from the least squares estimator by predicting the conditional median of the dependent variable. In addition, QRM differentiate the whole distribution of dependent variables by a different distribution, say at the 15th or 85th percentile, which can be of interest in their own right.

Many researchers use QRM in the interest to find the effects of independents variables on response variable along the different parts of the distribution rather than the average effect. For example, (Buchinsky, 1994; Lemieux, 2006) study the return made by education at different distribution of wages. In the health sectors, Koenker and Hallock (2001) study the effects of smoking mothers on birth weight using QRM by distributing the birth weight into different Quantiles. Also QRM is applied in corporate governance studies; researchers in this field are interested in finding if certain governance characteristics have a quantitatively different effect across the distribution of the dependent variable. Hallock, Madalozzo, and Reck (2010) confirm that CEO pay, based on performance, is strangely higher in conditionally firms with high CEO wage. Likewise Chen and Huang (2011) use QRM to examine the relationship between the performance of mutual funds and Morningstar's fiduciary grades. They found that managerial incentives are positively correlated to fund performance. Also, Li (2015) apply QRM to investigate CEOs pay in gender difference. Although he does not confirm any discrimination in payment by using standard linear regression methods, he found that women receive less payment than men at around the 95th quantile.

In this part, the goal is to compare the results of classical least squares (OLS) of the effects of ownership concentration on firm's performance and these effects in different quantile distribution using quantile regression outcomes. The following is the regression model used in this study.

$$Firm\ Performance_q = \beta_0 + \beta_1 ownership\ concentration_{it} + \beta_2 Firm\ Age_{it} + \beta_3 Firm\ Size_{it} + \beta_4 Leverage_{it} + \beta_5 Auditors_{it} + \beta_6 GDP_{it} + \beta_7 Arab\ Spring_{it} + \varepsilon_{it} \quad (5.5)$$

Where the following is true:

- Q = The percentile in the conditional distribution of the performance measure
- Firm performance = ROA, ROE, and Tobin's Q
- Ownership concentration = Total percentage of largest owners who won 5% or more of firm's equity
- Firm size = total firm assets
- Firm age = period from a firm's establishment up to 2008, increasing by one each year afterward
- Financial leverage = a company's total debt / total assets
- Auditors. Dummy variable taking 1 if a big four auditor is the firm's external auditors and 0 otherwise
- GDP = Growth rate of gross domestic product

However, when considering the exogenous relationship between explanatory variables, standard quantile regression does not address the endogeneity issue between ownership concentration and firm performance. So, the study implements the instrumental variables quantile regression (IVQR) as described by (Chernozhukov & Hansen, 2004, 2005, 2008). The implementation of IVQR in this study follows that described by (Kwak, 2010), by using Stata. Kwak's (2010) instrumental variables quantile regression implementation required three steps. (1) use least squares to estimate the first stage; (2) uses predicted values of d to estimate the quantile regression function τ^{th} of outcome variable Y; (3) minimising the objective functions of both stages at τ by searching around the estimated value. The following discuss the implementation of IVQR in the study following (Kwak's , 2010) and (Bang, Mitra, & Wunnava, 2016) .

$$Y = q(d, \mathbf{x}, u) = \alpha_\tau d + \mathbf{x}'\beta_\tau + u, \quad (5.6a)$$

Where:

- Y = the outcome variable of the study which are firm's performances measured by ROA, ROE and Tobin's Q. That Y is conditional on a treatment variable which is d and other controls variables which is x .
- d = is a binary variable taking 1 if firm has total ownership concentration of 50% or more and 0 otherwise.
- x = control variable used in this study which are Firm size, Firm age, Financial leverage, Auditors and GDP.
- u = a non-separable error term

The study assumes that the treatment value, which in this study is the ownership concentration "d" is endogenously determined by the following function:

$$d = \delta(\mathbf{z}, v) = \mathbf{z}'\pi_{\tau} + v, \quad (5.6b)$$

Where $\delta(\cdot)$ is an unknown function and "v" is a vector of unobservable characteristics. "z" is the instruments variables that are correlated with the ownership concentration "d" and does not correlate with the firm's performance "Y". In this study the instrumental binary variable taking 1 if the firm's founder is either individual or institution. This is under the assumption that firms with these founders tend to keep control over firms after initial public offerings (IPO). According to Ehrhardt and Nowak (2001), founding-family owned firms continue to exercise considerable control of the firms even ten years after the IPO.

The quantile regression model at the τ^{th} quantile of Y is identified by:

$$P[Y \leq q(d, x, u) | z, x] = \tau \quad (5.6c)$$

This guides to the simplified objective function:

$$\arg \min_{\alpha_{\tau} \beta_{\tau} \gamma_{\tau}} E(\rho_{\tau}[y - \alpha_{\tau}d - x'\beta_{\tau} - z'\gamma_{\tau}]), \quad (5.6d)$$

where $\rho_{\tau}(\cdot)$ is a weighted absolute value function that solves the τ^{th} quantile of Y in the sample. The study estimates five quantiles: tails of the performance distribution (10th and 90th percentile); median regression (50th percentile); and interquartile regressions (25th and 75th percentile).

The purpose of regression is to find how ownership concentration effects different firms' performance in different quantiles. Tables 4.49, 4.50 and 4.51 presents the results of the OLS regression (column 1); standard quantile regression (columns 2-6) and IVQR (columns 7-11). Each table has different dependent variable: ROA, ROE and Tobin's_Q respectively. Both Standard quartile and iv quantile gave the same outcome of the effects of firms performance measured by ROA and ROE that the effects of those performance measures are significant in the all quantile percentiles. However, although ownership concentration has the same significant effects on Tobin's_Q the using standard quantile regression, it shows no significant effects using IVQR. The study reports data in case a convergence takes place.

Table 4.49 Regression results using standard and iv quantile, Dependent Variable: ROA

	Dependent variable : ROA										
	Standard quantile regression						IV Quantiles Regression				
	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9	(7) 0.1	(8) 0.25	(9) 0.5	(10) 0.75	(11) 0.9
CON	0.029** (0.01)	0.033** (0.01)	0.019** (0.01)	0.019** (0.00)	0.028** (0.01)	0.047** (0.01)	4.281** (0.47)	0.693* (0.37)	0.802** (0.34)	1.123** (0.37)	0.237* (0.47)
Firm Size	0.018** (0.01)	0.042** (0.01)	0.022** (0.01)	0.006* (0.00)	0.005* (0.01)	0.025** (0.01)	0.111 (0.07)	0.143** (0.06)	0.092* (0.05)	0.085 (0.06)	0.259** (0.07)
Firm Age	0.817** (0.08)	1.123** (0.14)	0.705** (0.08)	0.616** (0.06)	0.657** (0.08)	0.429** (0.19)	0.575 (0.48)	0.518 (0.38)	0.995** (0.35)	1.861** (0.38)	1.488** (0.48)
Financial leverage	-0.688** (0.04)	-0.876** (0.08)	-0.711** (0.04)	-0.531** (0.03)	-0.662** (0.04)	-0.766** (0.10)	-0.034** (0.01)	-0.021** (0.01)	-0.007 (0.01)	-0.009 (0.01)	-0.025** (0.01)
Auditor	1.019** (0.27)	0.675 (0.50)	0.762** (0.28)	0.934** (0.20)	0.828** (0.27)	1.249* (0.64)	1.041** (0.13)	0.715** (0.11)	0.584** (0.10)	0.625** (0.11)	0.545** (0.13)
GDP	0.161** (0.04)	0.221** (0.08)	0.151** (0.04)	0.109** (0.03)	0.078* (0.04)	0.232** (0.10)	0.739** (0.07)	0.707** (0.06)	0.543** (0.05)	0.679** (0.06)	0.754** (0.07)
Arab Spring	1.108** (0.28)	0.22* (0.53)	0.536* (0.29)	0.999** (0.21)	1.721** (0.28)	2.171** (0.68)	1.014** (0.48)	0.716* (0.37)	1.026** (0.34)	0.904** (0.37)	1.385** (0.47)
constant	1.996** (0.55)	12.369** (1.02)	4.616** (0.57)	0.687* (0.40)	2.135** (0.54)	8.89** (1.32)	13.424** (0.81)	3.951** (0.64)	0.03 (0.59)	4.184** (0.64)	11.328** (0.81)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Table 4.50 Regression results using standard and iv quantile, Dependent Variable: ROE

	Dependent variable : ROE										
	(1)	Standard quantile regression					IV Quantiles Regression				
		OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9	(7) 0.1	(8) 0.25	(9) 0.5	(10) 0.75
CON	0.041** (0.01)	0.052** (0.02)	0.029** (0.01)	0.03** (0.01)	0.031** (0.01)	0.085** (0.02)	5.518** (1.07)	1.612** (0.67)	2.495** (0.61)	1.64** (0.66)	1.693** (0.84)
Firm Size	0.071** (0.01)	0.116** (0.02)	0.083** (0.01)	0.054** (0.01)	0.036** (0.01)	0.019* (0.02)	0.208 (0.17)	0.33** (0.11)	0.261** (0.10)	0.262** (0.10)	0.319** (0.13)
Firm Age	1.216** (0.14)	1.6** (0.30)	1.096** (0.18)	1.124** (0.12)	1.153** (0.15)	1.29** (0.27)	-0.115 (1.10)	0.416 (0.69)	2.104** (0.62)	3.127** (0.68)	5.04** (0.86)
Financial leverage	-0.623** (0.07)	-4.848** (0.16)	-1.759** (0.10)	-0.099* (0.06)	-0.164** (0.08)	-0.373** (0.14)	-0.101** (0.02)	-0.084** (0.01)	-0.059** (0.01)	-0.034** (0.01)	-0.016 (0.02)
Auditor	2.362** (0.48)	1.302* (1.05)	0.97** (0.64)	2.199** (0.40)	3.263** (0.53)	3.739** (0.94)	1.463** (0.30)	1.047** (0.19)	1.058** (0.17)	1.145** (0.19)	1.384** (0.24)
GDP	0.326** (0.08)	0.288* (0.17)	0.312** (0.10)	0.281** (0.06)	0.265** (0.08)	0.283* (0.15)	5.023** (0.16)	1.751** (0.10)	0.118 (0.09)	0.205** (0.10)	0.335** (0.13)
Arab Spring	1.318** (0.50)	1.287** (1.11)	0.325** (0.68)	2.031** (0.43)	2.944** (0.56)	5.86** (0.99)	1.344 (1.08)	0.934 (0.68)	2.223** (0.61)	2.723** (0.67)	3.72** (0.85)
constant	3.763** (0.98)	13.734** (2.15)	6.766** (1.32)	4.09** (0.82)	0.921** (1.08)	7.539** (1.92)	13.464** (1.84)	6.085** (1.15)	3.638** (1.04)	3.626** (1.14)	11.324** (1.45)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Table 4.51 Regression results using standard and iv quantile, Dependent Variable: Tobin's_Q

	Dependent variable : TOBIN_Q										
	(1)	Standard quantile regression					IV Quantiles Regression				
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	OLS	0.1	0.25	0.5	0.75	0.9	0.1	0.25	0.5	0.75	0.9
CON	0.004** (0.00)	0.001** (0.00)	0.001** (0.00)	0.001** (0.00)	0.003** (0.00)	0.008** (0.00)	0.038 (0.06)	0.019 (0.05)	0.019 (0.04)	0.059 (0.05)	0.067 (0.06)
Firm Size	-0.003** (0.01)	-0.001 (0.01)	-0.001 (0.01)	-0.001** (0.01)	-0.002** (0.01)	-0.006** (0.01)	0.01 (0.01)	0.008 (0.01)	0.008 (0.01)	0.014* (0.01)	0.02** (0.01)
Firm Age	0.078** (0.01)	0.032** (0.01)	0.04** (0.01)	0.045** (0.01)	0.064** (0.01)	0.084** (0.03)	0.083 (0.06)	0.114** (0.05)	0.169** (0.05)	0.28** (0.05)	0.416** (0.06)
Financial leverage	0.001 (0.01)	0.022** (0.01)	0.017** (0.01)	0.002 (0.01)	-0.004 (0.01)	-0.011 (0.02)	-0.001 (0.01)	-0.002 (0.01)	-0.001 (0.01)	-0.002** (0.01)	-0.005** (0.00)
Auditor	0.149** (0.04)	0.089** (0.01)	0.113** (0.01)	0.108** (0.02)	0.147** (0.03)	0.255** (0.10)	0.033* (0.02)	0.042** (0.01)	0.045** (0.01)	0.071** (0.01)	0.109** (0.02)
GDP	0.014** (0.01)	0.01** (0.00)	0.008** (0.00)	0.007** (0.00)	0.015** (0.01)	0.02** (0.02)	0.02** (0.01)	0.018** (0.01)	0.002 (0.01)	0.008 (0.01)	0.009 (0.01)
Arab Spring	0.323** (0.04)	0.088** (0.01)	0.117** (0.01)	0.181** (0.02)	0.28** (0.03)	0.593** (0.10)	0.088 (0.06)	0.113** (0.05)	0.101** (0.04)	0.169** (0.05)	0.275** (0.06)
constant	0.597** (0.07)	0.383** (0.03)	0.465** (0.02)	0.682** (0.04)	0.739** (0.07)	1.088** (0.20)	0.409** (0.10)	0.503** (0.08)	0.747** (0.08)	0.98** (0.08)	1.517** (0.10)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

4.7 Discussion and Conclusion

This study seeks to provide a logical explanation of the relationship between ownership concentration and firm performance in the MENA region. The study uses five ownership concentration indexes (CON, HHI, H_Con, H_Diff, and CON51) and three firm performance variables (ROA, ROE, and Tobin's Q). The study uses different panel-data analyses to capture the bias results in a single model, and it also applies different approaches to controlling for country, industry, and year effects. In addition, to control for endogeneity, a 2SLS is used to treat ownership concentration as an exogenous variable.

The results of the study show that the five ownership indexes have positive significant effects on all firm performance in the MENA region, even after controlling for endogeneity. Firms with a high ownership concentration perform better than firms with diffuse ownership structures supporting the hypothesis (H1). These findings align with other studies done on companies in this region. Omran et al. (2008a) found that ownership concentration has positive effects on Tobin's Q. Also, Mandacı and Gumus (2010b) found that Turkish public firms are positively related to ownership concentration. Zeitun and Tian (2007) found that Jordanian public firms with high ownership concentration are more profitable, as measured by ROE and ROA.

This finding supports the argument that ownership concentration enables blockholders to maintain control over the firms in which they invest (Shleifer & Vishny, 1997; Short, 1994). Moreover, these results indicate that the blockholders' ownership in a firm plays an effective role in mitigating agency problems between shareholders and managers (Hartzell & Starks, 2003). This may be explained by the fact that monitoring carried out by blockholder owners often results in more effective manager performance (Demsetz & Lehn, 1985). This confirms that owners with a high level of voting rights in MENA countries, work effectively in enhancing firms' performance and mitigating agency problem. In addition, this outcome proves that ownership concentration in the MENA region is an essential tool in corporate governance. This gives the evidence that blockholder owners in countries with weak investments' protection law like MENA countries can be alternative to this law.

Moreover, the study found that firms with many largest owners are negatively performed than firms with fewer owners. The study examines how the number of the largest owners can affect firm performance in two ways. The first used the number of largest owners as a variable

and the second uses two ownership concentration indexes (H_Con and H_Diff) that control for the largest three owners. The study finds that firms having fewer larger owners impact firms positively.

This finding aligns with the argument of (Fama & Jensen, 1983; Jensen & Meckling, 1976) who stated that managerial behaviour cannot be controlled in diffused ownership structures. Also, Nyman and Silberston (1978) argued that control should be viewed as a power, rather than a structural phenomenon. Thus, small numbers of owners can gain enough power to control the firm; and according to the results of this study, the power of largest owners in MENA public firms enhances firm performance and enables them to control managerial behaviour toward the firm's benefits. This gives the facts that a small number of owners with a high level of voting right in MENA countries, can form a power to protect their investment and reduce agency problem.

Firm size has positive significant effects on ROA and ROE, and larger firms are more profitable than smaller companies. Regionally, the same results were found by Omran et al. (2008a) in their study of four Arab countries. Also, using non-financial firms listed on the Istanbul Stock Exchange, Mandacı and Gumus (2010b) found a significant positive relationship between firm size and firm performance. The current results support the study of Fama and French (1995), who documented that ROE is higher in larger firms when compared with smaller firms. Also, Pedersen and Thomsen (1999) found there is a direct and positive correlation between firm size and firm performance. These results may be because large firms can easily secure the sufficient funds to run the firm smoothly (Short and Keasey (1999).

However, unlike the performance measured by the accounting ratio, this study finds that large firms negatively affect Tobin's Q; this ratio is related directly to the share price of firms in the stock market. Regionally, this finding was also concluded by Mandacı and Gumus (2010b), who used Turkish firms and found Tobin's Q negatively correlates with firm size. These results can be explained by Banz (1981), who stated that there is a negative relationship between firm size and firm performance; he found that small firms have higher common stock returns than large firms.

Moreover, the study shows that firm age positively affects firm performance, and that older firms have a higher return on assets, return on equity, and Tobin's Q value. This can be explained by Majumdar (1997), who stated that older firms have experience, which helps

them perform better when compared to younger firms. Also, older firms have a history and reputation that ensures easier access to bank loans, giving sufficient liquidity to run their firms effectively (Diamond, 1991).

Regarding financial leverage, the results show that firms with high leverage are less profitable than low-leverage firms. These results align with other studies conducted previously on the MENA region. Using Tunisian-listed companies, Turki and Sedrine (2012) found a negative effect of leverage on firm performance. In Kuwait, Alfaraih, Alanezi, and Almujaed (2012) found a negative relationship between OA and Tobin's Q with firm leverage, and in Turkey, Mandacı and Gumus (2010b) found the same thing. This finding disputes Myers (1977), who believed that firms should have low financial leverage and should depend on their internal funds, because financial risks and a firm's credit risks, are increased by increasing outside borrowing (Krivogorsky, 2006). Moreover, Weinstein and Yafeh (1998) argued that firms with high debt have to pay high interest rates, which reduces a firm's net profits.

Auditor type has a positive impact on firm performance; firms having one of the big four auditors as external auditors reported higher ROA, ROE, and Tobin's Q. Mitton (2002) mirrored this result when using five Asian firms, finding that having the big four auditors (in his case, the big six) correlated with superior performance in stock price and higher returns. This result can be linked with Fan and Wong (2005), who claimed that using one of the big four auditors increases monitoring efficiency and reduces agency conflicts between owners and managers. That big-four auditors is one of the mechanism in corporate governance that reduce agency conflicts (Farooq & El Kacemi, 2011). Moreover, firms audited by the largest four auditors have higher disclosure qualities, and as a result, this increases transparency and mitigates expropriation (Mitton, 2002).

Moreover, GDP growth as a country factor shows positive effects on firm performance. This result aligns with many studies that indicated positive effects of a country's GDP growth on the overall outcomes of firms, including profitability. Regionally, Omran et al. (2008a) found the same results in their study on the effects of corporate governance on firm performance in Arab equity markets.

Another interesting point is the effect the Arab Spring had on firm performance. Even after controlling for the year effects in the regression models, the Arab Spring variable has a positive impact on firm performance. However, these results could not be linked to other

findings because this is the first study to address the effects of the Arab Spring movement on the performance of firms in the MENA region. The positive correlation may be the result of the corrections that happened in the legal system in the countries affected by this revolution. Such corrections eliminated dictatorships and increased transparency and accountability in business. Also, this result opens the opportunity for further research to investigate how political change can positively affect firm performance.

In conclusion, ownership concentration plays a major role in corporate governance in MENA countries. This demonstrates that larger owners play an essential role in mitigating agency costs. The study's results show positive significant effects of ownership concentration on firm performance, as measured by ROA, ROE, and Tobin's Q. Moreover, it shows that firms with a small number of blockholders do better than firms with several owners.

Chapter Five : The Effects of Ownership Identity on Firm Performance

5.1 Introduction

As discussed in chapter three, ownership concentration is one part found in ownership structure literature. However, Xia and Walker (2015) stated, 'Who owns the firm (the state, private ownership, foreign investors) has long been an important topic for research on organizations'. That is, ownership structure can be classified into two main dimensions: ownership concentration and owner identity (Nazir & Malhotra, 2016).

Xia and Walker (2015) used Chinese manufacturing firms' data over a 10-year period to study the effects of different owners on firm performance. They found that the owner type is significantly related to firm performance. Some studies showed that managerial ownership works effectively towards reducing agency costs. For example, (Jensen & Meckling, 1976) argued that managerial ownership increases firm performance by mitigating agency costs. They believed it is a mechanism that can be used to align managers' interests with that of shareholders' interest. Supporting this argument, Morck et al. (1988) found a positive relationship between managerial ownership and firm performance. In addition, managerial ownership gave a strong incentive for managers to maximise the value of the firm (Mandaci & Gumus, 2010b).

Conversely, Demsetz (1983) stated that an increase of insider ownership has a negative correlation to firm performance. He defended his idea that large managerial ownership leads to managers being more concern about their own interests at the expense of other shareholders; this results in a decrease of the firm's value. In addition, Stulz (1988) argued that less managerial ownership will increase the value of firms because of the transfer control right from mangers to shareholders. That managerial ownership in dispersed ownership structures have a greater chance of obtaining increased personal benefits (Fauzi & Locke, 2012) .

Government ownership could solve the asymmetrical information flow that is disclosed to investors and can align the interests of managers and owners (Jensen & Meckling, 1976). Thus, the government has access to different sources of information using its links with

financial organisations and non-government firms (Eng & Mak, 2003). However, the government cannot play an active role in monitoring its investments because of weaker accountability and monitoring (Mak & Li, 2001). Moreover, the government plays a political role in firms rather than enhancing a firm's performance (Boycko et al., 1996). Thus, the government gives special consideration to political aims such as employment and low output prices, at the expense of firms' profitability (Hart, Shleifer, & Vishny, 1997).

In the same context, foreign investors create shareholder value in two ways: building excessive cash balances in the market and avoiding any risk-taking strategies (Nakano & Nguyen, 2013). Moreover, Ferreira and Matos (2008) suggested that foreign ownership enhances firm performance by providing technology, research and development, and managerial skills. In addition foreign investors bring technological resources and experience to the firms they invest in (Huang & Shiu, 2009). Also, foreign investors play an important role as independent, outside monitors who control the behaviour of both management and majority shareholders (Choi, Sul, & Min, 2012). Similarly, Kim and Yoon (2007) claimed that foreign investment within a country has an impact on corporate governance practices. Although it seems that, theoretically, foreign investors enhance firm performance, different empirical studies indicated conflicting results.

Nevertheless, managerial monitoring is increased when there is institutional ownership, and this, according to the corporate governance perspective, helps in improving firm performance (Agrawal & Knoeber, 1996). In addition, large institutional investors have effective monitoring that leads to a positive influence on a firm's market value (Shleifer & Vishny, 1986). However, Pound (1988) argued that institutional investors may have either a positive or negative effect on firm performance; the effects are positive when acting as monitors and negative when working alongside the firm's managers to benefit themselves.

Family ownership may have the same agency problem as other shareholder groups (Claessens & Fan, 2002; Shleifer & Vishny, 1997). That is, family members acquire top-management positions, which enables them to have control over a firm's board of directors (Anderson & Reeb, 2003) and gives them the opportunity to use the firm's resources for their own gains. Moreover, Cho and Kim (2007) found that firms with a controlling family may negatively affect firm value. That is, the mechanisms of corporate governance may not be effective in family firms, and family members are able to use the firm's resources for their own gains (Anderson & Reeb, 2003).

The relationship between ownership identity and firm performance can be seen as conflicting. Therefore, this chapter highlights the effects of different ownership identities on firm performance. The rest of this chapter is structured as follows: a review of the existing literature, the methodology used in this study, and finally, the results and discussion.

5.2 Review of Existing Literature and Hypotheses Development

5.2.1 Managerial Ownership

Short and Keasey (1999) examined the relationship between firm performance and managerial ownership in the UK and compared their findings with previous studies conducted in the United States. They found a nonlinear relationship for both accounting and market measures of performance. Also, they confirmed that UK management with a high level of equity, become more entrenched, and this has a positive effect on firm performance. They believed that this aligned with the theory that more managerial equity in the firm incentivised the managers to work towards a higher level of performance. They also argued that the performance of the good firms affects the degree of managerial ownership. Thus, successful firms award directors with equity shares; this kind of reward should not be the mechanism for aligning the interests of management and shareholders, and corporate governance should be concerned with the complex practice of governance (Short & Keasey, 1999).

Also in the UK, Davies, Hillier, and McColgan (2005) found a nonlinear relationship between managerial ownership and firm value, as measured by Tobin's Q. They found that firm value was increased when managerial ownership went up to 7% and declined when it reached 26%. The researchers also found that for the endogeneity of managerial ownership, both corporate value and managerial ownership are linked. The authors argued that external market discipline plays a major role in manager and ownership behaviour. Thus, when the market is ineffective, managers with around 50% ownership have no control over the firm but have power and can benefit from disregarding any external monitoring or discipline. However, when managerial ownership exceeds 50%, managers who are owners have the power and the incentive to work effectively, which aligns with the best interests of the other shareholders.

Cho (1998) studied how insider ownership influences firm investments and how these investments enhance firm performance. The researcher used 326 U.S. manufacturing firms' data from 1991. He assumed that insider ownership is endogenous rather than exogenous. The researcher found that investment affects firm performance; but there is no relationship

between ownership structure and a firm's investments. He found that investments affect ownership structure rather than the other way around. The researcher concluded that insider ownership is homogenous in terms of its ability to enhance a firm's investments. So it is not an effective mechanism that forces managers to make value maximisation investment decisions.

In the United States, Himmelberg et al. (1999) used 600 firms' data between 1982–1992 to find the relationship between ownership structure and firm performance. They believed that managerial equity is an effective mechanism to align the interests of both managers and owners. So they extended the cross-sectional results of (Demsetz & Lehn, 1985) study and used panel data to show that managerial ownership is a function of the contracting environment. The authors argued that the ownership structure is endogenous and firms are governed by the interaction of different mechanisms, such as financing, capital structure, managerial ownership, and compensation. It is not easy to identify the cause of each mechanism on firm performance without taking into consideration the other mechanisms. They concluded that even after controlling for both firm characteristics and firm fixed effects, there is no (econometrically) relationship between a change in managerial ownership and firm performance.

Demsetz and Villalonga (2001) argued that ownership structure is endogenously determined and depends on the firm's performance proxy used. They used a previous data sample in a study done by (Demsetz & Lehn, 1985) and concluded a positive effect regarding insider ownership on firm performance. Demsetz and Villalonga (2001) used a 2SLS to control for endogeneity. They found no significant relationship between insider ownership and firm performance. They documented that the optimal ownership structure differs among firms, and there is no systematic relationship between structure and firm performance.

Furthermore, Jelinek and Stuerke (2009) studied the nonlinear relationship between managerial ownership and agency costs in U.S. firms. They used asset utilisation and an expense ratio as the agency cost indicators, to show management efficiency in use of assets. The researchers used ROA as a measure of profitability. Looking at ROA, they found a nonlinear and positive relationship between managerial ownership and asset utilisation, but a nonlinear and negative relation when using the expense ratio. Also, Ellili (2011) investigated the interrelations between American ownership structures and financial policies. The researcher found that managers do not attempt to have ownership in high-leverage firms

because of the high risk of bankruptcy. The author documented a nonlinear relationship between ownership percentage by manager and firm performance. Thus, managers with ownership levels between 22.17–32.08 % become more entrenched.

In Germany, Kaserer and Moldenhauer (2008) used 245 German companies' data in 2003 to find the relationship between insider ownership and firm performance; the authors used stock price performance, Tobin's Q, and ROA as corporate performance indicators. They found a positive and significant relationship between insider ownership and firm performance. Furthermore, they also showed that outside owners and concentrated insider ownership has positive effects on firm performance. However, when they controlled for ownership endogeneity, they did not find any significant effects on firm performance when there was insider ownership. Moreover, the authors believed that ownership structure could play a major role in creating long-term value in the corporate sector.

However, Krivogorsky (2006) used 87 European firms operating in U.S as foreign firms and found no relationship between managerial ownership and firm profitability, as measured by ROE, ROA, and MTB. In a study conducted in New Zealand, Fauzi and Locke (2012) concluded that large managerial ownership provides greater monitoring that has a significant impact on firm performance.

Chen, Guo, and Mande (2003) used 123 Japanese firms to study the relationship between managerial ownership and firm performance, as measured by Tobin's Q. Using an ordinary least squares (OLS) regression, they found a negative effect when there is low ownership and a positive one in high levels of ownership. However, when they controlled for ownership endogeneity using 2SLS, they found that Tobin's Q increased when managerial ownership increased. They concluded that managerial ownership and Tobin's Q should be treated as endogeneity to each other.

Chen and Yu (2012) studied how managerial ownership affects the diversification strategies of Taiwanese firms and how this diversification can enhance firm performance. They found a high level of managerial ownership in Taiwanese firms compared to other countries because many of the firms in Taiwan are under family control. The results of the study showed a U-shaped relationship between managerial ownership and corporate diversification. Thus, the inflection point exists at 33.17%, and managerial ownership has a negative (positive) relationship with diversification below (over) this point. The authors argued that this U-

shaped relationship supports the idea that managerial owners benefit themselves from diversification at the expense of minority shareholders. This comes either from avoiding the high costs associated with diversification or by pursuing unrelated diversification that may not be in the best interests of the minority shareholders.

In Sri Lanka, Wellalage and Locke (2012) found that insider ownership has a U-shaped relationship with firm performance. Thus, at some level, insider ownership increases management entrenchment, and at a smaller level, it increases the conflict of interests between management and owners. However, insider ownership has a positive and significant effect on firm performance. Also (Hoang et al., 2016) used manufacturing firms from Vietnam and employed a GMM regression to address endogeneity of ownership concentration and firm performance. They found that managerial ownership significantly affects Tobin's Q when the managers own either low level or high level voting rights.

In Nigeria, Tsegba and Ezi-Herbert (2011) found that insider ownership negatively and significantly affects firm performance. In Croatia, Dzanic (2012) found that ownership by management negatively affects the efficiency of labour. The author explained that management tries to satisfy union labour at the expense of efficiency. Moreover, Hasan and Butt (2009) found that managerial ownership in Pakistani firms has a significantly negative relationship with the debt-to-equity ratio.

Mandacı and Gumus (2010a) found that managerial ownership has a negative effect on firm value; the study was conducted on non-financial firms in Turkey. However, the negative relationship was explained as managers being sensitive to their own interests, which affected firm value. They argued that firms in Turkey could improve firm performance by having low managerial ownership. On the other hand, Turki and Sedrine (2012) used 23 non-financial companies listed on the Tunisian Stock Exchange and found that managerial ownership has a positive relationship with firms performance, as measured by MTB. However, MTB positively, but not significantly, affects managerial ownership. However, in Palestine, Daraghma and Alsinawi (2010) found that managerial ownership has a positive effect on firm financial performance, as measured by return on revenues (ROR).

5.2.2 Foreign Ownership

Balsmeier and Czarnitzki (2017) used non-listed firms in 28 Central and Eastern European countries. They found that foreign owners have an important role in enhancing firm

performance because of the managerial skills, knowledge, and superior technologies they bring. Contrary to this, Gedajlovic, Yoshikawa, and Hashimoto (2005) used 247 Japanese manufacturers and found that foreign ownership negatively affect firm investment behaviour and financial performance.

Nakano and Nguyen (2013) investigated the effect of foreign investors on the performance of Japanese electronics firms. The study could not find any significant effects that foreign shareholders had on firm performance when measuring by Tobin's Q and ROA. In addition, the study had difficulties using the assumption that firm effects are fixed, because each firm had its own characteristics that changed over time, and foreign investors acted in response to those changes. Thus, when the study applied fixed effect regressions, the foreign investors' influence on the firms' operating performance was overstated. However, the researchers found that an increase of foreign ownership has positive impacts on market value. The authors agreed with the idea that foreign investors create shareholder value in two ways: building excessive cash balances in the market and avoiding any risk-taking strategies.

In another study, (Choi et al., 2012) used Korean firms to study the relationship between foreign ownership and firm performance (using Tobin's Q). The researchers found that both foreign block ownership and foreign board membership enhance firm performance. The researchers suggested that foreign investors implement a globalised governance system that improves governance in the firm. In addition, they play an important role as independent, outside monitors that control the behaviour of both management and majority shareholders. However, according to the authors, foreign investors have the opposite effect if they have a controlling power that reaches a certain level of ownership. Much like with other firms examined in previously mentioned studies, the blockowners start extracting firm resources for their own gains.

However, in South Korea, Lee (2008) found no significant relationship between foreign ownership and firm performance, as measured by net income to total assets ratio (NIA) and ordinary income to total assets ratio (OIA). Moreover, Gul et al. (2010) studied the effects of ownership structure and the quality of the auditors on firms information, and how these two variables affect share price, as measured by stock price synchronicity in the Chinese market. The researchers found that foreign investors decrease synchronicity by enhancing capitalisation information.

In India, Douma, George, and Kabir (2006) found that foreign ownership has a positive relationship with firm performance when measured by Tobin's Q and ROA. The authors believed that in emerging markets, external corporate governance mechanisms are inefficient and less developed. In contrast, internal mechanisms in these markets are more efficient and play a major role in corporate governance. Accordingly, the researchers showed that foreign investors could have a critical role in monitoring the internal mechanisms of corporate governance in emerging markets. Also, in Nigeria, Tsegba and Ezi-Herbert (2011) found a positive but insignificant relationship between foreign ownership and firm performance.

Wellalage and Locke (2012) used data from Sri Lankan businesses that have weak legal protection for investors; they examined the relationship between foreign ownership and financial performance. The researchers found that foreign ownership does not affect firm performance. Moreover, in Croatia, Dzanic (2012) found that foreign ownership has either a negative, or no effect, on firm performance.

However, in Vietnam, Phung and Le (2013) found a negative relationship between foreign ownership and firm performance using Tobin's Q as the performance indicator. The authors believed that ownership can only play a major role in enhancing firm performance when ownership is concentrated. However, foreign owners could not own more than 49% of the firm's equity, and this restricted foreign investors, stopping them from imposing their influence on the firm and enhancing firm performance. Furthermore, the researchers found that foreign ownership is not an effective corporate governance mechanism for monitoring management. They found that because foreign ownership faces asymmetric information, they have a positive effect on capital structure by increasing debt to mitigate the agency problem.

Using Jordanian publicly traded firms, Zeitun and Tian (2007) did not find any significant effect regarding foreign ownership on firm performance, as measured by ROE and ROA. However, foreign ownership lowers the probability of a firm defaulting. The authors stated that foreign ownership gives an incentive to monitor the firms. Omran et al. (2008a) used 304 firms from four Arab countries (Egypt, Jordan, Oman, and Tunisia) and found that foreign investors have a significant effect on Tobin's Q, yet they have no significant effect on ROA and ROE.

Furthermore, Ghunmi, Al-Zu'bi, Badreddine, and Chaudhry (2013) used another measure of firm performance, productivity, and they found no significant relationship between foreign

ownership and the productivity of the studied manufacturing companies. They concluded that neither foreign direct investments nor portfolio investments have a clear effect on firm productivity. But they documented that firm characteristics such as large size, low dividend, yield, and low liquidity attract foreign investors.

Almudehki and Zeitun (2012) investigated the relationship between foreign ownership and firm performance. They used 29 non-financial firms listed on the Qatar Exchange and used Tobin's Q, ROA, and ROE as firm performance measures. The researchers found foreign ownership has a positive effect on firm performance. Furthermore, Kobeissi and Sun (2010) used 249 banks in 20 MENA countries and found that banks operate efficiently when they are owned by either foreigners or the government.

Ben Naceur, Ghazouani, and Omran (2007) studied four MENA countries (Egypt, Morocco, Tunisia, and Turkey) and found that newly privatised banks with high foreign ownership have a significantly positive outcome on sales per employee and net income per employee. The authors argued that foreigners want to influence a firm's productivity by monitoring the firm. In Egypt, Omran (2009) examined how the identity of ownership concentration in post-privatisation affects firm performance. The author found that ownership concentration, especially foreign ownership, had a positive impact on firm performance when measured by ROS, ROA, ROE, and Tobin's Q. The author argued that to increase the value of post-privatisation, more shares should be given to foreign investors. Accordingly, the hypothesis to examine effects of foreign ownership on firm performance in this study is:

H2a: Foreign ownership in MENA region has positive effects on firm performance.

5.2.3 Institutional Ownership

Tsai and Zheng (2007) examined information from 99 U.S. restaurants between 1999-2003, to find what effect institutional ownership has on firm performance in the restaurant industry. They used both OLS and 2SLS regressions and found that 2SLS gave more unbiased and consistent parameter estimates, and a more reliable assessment of the relationship. The researchers found institutional ownership, especially by the financial institutions, has a significant and positive relationship with firm performance, as measured by Tobin's Q. They believed that financial institutions have the power to monitor firm activities and accordingly enhance firm performance. They found this relationship is endogenous and that financial

institutions are more interested in restaurants that are better performing, larger, and more profitable.

In the United States, Ellili (2011) investigated the relationship between institutional ownership and financial policy. The researcher found that institutional ownership has a positive influence on the wealth of the shareholders. However, the researcher also found that institutions do not invest in high-leveraged firms because of the high risk of bankruptcy. However, in South Korea, Lee (2008) found no significant relationship between institutional ownership and firm financial performance.

In New Zealand, Navissi and Naiker (2006) investigated the effect institutional investors have on firm value. They found that when institutional ownership has a representative on the board of directors of the firms, there is a significant relationship. However, this relationship is not linear, so when institutional investors own 30% of the firm's equity, the value of the firm improves. But when institutional investors have less than 30% of the firm's equity, this leads to a reduction in the firm's value. The researchers concluded that ownership structure has an important role in the corporate governance process.

Moreover, Gedajlovic et al. (2005) used data from 247 of Japan's manufacturers to find out how ownership structure influences both a firm's investment behaviour and financial performance. The researchers found that firms with high financial institution ownership have a high level of investments in capital projects, which leads to positive firm ROA. The researchers also found that pension funds and financial institutions positively affect the firm performance when measured by ROA.

In India, Pathak et al. (2012) found that institutional ownership has a negative impact on firm performance (ROA). Furthermore, in Sri Lanka, Wellalage and Locke (2012) also found that institutional ownership is negatively related with ROA. However, the institutional ownership variable has no relationship with Tobin's Q. However, Fazlzadeh et al. (2011) used 137 listed firms on the Tehran Stock Exchange and found that institutional ownership positively affects firm performance. The researchers also stated that although institutional ownership can improve firm performance, more share equity in institutional ownership can lead to adverse reactions.

Using Arab countries in the MENA region, Omran et al. (2008a) found no significant effects regarding institutional ownership on ROA and ROE; nevertheless, institutional ownership has

a positive impact on Tobin's Q. Alfaraih et al. (2012) looked at 2010 data from 134 firms listed on the Kuwait Stock Exchange to find the relationship between institutional ownership and firm performance, when measuring the relationship with ROA and Tobin's Q. The researchers concluded that firm performance is affected by different types of ownership structures, and there is a positive relationship between institutional ownership and firm performance. They suggested that institutional investors play a large role in the corporate governance mechanism. However, Al-Saidi (2013) also used Kuwaiti firms and found no relationship between institutional ownership and Tobin's Q.

In Jordan, Zeitun (2009) found that institutional ownership has a negative impact on ROA, but has a positive effect on firm performance measure by market value of equity to book value of equity (MBVR). Moreover, in Qatar, Almudehki and Zeitun (2012) found that institutional ownership has a negative and significant relationship with Tobin's Q when measuring financial performance. Therefore, the hypothesis to examine effects of institutional ownership on firm performance in this study is:

H2b: Institutional ownership in MENA region has positive effects on firm performance.

5.2.4 Government Ownership

Using Tobin's Q as the performance indicator, Sun, Tong, and Tong (2002) studied the relationship between government ownership in privatised firms and the performance of these firms. The researchers found there is a nonlinear relationship, and when a small level of shares were sold to the public, there was an improvement in firm performance. After a certain percentage, of fewer shares being held by the government and more by the public, there was poorer firm performance. They concluded that in a planned economy such as China, the government tends to have a critical role in supporting the financial market. However using Chinese market, Gul et al. (2010) studied the effects of ownership structure and the quality of the auditors on firm information, that affects share prices measured by stock price synchronicity. The study found that government ownership increases stock price synchronicity.

Using 10,639 firm-year observations of non-financial Chinese-listed firms and an applied panel-data regression technique, Yu (2013) found that state ownership has a U-shaped relationship with firm performance, as measured by Tobin's Q, ROA, and ROE. He covered the period between 2003-2006 and found that government ownership dramatically decreased

after 2006. However, he stated that state ownership stays high in particular sectors, such as oil, natural gas, mining, publishing, broadcasting, and media. The researcher found that these sectors perform better with state ownership compared to dispersed ownership because of government support and political connections. The author argued that in markets that have weak laws and cannot protect investors, state ownership is an effective mechanism in mitigating the agency problem, especially the free-rider problem.

In Kuwait, Alfaraih et al. (2012) found that government ownership has a negative relationship with firm market performance. The authors argued that government ownership does not have adequate entrepreneurship and tends to be politically, rather than economically, motivated. In addition, Kobeissi and Sun (2010) used 249 banks in 20 MENA countries and found that banks owned by the government are less efficient than other banks. Furthermore, Samir (2013) found that banks in the MENA region that are owned by the government, have higher risks and higher non-performing loans than other banks.

Moreover, using Jordanian publicly traded firms, Zeitun and Tian (2007) also found a negative relationship between government ownership and firm performance. However, they also found that the firms with government ownership were protected from bankruptcy. In addition, Zeitun (2009) also found in Jordan that government ownership has a negative relationship with a firm's accounting performance. However, ownership by the government reduces the firm's defaults. So it was suggested that government ownership should be maintained at some level to achieve optimal firm performance and default reduction.

In the MENA region, Ben Naceur et al. (2007) used a comparison of four countries (Egypt, Morocco, Tunisia, and Turkey) to examine the effect of ownership structure on newly privatised banks. The researchers found that firms that remained with government ownership after privatisation improved their profitability (ROS, ROA, and ROE).

In four Arab countries, Omran et al. (2008a) found that state ownership has a positive impact on Tobin's Q. However, in Kuwait, Al-Saidi (2013) applied an OLS regression using 130 listed firms to find the relationship between ownership identity and firm performance, as measured by Tobin's Q and ROA. He found that the government does not significantly affect firm performance. For that reason, the hypothesis to examine effects of government ownership on firm performance in this study is:

H2c: Government ownership in MENA region has positive effects on firm performance.

5.2.5 Family Ownership

Dow and McGuire (2016) investigated how family ownership affects firm performance. The study used data from 33 publicly listed firms from different countries over a 5-year period that started in 2010. They found that firms with family ownership have a lower Tobin's Q than non-family firms. However, after controlling for country differences, the researchers found contradictory results; the authors believed the country is an important part to consider when understanding the effects of ownership on firm performance.

Anderson and Reeb (2003) found a positive and significant effect regarding family ownership on firm performance when they used ROA and Tobin's Q as the performance indicators. They also found that 18% of outstanding equity in U.S. S&P 500 firms, are controlled by families. These firms have better performance than non-family firms, especially when a family member acts as the CEO. This is because of the awareness that a family has about the business, and family members act as the firm's stewards. However, this positive relationship is not linear, in that a high level of family ownership leads to poor performance. The authors argued that when regulations and transparency exist in the market, family ownership is a major corporate mechanism in reducing agency costs and enhancing decision-making efficiency.

In Croatia, Dzanic (2012) used the data from 119 firms between the years 2003–2009 to examine the relationship between ownership concentration and firm performance. The researcher found that family ownership, when it comes as a second blockholder, has a positive effect on Tobin's Q. The author argued that family members can enhance firm performance because of their incentive to prevent large shareholders from extracting firm resources.

In Malaysia, Ibrahim and Samad (2011) investigated the effect of family and non-family ownership on firm performance. On average, the researchers found that firms with family ownership have lower agency costs (asset utilization ratio and expense ratio) when compared to other firms. On the other hand, they found that firm performance, as measured by Tobin's Q and ROA, is greater in non-family ownership firms than in firms with family ownership. This result indicates that the finding of a study conducted in Palestine by Daraghma and Alsinawi (2010), who found that firms that have a CEO as the chairman, have better performance than firms that separate the two positions, may be correct. Daraghma and Alsinawi (2010) explained that most firms in Palestine are family owned, and this produced the incentive to monitor and maximise the family's wealth.

Using Indian manufacturing firms, Pathak et al. (2012) examined the relationship between ownership identity and firm performance (ROA). The researchers found that individuals have no significant connection to firm performance.

Samir (2013) investigated how risks in banks (conventional and Islamic) in the MENA region are affected by the banks' ownership structures. He used two measures of risk: Z-score and the ratio of non-performing loans to total loans. The researcher found that family-owned banks tend to be low risk. However, avoiding taking risks may lead to poor performance. In a sample of four Arab countries, Omran et al. (2008a) found that individuals have significant negative impacts on ROA, ROE, and Tobin's Q. For that reason, the hypothesis to examine effects of government ownership on firm performance in this study is:

H2d: individual ownership in MENA region has positive effects on firm performance.

5.3 Methodology

This chapter uses the same data set found in chapter three and uses the same dependent variables in chapter three (ROA, ROE, and Tobin's Q). Also, the control variables are the same ones used in chapter three. However, this chapter concentrates on the effects of ownership identity on firm performance.

5.3.1 Identity Concentration Measures

Ownership concentration is defined as 5% or more of a firm's equity being owned by each shareholder; though, the ownership concentration was gathered according to the types of owners. (Omran et al., 2008a) classification of ownership identity was followed, and the largest ownership types were divided into four groups: foreign, individual, institution, and government. It was calculated by adding the total concentration shares of each identity. Table 5.1 defines each identity group.

Table 5.1 Definitions of Ownership Identity Group

Foreign Ownership	Firms that register in a country other than the invested country
Individual Ownership	A single person who represents him- or herself, either as citizen or noncitizen of the invested century
Institution Ownership	All firms that register in the invested country, including banks
Government Ownerships	Institutions that belong to the country, such as a ministry of finance or reserve and pension funds controlled by government

Tables 5.2 and 5.3 shows the percentage of each ownership in the sample. On average, 73% of the firms in the study have institutional ownership, followed by individual ownership at approximately 46%. However, on average, only 17% of the firms have government ownership while firms that have foreign investors are approximately at 22%.

Individually, all the countries in the study have at least 50% institutional ownership, and Tunisia has the largest representation of institutional owners at 91%. Regarding foreign ownership, Bahrain has the largest investors of this type, with nearly 48% of its firms being owned by foreign interest, while Turkey is the lowest at 12%. Some counties, such as Qatar and Bahrain, have government ownership near the 50% range.

Table 5.2 Average Ownership by Identity Types.

	Ownership Type			
	Foreign	Individual	Institution	Government
Bahrain	47.77	39.49	78.34	48.41
Egypt	19.41	39.27	83.54	8.86
Jordan	21.99	71.47	72.26	18.44
Oman	36.28	40.90	76.09	27.99
Qatar	25.45	3.64	50.91	49.09
Saudi	20.12	48.86	57.96	29.22
Tunisia	31.65	26.58	91.14	10.13
Turkey	11.87	29.87	75.63	2.99
Financial	25.94	47.23	78.90	11.74
Manufacturing	19.56	47.17	69.47	18.76
Service	20.17	44.17	72.93	18.94
Grand Total	21.66	45.64	73.90	16.88

Table 5.3 Average Ownership Concentration Percentage by Each Identity

	Observation	Mean %	Maximam %	Standard deviation
Foreign Ownership	1,196	6.99	99.66	17.64
Individual Ownership	2,520	13.19	99.66	20.66
Institution Ownership	4,080	35.00	99.88	28.36
Government Ownership	932	30.45	99.88	27.89

In addition, the ownership type is classified by a possible combination of the types of ownership that can exist in each firm. Table 5.4 and table 5.5 shows the firms that have only one possible combination of ownership identity; approximately 30% of the firms in the study have institutional owners as the largest ownership group, followed by individual owners at 13%. The largest percentage for firms that have more than two identities is group H, which is only individual and institution together in one firm with 22%.

Table 5.4 Possible combination of ownership Identity

	Description	Observation	Percentage
A	Foreigners are the only largest owners	209	3.79
B	Individuals are the only largest owners	735	13.31
C	Institutions are the only largest owners	1,613	29.22
E	Government are the only largest owners	195	3.53
E	Foreigners and individuals	105	1.90
F	Foreigners and institution	472	8.55
G	Foreigners and government	52	0.94
H	Individuals and institution	1,231	22.30
I	Individuals and government	103	1.87
J	Institution and government	287	5.20
K	Foreigners, individuals, and institution	194	3.51
L	Foreigners, individuals, and government	12	0.22
M	Foreigners, institution, and government	143	2.59
N	Individuals, institution, and government	131	2.37
O	All types of ownership	9	0.16

Table 5.5 Observation of possible combination of ownership identity by each country

	A	B	C	E	E	F	G	H	I	J	K	L	M	N	O
Bahrain	0	6	12	8	7	18	8	32	5	13	6	0	36	6	0
Egypt	26	129	456	8	14	104	0	238	1	52	46	0	27	11	0
Jordan	33	214	125	18	45	58	14	476	21	80	84	7	34	56	4
Oman	47	54	103	39	13	124	11	161	7	77	28	5	34	28	5
Qatar	7	0	19	13	0	0	7	2	0	7	0	0	0	0	0
Saudi	26	129	147	85	8	87	12	149	69	36	23	0	12	30	0
Tunisia	0	7	32	0	0	18	0	7	0	8	7	0	0	0	0
Turky	70	196	719	24	18	63	0	166	0	14	0	0	0	0	0
Financial	64	185	439	20	28	174	9	382	14	68	89	0	37	33	1
Servise	107	384	845	120	49	215	40	625	49	155	63	5	89	75	5
Manufacturing	38	166	329	55	28	83	3	224	40	64	42	7	17	23	3
Total	209	735	1,613	195	105	472	52	1,231	103	287	194	12	143	131	9

5.3.2 Regression Model

As mentioned in previous sections, the study uses three dependent variables to measure firm performance: accounting ratios, which are ROA and ROE, and market ratio, which is Tobin's Q. For ownership identity concentration, the study uses four identities (foreign, individual, institution, and government). In addition, the study uses many control variables, which were explained in detail in chapter five; using these variables and measures, the study ended up developing the following equations.

$$\begin{aligned}
 \text{Firm Performance}_{it} = & \beta_0 + \beta_1 \text{Foreign Ownership}_{it} + \beta_2 \text{Individual Ownership}_{it} + \\
 & \beta_3 \text{Institution Ownership}_{it} + \beta_4 \text{Government Ownerships}_{it} + \beta_5 \text{Firm Age}_{it} + \\
 & \beta_6 \text{Firm Size}_{it} + \beta_7 \text{Leverage}_{it} + \beta_8 \text{Auditors}_{it} + \beta_9 \text{GDP}_{it} + \beta_{10} \text{Arab Spring}_{it} + \\
 & \beta_{11} \text{IndustryDummy}_{it} + \beta_{12} \text{CountryDummy}_{it} + \beta_{13} \text{YearDummys}_{it} + \varepsilon_{it}
 \end{aligned}
 \tag{6.1}$$

Where the following is true:

- Firm performance = ROA, ROE, and Tobin's Q.
- Ownership concentration = CON, HHI, H_DIFF, H_CON, and CON51 (As explained in Table 17)

- Firm size = total firm assets
- Firm age = period from a firm's establishment up to 2008, increasing by one each year afterward
- Financial leverage = a company's total debt / total assets
- Auditors. Dummy variable taking 1 if a big four auditor is the firm's external auditors and 0 otherwise
- GDP = Growth rate of gross domestic product

5.4 Results

Following the same argument in chapter 4, based on the study of Wang and Shailer (2015) who argue that studying ownership concentration can be bias, depending on how ownership concentration is calculated and the type of regression model used. This chapter uses a panel-data analysis that implements four regression types, as follows: OLS, fixed effects model, random effects model, and GMM in order to make clear understanding of the effect of ownership types on firm performance. Also, to capture the different characteristics between countries, industries, and time effects, the study uses a different approach to control for country, industry, and year-fixed effects.

Tables 5.6, 5.7 and 5.8 confirm the effects of different ownership identity on ROA, ROE and Tobin's Q respectively without controlling for country, industry and year effects. The results show that both government and institutional ownership positively affect ROA ROE and Tobin's Q at 1% significance level. Also foreign ownership has positive and significant effect on ROA at different levels of significance. Individual ownership shows negative effects but is not significant on ROA and ROE, however, individual effects significantly and positively Tobin's Q.

Even after controlling for country, industry and year effects separately, the effects of ownership identity on different firm performance remain unchanged. Tables 5.9, 5.10 and 5.11 report the effects of ownership identity on ROA, ROE and Tobin's Q respectively after controlling industry effects only. Tables 5.12, 5.13 and 5.14 explain the effects of ownership identity after considering country effects only. And, tables 5.15, 5.16 and 5.17 show the effects on firm performance after controlling for year effects only. In addition, taking into account the effects of country, industry and year effects altogether, tables 5.18, 5.19 and 5.20

demonstrate that the effects of ownership identity on ROA, ROE and Tobin's are not changed.

To sum up the results of the effects of ownership identity on firm performance in all the 15 tables (tables from 5.6 to table 5.20), foreign ownership has a positive impact on ROA in two regression models, OLS and GMM. Furthermore, the significance level for foreign investors stays the same, even after controlling for country, industry and year. Also, foreign ownership shows significant positive effects on ROE using OLS and GMM. However, when using a model that controls for industry and country, foreigners do not show any significant relationship with ROE. Regarding the effects of foreign ownership on the market ratio, in most regression models, foreign investors enhance Tobin's Q positively, even when taking into account the different effects of country, industry, and time.

Individual owners had negative impacts on accounting ratios, yet none of these effects are significant. However, individual ownership has a positive effect on Tobin's Q, and this effect is significant in most regression models that capture the fixed effects of industry and country. The significance levels vary between models so that some models show a 1% level of significance.

Regarding the effects of institutional ownership, it has a significant and positive effect on all performance measures used in this study. OLS regression shows that institutional owners positively affect at the 1% level of significance ROA, ROE, and Tobin's Q in most models, even after controlling for industry, country, and time. However, although the other regression models show significant positive effects on firm performance, the levels of significance are not the same.

Government ownership has a positive impact on ROA at the 1% level of significance in all regression models, save for fixed effects. This effect on ROA does not change even after controlling for industry, country and year. Also, government ownership enhances the ratios of ROE and Tobin's Q, yet OLS and GMM record a 1% level of significance.

Table 5.6 Different Regressions Results using ROA as firms' performance measure, without industries, countries and years effects.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable : ROA			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.025** (3.10)	0.017 (0.60)	0.015 (1.15)	0.025** (3.28)
Individual Ownership	-0.004 (-0.55)	-0.051 (-1.94)	-0.003 (-0.22)	-0.004 (-0.50)
Institution Ownership	0.029*** (5.20)	0.029* (2.09)	0.008 (0.98)	0.029*** (5.21)
Government Ownerships	0.095*** (8.96)	0.036 (0.82)	0.080*** (3.85)	0.095*** (7.90)
Firm Size	0.006 (1.25)	-0.024 (-0.73)	0.006 (0.63)	0.006 (1.34)
Firm Age	0.762*** (9.86)	0.157 (1.03)	0.514*** (4.60)	0.762*** (9.79)
Financial leverage	-0.679*** (-16.42)	-0.424*** (-4.47)	-0.493*** (-4.78)	-0.679*** (-6.50)
Auditor	0.578* (2.10)	0.444 (1.04)	0.019 (0.05)	0.578* (2.14)
GDP	0.150*** (3.56)	0.112*** (3.42)	0.118*** (3.72)	0.150*** (3.47)
Arab Spring	1.080*** (3.82)	1.482*** (4.50)	1.482*** (4.86)	1.080*** (3.83)
constant	1.140* (2.03)	3.658** (3.19)	0.418 (0.49)	1.14 (1.83)
AdjR-sqr	0.09	0.08	0.07	0.09
Industry effect	NO	NO	NO	NO
Country effects	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.; ; Firm Size = Total assets ; Firm Age = The number of years since firms have been founded ; Financial Leverage = Total debt/Total equity ; GDP = Growth rate of gross domestic product ; Auditor = 1 if firms' external auditors is one of the big four auditors and 0 otherwise.

Table 5.7 Different Regressions Results using ROE as firms' performance measure, without industries, countries and years effects.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable : ROE			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.033* (2.35)	0.056 (0.62)	0.018 (0.50)	0.033* (2.25)
Individual Ownership	-0.017 (-1.27)	-0.059 (-1.41)	-0.003 (-0.12)	-0.017 (-1.31)
Institution Ownership	0.052*** (5.11)	0.02 (0.74)	0.031 (1.91)	0.052*** (4.99)
Government Ownerships	0.074*** (3.89)	0.009 (0.11)	0.059 (1.86)	0.074*** (4.38)
Firm Size	0.063*** (7.00)	0.103 (1.63)	0.075*** (4.08)	0.063*** (7.45)
Firm Age	1.100*** (7.98)	0.345 (1.09)	0.750*** (3.52)	1.100*** (8.12)
Financial leverage	-0.646*** (-8.77)	-0.657*** (-3.75)	-0.649*** (-3.90)	-0.646*** (-4.29)
Auditor	2.014*** (4.10)	0.644 (0.76)	0.636 (0.96)	2.014*** (4.02)
GDP	0.325*** (4.32)	0.218*** (3.46)	0.241*** (3.94)	0.325*** (4.07)
Arab Spring	1.135* (2.25)	2.927*** (5.18)	2.585*** (5.07)	1.135* (2.30)
constant	2.383* (2.38)	2.992 (1.24)	0.294 (0.19)	2.383* (2.27)
AdjR-sqr	0.07	0.06	0.06	0.07
Industry effect	NO	NO	NO	NO
Country effects	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.8 Different Regressions Results using Tobin's_Q as firms' performance measure, without industries, countries and years effects .

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model does not capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.006*** (5.83)	0.005* (2.22)	0.006** (3.23)	0.006*** (5.52)
Individual Ownership	0.002* (2.29)	0.006* (2.41)	0.003* (2.07)	0.002** (2.64)
Institution Ownership	0.003*** (4.16)	0.002 (0.93)	0.003 (1.95)	0.003** (3.16)
Government Ownerships	0.006*** (4.64)	0.004 (0.87)	0.005* (2.53)	0.006*** (3.92)
Firm Size	-0.004*** (-5.98)	-0.001 (-0.66)	-0.003*** (-3.37)	-0.004*** (-8.35)
Firm Age	0.077*** (7.72)	0.029 (1.17)	0.052** (2.68)	0.077*** (6.13)
Financial leverage	-0.001 (-0.10)	-0.01 (-1.18)	-0.007 (-1.25)	-0.001 (-0.16)
Auditor	0.113** (3.16)	0.017 (0.40)	0.079 (1.89)	0.113*** (3.40)
GDP	0.013* (2.35)	0.012*** (3.47)	0.012*** (3.58)	0.013* (2.50)
Arab Spring	0.324*** (8.82)	0.207*** (3.92)	0.230*** (4.89)	0.324*** (9.89)
constant	0.641*** (8.77)	0.976*** (6.09)	0.869*** (6.76)	0.641*** (7.37)
AdjR-sqr	0.08	0.08	0.07	0.08
Industry effect	NO	NO	NO	NO
Country effects	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.9 Different Regressions Results using ROA as firms' performance measure, with industries effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent variable : ROA			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.018* (2.33)	0.017 (0.60)	0.012 (0.95)	0.018* (2.47)
Individual Ownership	-0.012 (-1.60)	-0.051 (-1.94)	-0.001 (-0.10)	-0.012 (-1.45)
Institution Ownership	0.024*** (4.33)	0.029* (2.09)	0.006 (0.71)	0.024*** (4.35)
Government Ownerships	0.079*** (7.40)	0.036 (0.82)	0.070*** (3.40)	0.079*** (6.62)
Firm Size	0.007 (1.39)	0.024 (0.73)	0.005 (0.58)	0.007 (1.52)
Firm Age	0.555*** (7.10)	0.157 (1.03)	0.403*** (3.65)	0.555*** (7.13)
Financial leverage	-0.660*** (-16.16)	-0.424*** (-4.47)	-0.489*** (-4.82)	-0.660*** (-6.61)
Auditor	0.952*** (3.48)	0.444 (1.04)	0.234 (0.67)	0.952*** (3.56)
GDP	0.148*** (3.56)	0.112*** (3.42)	0.120*** (3.77)	0.148*** (3.44)
Arab Spring	0.836** (2.99)	1.482*** (4.50)	1.376*** (4.48)	0.836** (2.95)
constant	2.148*** (3.82)	3.658** (3.19)	1.369 (1.63)	2.148*** (3.44)
AdjR-sqr	0.11	0.09	0.07	0.11
Industry effect	YES	YES	YES	YES
Country effects	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.10 Different Regressions Results using ROE as firms' performance measure, with industries effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent variable : ROE			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.024 (1.74)	0.056 (0.62)	0.014 (0.41)	0.024 (1.67)
Individual Ownership	-0.028* (-2.09)	-0.059 (-1.41)	-0.008 (-0.36)	-0.028* (-2.16)
Institution Ownership	0.044*** (4.41)	0.02 (0.74)	0.028 (1.70)	0.044*** (4.30)
Government Ownerships	0.051** (2.65)	0.009 (0.11)	0.046 (1.43)	0.051** (3.04)
Firm Size	0.064*** (7.14)	0.103 (1.63)	0.074*** (4.09)	0.064*** (7.64)
Firm Age	0.811*** (5.78)	0.345 (1.09)	0.600** (2.80)	0.811*** (5.83)
Financial leverage	-0.620*** (-8.47)	-0.657*** (-3.75)	-0.641*** (-3.90)	-0.620*** (-4.22)
Auditor	2.537*** (5.17)	0.644 (0.76)	0.924 (1.40)	2.537*** (5.11)
GDP	0.322*** (4.32)	0.218*** (3.46)	0.244*** (3.98)	0.322*** (4.05)
Arab Spring	0.794 (1.58)	2.927*** (5.18)	2.442*** (4.76)	0.794 (1.60)
constant	3.793*** (3.76)	2.992 (1.24)	2.668 (1.75)	3.793*** (3.61)
AdjR-sqr	0.08	0.07	0.06	0.08
Industry effect	YES	YES	YES	YES
Country effects	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.11 Different Regressions Results using Tobin's Q as firms' performance measure, with industries effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of industries fixed effects; z-statistics are within parentheses.

	Dependent variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.006*** (5.52)	0.005* (2.22)	0.006** (3.18)	0.006*** (5.27)
Individual Ownership	0.002 (1.89)	0.006* (2.41)	0.003 (1.94)	0.002* (2.18)
Institution Ownership	0.003*** (3.81)	0.002 (0.93)	0.003 (1.87)	0.003** (2.92)
Government Ownerships	0.006*** (4.02)	0.004 (0.87)	0.005* (2.31)	0.006*** (3.40)
Firm Size	-0.004*** (-5.92)	-0.001 (-0.66)	-0.003*** (-3.43)	-0.004*** (-8.36)
Firm Age	0.067*** (6.55)	0.029 (1.17)	0.046* (2.34)	0.067*** (5.07)
Financial leverage	-0.001 (-0.07)	-0.01 (-1.18)	-0.007 (-1.21)	-0.001 (-0.11)
Auditor	0.131*** (3.64)	0.017 (0.40)	0.088* (2.15)	0.131*** (3.97)
GDP	0.013* (2.33)	0.012*** (3.47)	0.012*** (3.61)	0.013* (2.49)
Arab Spring	0.312*** (8.49)	0.207*** (3.92)	0.226*** (4.79)	0.312*** (9.54)
constant	0.592*** (8.01)	0.976*** (6.09)	0.780*** (6.15)	0.592*** (6.88)
AdjR-sqr	0.07	0.06	0.06	0.07
Industry effect	YES	YES	YES	YES
Country effects	NO	NO	NO	NO
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.12 Different Regressions Results using ROA as firms' performance measure, with countries effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent variable : ROA			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.025** (3.11)	0.017 (0.60)	0.016 (1.19)	0.025** (3.27)
Individual Ownership	-0.009 (-1.14)	-0.051 (-1.94)	-0.012 (-0.93)	-0.009 (-1.04)
Institution Ownership	0.025*** (4.20)	0.029* (2.09)	0.006 (0.69)	0.025*** (4.21)
Government Ownerships	0.106*** (9.93)	0.036 (0.82)	0.087*** (4.09)	0.106*** (8.64)
Firm Size	-0.002 (-0.32)	-0.024 (-0.73)	-0.002 (-0.23)	-0.002 (-0.35)
Firm Age	0.469*** (5.60)	0.157 (1.03)	0.369** (3.24)	0.469*** (5.50)
Financial leverage	-0.708*** (-17.30)	-0.424*** (-4.47)	-0.504*** (-4.77)	-0.708*** (-6.52)
Auditor	0.544 (1.71)	0.444 (1.04)	0.11 (0.30)	0.544 (1.70)
GDP	0.114** (2.62)	0.112*** (3.42)	0.110*** (3.39)	0.114* (2.57)
Arab Spring	1.613*** (4.70)	1.482*** (4.50)	1.602*** (4.88)	1.613*** (4.72)
constant	1.288 (1.40)	3.658** (3.19)	2.674* (2.16)	1.288 (1.60)
AdjR-sqr	0.13	0.10	0.09	0.13
Industry effect	NO	NO	NO	NO
Country effects	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.13 Different Regressions Results using ROE as firms' performance measure, with countries effects only .

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent variable : ROE			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.022 (1.56)	0.056 (0.62)	0.01 (0.29)	0.022 (1.47)
Individual Ownership	-0.001 (-0.10)	-0.059 (-1.41)	-0.011 (-0.49)	-0.001 (0.10)
Institution Ownership	0.034** (3.29)	0.02 (0.74)	0.022 (1.34)	0.034** (3.11)
Government Ownerships	0.088*** (4.69)	0.009 (0.11)	0.066* (2.09)	0.088*** (5.28)
Firm Size	0.054*** (5.75)	0.103 (1.63)	0.070*** (3.87)	0.054*** (6.42)
Firm Age	0.655*** (4.42)	0.345 (1.09)	0.593** (2.64)	0.655*** (4.35)
Financial leverage	-0.730*** (-10.07)	-0.657*** (-3.75)	-0.674*** (-3.95)	-0.730*** (-4.65)
Auditor	2.121*** (3.77)	0.644 (0.76)	0.332 (0.47)	2.121*** (3.83)
GDP	0.229** (2.99)	0.218*** (3.46)	0.217*** (3.47)	0.229** (2.80)
Arab Spring	3.022*** (4.98)	2.927*** (5.18)	3.055*** (5.52)	3.022*** (5.16)
constant	0.769 (0.47)	2.992 (1.24)	2.389 (1.24)	0.769 (0.58)
AdjR-sqr	0.11	0.10	0.09	0.11
Industry effect	NO	NO	NO	NO
Country effects	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.14 Different Regressions Results using Tobin's_Q as firms' performance measure, with countries effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of countries fixed effects; z-statistics are within parentheses.

	Dependent variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.010*** (9.23)	0.005* (2.22)	0.008*** (4.51)	0.010*** (8.82)
Individual Ownership	0.005*** (5.37)	0.006* (2.41)	0.005** (3.25)	0.005*** (6.20)
Institution Ownership	0.006*** (7.53)	0.002 (0.93)	0.004** (2.86)	0.006*** (5.79)
Government Ownerships	0.010*** (7.16)	0.004 (0.87)	0.007*** (3.66)	0.010*** (5.98)
Firm Size	-0.006*** (-9.27)	-0.001 (-0.66)	-0.006*** (-5.13)	-0.006*** (-10.82)
Firm Age	0.035** (3.23)	0.029 (1.17)	0.025 (1.23)	0.035* (2.39)
Financial leverage	-0.001 (-0.15)	-0.01 (-1.18)	-0.007 (-1.17)	-0.001 (-0.24)
Auditor	-0.014 (-0.35)	0.017 (0.40)	0.019 (0.47)	-0.014 (-0.41)
GDP	0.011 (1.92)	0.012*** (3.47)	0.012*** (3.32)	0.011* (1.99)
Arab Spring	0.190*** (4.30)	0.207*** (3.92)	0.207*** (4.00)	0.190*** (3.71)
constant	0.457*** (3.85)	0.976*** (6.09)	0.561*** (3.57)	0.457*** (4.24)
AdjR-sqr	0.09	0.08	0.07	0.09
Industry effect	NO	NO	NO	NO
Country effects	YES	YES	YES	YES
Year Effects	NO	NO	NO	NO
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.15 Different Regressions Results using ROA as firms' performance measure, with year effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent variable : ROA			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.024** (3.04)	0.025 (0.85)	0.014 (1.07)	0.024** (3.21)
Individual Ownership	-0.005 (-0.62)	-0.042 (-1.54)	-0.002 (-0.12)	-0.005 (-0.56)
Institution Ownership	0.029*** (5.04)	0.037* (2.38)	0.008 (0.80)	0.029*** (5.00)
Government Ownerships	0.095*** (8.88)	0.028 (0.62)	0.080*** (3.74)	0.095*** (7.82)
Firm Size	0.006 (1.22)	-0.027 (-0.82)	0.005 (0.61)	0.006 (1.31)
Firm Age	0.760*** (9.80)	0.146 (0.96)	0.517*** (4.59)	0.760*** (9.69)
Financial leverage	-0.679*** (-16.42)	-0.426*** (-4.52)	-0.495*** (-4.80)	-0.679*** (-6.51)
Auditor	0.572* (2.08)	0.449 (1.05)	0.027 (0.08)	0.572* (2.11)
GDP	0.155*** (3.61)	0.115*** (3.53)	0.122*** (3.86)	0.155*** (3.54)
Arab Spring	1.097*** (3.63)	1.566*** (4.64)	1.481*** (4.76)	1.097*** (3.67)
constant	1.21 (1.85)	3.818** (3.16)	0.363 (0.41)	1.21 (1.71)
AdjR-sqr	0.09	0.08	0.07	0.09
Industry effect	NO	NO	NO	NO
Country effects	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.16 Different Regressions Results using ROE as firms' performance measure, with year effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent variable : ROE			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.034* (2.38)	0.054 (0.59)	0.022 (0.62)	0.034* (2.27)
Individual Ownership	-0.016 (-1.17)	-0.062 (-1.40)	-0.003 (-0.14)	-0.016 (-1.21)
Institution Ownership	0.053*** (5.12)	0.017 (0.56)	0.036* (2.03)	0.053*** (4.99)
Government Ownerships	0.074*** (3.90)	0.013 (0.15)	0.064 (1.96)	0.074*** (4.37)
Firm Size	0.064*** (7.04)	0.103 (1.64)	0.076*** (4.11)	0.064*** (7.47)
Firm Age	1.109*** (8.02)	0.359 (1.13)	0.770*** (3.61)	1.109*** (8.15)
Financial leverage	-0.647*** (-8.77)	-0.661*** (-3.78)	-0.651*** (-3.91)	-0.647*** (-4.30)
Auditor	2.030*** (4.13)	0.613 (0.72)	0.699 (1.06)	2.030*** (4.06)
GDP	0.333*** (4.34)	0.219*** (3.42)	0.245*** (3.94)	0.333*** (4.07)
Arab Spring	0.97 (1.80)	2.855*** (4.97)	2.390*** (4.61)	0.97 (1.83)
constant	2.148 (1.84)	2.959 (1.20)	0.203 (0.13)	2.148 (1.77)
AdjR-sqr	0.08	0.07	0.07	0.08
Industry effect	NO	NO	NO	NO
Country effects	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.17 Different Regressions Results using Tobin's_Q as firms' performance measure, with years effects only.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model captures only the effects of year fixed effects; z-statistics are within parentheses.

	Dependent variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.006*** (5.41)	0.004 (1.70)	0.005** (2.77)	0.006*** (5.15)
Individual Ownership	0.002 (1.52)	0.004 (1.72)	0.002 (1.21)	0.002 (1.74)
Institution Ownership	0.002** (3.27)	0.001 (0.40)	0.002 (1.26)	0.002* (2.44)
Government Ownerships	0.006*** (4.33)	0.003 (0.69)	0.004* (2.10)	0.006*** (3.67)
Firm Size	-0.004*** (-6.34)	-0.002 (-0.77)	-0.003*** (-3.55)	-0.004*** (-8.66)
Firm Age	0.074*** (7.31)	0.027 (1.12)	0.051** (2.63)	0.074*** (5.80)
Financial leverage	-0.001 (-0.11)	-0.01 (-1.17)	-0.007 (-1.24)	-0.001 (-0.18)
Auditor	0.104** (2.92)	0.022 (0.51)	0.078 (1.87)	0.104** (3.19)
GDP	0.015** (2.62)	0.014*** (3.82)	0.013*** (3.96)	0.015** (2.78)
Arab Spring	0.384*** (9.81)	0.219*** (3.53)	0.255*** (4.58)	0.384*** (10.35)
constant	0.455*** (5.36)	0.935*** (5.43)	0.798*** (5.76)	0.455*** (4.75)
AdjR-sqr	0.07	0.06	0.06	0.07
Industry effect	NO	NO	NO	NO
Country effects	NO	NO	NO	NO
Year Effects	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.18 Different Regressions Results using ROA as firms' performance measure, by controlling industries, countries and years effects .

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable : ROA			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.018* (2.29)	0.025 (0.85)	0.012 (0.88)	0.018* (2.41)
Individual Ownership	-0.001 (-0.08)	-0.042 (-1.54)	-0.005 (-0.39)	-0.001 (-0.07)
Institution Ownership	0.019** (3.17)	0.037* (2.38)	0.002 (0.23)	0.019** (3.14)
Government Ownerships	0.087*** (8.16)	0.028 (0.62)	0.074*** (3.43)	0.087*** (7.23)
Firm Size	0.001 (0.02)	0.027 (0.82)	0.001 (0.12)	0.001 (0.02)
Firm Age	0.277** (3.28)	0.146 (0.96)	0.271* (2.39)	0.277** (3.26)
Financial leverage	-0.685*** (-16.89)	-0.426*** (-4.52)	-0.500*** (-4.85)	-0.685*** (-6.62)
Auditor	0.934** (2.95)	0.449 (1.05)	0.076 (0.20)	0.934** (2.95)
GDP	0.115** (2.61)	0.115*** (3.53)	0.113*** (3.50)	0.115* (2.57)
Arab Spring	1.616*** (4.29)	1.566*** (4.64)	1.580*** (4.65)	1.616*** (4.27)
constant	0.683 (0.70)	3.818** (3.16)	1.375 (1.17)	0.683 (0.80)
AdjR-sqr	0.13	0.11	0.10	0.13
Industry effect	YES	YES	YES	YES
Country effects	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.19 Different Regressions Results using ROE as firms' performance measure, by controlling industries, countries and years effects.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable : ROE			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.013 (0.94)	0.054 (0.59)	0.009 (0.25)	0.013 (0.89)
Individual Ownership	-0.011 (-0.80)	-0.062 (1.40)	-0.007 (-0.31)	-0.011 (-0.82)
Institution Ownership	0.026* (2.50)	0.017 (-0.56)	0.022 (1.18)	0.026* (2.35)
Government Ownerships	0.064*** (3.35)	0.013 (0.15)	0.053 (1.61)	0.064*** (3.82)
Firm Size	0.056*** (6.04)	0.103 (1.64)	0.071*** (3.96)	0.056*** (6.77)
Firm Age	0.398** (2.65)	0.359 (1.13)	0.473* (2.11)	0.398** (2.62)
Financial leverage	-0.699*** (-9.69)	-0.661*** (-3.78)	-0.668*** (-3.97)	-0.699*** (-4.57)
Auditor	2.645*** (4.69)	0.613 (0.72)	0.596 (0.84)	2.645*** (4.81)
GDP	0.228** (2.92)	0.219*** (3.42)	0.218*** (3.44)	0.228** (2.73)
Arab Spring	3.035*** (4.53)	2.855*** (4.97)	2.897*** (5.08)	3.035*** (4.69)
constant	0.047 (0.03)	2.959 (1.20)	0.886 (0.47)	0.047 (0.03)
AdjR-sqr	0.12	0.10	0.09	0.13
Industry effect	YES	YES	YES	YES
Country effects	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.20 Different Regressions Results using Tobin's_Q as firms' performance measure, by controlling industries, countries and years effects.

This table presents different regressions results to find the effects of different ownership identity on firm performance in the MENA region; This model capture the effects of industries, countries and years fixed effects; z-statistics are within parentheses.

	Dependent variable :Tobin			
	Pooled OLS	Fixed Effect	Random Effect	GMM
Foreign Ownership	0.009*** (8.62)	0.004 (1.70)	0.008*** (4.20)	0.009*** (8.33)
Individual Ownership	0.005*** (4.51)	0.004 (1.72)	0.004** (2.58)	0.005*** (5.21)
Institution Ownership	0.005*** (6.63)	0.001 (0.40)	0.004* (2.38)	0.005*** (5.17)
Government Ownerships	0.009*** (6.26)	0.003 (0.69)	0.006** (3.12)	0.009*** (5.25)
Firm Size	-0.006*** (-9.15)	-0.002 (-0.77)	-0.006*** (-5.13)	-0.006*** (-10.79)
Firm Age	0.025* (2.30)	0.027 (1.12)	0.02 (0.96)	0.025 (1.65)
Financial leverage	-0.002 (-0.39)	-0.01 (-1.17)	-0.006 (-1.09)	-0.002 (-0.59)
Auditor	0.006 (0.15)	0.022 (0.51)	0.031 (0.78)	0.006 (0.18)
GDP	0.012* (2.14)	0.014*** (3.82)	0.013*** (3.66)	0.012* (2.20)
Arab Spring	0.212*** (4.32)	0.219*** (3.53)	0.215*** (3.47)	0.212*** (3.39)
constant	0.328** (2.58)	0.935*** (5.43)	0.429* (2.57)	0.328** (2.74)
AdjR-sqr	0.13	0.11	0.10	0.13
Industry effect	YES	YES	YES	YES
Country effects	YES	YES	YES	YES
Year Effects	YES	YES	YES	YES
Observations	5,521	5,521	5,521	5,521

*** Significance at the 1% level

** Significance at the 5% level,

* Significance at 10% level.

Variables Explanation in Table 6.3

5.4.1 The effects of the Controller Identity

This section is an investigation of the effects of each identity when it controls 51% or more of the firm's equity. A dichotomous-type variable as described in table 4.21 was used in this section; the dichotomous variable is used to classify the power of the largest ownership identity that owns a voting percentage equalling at least 51% of the common stock. This ownership concentration index is symbolized as *foreign_51*, *individual_51*, *institution_51*, and *government_51* and represents the power of the four ownership identities. The four dummy variables have a value of 1 if one of the identities own at least 51% of the firm's equity.

Table 5.21 The Classification of the Largest Ownership Identity Power.

Variable	Description	Observation
Foreign_51	Dummy variable, 1 if total foreign investors own at least 51% of the firm's equity and 0 otherwise.	260
Individual_51	Dummy variable, 1 if total individual investors own at least 51% of the firm's equity and 0 otherwise.	447
Institution_51	Dummy variable, 1 if total institutional investors own at least 51% of the firm's equity and 0 otherwise.	1,452
Government_51	Dummy variable, 1 if total government investors own at least 51% of the firm's equity and 0 otherwise.	164

All other dependent and independent variables remained the same. The following regression model was used.

$$\begin{aligned}
 \text{Firm Performance}_{it} = & \beta_0 + \beta_1 \text{Foreign_51}_{it} + \beta_2 \text{Individual_51}_{it} + \\
 & \beta_3 \text{Institution_51}_{it} + \beta_4 \text{Government_51}_{it} + \beta_5 \text{Firm Age}_{it} + \beta_6 \text{Firm Size}_{it} + \\
 & \beta_7 \text{Leverage}_{it} + \beta_8 \text{Auditors}_{it} + \beta_9 \text{GDP}_{it} + \beta_{10} \text{Arab Spring}_{it} + \beta_{11} \text{IndustryDummy}_{it} + \\
 & \beta_{12} \text{CountryDummy}_{it} + \beta_{13} \text{YearDummies}_{it} + \varepsilon_{it}
 \end{aligned}
 \tag{6.1}$$

Unlike the other tests in previous sections, because of the extensive data, only one regression model was used. The Housman test and the Breach-Pagan test were applied to show that the random regression is the best model to explain the determination of ownership structure.

Tables 5.22, 5.23, and 5.24 using different dependent variable: ROA, ROE and Tobin_Q respectively, show the random regression results of the relationship between the number of largest shareholders and firm performance after controlling for the effects of country, industry, and years separately . The results in table 4.22 and 4.23 show that both foreigners and individuals have negative effects on firm accounting performance measures (ROA and ROE), yet this effect is not significant.

Institutional ownership has significant positive effects on firm accounting ratios. Also, government ownership has positive effects on ROA at the 1% level of significance. However, although the results show that government ownership has positive effects on ROE, this is not significant, save for in one model that captured the effects of country differences.

Regarding Tobin's Q, the results in table 4.24 indicated that all ownership types have positive effects on market ratio, yet not all the effects are significant. Unlike the effects of foreign investors on accounting ratios, they have significant positive effects on Tobin's Q at the 1% level of significance in all models. However, the effects of individual ownership are not significant. Institutional ownership also has a significant influence on Tobin's Q in all models, save for two models that account for industry and year effects separately. On the other hand, government ownership has a significant effect on market ratio in all models, yet the level of significance varies depending on the model used. Thus, government has a 1% level of significance and a positive effect after controlling for country effects.

In conclusion, studying the power of ownership identity, when controlling for firms that have 51% or more of a firm's equity, shows significant results. The findings are aligned to the results in the previous section regarding the effects of ownership identity on firm performance for three types which are individual, institution, and government. However, in this study, foreign investors had negative effects on ROA and ROE when they had control over firms, unlike the results discovered in the previous section.

Table 5.22 Random Regressions Results using ROA as dependent variable.

This table presents Random regressions results find the effects of each owner identify in firm performance. Ownership identify in this model is Dummy variable taking 1 if total shears by each identify group owning 51% of total equity and 0 otherwise. z-statistics are within parentheses.

	Dependent variable : ROA				
	Model 1	Model 2	Model 3	Model 4	Model 5
Foreign Ownership	-1.153 (-1.31)	-1.414 (-1.62)	-1.204 (-1.36)	-1.187 (-1.35)	-1.479 (-1.68)
Individual Ownership	0.709 (0.73)	0.588 (0.61)	0.911 (0.94)	0.649 (0.67)	0.698 (0.73)
Institution Ownership	0.515 (1.24)	0.382 (0.93)	0.333 (0.79)	0.477 (1.13)	0.154 (0.36)
Government Ownerships	2.969* (2.16)	2.709* (2.04)	3.184* (2.24)	2.965* (2.16)	2.830* (2.06)
Firm Size	0.013* (2.50)	0.012* (2.38)	0.006 (1.21)	0.012* (2.45)	0.006 (1.21)
Firm Age	0.777*** (10.00)	0.567*** (7.23)	0.517*** (6.15)	0.775*** (9.94)	0.306*** (3.62)
Financial leverage	-0.680*** (-16.37)	-0.655*** (-15.98)	-0.714*** (-17.34)	-0.681*** (-16.37)	-0.684*** (-16.80)
Auditor	0.959*** (3.51)	1.306*** (4.81)	0.834** (2.64)	0.949*** (3.47)	1.226*** (3.90)
GDP	0.162*** (3.82)	0.157*** (3.77)	0.119** (2.72)	0.168*** (3.89)	0.120** (2.72)
Arab Spring	0.858** (3.08)	0.667* (2.42)	1.495*** (4.35)	0.886** (2.96)	1.585*** (4.19)
constant	0.38 (0.80)	1.738*** (3.62)	2.432** (2.75)	0.524 (0.87)	1.288 (1.34)
AdjR-sqr	0.09	0.11	0.12	0.09	0.14
Industry effect	NO	YES	NO	NO	YES
Country effects	NO	NO	YES	NO	YES
Year Effects	NO	NO	NO	YES	YES
Observations	5521	5521	5521	5521	5521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1: does not capture the effects of industries, countries and years fixed effects

Models 2: only capture industries fixed effects

Models 3: only capture country fixed effects

Models 4: only capture years fixed effects

Models 4: capture industries, countries and years fixed effects

Variables Explanation in Table 6.3

Table 5.23 Random Regressions Results using ROE as dependent variable.

This table presents Random regressions results find the effects of each owner identify in firm performance. Ownership identify in this model is Dummy variable taking 1 if total shears by each identify group owning 51% of total equity and 0 otherwise. z-statistics are within parentheses.

	Dependent variable : ROE				
	Model 1	Model 2	Model 3	Model 4	Model 5
Foreign Ownership	-2.87 (-1.15)	-3.206 (-1.30)	-3.377 (-1.38)	-2.835 (-1.14)	-3.672 (-1.53)
Individual Ownership	0.427 (0.32)	0.289 (0.22)	0.763 (0.57)	0.472 (0.36)	0.584 (0.44)
Institution Ownership	1.615* (2.04)	1.434 (1.81)	1.183 (1.46)	1.689* (2.10)	1.032 (1.25)
Government Ownerships	1.043 (0.54)	0.658 (0.35)	1.387 (0.70)	1.144 (0.59)	0.965 (0.50)
Firm Size	0.070*** (7.81)	0.069*** (7.74)	0.062*** (6.79)	0.070*** (7.84)	0.062*** (6.82)
Firm Age	1.112*** (8.05)	0.827*** (5.89)	0.698*** (4.71)	1.121*** (8.08)	0.423** (2.81)
Financial leverage	-0.648*** (-8.78)	-0.615*** (-8.38)	-0.741*** (-10.21)	-0.649*** (-8.78)	-0.703*** (-9.73)
Auditor	2.488*** (5.12)	2.958*** (6.09)	2.455*** (4.40)	2.497*** (5.13)	2.969*** (5.32)
GDP	0.333*** (4.43)	0.327*** (4.38)	0.232** (3.02)	0.342*** (4.46)	0.231** (2.96)
Arab Spring	0.909 (1.83)	0.65 (1.32)	2.921*** (4.82)	0.744 (1.40)	3.026*** (4.51)
constant	1.399 (1.67)	3.241*** (3.77)	1.98 (1.27)	1.178 (1.11)	0.625 (0.37)
AdjR-sqr	0.08	0.10	0.11	0.08	0.12
Industry effect	NO	YES	NO	NO	YES
Country effects	NO	NO	YES	NO	YES
Year Effects	NO	NO	NO	YES	YES
Observations	5521	5521	5521	5521	5521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1: does not capture the effects of industries, countries and years fixed effects

Models 2: only capture industries fixed effects

Models 3: only capture country fixed effects

Models 4: only capture years fixed effects

Models 4: capture industries, countries and years fixed effects

Variables Explanation in Table 6.3

Table 5.24 Random Regressions Results using Tobin's_Q as dependent variable

This table presents Random regressions results find the effects of each owner identify in firm performance. Ownership identify in this model is Dummy variable taking 1 if total shears by each identify group owning 51% of total equity and 0 otherwise. z-statistics are within parentheses.

	Dependent variable :Tobin				
	Model 1	Model 2	Model 3	Model 4	Model 5
Foreign Ownership	0.243 (1.95)	0.23 (1.85)	0.328** (2.65)	0.219 (1.74)	0.292* (2.36)
Individual Ownership	0.03 (0.34)	0.026 (0.30)	0.056 (0.65)	-0.003 (-0.03)	0.025 (0.29)
Institution Ownership	0.053 (0.78)	0.046 (0.67)	0.081 (1.18)	0.019 (0.28)	0.043 (0.65)
Government Ownerships	0.166 (1.03)	0.152 (0.94)	0.239 (1.54)	0.14 (0.88)	0.199 (1.31)
Firm Size	-0.004*** (-5.55)	-0.004*** (-5.60)	-0.006*** (-8.30)	-0.004*** (-5.94)	-0.006*** (-8.35)
Firm Age	0.078*** (7.74)	0.067*** (6.55)	0.040*** (3.70)	0.074*** (7.34)	0.029** (2.58)
Financial leverage	0.001 (-0.08)	0.001 (0.15)	0.001 (0.14)	0.001 (-0.08)	0.002 (0.45)
Auditor	0.132*** (3.72)	0.149*** (4.19)	0.018 (0.45)	0.123*** (3.49)	0.039 (0.95)
GDP	0.013* (2.42)	0.013* (2.39)	0.011* (1.97)	0.015** (2.72)	0.013* (2.19)
Arab Spring	0.293*** (8.10)	0.283*** (7.84)	0.163*** (3.68)	0.361*** (9.30)	0.210*** (4.26)
constant	0.796*** (12.99)	0.728*** (11.55)	0.753*** (6.59)	0.567*** (7.33)	0.542*** (4.34)
AdjR-sqr	0.07	0.09	0.10	0.08	0.10
Industry effect	NO	YES	NO	NO	YES
Country effects	NO	NO	YES	NO	YES
Year Effects	NO	NO	NO	YES	YES
Observations	5521	5521	5521	5521	5521

*** Significance at the 1% level, ** Significance at the 5% level, * Significance at 10% level.

Models 1: does not capture the effects of industries, countries and years fixed effects

Models 2: only capture industries fixed effects

Models 3: only capture country fixed effects

Models 4: only capture years fixed effects

Models 4: capture industries, countries and years fixed effects

Variables Explanation in Table 6.3

5.5 Other robustness checks

Like the previous chapter, this chapter also carries out seven robustness tests as shown in tables 5.25 and 5.26. Column (1) shows the regression results when industry is replaced with firm fixed effects. Column (2) presents the results using Year-level clustering. Column (3) reports the results using two-way clustering by industry and year. As shown in table 4.1 in chapter four, Turkey and Egypt represents respectively 23% and 20% of the total study sample. In order to validate the results and to ensure that one country does not affect the results, columns (4 and 5) reports the results model after excluding Turkey and Egypt represents from the sample. In addition, to eliminate the biases from the effect of firm's market capitalisation, firms are divided into two groups: Group A with high market capitalisation (above firm size mean) and Group B with low market capitalisation (below firm size mean). Results presented in Columns (6 and 7) are by running regression for each group only. As noticed in the different regressions outcomes, the results are mostly constant in the seven tests, and this strongly supports the robustness of the study results.

5.6 Quantile Regressions

As an additional test, also in this chapter, I compare the results of classical least squares (OLS) of the effects of different types of ownership on firm's performance, and these effects in different quantile distribution using quantile regression outcomes. The purpose of regression is to test the effects of ownership types in each performance quantile distributed by (10th, 25th, 50th, 75th and 90th percentile). As shown in tables 5.27 and 5.28, each ownership type has different effects on performance quantile.

Table 5.25 Robustness tests, Dependent Variable: ROA and ROE

	Dependent variable : ROA							Dependent variable : ROE						
	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Foreign Ownership	0.018*	0.024***	0.024**	0.019**	0.026**	0.013*	0.040**	0.024**	0.034**	0.021**	0.022**	0.046**	0.018	0.062**
	(2.33)	(10.81)	(2.90)	(2.12)	(2.93)	(1.40)	(3.19)	(1.74)	(4.02)	(1.39)	(1.37)	(2.89)	(0.92)	(3.07)
Individual Ownership	-0.012	-0.005	0.008	-0.005	-0.001	-0.005	-0.029	-0.028*	-0.016	-0.001	-0.019	-0.006	-0.005	-0.033
	(-1.60)	(-0.87)	(0.59)	(-0.62)	(-0.03)	(-0.46)	(2.70)	(-2.09)	(-2.39)	(-0.01)	(-1.27)	(-0.42)	(-0.25)	(-1.87)
Institution Ownership	0.024***	0.029***	0.024**	0.022**	0.028***	0.025***	0.035***	0.044***	0.053***	0.033*	0.040***	0.049***	0.046***	0.058***
	(4.33)	(8.83)	(2.93)	(3.27)	(4.35)	(3.69)	(3.88)	(4.41)	(7.00)	(2.21)	(3.44)	(4.19)	(3.38)	(3.98)
Government Ownership	0.054***	0.066***	0.081***	0.074***	0.068***	0.094***	0.049**	0.006	0.022*	0.054***	0.032	0.032	0.067**	0.011
	(5.32)	(13.38)	(8.05)	(6.41)	(6.13)	(8.55)	(2.60)	(0.33)	(2.60)	(3.63)	(1.58)	(1.63)	(2.99)	(0.37)
Firm Size	0.007	0.006	0.002	0.002	0.013*	-0.023***	0.726***	0.064***	0.064***	0.054***	0.047***	0.074***	0.002**	1.078***
	(1.39)	(2.17)	(-0.24)	(-0.26)	(2.40)	(-4.82)	(8.36)	(7.14)	(12.04)	(4.29)	(4.19)	(7.67)	(0.25)	(7.71)
Firm Age	0.555***	0.760***	0.469***	0.895***	0.613***	0.256**	0.753***	0.811***	1.109***	0.655***	1.358***	0.835***	0.303	1.096***
	(7.10)	(10.64)	(5.54)	(10.09)	(6.97)	(2.70)	(6.09)	(5.78)	(8.35)	(4.20)	(8.80)	(5.31)	(1.56)	(5.51)
Financial leverage	-0.660***	-0.679***	-0.709***	-0.611***	-0.717***	-0.717***	-0.742***	-0.620***	-0.647**	-0.732***	-0.402***	-0.717***	-0.341***	-1.227***
	(-16.16)	(-9.87)	(-6.43)	(-12.94)	(-14.79)	(-15.13)	(-10.90)	(-8.47)	(-5.41)	(-4.22)	(-4.90)	(-8.26)	(-3.53)	(-11.20)
Auditor	0.952***	0.572	0.545	0.581	0.841**	0.19**	0.301**	2.537***	2.030**	2.127***	1.910***	2.647***	0.625**	0.399**
	(3.48)	(2.21)	(1.52)	(1.89)	(2.75)	(0.60)	(0.64)	(5.17)	(3.95)	(3.55)	(3.58)	(4.83)	(0.97)	(0.52)
GDP	0.148***	0.155	0.115*	0.262***	0.120**	0.176***	0.146*	0.322***	0.333*	0.229**	0.625***	0.254***	0.383***	0.287*
	(3.56)	(1.97)	(2.29)	(3.81)	(2.81)	(3.92)	(1.93)	(4.32)	(2.53)	(2.78)	(5.22)	(3.33)	(4.17)	(2.35)
Arab Spring	0.836**	1.097***	1.697**	0.893*	1.400***	0.709**	0.26**	0.794**	0.97**	3.143**	0.581*	1.655**	0.243**	0.064**
	(2.99)	(13.02)	(3.20)	(2.53)	(4.19)	(1.94)	(0.61)	(1.58)	(1.50)	(2.95)	(0.95)	(2.77)	(0.33)	(0.09)
constant	2.148***	1.21**	1.297**	1.849**	1.182**	4.345***	6.246***	3.793***	2.148**	0.859**	4.290***	2.595*	6.091***	9.167***
	(3.82)	(1.54)	(1.13)	(2.84)	(1.88)	(5.71)	(6.84)	(3.76)	(1.42)	(0.43)	(3.79)	(2.30)	(3.93)	(6.24)
AdjR-sqr	0.117	0.094	0.125	0.093	0.094	0.134	0.089	0.076	0.061	0.107	0.062	0.067	3.83	0.084
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

z-statistics are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.26 Robustness tests, Dependent Variable: Tobin's_Q and Log- Tobin's_Q

	Dependent variable : : TOBIN_Q							Dependent variable :: LOG_TOBIN_Q						
	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B	Firm FE	Cluster by Year	Two-way clustering	Exclude Turkey	Exclude Egypt	Firms Group A	Firms Group B
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Foreign Ownership	0.006*** (5.52)	0.006*** (7.40)	0.009*** (6.19)	0.002*** (1.79)	0.007*** (7.52)	0.006*** (6.06)	0.005** (2.96)	0.003*** (6.60)	0.003*** (8.67)	0.005*** (7.45)	0.001** (2.75)	0.004*** (7.94)	0.003*** (6.00)	0.003*** (4.27)
Individual Ownership	0.002 (1.89)	0.002 (2.19)	0.005*** (4.23)	0.002 (1.81)	0.002* (2.43)	0.002 (1.93)	0.002 (1.20)	0.001 (1.91)	0.001 (2.02)	0.003** (3.26)	0.001 (1.78)	0.002*** (3.69)	0.001 (1.40)	0.001 (1.92)
Institution Ownership	0.003*** (3.81)	0.002** (3.74)	0.005*** (4.48)	0.004*** (4.62)	0.001 (1.55)	0.001 (1.59)	0.006*** (4.44)	0.001*** (3.92)	0.001** (4.85)	0.003*** (5.93)	0.002*** (5.30)	0.001* (2.17)	0.001* (2.15)	0.002*** (4.83)
Government Ownership	0.003* (2.09)	0.004* (3.27)	0.004** (2.70)	0.001** (0.13)	0.005*** (3.95)	0.009*** (7.46)	0.008** (3.01)	0.001* (1.17)	0.001* (3.07)	0.001* (2.16)	0.001* (-0.47)	0.002*** (3.37)	0.004*** (5.56)	-0.004*** (-3.48)
Firm Size	-0.004*** (-5.92)	-0.004*** (-11.12)	-0.006*** (-8.28)	-0.003*** (-4.10)	-0.003*** (-5.64)	-0.004*** (-6.54)	-0.032** (-2.58)	-0.001*** (-4.36)	-0.001*** (-9.88)	-0.003*** (-6.36)	-0.001** (-2.79)	-0.001*** (-3.79)	-0.001*** (-4.88)	-0.019*** (-4.08)
Firm Age	0.067*** (6.55)	0.074*** (6.74)	0.035* (2.61)	0.083*** (7.28)	0.084*** (8.69)	0.046*** (4.31)	0.120*** (6.82)	0.039*** (9.14)	0.045*** (10.53)	0.025*** (4.13)	0.052*** (10.90)	0.052*** (11.06)	0.026*** (4.81)	0.070*** (10.54)
Financial leverage	0.001 (0.07)	0.001 (0.43)	0.001 (0.30)	0.003 (0.44)	0.005 (0.99)	0.011 (2.15)	0.015 (1.52)	0.007** (3.06)	0.006*** (9.18)	0.007*** (3.51)	0.006* (2.48)	0.006* (2.12)	-0.001 (-0.30)	0.014*** (3.87)
Auditor	0.131*** (3.64)	0.104* (3.25)	0.014* (-0.39)	0.092* (2.33)	0.146*** (4.35)	0.147*** (4.14)	0.11** (1.63)	0.112*** (7.43)	0.092*** (6.59)	0.005* (0.27)	0.071*** (4.29)	0.120*** (7.30)	0.125*** (6.82)	0.076** (2.97)
GDP	0.013* (2.33)	0.015 (2.25)	0.012* (2.01)	-0.012 (-1.42)	0.012* (2.54)	0.01 (1.96)	0.012 (1.14)	0.010*** (4.26)	0.011 (2.06)	0.008* (2.36)	-0.003 (-0.84)	0.010*** (4.24)	0.006* (2.33)	0.014*** (3.33)
Arab Spring	0.312*** (8.49)	0.384*** (10.18)	0.216*** (3.74)	0.455*** (10.07)	0.372*** (10.20)	0.328*** (7.99)	0.372*** (6.14)	0.174*** (11.28)	0.217*** (8.79)	0.132*** (5.41)	0.265*** (13.95)	0.226*** (12.59)	0.204*** (9.67)	0.179*** (7.76)
constant	0.592*** (8.01)	0.455*** (9.65)	0.360** (3.03)	0.695*** (8.33)	0.586*** (8.53)	0.814*** (9.53)	0.553*** (4.27)	0.346*** (11.18)	0.417*** (12.29)	0.447*** (6.40)	0.279*** (7.95)	0.379*** (11.18)	0.174*** (3.97)	0.345*** (7.00)
AdjR-sqr	0.086	0.075	0.085	0.091	0.089	0.064	0.085	0.087	0.083	0.165	0.092	0.098	0.079	0.091
Industry effect	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
Country effects	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO
Year Effects	NO	YES	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Observations	5,521	5,521	5,521	4,249	4403	2769	2752	5,521	5,521	5,521	4,249	4403	2769	2752

z-statistics are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.27 Results of using standard quantile regression, Dependent Variable ROA and ROE

	Dependent variable : ROA						Dependent variable : ROE					
	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9
Foreign Ownership	0.025** (0.01)	0.009 (0.02)	0.016* (0.01)	0.016** (0.01)	0.019** (0.01)	0.053** (0.02)	0.033** (0.01)	0.037 (0.03)	0.025 (0.02)	0.026** (0.01)	0.028* (0.02)	0.128** (0.03)
Individual Ownership	-0.004 (0.01)	-0.012 (0.01)	-0.005 (0.01)	-0.009* (0.01)	-0.009 (0.01)	-0.008 (0.02)	-0.017 (0.01)	-0.015 (0.03)	-0.005 (0.02)	-0.014 (0.01)	-0.042** (0.02)	-0.027 (0.03)
Institution Ownership	0.029** (0.01)	0.039** (0.01)	0.021** (0.01)	0.02** (0.00)	0.028** (0.01)	0.031** (0.01)	0.052** (0.01)	0.059** (0.02)	0.035** (0.01)	0.042** (0.01)	0.045** (0.01)	0.083** (0.02)
Government Ownership	0.066** (0.01)	-0.016 (0.02)	0.009 (0.01)	0.044** (0.01)	0.06** (0.01)	0.197** (0.02)	0.022 (0.02)	-0.021 (0.04)	-0.008 (0.03)	0.03** (0.02)	0.025 (0.02)	0.057 (0.04)
Firm Size	0.006 (0.01)	0.044** (0.01)	0.02** (0.01)	0.002 (0.00)	-0.013** (0.01)	-0.025** (0.01)	0.063** (0.01)	0.117** (0.02)	0.081** (0.01)	0.044** (0.01)	0.028** (0.01)	-0.009 (0.02)
Firm Age	0.762** (0.08)	1.053** (0.14)	0.671** (0.08)	0.576** (0.06)	0.554** (0.08)	0.38** (0.18)	1.1** (0.14)	1.447** (0.30)	1.015** (0.19)	0.922** (0.12)	0.915** (0.15)	1.183** (0.28)
Financial leverage	-0.679** (0.04)	-0.845** (0.08)	-0.703** (0.05)	-0.551** (0.03)	-0.655** (0.04)	-0.765** (0.09)	-0.646** (0.07)	-5.03** (0.16)	-1.829** (0.10)	-0.12* (0.06)	0.079 (0.08)	0.49** (0.15)
Auditor	0.578** (0.28)	0.853* (0.51)	0.651** (0.30)	0.559** (0.20)	0.448 (0.29)	0.197 (0.63)	2.014** (0.49)	1.703 (1.08)	0.963 (0.69)	1.984** (0.41)	2.661** (0.53)	2.355** (0.98)
GDP	0.15** (0.04)	0.186** (0.08)	0.145** (0.05)	0.109** (0.03)	0.062 (0.04)	0.146 (0.10)	0.325** (0.08)	0.226 (0.17)	0.327** (0.11)	0.258** (0.06)	0.218** (0.08)	0.372** (0.15)
Arab Spring	1.08** (0.28)	-0.285 (0.53)	0.413 (0.31)	0.892** (0.21)	1.694** (0.29)	2.878** (0.65)	1.135** (0.51)	-1.239 (1.11)	0.366 (0.71)	1.734** (0.42)	2.77** (0.54)	4.661** (1.01)
constant	-1.14** (0.56)	-11.436** (1.05)	-4.054** (0.61)	0.082 (0.41)	3.215** (0.58)	9.741** (1.28)	-2.383** (1.00)	-11.605** (2.20)	-5.921** (1.41)	-2.283** (0.84)	3.239** (1.08)	9.7** (2.01)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 6.3

Table 5.28 Results of using standard quantile regression, Dependent Variable: Tobin's_Q and Log- Tobin's_Q

	Dependent variable :: TOBIN_Q						Dependent variable :: LOG_TOBIN_Q					
	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9	(1) OLS	(2) 0.1	(3) 0.25	(4) 0.5	(5) 0.75	(6) 0.9
Foreign Ownership	0.006** (0.00)	0.001** (-0.00)	0.002** (-0.00)	0.002** (0.00)	0.006** (0.00)	0.014** (0.00)	0.003** (-0.00)	0.002** (0.00)	0.002** (-0.00)	0.002** (-0.00)	0.004** (0.00)	0.006** (0.00)
Individual Ownership	0.002** (0.01)	0.001 (0.01)	0.001** (0.01)	0.001 (0.01)	0.002** (0.01)	0.007** (0.01)	0.001** (0.01)	0.001 (0.01)	0.001** (0.01)	0.001* (0.01)	0.001** (0.01)	0.003** (0.01)
Institution Ownership	0.003** (0.00)	0.001 (-0.00)	0.001** (-0.00)	0.001** (-0.00)	0.002** (0.00)	0.005** (0.00)	0.001** (-0.00)	0.001 (-0.00)	0.001** (-0.00)	0.001** (-0.00)	0.002** (-0.00)	0.002** (0.00)
Government Ownership	0.003** (0.01)	0.001 (0.01)	0.001 (0.01)	0.001 (0.01)	0.003** (0.01)	0.011** (0.01)	0.001** (0.01)	0.001 (0.01)	0.001 (0.01)	0.001 (0.01)	0.002** (0.01)	0.005** (0.01)
Firm Size	-0.004** (0.00)	0.001* (-0.00)	0.001 (-0.00)	-0.001** (-0.00)	-0.002** (0.00)	-0.007** (0.00)	-0.001** (-0.00)	0.001 (-0.00)	0.001 (-0.00)	-0.001** (-0.00)	-0.002** (-0.00)	-0.004** (0.00)
Firm Age	0.077** (0.01)	0.033** (0.01)	0.041** (0.01)	0.045** (0.01)	0.065** (0.01)	0.089** (0.01)	0.048** (0.01)	0.046** (0.01)	0.046** (0.01)	0.04** (0.01)	0.045** (0.01)	0.038** (0.01)
Financial leverage	-0.001 (0.01)	0.021** (0.01)	0.017** (0.01)	0.002 (0.01)	-0.007 (0.01)	-0.008 (0.01)	0.006** (0.01)	0.024** (0.01)	0.018** (0.01)	0.002 (0.01)	-0.005 (0.01)	-0.005 (0.01)
Auditor	0.113** (0.04)	0.086** (0.01)	0.107** (0.01)	0.091** (0.02)	0.102** (0.03)	0.159* (0.09)	0.097** (0.02)	0.112** (0.02)	0.12** (0.01)	0.084** (0.02)	0.079** (0.02)	0.081** (0.04)
GDP	0.013** (0.01)	0.012** (0.01)	0.009** (0.01)	0.007** (0.01)	0.015** (0.01)	0.024* (0.01)	0.01** (0.01)	0.014** (0.01)	0.009** (0.01)	0.006** (0.01)	0.01** (0.01)	0.01* (0.01)
Arab Spring	0.324** (0.04)	0.086** (0.01)	0.119** (0.01)	0.18** (0.02)	0.274** (0.03)	0.642** (0.09)	0.184** (0.02)	0.126** (0.02)	0.135** (0.01)	0.16** (0.02)	0.198** (0.02)	0.292** (0.04)
constant	0.641** (0.07)	0.38** (0.03)	0.46** (0.02)	0.701** (0.04)	0.798** (0.07)	1.07** (0.18)	-0.306** (0.03)	-0.801** (0.04)	-0.604** (0.03)	-0.268** (0.03)	-0.105** (0.04)	0.276** (0.08)

Standard errors are within parentheses

** Significance at the 5% level, * Significance at 10% level.

Variables Explanation in Table 6.3

5.7 Discussion and Conclusion

The aim of this study is to provide logical evidence for the effects of ownership identity on firm performance. The study used four types of ownership, foreign, individual, institution, and government, and three ways to measure firm performance, ROA, ROE, and Tobin's Q. The study uses different panel-data analyses to capture the biased results when using a single model, but a different approach was used to control for country, industry, and year-fixed effects.

The results show that foreign ownership has a positive impact on ROA, ROE, and Tobin's Q as stated in the hypothesis (H2a). These results align with other findings, such as Choi et al. (2012), who found foreign ownership has a positive effect on Tobin's Q in Korean firms. Also in India, Douma et al. (2006) found positive effects on firm performance, as measured by Tobin's Q and ROA. In Nigeria, Tsegba and Ezi-Herbert (2011) found a positive but insignificant relationship between foreign ownership and firm performance. Using four MENA countries, Ben Naceur et al. (2007) found that newly privatised banks with high foreign ownership levels, have significant and positive effects on firm performance. This supports the argument that foreign investors enhance firm performance by providing technology, research and development, and managerial skills (Ferreira & Matos, 2008). This explains that overseas investors aside, with other type of investors in MENA, public firms can form a good tool in mitigating the agency problem and enhancing firms' performance by supporting firms with up-to-date technology and managerial skills.

However, when studying the effects of foreign investors, when they have control over a firm's voting rights, there is a negative effect on ROA and ROE. This was concluded by Gedajlovic et al. (2005) in their study of Japanese manufacturing firms. This can be explained by the argument made by Nakano and Nguyen (2013), who believed that foreign investors avoid any risk-taking strategies, which results in losing investment opportunities. This gives evidence that foreign investors having the ultimate control over firms in MENA countries can harm firms. This is because foreigners in this region are not willing to take risks in expanding firm's activities.

Regarding institutional ownership, it has significant positive effects on all performance measures used in the study, which explains the hypothesis (H2b). This finding was uncovered in many empirical studies that investigated the role of institution ownership on firm value.

Tsai and Zheng (2007) found that American restaurants controlled by institutions, especially financial institutions, significantly and positively affect Tobin's Q. Also Ellili (2011) concluded that institutional ownership has a positive influence on the wealth of the shareholders. Gedajlovic et al. (2005) found that institution ownership has a positive influence on manufacturing firms. Fazlzadeh et al. (2011) and Alfaraih et al. (2012) found institutional investments have positive effects on public firms that were listed on the Tehran Stock Exchange and Kuwait Stock Exchange, respectively. This can be explained by the fact that institutions have voting rights and can monitor firm activities and, accordingly, enhance firm performance (Tsai & Zheng, 2007). So, the study gives confirmation that institutional ownership is one of the effective types of owners in MENA public firms. This is because institutions can support firms with the knowledge and technology which help in good performance.

Government ownership has a positive impact on ROA, ROE, and Tobin's Q as settled in the hypothesis (H2c). The same finding was corroborated by Gul et al. (2010), who used the Chinese market and found that government ownership increases firm stock price. Also, in the MENA region, Ben Naceur et al. (2007) examined the effect of ownership structure in newly privatised banks and found that firms that kept government ownership after privatisation, had improved profitability, as measured by ROA and ROE. Using four Arab countries, Omran et al. (2008a) found that government investment in a firm has a positive impact on Tobin's Q. Government interests align between managers and owners, producing the capability to solve the asymmetrical flow of information disclosed to investors (Jensen & Meckling, 1976). Also, the government has the power to access different sources of information and different financing organisations and non-government firms (Eng & Mak, 2003). So, having government shares in MENA public firms can help firms in mitigating agency costs and obtain good performance. This is because governments in the MENA region can easily expand firms' activity by supporting funds and information.

Regarding the hypothesis (H2d); although the current study indicated individual owners have a significant positive effect on Tobin's Q, they have no significant effect on ROA and ROE. This result was also shown by (Pathak et al., 2012) who found no relationship between individual investors and firm ROA. Ibrahim and Samad (2011) found that ROA is lower in family-owned firms than in firms with non-family ownership. Omran et al. (2008a) found that individual ownership has significant negative effects on ROA and ROE. This can be

explained by the fact that individuals controlling the firm may acquire positions for themselves and use their power to extract firm resources (Anderson & Reeb, 2003). This gives evidence that when individuals control firms in MENA countries, they benefit themselves at the expense of a firm's benefits. So it seems that public firms in this region are controlled by individuals who are highly likely to have an agency problem between large and minority shareholder, and misuse a firm's resources for private benefit.

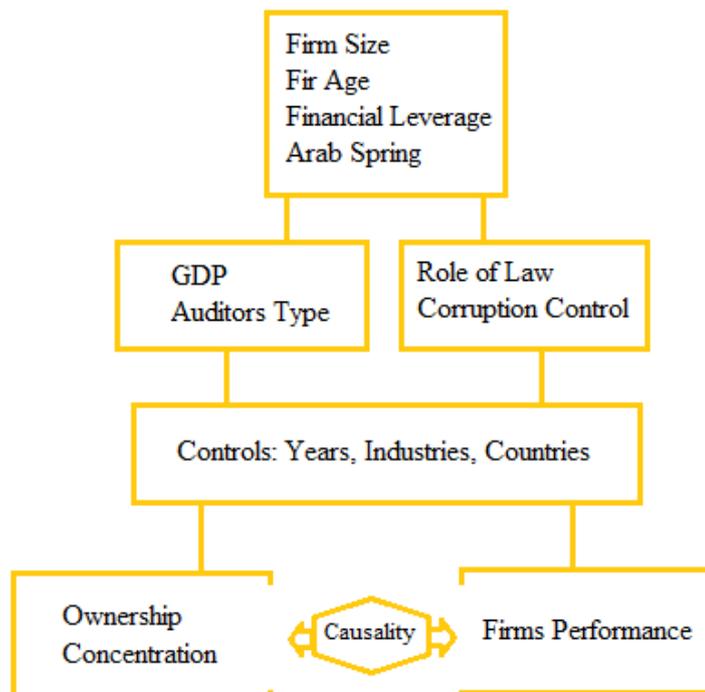
In conclusion, ownership types have different roles in corporate governance in MENA countries. This indicates that each type of investors have different targets to achieve within the firms. The current findings indicate that foreign, institution, and government ownership have positive effects on firm performance; however, individuals do not show any significant effects on improving firm ROA and ROE.

Chapter Six : Thesis Summary and Conclusions

6.1 Thesis Contribution and Data Summary

This study investigated three important dimensions on ownership structure. Firstly, the factors that affect ownership concentration in the MENA region. Secondly, the effects of ownership concentration on firm performance and thirdly the effects of ownership identity on firm performance. This study contributed to the current literature on ownership structure, as the first of its kind (to the author's best knowledge) to investigate the effects of ownership concentration and ownership identity on firm performance in the MENA region. In addition, it was the first study to have an examination of the factors that affect ownership concentration in the MENA region. Moreover, this research was the first of its kind to have an examination of the effects of political factors, namely the Arab revolution (Arab Spring), on ownership structure and firm performance of the examined companies in the MENA region. Figure 6.1 gives an overview of the dependent and independent variables of the thesis.

Figure 6.1 Thesis Summary Gives Overview about the Dependent and Independent Variables



The data consisted of a sample of publicly listed companies from eight MENA countries – Turkey, Tunisia, Saudi Arabia, Qatar, Oman, Jordan, Egypt, and Bahrain – for the period spanning from 2008–2014. The initial dataset contained 1,263 firms from different sectors and 8,841 firm-year observations. The industry was divided into three main categories: (a) a financial group that incorporated all financial institutions, including insurance companies, but excluded banks, (b) an energy and manufacturing company group that included all enterprises that produce goods for non-service uses, and (c) a service group that included all businesses that provide services, such as education, communication, technology, and utilities. After excluding any sample that had neither performance nor ownership structure data, 912 firms across the different sectors and 5,521 firm-year reports remained.

6.2 Finding Summary

As mentioned earlier, this thesis was an attempt to answer three main questions regarding ownership concentration in the MENA region. First the determinate of ownership concentration in the MENA region – the results indicate that ROL and corruption control have negative effects on ownership concentration. This means that low investment protection and high corruption increase the ownership concentration. These results align with the theoretical implications made by (La Porta, Lopez-de-Silanes, & Shleifer, 1999; La Porta, López de Silanes, Shleifer, & Vishny, 1998), who believed that the strength of the law that protects investors in public firms is negatively related to the level of ownership concentration. As practical implications, this explain that investors in the MENA region want to protect their investment by increasing their voting right in the firm, this is because the law that protects their investment are not sufficient. So, practically this explains why public firms in MENA countries are characterised by a high level of ownership concentration.

On the other hand, both firm size and firm age have a significant and positive relationship with ownership concentration. Thus, the results correlate with other research findings, showing that industry and firm size affect ownership structure. For example, Gedajlovic (1993) and Crespi-Cladera (1996) reported that firm size has a positive relationship with ownership concentration. Concerning the effects of financial performance on ownership concentration, only Tobin's Q had a significant positive effect on increasing ownership concentration. This may explain why future market performance in the MENA region attracts investors more than past performance (ROA and ROE).

Regarding the second question, what are the effects of ownership concentration on firm performance? The study found positive effects of ownership concentration on firm performance. This finding supports the theoretical implications of the agency literature and the role of ownership concentration in countries with low investment protection. Thus, ownership concentration enables blockholders to maintain control over the firms in which they invest (Shleifer & Vishny, 1997; Short, 1994). Moreover, these results indicated that blockholder ownership in a firm plays an effective role in mitigating agency problems between shareholders and managers (Hartzell & Starks, 2003). This may be explained by the fact that monitoring by blockholders often results in more efficient manager performance (Demsetz & Lehn, 1985). This gives evidence that owners with a high level of voting rights in MENA countries, has practical implications in corporate governance. In addition the concentration of ownership in the MENA region practically effects in substituting the law that protects investors, and it will help in mitigating agency costs by increasing firm performance.

However, the number of blockholders negatively affected firm performance which means that only a small number of blockholders can control firms effectively in the MENA region. Theoretically, this finding aligns with the argument of (Fama & Jensen, 1983; Jensen & Meckling, 1976) who stated that managers' behaviours cannot be controlled in a diffused ownership structure. Also, Nyman and Silberston (1978) argued that control should be viewed as a type of power, rather than something that is structural. Thus, in practical implication, small numbers of owners can gain enough power to control the firm. According to the results of this study, the power of largest owners in MENA public firms enhances firm performance and enable them to control managerial behaviour toward the firm's benefits.

On the subject of the third question of this thesis that investigates the consequences of ownership identity on firm performance, the results showed that firms which have some degree of foreign ownership perform positively. These results support the theoretical implications that foreign ownership enhances firm performance by providing technology, research and development, and managerial skills (Ferreira & Matos, 2008). Also, foreign investors play an important role as independent, outside monitors, who control the behaviour of both management and majority shareholders (Choi, Sul, & Min, 2012). As practical implications, this explains that overseas investors aside with other type of investors in MENA public firms, can form a good tool in mitigating the agency problem and enhancing firms' performance. However, the study results shows that when foreign investors have the ultimate

power over company voting rights, an adverse effect is seen in ROA and ROE. Theoretically, this can be explained by the argument made by Nakano and Nguyen (2013), who believed that foreign investors avoid any risk-taking strategies, which results in losing investment opportunities. Accordingly, foreigners have bad implications on MENA firms' performance when they control the firms.

Individual owners have significant positive effects on Tobin's Q, yet they have negative effects on operating performance which is measured by ROA and ROE. This results meet the theoretical implications that family members acquire top-management positions, which enables them to have control over a firm's board of directors and gives them the opportunity to use the firm's resources for their own gains (Anderson & Reeb, 2003). Accordingly, in practical implications, public firms in MENA countries owned by an individual are highly likely to have an agency problem between large and minority shareholder and misuse the firm's resources for private benefits.

Regarding the effects of institutional ownership, there is a positive significant effect on all performance measures used in the study. This can be explained theoretically by the fact that institutions have voting rights that enable them to monitor firm activities and, accordingly, enhance firm performance (Tsai & Zheng, 2007). The study result shows that institutions ownership has good implications on firms' performance by enhancing both accounting and market ratios in the firms they invest in.

Also, the results demonstrate that government ownership has positive implications by enhancing ROA, ROE, and Tobin's Q. These results conceive the theoretical implications that government ownership could solve the asymmetrical information flow that is disclosed to investors and can align the interests of managers and owners (Jensen & Meckling, 1976). This is because government has access to different sources of information using it links with financial organisations and non-government firms (Eng & Mak, 2003). Nevertheless, these results give an indication that ownership types have different roles in corporate governance in MENA countries, and this indicates that each type of investors have different targets to achieve within the firms.

Also the study result proves that firm size had positive significant effects on ROA and ROE, showing that larger firms are more profitable than smaller companies. However, bigger firms have a negative effect on Tobin's Q. Firm age positively affects firm performance; old firms

have a higher return on their assets and equity, as well as on Tobin's Q. Regarding financial leverage, the results show that companies with a high leverage are less profitable than low-leveraged firms. Auditor type has a positive impact on firm performance; that is, companies being audited by one of the biggest firms report higher ROA, ROE, and Tobin's Q than firms hiring other auditors. Moreover, GDP growth as a country factor showed to have a positive effect on firm performance.

The Arab Spring's effects on both ownership structure and firm performance show a positive impact on firm performance, even after controlling for year effects in the regression models. This may be the result of the corrections that happened in the legal systems in the countries affected by this revolution. Such corrections eliminated dictatorships and increased transparency and accountability in businesses.

However, the results showed that Arab Spring has had a negative relationship with ownership concentration. Thus, the average ownership concentration has decreased in countries affected by the Arab Spring. This may be because of the investment risk of the affected countries. This finding can be explained by the Pedersen and Thomsen (1997) argument that the degree of shareholder protection affects ownership structure.

6.3 Study limitations

The study has interesting results regarding the role of ownership concentration on firm performance and the factors that influence ownership concentration in the MENA region. However, the study has limitations that should be taken into consideration when looking at the conclusions. First, although the study uses a broad cross-section to cover the main geographic parts of the MENA countries (Gulf states, Mashreq countries, and Maghreb countries), many countries were excluded because of a shortage of data.

Second, the thesis was an investigation into the role of corporate governance on firm performance, but only one mechanism, ownership concentration, was utilised; nevertheless, there are many mechanisms that were addressed in other literature on corporate governance, such as a board of directors and CEO duality. Using those mechanisms in a future study could help give a more complete conclusion about the effects of ownership concentration aside with the other mechanism. However, because of the shortage data on those variables, they were excluded from the current study.

Third, the study used only three ratios (ROA, ROE, and Tobin's Q) as financial performance measures. However, many other measures, such as firm net profit, earnings per share, and return on sales, could be used to measure firm performance. Finally, because of the data shortage, the study period was limited to 7 years, between 2008–2014.

6.4 Recommendation for Further Research

This study was a contribution to the current literature on ownership concentration in the MENA region. However, as mentioned in the previous section, this research only used one mechanism of corporate governance and involved countries that had available data. Thus, there are many ways to extend this study in the future.

One further research opportunity is to use another corporate governance mechanism, such as a board of directors, with ownership concentration, and to then compare the results with this study to make a more definite conclusion. Another possibility for future research is to use other firm performance measures, such as firm net profit, earnings per share, and return on sales, to examine how ownership concentration affects those measures.

Also, this study indicated that there are significant effects regarding the Arab Spring movement on both firm performance and ownership concentration. However, these results could not be linked to another study's results because the current study was the first to address the effects of the Arab Spring movement. Accordingly, this creates an opportunity for further research to investigate how a political change such as Arab Spring can positively influence firm performance and lead to a reduction in ownership concentration.

Moreover, this study was conducted in 2013 and has data that went up to 2014, which is 4 years after the Arab Spring started. There is an obvious gap where further research could come in and use an extended period to examine the long-term effects of the Arab Spring movement on both firm performance and ownership concentration in the affected countries.

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Appendix: Research Ethics Review Checklist

FORM UPR16

Research Ethics Review Checklist



Please include this completed form as an appendix to your thesis (see the Postgraduate Research Student Handbook for more information)

Postgraduate Research Student (PGRS) Information		Student ID:	677342
PGRS Name:	Yousuf Nasser Said AL Awfi		
Department:	Economic and Finance	First Supervisor:	Konstantinos Vergos
Start Date: (or progression date for Prof Doc students)	October 2013		
Study Mode and Route:	Part-time <input type="checkbox"/>	MPhil <input type="checkbox"/>	MD <input type="checkbox"/>
	Full-time <input checked="" type="checkbox"/>	PhD <input checked="" type="checkbox"/>	Professional Doctorate <input type="checkbox"/>

Title of Thesis:	Ownership concentration: Cause and effects on firms' value. Evidence form Middle East and North Africa (MENA) Region
Thesis Word Count: (excluding ancillary data)	60,000

If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

UKRIO Finished Research Checklist:

(If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: <http://www.ukrio.org/what-we-do/code-of-practice-for-research/>)

a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
b) Have all contributions to knowledge been acknowledged?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
c) Have you complied with all agreements relating to intellectual property, publication and authorship?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
e) Does your research comply with all legal, ethical, and contractual requirements?	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>

Candidate Statement:

I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)

Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):

If you have *not* submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain below why this is so:

Data used in this thesis are secondary data and does not involve human participants, therefore it

was not required to be submitted to the FEC. However, my first supervisor Dr. Konstantinos Vergos have reviewed and signed the completed version of the ethics approval checklist.

Signed (PGRS):

A photograph of a handwritten signature in blue ink on a light-colored surface. The signature is cursive and appears to be 'K. Vergos'.

Date: 22 / 9 /2017