

**EFFECT OF OWNERSHIP STRUCTURE
ON FIRM STOCK RETURNS AND
FINANCIAL PERFORMANCE: EVIDENCE
FROM THE EGYPTIAN STOCK MARKET**

BY

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Dedication

To the memory of my parents, I dedicate this dissertation. I know that completing my Ph.D. was one of your dreams. Without your prior support and love, and the nice memories and principles I have been raised with, I could not have done it. God bless your soul. To my two sisters and my two lovely nieces, I Love you. Thank you very much for your care and support. Special dedication to my supervisors: Ahmed El-Masry, Steven Brand and Islam Azzam.

ABSTRACT

The effect of institutional ownership and ownership concentration on the firm's stock returns and volatility and financial performance has long been an interesting issue in the international business literature. A lot of debate has been going on regarding the relationship between institutional ownership, ownership concentration, returns, volatility and financial performance.

The objective of this thesis is to study the effect of institutional ownership and ownership concentration on firm stock returns and financial performance of the listed companies in the Egyptian Stock Exchange. For this purpose, panel data model is employed.

The results from the analysis show that institutional ownership has no effect on ex post stock returns as well as ex ante stock returns. On the contrary, institutional ownership represented by top management and individuals have a negative and significant effect on stock volatility, while employee associations have a positive and significant effect. No significant effect is detected on ex ante risk except for employee associations that have negative and significant effect on ex ante risk. In addition, the results show that institutional ownership has no effect on stock liquidity except employee associations and individuals that have a negative and significant effect on stock liquidity. Finally, the results show that institutional ownership represented by companies, holdings and individuals have negative effect on financial performance represented by ROA and ROE. Also, institutional ownership has no effect on debt to equity ratio except banks that have negative and significant effect and employee associations that have positive and significant effect. The results also show that ownership concentration has no effect on ex post stock returns but it has a positive effect on ex ante stock returns. Also, it has no effect on ex post risk but it has a positive effect on ex ante risk. On the other hand, ownership concentration has a negative and significant effect on stock liquidity. Finally, the results show that ownership concentration has no effect on either financial performance represented by ROA and ROE or debt to equity ratio.

As such, the thesis makes an important contribution to the literature, since it tests the impact of ownership type and concentration on ex ante returns and volatility of stocks in Egypt, an emerging country that has been ignored in literature. Also, the analysis extends the literature by decomposing institutional ownership to several types. Moreover, it adds two components of volatility, volatility clustering and persistence, testing their effect on ex post and ex ante risk, which is not dealt by previous studies.

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Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other university award.

The study was self-financed.

The following activities were undertaken in connection with the programme of the study:

- Working as an Assistant Lecturer of Statistics and Economics.
- Attending a number of training sessions in creative problem solving, critical thinking, positive attitude, constructing exam papers, managing stress and introduction to Latex.
- Attending a course in Business Finance and a course in Financial Econometrics in the American University in Cairo.
- Attending a conference organized in Modern Sciences and Arts University in Egypt.
- Attending a conference organized in Egypt under the name of “People and Banks”.
- Reviewing some extended abstracts submitted by some students and giving review feedback for a conference held at the University of Plymouth.
- Attending a conference organized by the University of Bristol.
- Presenting a Poster about my first research paper at a conference held by University of Plymouth.

The thesis has a word count of 46, 500

Signed..Amal ElGhouti.....

Date...20/11/2014

Abbreviations

ADF	Augmented Dickey Fuller
AIMR	The Association for Investment and Management Research
ARCH	Auto Regressive Conditional Heteroskedasticity
CASE	Cairo and Alexandria Stock Exchange
CMA	Capital Market Authority
egID	Egypt for information Dissemination
EGX	Egyptian Exchange
GARCH	Generalized Auto Regressive Conditional Heteroskedasticity
GDP	Gross Domestic Product
GDR	Global Depository Receipts
GED	Generalized Error Distribution
IFC	International Finance Cooperation
IFCG	International Financial Corporation Global
IMF	International Monetary Fund
IPO	Initial Public Offerings
LM	Lagrange Multiplier
MB	Market to Book Ratio
MCSD	Marginal Conditional Stochastic Dominance
MENA	Middle East and North African Countries
NYSE	New York Stock Exchange
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
P/E	Price – Earnings Ratio
PEAD	Post-Earnings-Announcement Drift
QFII	Qualified Foreign Institutional Investors
ROA	Return on Assets
ROE	Return on Equity
SEC	Securities and Exchange Commission
SOEs	State Owned Enterprises
SSA	Sub-Saharan Africa
S&P	Standard and Poor’s
SUR	Seemingly Unrelated Regression
WFE	World Federation of Exchanges
WTO	World Trade Organization

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CHAPTER (1): INTRODUCTION

1.1 Overview

The effect of ownership structure on the firm's stock returns, volatility and financial performance has long been an interesting issue in the international business literature. A lot of debate has been going on regarding the relationship between institutional ownership, ownership concentration, returns, volatility and financial performance.

On one hand, ownership type represented by institutional investors, the major concern of our study has become very dominant in the world market today and their role has been very significant. There is no exact definition of "institutional investors". What characterize them is that they are not physical persons. Instead, they are legal entities, and these legal forms vary among institutional investors. They may act independently or as a part of a large group as in the case of mutual funds as an example (Celik and Isaksson, 2013). One other definition is that institutional investors are specialized financial institutions, which channel savings collectively on behalf of other investors to achieve a specific objective in terms of limited risk and maximum returns (Davis, 2001). Another wider definition, based mainly on the theory of the firm, is that institutional investors are investment cooperation's set up to minimize transaction costs between investors which are accomplished in a professional method. Since the transaction costs differ for different types of investors, several types of institutional investors have emerged. Today, various kinds of institutional investors deal with different markets and clients, and for various purposes. Therefore, institutional investors are heterogeneous group. They are different in terms of contractual relations between the owners of the assets and the asset managers (Bjuggren et al., 2007).

According to Friedman (1996), there was an increase in aggregate institutional ownership in USA from less than 10% in 1950 to more than 50% in 1994. Also, Schwartz and Shapiro (1992) has pointed out that institutions accounted for 70% of the total volume of trade in NYSE. This percentage increased to over 90% of the total volume of trade as estimated by Kaniel et al (2008). As defined by Wall Street Words in 2003, "institutional ownership is the percentage of a company' shares owned by mutual funds, pension funds, insurance companies and other institutional investors (banks, independent advisors such as; large brokerage firm or

securities firm)”. Sometimes, the large percentage of institutional ownership could lead to large changes in the prices of stocks, if institutional investors buy or sell at the same time.

On the other hand, ownership concentration is measured as the percentage of a firm’s outstanding stocks held by the largest five institutional investors. In the USA, ownership concentration has not increased as much as the growth in institutional ownership because institutional investors have the tendency to diversify their portfolios as they increase the number of firms. This is actually due to the obstacles faced by some institutions, imposed by the USA legal structure that prohibits them from holding sizeable shares (Edwards and Hubbard, 2000).

A central question on corporate governance has been the ability to solve the problems accompanied by “dispersed ownership” (Berle and Means, 1932). Over a period of time, the dispersion of ownership by individuals has been substituted by institutional ownership, or shares managed by institutional investors such as; mutual and pension funds (Chen et al., 2007). Institutional investors are considered the biggest owners of the USA corporations (Gillan and Starks, 2000).

Moreover, if institutions are not developed to a great extent, ownership concentration can be a substitute for the defects of the institutions and the weak investor protection rights as a feature of corporate governance. Therefore, ownership concentration is supposed to be directly related to firm performance especially in institutions of fragile legal structure (Shleifer and Vishney, 1997). However, this means that ownership concentration may affect firm performance to a high level especially when the institutional environment is fragile. In addition, it is highly evident that the effectiveness of ownership concentration differs according to the level of institutional development especially in emerging market economies (Boubakri et al., 2005).

In the USA, institutional investors have very powerful effect on the financial markets. During the period from March 1980 until December 1996, the holdings by institutions in the USA increased from \$253 billion to \$3.98 trillion (Gompers and Metrick, 2001). The reports by the Federal Reserve Board Flow of Funds stated that institutional ownership in the publicly

traded companies in the USA has increased from 10% in the 1950s to above 62% in 2009 (Belghitar et al., 2011).

A report by the International Monetary Fund in 2005 mentioned that the assets under the control of institutions have increased three times since the mid of 1990s, and that institutional investors have now become the dominant players in most developed countries. In addition, institutional investors began to dominate in OECD countries, recording 6.6% annual growth in assets in the period from 1995-2005, or about 40.3 trillion US dollars in 2005 and 162.2% of GDP (Gonnard et al., 2008). Moreover, the trend of institutional ownership has been increasing in emerging countries too as stated by Khorana et al (2005). This institutionalization of stock ownership and the consequences on stock returns and its performance make the subject of institutional investors a great importance to the stock market experts (Belghitar et al., 2011).

As mentioned by Shleifer and Vishny (1997), institutions as big shareholders, have high motive to engage actively in monitoring the corporate managers than the small shareholders. To be more specific, institutions can handle the problems of asymmetric information and agency costs that commonly accompany the dispersed stock ownership. Consequently, this entails that institutional ownership would lead to improvement in corporate governance associated with increase in efficiency and increase in the wealth of shareholders (Edwards and Hubbard, 2000).

A study conducted by Edwards and Hubbard (2000), based on their OLS regression results, finds that institutional ownership is concentrated more in large companies with high stock prices and high liquidity. Also, they prefer investing in companies with high market-to-book ratios, and those listed in the S&P 500 index. Their existence is very limited in companies with more volatile stock returns, and those that pay high dividends. Actually, this is not the case in other models that got completely different results. Sias (1996) finds a strong positive association between the level of institutional ownership and stock returns volatility, after accounting for capitalization.

A lot of debate has been going on regarding the relationship between institutional ownership and volatility. Rubin and Smith (2009) find a negative correlation between the level of

institutional ownership and the volatility of stock returns, depending on the firm's dividend policy in the USA.

Volatility, in specific, also represents much of concern to us, since stock market volatility reflects the ways investors analyze information and the noise coming from liquidity traders. Higher volatility is therefore, linked to a growing volume of news or a greater level of uncertainty about the future state of the economy. Risk-averse individual investors engage in hedging to protect themselves against large and more clustered downswings. Extreme volatile problems can threaten the smooth functioning of financial markets if liquidity dries up or hedging becomes too costly. As a result, the economy will become more vulnerable to risk resulting from tensions in the financial markets and, especially, stock markets in a high volatility scenario (Werner and Stapf, 2003).

It was also mentioned that the rise of institutional ownership might be an important factor affecting the upward increase in idiosyncratic volatility in recent years in USA. If institutional investors make decisions in similar ways as individuals and rely on similar information, then shocks to institutional behavior may be an important factor driving increased firm-level volatility (Bernasek, 2014).

Institutional ownership has become very dominant, and plays a crucial role in the financial market in Egypt as well, the country under study. According to the EGX Quarterly Report, during the first quarter of 2010, the institutions accounted for 66.14 % of the total value of trade, and they were net buyers, with a net equity of 361.80 million pounds.

In an early study done by Demsetz and Lehn (1985), they realize with empirical evidence that ownership concentration is normally associated with both high returns and high stock price volatility. On the contrary, in their study of the financial valuation of the German model, Clark and Wojcik (2005) find that the relationship between ownership concentration and stock market returns negative. In addition, a study by Azzam (2010) examines the relationship between ownership concentration and stock return volatility in Egypt and how the dividend policy of the firm affects it. The results show that ownership concentration has a negative impact on stock volatility.

The findings regarding the relationship between ownership structure and firm performance are contradictory as was highlighted briefly above and will be explained in more details later in chapter 2. Moreover, in developing countries, these kinds of studies are limited. Hence, no conclusive results in this specific area can be derived from the existing literature. Consequently, in this thesis, I will examine, with empirical evidence, the effect of both institutional ownership and ownership concentration on both stock returns performance and financial performance of the Egyptian listed companies in the stock exchange. Do different ownership structures lead to different firm performance on both the market and the financial level? If this is the case, which form of ownership structure is the most suitable for improving the firm's performance? In approaching these questions, data of the companies listed in the Egyptian Stock Exchange will be collected for seven years (2005-2011).

In the following sections, I will present an overview of the stock markets' development in emerging countries in general, the characteristics of the African stock markets in specific and the emergence of the Egyptian stock market with a brief history of the different stages it passed through. Also, I will highlight the risk associated with the emerging stock markets. After that, I will list the main objectives of this study in addition to highlighting the importance of this topic in particular.

1.2 Overview of Stock Markets' Development in Emerging Countries

The emergence of stock markets in many developing countries in the recent decades is essential in the process of their financial development. The structure of these stock markets is found on the basis of implementing the successful transformation from centrally planned economic systems to market oriented ones. In market systems, the stock market is considered the most important source of capital formation and business financing for domestic and foreign investors. That is why in the process of economic liberalization, the plan to activate the stock market and remove any constraints that prevent its development is implemented (Butter, 1997 and El-Ahmady, 1997).

Indeed, a lot of financial assistance from the IMF and the World Bank was provided to many developing countries in support of their structural adjustment programs to promote economic growth and alleviate poverty. Many of these programs in Africa specifically include the establishment of a well-developed capital market that encourages the privatization of

previously state-owned enterprises, which in turn could increase the sphere of ownership, and promote economic efficiency with high performance (Hearn and Piesse, 2009).

Proponents of capital market development claim that the development of newly established stock markets in developing countries will provide new source of financial help to promote industrial expansion, as this will decrease risk, attract domestic savings, foreign direct and indirect investment. Unfortunately, lots of factors hinder the development of a successful capital market such as: poor regulatory systems, unstable macroeconomic environments resulting in asymmetric information between local and foreign firms. Moreover, most developing countries suffer from high income and wealth inequality, a situation that could lead to unstable political environment. As a result, the risk factor involved in this case is high in addition to low liquidity. And finally, the benefits of the stock market will be limited to few social and political elite and not distributed among the population (Hearn and Piesse, 2009).

Indeed, stock markets that have access to capital are very efficient in utilizing it, resulting in more savings and investments, which are important for economic development. Also, by allowing more diversification across the different assets, the risk borne by investors will be reduced, which will reduce the cost of capital and in turn leads to more investment and economic growth. Yet, we cannot ignore that the market performance and volatility are two important factors that determine the efficiency of the stock market in economic development. For example, in an inefficient stock market, where the information on corporate performance is little or not available, there will be uncertainty from the investor' side to choose the optimal investment. As a result, the investor will leave the market until the uncertainty issue is solved or might be discouraged for a long time (Hassan et al., 2000).

At the beginning of the 1990s, Egypt, as one of the developing countries began its economic reform program and this led to vast changes in its economic structure. One of the sectors that witnessed an economic development was the capital market, which was able to attract the attention of many local and foreign investors (Hegazy, 1997 and El-Hilaly, 1997).

In the next section, the characteristics of the African securities market in general are briefly explained. Then, I will highlight and explain the different stages through which the Egyptian stock market was developed.

1.3 Characteristics of the African Securities Markets

The main objective behind the establishment and development of stock markets is ownership diversification and increased participation of the economically active local population. This is considered as extremely important in case of successful implementation of privatization programs. Also, Jefferis (1995) claims that ownership diversification especially by domestic investors and foreign multinationals is important for some African countries. Privatization programs that spread across Africa led to the growth of stock exchanges, which in return, attracted lots of investors, including domestic and foreign investors, institutions (such as pension funds, insurance companies and banks) and collective investment schemes such as unit trusts and mutual funds.

Sub-Saharan Africa (SSA) witnessed remarkable growth rates over the period 2000-2007, and attracted a large number of investors searching for higher returns. However, the financial crisis that hit mostly the developed world in August 2007 spread to the developing countries, and SSA has been affected as a result.⁽¹⁾ Moreover, in 2009, the African securities were poorly performing relative to most other countries in the world.

This was liquidity fueled as investors who faced near zero interest rates searched for higher yields in large, liquid stocks and markets. One of the recommendations suggested increase in capitalization and liquidity. Since this is considered one of the challenges faced by the African stock exchanges, the idea is to enlarge the capacity of institutional investment by pension funds (CMA, 2010).

A comparative analysis on the performance of the African stock markets finds out that, in the year 2008, South Africa was the most actively traded market in Africa, accounting for over 70% of the entire African stock exchanges turnover, and as a consequence it is considered the most liquid stock market in Africa. Egypt had the second rank, accounting for 17% of the entire African stock exchanges turnover. The mean turnover ratio for the African stock exchanges for the period 2008-2009 was 13.09%, with South Africa and Egypt registering more than the African average, 55% and 41% respectively. The analysis finds that in the year

⁽¹⁾ The global financial crisis and sub-Saharan Africa The effects of slowing private capital inflows on growth; Jose Brambila and Isabella Massa; African Economic Conference 2009.

2008, South Africa got the first rank registering a mean turnover to GDP ratio of 63%, followed by Egypt (57%). The low turnover ratio for most markets could be due to the fact that institutional investors have strong trading interest than individuals in contrast to the high turnover ratios in some markets, where a large portion of the shares are held by families and strategic investors.⁽²⁾ An evidence is found in the Kenyan stock market, where the institutional investors (including foreign investors) hold large portions of the listed companies (75%), and the free float available to other investors (25%), of which a large part is kept for a very few shareholders.⁽³⁾

In 2008, only three markets enjoyed positive performance in the average annual percentage growth of market capitalization namely; Tanzania (36%), Tunisia (27%) and Ghana (17%). As of December 2009, the World Federation of Exchanges (WFE) total market capitalization was US \$46.5 trillion, of which the African stock market capitalization accounted for only 2%. The number of listed companies on the African stock exchanges is also very small compared to other emerging markets. During the same year 2009, the mean number of firms listed on the African stock markets was 75 compared to 959 and 4955 in Malaysia and India respectively. In addition, the number of listed companies declined during the period 2006-2009 in the well-established markets of South Africa and Egypt, recording a growth rate of -4%.⁽⁴⁾

Observing the characteristics of the African capital markets, it is clear that the nature of the trading mechanisms are the same, in addition to the systems and products available in these markets with the exception of South Africa, Zimbabwe, Namibia, Mauritius, Egypt and Morocco. Yet, a lot of similar characteristics are apparent which mainly include:

1. The variety of the available tools used for trading in these markets like: on-line trading, margin trading and short selling and borrowing.
2. No restrictions on foreign trading in the stock market.
3. Shorter settlement cycles.

⁽²⁾ Source of Data: International Financial Statistics (IMF); Emerging Markets Database (IMF); Table adapted from Senbet & Otchere (2008).

⁽³⁾ A survey on investor profiles at the Nairobi stock exchange (2007) found that over 70% of the available free float was in the hands of 20% of shareholders.

⁽⁴⁾ Source: World Federation of Exchanges – Annual Report 2008.

4. No tax restrictions in some markets such as: Egypt, Morocco and Mauritius.

In addition, Sub-Saharan African stock exchanges gradually got used to the electronic systems, although some of them are still using the manual trading systems. Moreover, the bulk of African stock exchanges are organized as “mutual entities”, but the process of demutualization⁽⁵⁾ is in progress due to the poor corporate governance attached with mutualization.

In spite of the growth in the African stock exchanges, which has been very impressive during the last two decades, they are not considered good indicators for economic growth. Excluding South Africa, the other emerging markets are by far the smallest, with regards to the number of listed companies and market capitalization, with minimal trading activity. Also, the low liquidity is a major concern, more than the market capitalization. The empirical evidence suggests that the high liquidity is the channel linking stock market development with economic performance. The current state of the African stock markets reveals that these markets especially in terms of low capitalization and liquidity face many challenges. Their performance is considered to a certain extent well in terms of return on investment (CMA, 2010).

In addition, Ntim (2012) finds out that in spite of the fast growth of the African stock markets in their number and size, they still remain highly fragmented, small, illiquid and technologically poor, which affect their informational efficiency.

1.4 Historical Overview of the Egyptian Stock Market

To give a historical background about the Egyptian stock market, it began its activities in the year 1883. At that time, there was only one stock exchange in Alexandria, and then Cairo Stock Exchange began its operations in the year 1903. Focusing mainly from the mid of the last century, the stock market was badly affected by the series of nationalization that began during the late fifties. The government acquisition of ninety three of the most active companies in the stock market at that time and transferring their shares into government

⁽⁵⁾ “Demutualization, refers to the entire process of changing the legal structure of a stock exchange from a mutual association, with one vote per member (and possibly consensus-based decision making), into a company limited by shares, with one vote per share with majority-based decision making (IOSCO, 2005).

bonds led later on to a decrease in the number of listed companies and the number of stockbrokers. Market Capitalization, which is the number of listed shares times the current market price, decreased as a percentage of GDP from 13% in 1958 to only 1% in 1974. Also, the number of listed companies decreased from 275 in 1958 to 55 in 1974. The number of stockbrokers declined as well from 55 to 15 during this same period. Moreover, at the level of market activity, the value of trade declined sharply from 66.7 million pounds in 1958 to only 4 million pounds in 1974. In conclusion, during Nasser's era nationalization affected the stock market negatively. It was open but witnessed a significant slowdown during this period until its revival after implementing the Open Door policy.

During Sadat's era, the stock market was free from the government regulations to encourage both domestic and foreign investment. Under the Open Door policy, the Capital Market Authority (CMA) was established to supervise the activities of the stock market. Unfortunately, due to several reasons, such as: the unavailability of securities laws and the protection of small investors, the stock market was dormant for about 20 years from 1970-1990. Added to the above, the weakness of the economy was something that led to the underdevelopment of the securities industry until 1992 (Capital Market Authority 1996b).

With the introduction of the economic reform program at the beginning of the 1990s, a new capital market law was enacted encouraging the investment by the private sector with more protection granted to investors and more involvement of the banks in encouraging the capital markets through mutual funds. The economic reform plus the enhancements in the macroeconomic indicators and the institutional procedures led to the stock market revival in 1992. By mid-1996, two important factors led to the accelerated growth in the stock market, first; the removal of the two percent tax on capital gains imposed on securities investment in 1992, second; the implementation of the privatization program. Also, during the same year, for the first time Egyptian securities were issued overseas known as Global Depository Receipts (GDRs). In the year 2005, there were seven more issues. Moreover, Egypt witnessed fast steps to be globally integrated and in 1995 and 1997, the International Finance Cooperation (IFC) in its global and investible indices (Capital Market Authority 1998; International Finance Cooperation 1997) added Egypt. So, with the implementation of the economic reform program, the stock market in Egypt began to witness major and positive changes.

Since 2001, the formerly known as Cairo and Alexandria Stock Exchange (CASE), the only official stock exchange in Egypt and now the Egyptian Exchange (EGX) has been one of the most evolving emerging stock markets. EGX consists of two exchanges, Cairo and Alexandria, both having the same board of directors and the same trading, clearing and settlement systems. EGX30 index is made up of the 30 largest companies being traded. In 2011, the EGX20 index was used to refer to the most active and liquid stocks on the Egyptian Exchange.

1.5 Performance of the Egyptian Stock Market

Based on the quarterly report of EGX, in the last quarter of the year 2010, the total value of shares traded reached L.E. 72.4 Billion. While, the total volume traded reached 7,879 million securities done over 2,366 thousand transactions. A drop was witnessed in the first quarter of the year 2011 because of the political instability associated with the 25th of January revolution, and its consequences. The total value of traded shares reached L.E. 37.7 Billion, while the total volume traded was 3,387million shares over 986 thousand transactions. A drop of 16% in market capitalization was also witnessed by the end of the first quarter of 2011, with a total of L.E. 408 billion. Egypt is considered the second in rank after South Africa with regards to market capitalization (Bolbol et al., 2005).

Based on the IFC sustainable investment country report, the market capitalization of the Egyptian stock market was 75,212 million US dollars in 2010. In January 2011, the market capitalization dropped to 69,661 million US dollars. During the period from July 2007 to June 2008, Egypt was ranked number eight of 28 emerging countries with respect to returns, and 18 out of 28 in terms of risk ranked from high to low. The annual market return was 29.7%, while the market risk was 6.94% for the same period. By the end of June 2008, Standard and Poor's and IFCG Indices for the price – earnings ratio (P/E) for Egypt was 15.7 compared to an average P/E ratio of 26.4 for emerging markets. This indicates that the prices of stocks in the Egyptian market on average are relatively low compared to other emerging markets. While developed stock markets can perform efficiently as they possess sound, deregulated structures, and the required technical and technological expertise; the emerging markets are still at large suffering from poor financial structures, which are reflected among others in the low liquidity of their stock markets (Singh, 1999). Like many other emerging

stock markets, the Egyptian Exchange (EGX) has embarked on a restructuring program aiming to improve market operations by implementing a number of procedures.

According to the UK Trade and Investment Financial Services Sector report in 2009, the Egyptian Exchange (EGX) is one of the most active and best performing stock markets in the emerging markets with gains reaching 800% between 2004 and 2007. The regulatory system is considered one of the best in emerging markets with lots of diversified sectors. The Egyptian Exchange (EGX) has 17 sectors represented on its trading platform. In addition, it is one of the deepest, highly liquid and open stock exchanges in the MENA region and joined the membership of the World Federation of Exchanges in 2005. The number of listed companies is 324 covering 17 sectors, and 11 of them have shares traded in the London stock exchanges as GDRs. In May 2011, Egypt was one on the S&P CIVETS 60 Index among six most favored emerging economies categorized as being dynamic and rapidly changing with young and growing population. The S&P CIVETS 60 consists of 10 liquid stocks trading on each exchange within the six CIVETS countries (Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa).

According to the Egyptian Financial Supervisory Authority's Research and Development Department, the Egyptian Exchange was performing well by the end of 2013, despite political and security tensions that affected other economic sectors. The exchange bounced back in the second half of 2013 after being negatively affected by political and security conditions in the first half. The year ended with a net profit of 51 billion Egyptian pounds (\$7.3 billion). The main index recorded an overall growth rate of 24% last year, while the volume of transactions on the EGX 70 index, which tracks the stocks of small- and medium-sized companies, rose more than 200%, from 70 million shares in 2012 to 312 million shares in 2013 (Abu Al-Khair, 2014).

1.6 Risk associated with Emerging Markets

In recent decades, the importance of risk measurement and prediction has increased dramatically. Investors give much attention and concern to the volatility of stock prices and its expected returns for several reasons. First, high volatility will lead to a high-recorded risk associated with the firm, resulting in high capital cost (Froot et al., 1992). On one hand, the stock price can become a "noiser signal" of the firm value. On the other hand, the volatility of

the stock returns can make the “stock price- based compensation” less effective and more costly (Baiman and Verrecchia, 1996). Finally, the large stock price fluctuations, especially the drops in prices, are often accompanied by “shareholder class-action lawsuits” (Francis et al., 1994).

Although lots of empirical studies have been conducted on the behavior of returns and volatility in the stock markets of developed countries, not much attention was given to the emerging markets except during the recent years. Errunza (1977, 1983) and Errunza and Rosenberg (1982) are among the pioneers in conducting studies on emerging markets. Focus on these emerging markets was important because of the increased globalization and integration in the world economies especially as far as the financial markets are concerned. Indeed, this kind of integration gave lot of opportunities to the local and foreign investors to diversify their portfolios (Hassan et al., 2000).

It is well known that emerging markets have high potential, but in addition, they have high risk (Dictionary of Finance and Investment Terms, 2006). They can grow rapidly and then collapse due to a number of factors; some of them were listed above. So, as pointed out by Wall Street Words in 2003, investment in emerging markets is counted as risky investment. The emerging markets only exist in developing countries, where the growth potential is very high but the expected risk is high as well. Lots of factors, as mentioned earlier, contribute to the existence of this high level of risk such as; corruption, political instability, currency devaluation, income inequality, etc. Consequently, the economic and political instability of most of the Arab countries may imply that the markets of these countries are more risky and unpredictable than the stock markets in developed countries (Guermat et al., 2003).

Aggarwal et al. (1999) analyze the factors that cause the major shifts in emerging markets’ volatility, and they find that, unlike developed countries, the big changes in volatility are caused by country-specific events. Due to the different political and economic conditions, emerging markets might be considered to be more risky. Arab countries in particular suffer from political instability. In this respect, the Middle East has been viewed as highly volatile. The conflicts between Israel and the Arab countries have resulted in three wars. Other examples can be viewed from long time ago between Iraq and Iran, and how they represented serious threats to the stability of the region. In addition, regardless of what happened in the

last few years, Egypt and Jordan have been always threatened by the rise of the fundamentalists. Moreover, Morocco and Algeria have been always in conflict since 1975.

The risk associated with the Arab stock markets has not drawn much attention in literature. Few studies have been conducted on the volatility in the Arab markets. El-Erian and Kumar (1995) found that emerging Arab markets are still trying to integrate their stock markets into the international market, but they have three main problems, mainly in the Middle East, they are; a negative perception of country risk, political instability and institutional and legal rigidities.

The events that occurred in Egypt in the year 2011 (The Egyptian Revolution) are a good example of what we refer to as a risky emerging market. Although Egypt witnessed strong development in its capital market during the last two decades as was clarified in the previous section, the drop happened suddenly following the 25th of January revolution. The Egyptian Exchange witnessed poor performance during the first quarter of 2011. EGX 30 index recorded a drop of 23.5%, while EGX 70 index and EGX 100 dropped by 20.31% and 20.74% respectively (EGX Report, 2011). After being closed for almost 8 weeks, the stock exchange reopened on the 23rd of March, with a drop of 8.9% (Wall Street Journal, 2011).

1.7 Objectives of the Study

With the mixed results reached in previous researches; combined with the few studies in literature in this area of finance in a developing country like Egypt, the main objectives of the study are to

- Evaluate the effect of institutional ownership on ex-post and ex-ante returns and volatility in the Egyptian stock market;
- To evaluate the effect of institutional ownership on stock liquidity and
- To study the effect of institutional ownership on firm financial performance.

Another objective is to

- Evaluate the effect of ownership concentration on ex-post and ex-ante returns and volatility;
- Evaluate the effect of ownership concentration on stock liquidity and
- To study the effect of ownership concentration on firm financial performance.

1.8 Importance of the Study

Ownership structures are central distinguishing features of financial systems. Also, the relationship between ownership structure and performance has been the subject of an important and ongoing debate in the corporate finance literature. The debate goes back to Berle and Means (1932), who find an inverse relationship between ownership dispersion and firm performance. The idea has been questioned after that by Demsetz (1983), who claims that the ownership structure of a firm is supposed to be an endogenous outcome of the decisions that reflect the effect of shareholders and trading of shares in the market.

Yet, the majority of literature on institutional ownership and ownership concentration and their effect on stock returns and volatilities deal only with developed economies and large emerging economies. Small emerging economies such as Egypt are ignored in literature. This study fills part of this gap by examining the effect of institutional ownership and ownership concentration on both ex post and ex ante returns and volatilities of stocks listed in Egyptian Stock market.

Also, while there is an extensive research on the relationship between ownership structure and the financial performance of firms in developed economies, the literature ignores this area of research in developing countries, particularly Egypt, where the ownership structure is completely different. This is considered a limitation of the existing literature, since it is highly dependent on utilizing data from highly developed economies, with strong emphasis on USA or highly developed European countries. Studies concentrating on emerging or transition economies are limited and again focusing on few similar countries, for example: Czech and Poland discussed by Lskavyan and Spatareanu (2006) and China studied by Hong Zou and Mike B Adams (2008) as will be highlighted in the literature review.

There is a general debate in literature on the effect of institutional ownership and ownership concentration on stock volatility. This study will contribute to the debate on literature by examining the effect of institutional ownership and ownership concentration on stock returns, volatility, and liquidity in Egypt as one of the small emerging markets that has been investigated a little in literature. Further, this study extends the analysis of Rubin and Smith (2009) by decomposing the ownership type to insurance companies, employee associations,

top management, individuals, public and private banks, holdings, and companies and using ex ante returns and risk.

Egypt is a small emerging economy different from USA and other developed economies and these differences matter. The legal system in developed economies; the well-established financial structures and practices determine and shape the enactment of corporate law. For small emerging countries the legislative environment governs the securities markets and is influenced by French civil code. Common-law countries generally have the strongest, and French civil-law countries, such as Middle East and North Africa (MENA) countries, have the weakest legal protection for investors. The recent studies of corporate governance suggest that the geographical locations, the tax system, level of industrial development, cultural differences along with other factors can affect the ownership structure, and as a result affect the firm performance (Pedersen and Thompson, 1997). It is not known whether the existing differences in institutional structure, regulatory body and legislative system also translate into differences in the relationship between ownership and firm performance.

Studying the MENA region, Omran (2009) finds that the political system is highly concentrated with a poor mode for national governance, which has a negative effect on its corporate governance. Financial markets are underdeveloped and access to external funds is limited. In these countries, most of the controlling shareholders are individuals (in many cases related to political figures or royal families), influential institutions or families. A single family may have controlling stakes in a number of companies whether directly or indirectly. Privatization in the MENA region has been progressing slower than other large emerging markets. The Egyptian market is part of MENA region countries, which have similar characteristics. Still, the results cannot be generalized due to individual factors related to each country. The differences between Egypt and large emerging and developed countries in legal and political systems, country factors, and market structure and development make Egypt a unique opportunity to investigate. This study to this end seeks to find out whether there is a relationship between ownership structure and firm performance of listed firms in the Egyptian Exchange.

Finally, by using a representative sample of 85 firms accounting for 99% of the volume of trade in the Egyptian Exchange and covering seven years, I make four important contributions

to the literature. First, I provide evidence on the relationship between ownership structure and firm stock returns and financial performance while using two variables, which are not investigated before as far as the Egyptian economy is concerned and they are ex ante returns and ex ante risk. Second, I enrich the knowledge of the importance of the effect of environmental and period differences on the relationship between ownership structure and firm performance. Third, I am adding as explanatory variables two volatility components, volatility clustering and persistence, examining their effect on ex post and ex ante risk. Fourth, I am using GARCH (1,1)-GED in calculating ex ante returns and ex ante risk of stocks to know how they are affected by ownership structure.

1.9 Outline of the Thesis Content

This research paper will be divided into two parts. First the theoretical part, which contains two chapters, that deals with the historical development of the Egyptian Stock Market and its performance; the characteristics of the African stock markets while explaining the risk associated with the emerging markets. In addition, a literature review is presented concerning the previous studies that have been conducted on institutional ownership and its effect on stock returns, volatility and financial performance and the previous studies that have been conducted on ownership concentration and its effect on stock returns, volatility and financial performance. The second part will contain four chapters, which will focus on the data set description, definition and analysis, the research methodology explaining the approach used in testing my data, the hypotheses and the model used with detailed explanation and definition of all the variables used. Also, that part contains the empirical study to test the different research hypotheses and to answer the research questions, followed by conclusions and recommendations.

Chapter One: It is a summary of this research paper and introduces the different parts of this thesis in terms of objectives, importance, contribution of the study and outline of the thesis. Also, it provides a historical overview of the Egyptian stock market, and its development since Gamal Abdel Nasser's era, followed by Anwar ElSadat and Hosni Mubarak until the present, showing the recent development associated with the economic reform program highlighting its performance especially in the last decade. The characteristics of the African stock markets and the degree of risk associated with emerging markets in general and Egypt in particular is also discussed.

Chapter Two: It deals with the different models and studies that have been conducted before on institutional ownership and ownership concentration and their effect on returns, risk and financial performance.

Chapter Three: It deals with the data set description and definition of all variables used in addition to the source of data collection plus the descriptive statistics.

Chapter Four: It points out the methodology of the research and the statistical analysis techniques that will be used in order to test the impact of institutional ownership and ownership concentration on ex post and ex ante returns, risk and stock liquidity in addition to firm profitability and firm debt. This chapter deals with the empirical research questions and their conversion into research hypotheses. It defines the statistical techniques used in this study, i.e. the diagnostic tests, GARCH and panel data models used to test the research hypotheses and to evaluate the impact of institutional ownership and ownership concentration on ex post and ex ante returns, risk and stock liquidity in addition to firm profitability and firm debt.

Chapter Five: It highlights the empirical analysis on three stages. The first stage highlights the results of the specification and diagnostic tests on the data set. The second stage presents all results of the regression. The third stage analyzes the main findings and interprets the regression results.

Chapter Six: It summarizes the findings of this thesis. It mainly concentrates upon the findings of the empirical part of this paper. In addition, implications and limitations of the study are highlighted. Finally, recommendations are made regarding the possible direction for further research studies arising from the conclusions derived from this work.

Chapter (2): Literature Review

2.1 Introduction

The international business literature for a while has been keen about the effect of institutional ownership and ownership concentration on the firms' stock returns, volatility and financial performance. This concern has led to an ongoing debate about the relationship between ownership structure, return, risk and financial performance.

With regards to the relationship between institutional ownership and stock returns and risk, on one hand, most academic theories suggest the existence of a negative “contemporaneous” relationship between institutional ownership and stock volatility. Some researchers (e.g. Belghitar et al., 2011) think that institutional investors are more likely to be attracted to less risky securities since they follow the prudent man rules. In addition, other authors (e.g. Arbel et al., 1983) trace “the well-documented positive relationship between institutional investors and capitalization” to their unwillingness to invest in risky and more specifically small securities. Moreover, Lin et al. (2007) find that the institutional investors' access to better quality of information is likely to result in investment in less volatile securities.

Institutional investors are likely to act in a rational way than individual traders (Shiller, 1984). They are called “smart-money” investors by some academics. They have the ability to stabilize the financial market by offsetting the irrational trading patterns of individual investors, which will result in less volatile securities held by the institutional investors (Zweig, 1973; DeLong et al., 1990).

On the other hand, as documented by Potter (1992), there is a positive correlation between institutional ownership and stock returns volatility. Several reasons could be behind this association, which will be highlighted later in the following section. For example, as documented by Sias (1996), institutional investors are more likely to be attracted to more risky securities since they have higher market performance than other less risky securities. Added to the above, if better information could be revealed about these risky securities, institutional investors would be tempted to invest in them. Moreover, the institutional investors' tendency to trade in larger volumes than the individual traders could result in higher volatility (Lee, 1992). Furthermore, institutional investors might be involved in

“noise” trading, which could give a wrong indication to the other traders that the institutional investor has the right information, which is not the case (Brown and Brooke, 1993).

Other researchers (e.g. Lakonishok et al., 1991; Nofsinger and Sias, 1999; Sias, 2004) pinpoint to the “herding”⁽⁶⁾ behavior of institutional investors. The reasons, as they mention, are the homogenous community of the institutional investors, measuring their performance compared to others, and the “asymmetry of incentives”, which means that the losses due to underperformance far outweigh the gains from over performance. This herding behavior can lead to frequent price alterations and increase in volatility. Last but not least, the popular press has always viewed institutional investors as resulting in more volatility since they are “short-term focused”⁽⁷⁾ (Sias, 1996).

In addition, as far as the relationship between institutional ownership and stocks’ returns are concerned, previous work done by [Grinblatt and Titman (1989), Grinblatt and Titman (1993), Grinblatt et al. (1995), Jones et al. (1999), Nofsinger and Sias (1999), Wermers (1999,2000), Sias et al. (2002), Parrino et al. (2002)] have shown that this relationship is positive with regards to the returns during the past and same quarters. While, it is positive but weak with regards to the future returns.

In a study conducted mainly on institutional herding, Sias (2004) has pinpointed about the relationship between institutional demand and returns in a small part. The study reaches the same conclusion as the previous studies. There is a significant positive correlation between institutional demand and the returns during the same and past quarters, while the correlation is weak and positive between institutional demand and future returns specifically during the following two quarters.

A study conducted by Dennis and Strickland (2002) finds a positive relationship between the level of institutional holding and the degree of “idiosyncratic” volatility using both time-series and cross-section data. In addition, the study done by Landelius and Jornhagen (2008) finds a significant direct relationship between institutional ownership and the “idiosyncratic” stock returns volatility. Moreover, the study conducted by Sahut et al. (2011) has reached the

⁽⁶⁾ Institutional investors imitate each other in buying and selling the same securities (Sias, 2004).

⁽⁷⁾ Some academics have supported the rationality of institutional investors to be short-term focused (Shleifer and Vishney, 1990; Froot et al., 1992).

same conclusion as the above studies, where they find a positive relationship between stock volatility and institutional ownership, which supports what is called the “herding” attitude of institutional investors. According to Cunniff (2000), in the USA, mutual funds, which are considered the largest segment of institutional investors, are responsible for the majority of trading every day and the high volatility in the market.

Gompers and Metrick (2001) find the relationship between institutional ownership and stock returns volatility insignificant. In addition, Faugere and Shawky (2003) find that for the eight month period from March - November 2000, during the recession, the Nasdaq composite index showed a high mean daily returns and lower volatility measured by the standard deviation on daily returns, associated with high level of institutional ownership. While for NYSE listed shares covering the same period, there appear to be no significant relationship between institutional ownership and either the mean or standard deviation on daily returns.

One of the recent studies that was done by Elysian and Jia (2010) investigates the relationship between the level and stability of institutional ownership and corporate firm performance. The authors, in explaining the role of institutional investors and their effect on firm performance have described three scenarios. One is that, engaging in an active role from the institutional investors’ side can result in enhancing the firm performance, since they have the necessary experience to monitor the management (Shleifer and Vishny, 1986). The second scenario assumes that institutional investors are short-term traders, who do not have the incentive to engage in active monitoring of the management, in this case they are considered passive. The third scenario happens when institutional investors support the management in order to exploit the small shareholders, which is likely to happen in the emerging markets where the interests of small shareholders are not protected like in other developed countries (Brickley et al., 1988; Cornett et al., 2007).

As far as the relationship between ownership concentration and both stock returns and risk is concerned, it is not easy to identify a significant relationship between ownership concentration and stock market returns and volatility. One reason might be the attitude of the investors who may or may not be rational in some instances (Shleifer 2000; Shiller 2000). Thus, it is difficult to determine a certain and concrete relationship between the variables under study (Clark and Wojcik, 2005).

In an early study done by Demsetz and Lehn (1985), they realize with empirical evidence that ownership concentration is normally associated with both high returns and high stock price volatility. On the contrary, in their study of the financial valuation of the German model, Clark and Wojcik (2005) find that the relationship between ownership concentration and stock market returns is negative. In addition, a study by Azzam (2010) examines the relationship between ownership concentration and stock returns volatility and how it is affected by the dividend policy of the firm. The results show that ownership concentration has a negative impact on stock volatility.

Last but not least, Shleifer and Vishney (1986) mention the relationship between ownership concentration and financial performance in one of their studies. They have said that when there is a certain level of ownership concentration, there is improvement in the management control and therefore, the value of the firm increases. In addition, according to Clark and Wojcik (2005), ownership concentration, represented by an organized and effective board of directors, has a positive and significant effect on the firm performance.

It is evident that the results of the studies conducted on the relationship between institutional ownership, ownership concentration and both stock returns and volatility or firm performance are not homogeneous. These variations in the conclusions or the summary results reached by the different authors need to be further investigated and analyzed in details in order to know the real reasons behind these differences.

The following sections analyze the different studies conducted on the relationship between institutional ownership and stock returns and volatility in addition to the effect of institutional ownership on financial performance. Because of its importance and its high degree of association to institutional ownership, further analysis of the different studies conducted on the effect of ownership concentration on stock returns, volatility and financial performance is done.

2.2 Effect of Institutional Ownership on Returns⁽⁸⁾ and Risk

A central question in financial economics is testing the relationship between changes in institutional ownership and stock returns and volatility. Previous studies which tested the relationship between institutional ownership and stock returns conclude three main results. First, institutional investors are “momentum traders” and they have tendency to be guided by the historical prices (Grinblatt et al., 1995). Second, mutual funds as a category of institutions sometimes engage in institutional “herding” (Wermers, 1999). Third, the coexistent relationship between changes in institutional ownership and stock returns is more solid than the “trend chasing effect”⁽⁹⁾ (Nofsinger and Sias, 1999).

Sias (1996) conducts one of the pilot studies, which investigates the relationship between institutional ownership and volatility in 1996. He has two hypotheses if a positive relationship exists between the two variables. The first one is that institutional investors might be attracted to more risky securities, believing that they can have higher market performance, which means that higher volatility will result in more institutional holdings. But, the empirical evidence is very weak with regards to this respect. The second hypothesis is the other way around; the high volatility will be the result of more institutional ownership. Most academic work do not support this view because it has been known that with more institutional ownership, there will be more stability in the financial markets. This means that the increase in institutional ownership will lead to less volatility in the market.

Other researchers (e.g. Rubin and Smith, 2009) find that, on the contrary, more institutional holdings lead to an increase in volatility, something, which is proved and accepted by Sias (1996) in his study. He tests the “contemporaneous” relationship between volatility and institutional ownership, and finds that volatility of stocks increases following an increase in institutional ownership, with capitalization held constant. The analysis covers 15 years, which is the period between 1977 until 1991, and has the weekly returns, percentage held by institutional investors and the market capitalizations for all the securities listed in New York

⁽⁸⁾ Since stock market returns reflect the variations in the market value of the firm, the factors that affect this value have to be mentioned. According to the most well-known methods of valuation, the value of a company’s share is determined by its expected future dividends, and this in its own reflect the extent of the firm’s riskiness (Bodie et al., 2002). There are countless other factors such as: factor prices, demand behavior, the competitiveness of the firm, the internal structure of the firm, its efficiency and its ability to adapt to the variations of the outside environment (Shleifer, 2000 and Shiller, 2000).

⁽⁹⁾ Market participation increases following an increase in the stock price and vice versa (Orosel, 1998).

Stock Exchange for that purpose. In addition to the result reached by Sias mentioned above, he finds that the changes in volatility can be forecasted by the variation in the lag changes in institutional ownership.

Another study points to the relationship between institutional ownership and stock price volatility and how they are affected by the company's disclosure practices (Bushee and Noe, 2000). Guided by previous research, more corporate disclosure practices lead to increase in the percentages of institutional ownership (Healy and Palepu, 2001). Moreover, as reported by Potter (1992), more institutional ownership is accompanied by high stock returns volatility. This means that there is an indirect relationship between the disclosure practices and stock returns volatility through the attraction of more institutional investors.

The authors differentiate between three types of institutional investors. The "transient institutions" do lot of trading in the short run, and prefer to invest more in companies with higher disclosure ratings. While, the "Quasi-indexer institutions" do not trade frequently, but they have "large diversified portfolios". These institutions also invest more in companies with higher disclosure rankings, but unlike the transient institutions, they do not respond quickly by increasing their holdings with more enhancements in the disclosure practices by firms. Finally, the "dedicated institutions" are not affected by the disclosure practices of firms, since they hold large, stable shares in a small number of firms.

The study of Bushee and Noe (2000) shows that there is a positive correlation between the level of transient institutional ownership and the future stock returns volatility. Moreover, there is a negative correlation between the level of quasi-indexer ownership and the future stock returns volatility.

The study contributes to the literature on the relationship between institutional ownership and stock returns volatility at that time. They find that the increase in the level of transient institutional ownership has a direct and significant effect on daily stock returns volatility, either measured on a yearly basis or "around earnings announcements". In addition, another form of stock returns volatility, which is the large, one-day stock price movements, and is highly related to the "shareholders class-action lawsuits", is highly affected by the transient institutional ownership.

The desire by transient institutions to indulge in massive trading behavior, especially with the spread of bad news, results in high stock returns volatility (Porter, 1992). While the passive trading behavior by the quasi-indexer institutions leads to lower stock returns volatility. Yet, the changes in quasi-indexer institutional ownership are not accompanied by changes in future stock returns volatility due to their passive trading behavior as mentioned earlier. The transient institutions, on the other hand, have a strong and positive effect on future stock returns volatility especially in the short run due to their aggressive trading behavior (Bushee and Noe, 2000).

While Gompers and Metrick (2001) test the ability of institutional ownership in forecasting the stock returns, they find that the number of institutional holdings has a significant positive forecasting power of returns in the subsequent quarter, while changes in institutional ownership have insignificant effect on next quarter returns. Their study is conducted in the USA and they cover quarterly data over the period from 1989 until 1996. They say that this positive relationship can be due to the experience of institutions which is, of course, better than the individuals. They are smart to choose the stocks with higher expected returns. This result contradicts with Sias (2004) who finds a weak positive correlation between changes in institutional ownership and returns in the next two quarters. Yet, similar to most past studies, Sias (2004) finds changes in institutional ownership positively related to the same and ex-post quarter returns. His results tilt more towards the conception that institutional demand is more positively correlated to previous institutional demand than ex-post returns.

The study by Bushee and Noe (2000) is conducted on 4,314 firms in the USA. The firms are rated by AIMR (The Association for Investment and Management Research) between 1982 and 1996. Going through a series of regressions and tests, their results show that the net effect of having both types of institutions (transient and quasi-indexer) owning shares in a firm is negligible. Yet, with more improvement in the firm's disclosure practices, it is expected that transient institutions increase their holdings of shares relative to the quasi-indexer institutions, which leads to an increase in the stock returns volatility.

Another final point to be added here, Bushee and Noe (2000) find it important to the managers in specific, is examining other forms of stock returns volatility and how they are affected by the changes in disclosure practices and institutional ownership. They are

concerned with the systematic and unsystematic risk ⁽¹⁰⁾ components of stock returns volatility. Actually, their findings are similar to that mentioned above regarding the stock returns volatility.

Gompers and Metrick (2001) conduct an analysis of the demand by institutional investors for stocks and the consequences on stock prices and returns in a study under the name of “Institutional Investors and Equity Prices”. They are concerned about the institutions as a separate group of investors, who abide by the prudent man rules. Hence, they demand stocks with certain characteristics that are assumed to be more liquid, have higher historical returns, less volatile and included in the S&P index.

Another explanation added to the above regarding the positive relationship between institutional ownership and future stock returns, is the increase in the institutional share of the market, that leads to “demand shocks” ⁽¹¹⁾ in the stocks favored by institutions. Demand shocks influence stock prices, and consequently the “contemporaneous” returns. Thus, in case of the validity of the demand shocks explanation, it is expected that institutional ownership in the preceding period would be able to predict returns better than the change in institutional ownership. In testing the two explanations, the results support the demand shocks explanation in determining the ability of institutional ownership to forecast stock returns. There is no supporting proof for the smart institutions explanation (Gompers and Metrick, 2001).

Similar to Gompers and Metrick (2001), Ali et al. (2002) find a strong positive association between changes in institutional ownership during a certain quarter and the three-day abnormal returns during the next quarter, which means that some institutions are well informed to forecast the future returns. In addition, this positive association is higher for ownership by institutions such as: independent investment advisors, investment companies, insurance companies and banks than for institutions like; pension funds, college and university endowments, due to the short-term focus by the former institutions mentioned.

⁽¹⁰⁾ Systematic risk is the “stock returns volatility around earnings announcements”, while the Unsystematic risk is the effect of a big one-day price alterations (Bushee and Noe, 2000).

⁽¹¹⁾ Demand shocks can be the result of institutional herding. These shocks would come as a simultaneous relationship between variations in institutional ownership and stock returns (Wermers; Nofsinger and Sias, 1999).

Ali et al. (2002) think of one reason for this positive association, which could be the combination between “post-earnings-announcement drift”⁽¹²⁾ and “window dressing by institutions”⁽¹³⁾. Another possible reason, as documented by the authors, for this positive association, is that institutions are momentum traders, which is approved by Sias et al. (2006). Yet, the results they obtain do not coincide with these two possibilities. Even the risk factors such as: size and book-to-market are not the reasons behind this positive association. It remains that the kind of information obtained by these short-term focus institutions that allows them to earn abnormal returns in the future. The source of this information is not clear for the authors, since the Securities and Exchange Commission (SEC) prohibits “selective disclosure of material information”. It has been demonstrated, by Lin et al. (2007) that institutional investors have informational advantages over retail investors in IPO auctions in Taiwan.

Griffin et al. (2003) think of one potential explanation for the strong relationship between changes in institutional ownership and ex-post returns. They say that institutions and individuals react to the price variations in a completely different manner and this reflects on their trading pattern. It is evident that institutions react to the positive returns movements by purchasing more, while individuals respond to the same movements by selling. Furthermore, their results show that the relationship between variations in institutional ownership and stock returns is very strong and positive at the daily level.

The results by Griffin et al. (2003) are similar to those by Choe et al. (1999) in Korea, who find trend chasing and daily herding behavior by the foreign and Korean institutional investors. On the contrary, the results are not the same in the study conducted by Nofsinger and Sias (1999), who do not observe trend chasing in the daily institutional trading in NYSE securities during a three month interval (in 1990 to 1991), and similarly trend chasing and herding behavior are not observed by Grinblatt and Keloharju (2000) in their study conducted on the strategies of the Finnish institutions.

⁽¹²⁾ In financial economics, **post-earnings-announcement drift**, or PEAD is the “tendency for a stock’s cumulative abnormal returns to drift in the direction of an earnings surprise for several weeks (even several months) following an earnings announcement.”(Bernard and Thomas, 1989).

⁽¹³⁾ Window dressing is the buying of stocks with good performance in the recent periods (Bilderssee and Kahn, 1987).

In another paper, it has been noted that there is a strong and positive relationship between changes in institutional ownership and the same quarterly stock returns (Sias, et al., 2006). They also indicate that this positive correlation could be the result of institutions having better access to information so they can find the right time to trade. Another explanation is that institutional investors have the tendency to be “Short-term Momentum Traders”⁽¹⁴⁾. Moreover, the activity of buying and selling by institutions as a whole tends to have immediate effect on returns.

The study has concentrated mainly on the relationship between quarterly variations in institutional ownership and “higher frequency returns”. The authors have calculated daily, weekly, monthly and quarterly data of stock returns for all NYSE securities for the period from December 1979 until December 2000. The results show that changes in institutional ownership are high and positively correlate with the same quarter returns and previous quarter returns. Their results coincide well with Bennett et al. (2003), Chen et al. (2002) who find that variations in institutional ownership have strong positive relationship with both the current and previous returns. One explanation given by the authors for that positive correlation is that institutional investors “follow short-term intra-quarter positive feedback trading strategies” (Sias et al., 2006). This explanation goes well with the explanation of momentum trading, which states that institutional investors have the tendency to buy well-performing stocks and sell the poor-performing ones (e.g., Grinblatt et al., 1995; Nofsinger and Sias, 1999; Wermers 1999, 2000; Cai and Zheng, 2004; Bennett et al., 2003; Parrino et al., 2002; Sias, 2004).

The results of Sias et al. (2006) further show that there is significant growth in the number of institutions holding a company’s shares which is 125 in the year 2000 compared to a mere 54 in 1980. This growth has been witnessed again in the average fraction of a firm’s shares owned by institutions, which was 44% in 2000 compared to 24% in 1980. The results reflect the relative importance and development of institutions over time. Moreover, the independent investment advisors are the reason behind most of the growth in institutional ownership over the sample period covered, which is consistent with Gompers and Metrick (2001) study.

⁽¹⁴⁾ Institutional momentum trading is a certain type of herding, where the investors herd by selling stocks with low returns and buying those with high returns (Sias, 2004). Grinblatt et al.(1995) have noticed strong momentum trading by mutual funds, in addition, Badrinath and Wahal (1998) find that the desire of trend chasing or momentum trading differs according to the type of institution.

In addition, it has been noted that institutional investors have the ability to predict intra-quarter returns, which means that the stocks purchased by institutional investors will have high performance than the stocks sold by them. The ability to forecast by institutional investors can explain the high correlation between changes in institutional ownership and the same quarterly returns. In summary, it is evident that the variations in aggregate institutional ownership have significant positive effects on stock returns, since institutional investors have better access to information than individual investors. On the contrary, Cai and Zheng (2004) find that changes in institutional ownership do not predict the stock returns.

One important point has to be mentioned here, which is consistent with the previous studies. There is a strong positive correlation between changes in institutional ownership and stock returns during the same and past quarter for all categories of institutional investors. Just for mutual funds and independent advisors, there is a strong positive relationship between variations in their ownership and future returns, as measured by the following quarter. This means that these institutions have better access than the others to information and they might “exploit return momentum” (Sias et al., 2006).

Bohl et al. (2007) have studied the impact of institutional ownership on stock market returns dynamics in Poland during the period 1994-2003. Utilizing a modified Markov-Switching-GARCH analysis, they find out that change in institutional ownership is associated with a temporary change in the volatility structure of aggregate stock returns.

Some studies find that the direction of the relationship between institutional ownership and stock volatility is strongly affected by the company’s dividend policy. Rubin and Smith (2009) have proved that this relationship is positive for the dividend paying stocks but negative for the non-dividend paying stocks. The lower volatility due to the high level of institutional ownership is due to institutional investors’ easy access to information on prices, called “Institutional Preference hypothesis” (West, 1988). It refers to the institutional investors’ preference to invest a large component of their portfolios in low risk non-dividend paying shares. The reason is that most institutions follow the “Prudent” man rules, since they invest on behalf of other people.

On the other hand, the “Institutional Turnover Hypothesis” could explain the positive relationship between institutional ownership and stock volatility in the dividend paying stocks. This hypothesis refers to the high frequency of portfolios’ turnover by institutional investors, more than individual investors. Karpoff (1987) says that this high portfolio turnover indeed has a positive impact on stock volatility. Moreover, institutional herding is closely associated with dividend paying stocks than non-dividend paying stocks, meaning that institutional investors follow the same pattern in buying and selling stocks (Sias, 2004).

The study conducted by Zou and Adams (2008) is one of the few studies that tested the impact of certain kinds of corporate ownership (other than managerial ownership) on the company’s stock returns and stock volatility in an emerging country. They selected China as an emerging country that is rich in different kinds of corporate ownership. Studying the relationship in a country like China is of extreme importance because of its large investment opportunities and China is one of the largest recipients of foreign direct and indirect investment during the last ten years prior to the study (Pan and Chi, 1999). This trend of capital inflow has increased in China especially after it joined the World Trade Organization (WTO). Moreover, in 2002, China launched the “system of qualified foreign institutional investors (QFII)” to allow for more foreign investment in its rapidly expanding economy (Sun and Tong, 2002, 2003).

They said that the different kinds of ownership structure could have a significant effect on the firm’s stock returns and volatility, since the different shareholders could exercise different degrees of power to achieve their own self-interests, and this ultimately could lead to different “agency costs” and different degrees of “financial performance” among the Chinese companies. If the data on financial performance is included in the market price, this could affect the stock returns. In addition, the different kinds of corporate ownership have varying targets and variety of risk choices, and this in return could affect the company’s business plan, resulting in different levels of equity risk.

The study of Zou and Adams (2008) has used a sample of 259 Chinese PLCs for the period 1996-2000, and the panel model was used for estimation. The results show that the companies with more state ownership have higher stock volatility and lower stock returns in relation to the companies with more “legal-person” ownership that have lower stock volatility and higher

stock returns. The reasons for this are mainly due to the agency problems resulting from the owner-manager relationship, political costs and the unavailability of professional managers, associated with state ownership. While the “legal-person” ownership has a positive effect on the firm’s stock returns, the negative effect on the stock volatility reveals the efficiency of placing the State owned enterprises (SOEs) as intermediate shareholders between the government and the firms (Chen and Yuan, 2004).

In another study led by Gutierrez and Kelley (2009), they find that herding affects abnormal returns negatively in the second year after the herding but it does not affect abnormal returns in the first year, which contradicts the findings of Wermers (1999) and Sias (2004).⁽¹⁵⁾ Dominated by the original measure of herding, changes in institutional ownership forecast return reversal in the second year. This result coincides with Dasgupta et al. (2010), who find that changes in institutional ownership over several quarters lead to return reversal in the future. In addition, Yan and Zhang (2009) analyze the short-term and long-term institutions, and find that variations in the ownership of short-term institutions forecast stock returns in the second year. Consequently, this means that herding forecasts future returns reversal.

A recent paper by Belghitar et al. (2011) analyzes the effect of institutional investors on equity prices and stock performance. They focus mainly on “Prudent Strategic” institutional investors since they have similar attitudes and their shares are not included in the normal trading but held for the long run. The previous studies are mainly depending on the first two moments to measure stock performance. They find that the first two moments, can lead to misleading results. Thus, they measure the stock performance by the whole distribution of stock returns using the concept of marginal conditional stochastic dominance (MCSD) innovated by Shalit and Yitzhaki (1994). The only assumption for this method is that “investors are risk averse utility maximizers”.

One of the difficulties faced by the researchers is that institutional investors are considered heterogeneous group since they have different plans, so their effect on stock performance will

⁽¹⁵⁾ Wermers (1999) studies herding in mutual funds only while, Gutierrez and Kelley (2009) along with Sias (2004) study herding in 13F institutions. The 13F data provides data for the holdings of all institutions with at least \$100 million under management and outstanding shares of at least \$200,000 or 10,000 shares. Consequently, the 13F data is better in reflecting the overall institutional demand.

not be the same. Yet, in common they have their respect to the “Prudent man rules”.⁽¹⁶⁾ That is why they focus mainly on the “prudent strategic”⁽¹⁷⁾ shareholders, since they are similar in their attitude towards fund management, That is to say, they are “legally bound by prudent man rules”.⁽¹⁸⁾ In addition, since the strategic shareholders keep their shares for a long period of time, their effect on the corporate governance and consequently on the stock performance will have time to be implemented, as opposed to the non-strategic institutional shareholders.

According to Belghitar et al. (2011), the disadvantage of the past studies, performed on the relationship between institutional ownership and stock returns and volatility is that they are assuming that investors are only concerned by the first two moments of the return distribution. There is no problem in that assumption if the assets distribution follows a normal distribution, but according to Mandelbrot (1963), it is a well-documented fact that this is not the case. As a result, the third and the fourth moments of the return distribution (skewness and kurtosis) are very important to investors (Athayde and Flores, 1997).

Belghitar et al. (2011) have conducted their study on USA listed nonfinancial firms on NYSE, AMEX and NASDAQ for the period from 2002-2009. Their results show negative relationship between the yearly average daily stock returns and institutional ownership, which proves the prudent behavior of the institutional investors. Moreover, there appears to be a positive relationship between strategic institutional ownership and stock performance.

Another recent study by Hassanzadeh et al. (2013) examines the relationship between institutional ownership and stock returns fluctuations in Iran during the period 2006-2010. It is one of the few studies conducted on emerging economies. The results of their study support a positive relationship between institutional ownership and stock returns fluctuations. They use the pooled data approach as their estimation method.

The study by Chen et al. (2013) analyzes the effect of foreign institutional ownership on firm-level stock returns volatility in China between 1998 and 2008. The empirical results show that share ownership by foreign institutions increases firm-level stock returns volatility, even after

⁽¹⁶⁾ Prudent man rules impose on the institutions, since they act on behalf of their clients, to be “risk averse”, when they manage their funds.

⁽¹⁷⁾ Strategic shareholding means the shares of the company’s capital that is not included in the normal trading “in the free float and held only for the long run”.

⁽¹⁸⁾ A study by Del Guercio (1996) analyzes the shares of mutual funds and banks in 1988, and she finds that banks have more tendency to invest in “prudent” stocks, and this tendency was stable from 1988 to 1991.

controlling for firm size, turnover, and leverage, and correcting for endogeneity. Furthermore, they document a positive relationship between domestic shareholdings (individual, institutional, and governmental) and firm-level stock returns volatility.

The study by Alzeaideen and AL-Rawash (2014) however, could not provide a significant relationship between the individual and institutional shareholder in one hand, and share price volatility on the other, based on their analysis of 51 Jordanian companies between 2005 to 2009. A panel data method is employed with two empirical models OLS and SUR (seemingly unrelated regression).

In summary, it is evident that the studies conducted on the relationship between institutional ownership and either stock returns or volatility have different results. Most studies examine the relationship between the level or changes of institutional ownership and both the past and contemporaneous returns. Little emphasis is given to the relationship between institutional ownership and future returns. It is logical to have these differences since each study is done using different sample periods and sometimes, different countries. The important factor is the reasons mentioned to justify the underlying relationship.

On one hand, some studies document a negative relationship between institutional ownership and both stock returns and volatility. So, we find researchers such as: Lin et al. (2007) and Belghitar et al. (2011) in support of this relationship. Their reasons mainly are; institutional investors being followers of the prudent man rules, having access to better quality of information that allow them to invest in less risky securities, their tendency to act in a rational way unlike the individual traders as mentioned by Shiller (1984) and being smart-money investors. Bushee and Noe (2000) find negative correlation between the level of quasi-indexer institutional ownership and both the present and future stock returns volatility due to their passive trading behavior.

Although most academic theories suggest a negative relationship between institutional ownership and both stock returns and volatility, the empirical evidence is different. Most studies document a positive relationship between institutional ownership and both stock returns and volatility. Researchers such as: Potter (1992) and Sias (1996) rationalize this relationship by the temptation of institutional investors to invest in risky securities since they

have higher market performance, added to this, their ability to get better information about these risky securities. Lee (1992) has added that trading in larger volumes by institutions results in higher volatility. Moreover, the herding behavior, followed by institutional investors, could result in frequent price alterations and increase in volatility.

Most researchers such as: [Grinblatt (1989), Grinblatt et al. (1995), Jones et al. (1999), Nofsinger and Sias (1999), Wermers (1999, 2000), Sias et al. (2002), Chen et al. (2002), Parrino et al. (2002), Bennett et al. (2003), Sias (2004), Sias et al. (2006)] have documented a positive relationship between institutional ownership and stock returns during the past and same quarters, while it is positive but weak with respect to future stock returns. These findings were approved by Griffin et al. (2003). They add that the reaction of institutions to the positive returns movements by purchasing more is behind the strong positive relationship between changes in institutional ownership and ex-post returns. The same results apply to Choe et al. (1999) in Korea. This is due to trend chasing as mentioned by the above researchers.

In addition, this positive association has been explained due to the tendency of institutional investors to “follow short-term intra-quarter positive feedback trading strategies”, that goes well with the explanation of momentum trading. Others like; Nofsinger and Sias (1999) and Grinblatt and Keloharju (2000) do not observe trend chasing.

On the contrary, Ali et al. (2002) find a strong positive association between changes in institutional ownership during a certain quarter and the three days abnormal returns during the next quarter. Their rationalization is that some institutions are well informed to forecast future returns. This is higher for institutions such as: independent investment advisors, investment companies, insurance companies and banks, due to their short-term focus. Other reasons mentioned for these positive associations are; the combination between “post-earnings-announcement drift” and “window-dressing by institutions” and some institutions being momentum traders. In addition, researchers such as: Gutierrez and Kelly (2009) and Yan and Zhang (2009) have found that changes in institutional ownership forecast return reversal in the second year due to herding.

Moreover, other researchers such as: Bushee and Noe (2000), Dennis and Strickland (2002) and Landelius and Jornhagen (2008) find a positive relationship between the level of institutional holdings and the degree of “idiosyncratic” volatility. In addition, Sahut et al. (2011), Rubin and Smith (2009) and Sias (2006) trace a positive relationship between the level of institutional holding and stock returns volatility. They also add that changes in volatility could be forecasted by the variation in the lag changes in institutional ownership.

Furthermore, some institutions as mentioned by Rubin and Smith (2009), are affected by the company’s dividend policy, which exhibit positive relationship with the stock returns volatility for the dividend paying stocks and negative relationship for the non-dividend paying stocks. The negative relationship is explained by the “Institutional preference hypothesis” (West, 1988), and following the prudent man rules, since the institutions invest on behalf of other people. On the contrary, Rubin and Smith (2009) find this relationship positive due to “Institutional turnover hypothesis”. However, this positive relationship is only for the dividend paying stocks.

Finally, other researchers such as: Gompers and Metrick (2001), and Faugere and Shawky (2003) after examining the eight month period from March to November 2000 for NYSE listed shares, find the relationship between institutional ownership and stock returns volatility insignificant. Gompers and Metrick (2001) find that institutional ownership has a significant positive forecasting power of returns in the subsequent quarter due to the experience of institutions, which is indeed better than individuals.

2.3 Effect of Institutional Ownership on Firm Performance

Recently institutional investors have been increasingly involved, in monitoring managers to work for the sake of the shareholders’ interests using their ownership rights. With the increase in their percentage of ownership in firms, more concentration is given to the role of institutional investors in monitoring and guiding the corporate managers (Cornett et al., 2007). Shleifer and Vishney (1986) have pointed the high motives of institutional investors to observe the managers more than the members of the board of directors, who do not have any shares invested in the firm.

In addition, the institutional investors have such capabilities and resources to observe and affect the managers. Moreover, McConnell and Servaes (1990), Nesbitt (1994), Smith (1996), and Del Guercio and Hawkins (1999) have reached certain results that go well with the hypothesis that “corporate monitoring” from the institutional investors’ side can push the managers to concentrate more on firm performance and less on their self-interests.

According to Maug (1998), the desire by institutional investors to monitor the managers is dependent upon the size of their shares in the firm. They are more motivated if they are investing for the sake of long-term profitability. And since monitoring is proportional to the amount and size of shares they control, they could lead to a decrease in the marketability of shares and lower valuation.

Before the year 2005, few studies have been conducted and they have not reached a concrete result on the effect of institutional ownership on financial performance. On one hand, McConnell and Servaes (1990) find a positive correlation between the percentage of institutional ownership and the firm’s Tobin’s q.⁽¹⁹⁾ In addition, Nesbitt (1994), Smith (1996), and Del Guercio and Hawkins (1999) document a positive relationship between institutional ownership and different measures of firm performance. Moreover, Chen et al. (1998) find that institutional investors have a positive impact on firm performance.

On the other hand, Agrawal and Knoeber (1996), Karpoff et al. (1996), Duggal and Miller (1999) and Faccio and Lasfer (2000) find the above-mentioned relationship insignificant.

Other studies pinpoint to the negative impact of institutional ownership on financial performance. Graves and Waddock (1994) find that an increase in the level of institutional ownership has led to a decline in the performance of American companies. Also, Coffee (1991) and Demirag (1998) conclude that institutional investors will be more involved in buy-sell strategies, and will not be preoccupied by proper monitoring.

Consequently, it means that the effect of institutional ownership on firm performance is not clear or gives mixed results. Yet, Bhattacharya and Graham (2009) pinpoint to the importance

⁽¹⁹⁾ The ratio Tobin's q is calculated by dividing the market value of a company by the replacement value of the book equity:

Tobin's q = (Equity market value + Liabilities book value)/(Equity book value + Liabilities book value).

of classifying institutional ownership into different groups to examine their effect on firm performance.

Cornett et al. (2007) conduct a study examining the relationship between institutional ownership and firm performance. They measure the firm performance using “cash flow return on assets”. Moreover, they consider the firm’s performance as a function of the kind of institutional investor whether he is pressure -sensitive or pressure-insensitive.⁽²⁰⁾ Their study consists of firms listed in the S&P 100 since their size attracts more institutional investors. The authors have used the return on assets to measure the firm performance, which is, as they say, better than the Tobin’s q. Return on assets focuses more on the present performance, unlike Tobin’s q which is more concerned with the expected growth in the coming years.

The authors follow Hartzell and Starks (2003) in their measures of institutional investor ownership. Furthermore, they follow Brickley et al. (1988) and Almazan, Hertzell and Starks (2005) to know the impact of certain categories of investors on firm performance. Moreover, like the formerly mentioned authors, they utilize the CDA spectrum coding to separate the data on institutional investor ownership as either pressure-insensitive or pressure-sensitive, to test their impact separately on firm performance.

The results of Cornett et al. (2007) show that there is a strong positive relationship between changes in institutional ownership and the firm’s financial performance as indicated by the industry-adjusted ROA. The results prove that high institutional ownership is closely linked to better operating performance and monitoring of corporate managers. Moreover, in differentiating between the two groups of institutional investors (pressure-sensitive and pressure-insensitive), they find that improved firm performance is highly related only to the number of pressure-insensitive institutional investors. This result confirms that pressure-sensitive institutional investors are more likely to have insignificant effect on ROA through their decisions against the management. Uwuigbe and Olusanmi (2012) reach the same conclusion as Cornett et al. (2007). Testing the Nigerian listed firms during the period 2006-

⁽²⁰⁾ **Pressure-sensitive** are those institutional investors who have interests with other firms, and for the sake of these interests, they prefer not to interfere with the management decisions. Good examples are; insurance companies and banks. **Pressure-insensitive** are less likely to get influenced by any pressure from the firms they invest in and they can have the ability to observe, guide and set rules for the corporate managers. Good examples are; investment companies and independent investment advisors.

2010, using a multivariate multiple regression analysis, they find that institutional ownership has a positive and significant impact on firm's performance using return on assets as a measure of performance.

Bhattacharya and Graham (2009) are the first to combine the use of simultaneous equation estimation method and the disaggregated institutional ownership data. The possibility of an endogeneity problem between firm performance and ownership structure leads the authors to use a three-stage least squares to deal with the problem. They conduct their study using data from Finnish companies, where it is known that special characteristics of ownership structure exist in Finland. According to Ilmanen and Keloharju (1999), the local Finnish institutions own more than half the investment capital in Finland. In addition, the ownership structures for most of the Finnish-listed shares during the period from 1993-2000 have been reported to be stable (Maury and Pajuste, 2005). Consequently, it is expected that there is no changes in ownership over time. That is why the authors conduct a cross-sectional analysis for one year, 2004 ownership data.

Similar to Cornett et al. (2007), Bhattacharya and Graham (2009) categorize institutional owners into two groups, pressure-sensitive and pressure-insensitive. In addition, since ownership concentration in Finnish firms does not necessarily mean voting power concentration by institutional stakeholders, examining the voting power associated with the equity ownership of each institutional group is important. When they compare the Tobin's Q values for both pressure-sensitive and pressure-insensitive owners, they find that firms under pressure-sensitive owners have a positive effect on performance, which is better than that of pressure-insensitive owners. The same result occurs when return on equity is used as an alternative measure for firm performance. Moreover, they find that there is a negative relationship between firm performance and voting power proxies for the firms owned by both pressure-sensitive and pressure-insensitive owners, which means that with more equal distribution of the voting power among the largest institutional stakeholders, the firm performance could be enhanced.

One study done by Elysian and Jia (2010) investigates the relationship between the level and stability of institutional ownership and corporate firm performance. The authors explain the role of institutional investors and their effect on firm performance. They have described three

scenarios. One is that, engaging in an active role from the institutional investors' side can result in enhancing the firm performance, since they have the necessary experience to monitor the management (Shleifer and Vishny, 1986). The second scenario assumes that institutional investors are short-term traders, who do not have the incentive to engage in active monitoring of the management, in this case they are considered passive. The third scenario happens when institutional investors support the management in order to exploit the small shareholders, which is likely to happen in the emerging markets where the interests of small shareholders are not protected like in other developed countries (Brickley et al., 1988 and Cornett et al., 2007).

Elyasiani and Jia (2010) are concerned more with the first and second moments in their study of the stability of institutional ownership distribution and its effect on firm performance. The authors prefer to use the institutional ownership stability plus the ownership level to test its effect on performance for several reasons. Stable institutional investors have better chance to have more information about the investing firms and to observe them on a regular basis, which minimizes the agency costs and the information asymmetry. In addition, stable institutional investors, are better in motivating the management to invest for the long-term, which means better long-term performance (Jensen and Meckling, 1976). Moreover, stable institutional owners with large holdings can enhance the corporate governance, and guide the management towards long-term profitability instead of pursuing their self-interests only (Hartzell and Starks, 2003).

Aghion et al. (2010) find that monitoring by institutional investors can minimize the information asymmetry between shareholders and managers, which can lead to enhancement of the management motives to concentrate on long-term investments. Similarly, Wahal and McConnell (2000) have said that institutions have better access to information than the individual traders, and their existence in the firms result in large finances on investments with long-term profitability and good performance. In addition, Rubin and Smith (2009) prove that institutional ownership minimizes stock volatility in non-dividend paying stocks, which are accompanied by high information asymmetry. The reason lies in the high skills of institutional investors in collecting and analyzing information. This, in return, means that stable institutional investors minimize the cost of information asymmetry associated with dispersed ownership because of their good monitoring.

The results of Elyasiani and Jia (2010) confirm that with more stability of institutional ownership, the corporate firm performance is better, and it is much better under pressure-insensitive institutional investors.

Contrary to the above studies, another recent study by Namzi and Kermani (2013) find that institutional ownership has a negative and significant impact on firm performance. The authors use data from Tehran Stock Exchange during the period 2003-2008 and employ a panel data model. The authors here identify two main ownership structures: institutional ownership and private ownership. They take only the percentage of the stocks that is owned by the public corporations in referring to institutional ownership. They use return on assets and return on equity as measures of financial performance.

Also, the study by Zeitun (2009) investigates the effect of ownership structure on the company's performance in a panel estimation using 167 Jordanian companies during the period from 1989-2006. The empirical evidence shows that inefficiency is related to institutional ownership, and that there is a significant negative relationship between government ownership and the firm's accounting performance. The firm's profitability represented by ROA is negatively and significantly correlated with the percentage of institutional ownership.

Hsu and Wang (2014) investigate the influence of shareholding stability of institutional investors on firm performance. They analyze 647 sample companies listed in the Taiwan Stock Exchange from 2005 to 2009 using the coefficient of variance on institutional holding proportion as the measure of ownership stability. The empirical results show that increasing stability of institutional holdings is accompanied by better firm performance. The low-risk and younger firms with higher CEO incentive compensation, larger insider holdings, and higher growth usually have better performance. Moreover, when the long-term institutional shareholdings, particularly of foreign institutions, are higher, the firm performance is better.

Yet, in most developing countries, there appear to be no association between institutional ownership and firm performance. This is evident in the studies of Aljifri and Moustafa (2007) in United Arab Emirates and Dwivedi and Jain (2005) in India. They both employ cross-sectional regression and use Tobin's Q to measure firm performance.

In summary, most of the studies done on the relationship between institutional ownership and firm performance reveal that it is a positive relation. According to McConnell and Servaes (1990), Nesbitt (1994), Smith (1996) and both Del Guercio and Hawkins (1999), “corporate monitoring” by institutional investors pushes the managers to focus more on firm performance. Maug (1998) adds that this desire by institutional investors increases when they invest for the sake of long-term profitability.

Moreover, most studies classify institutional investors into: pressure-sensitive and pressure-insensitive owners. In contrast, the measures used to account for firm performance differ across studies. Some use Tobin’s q as a measure of performance, while others use cash flow return on asset. Cornett et al. (2007) document a positive relationship between institutional ownership and firm performance, and it is better under pressure-insensitive investors. In addition, Bhattacharya and Graham (2009) find a positive relationship between institutional ownership and firm performance, but unlike the above-mentioned authors, they observe that the firm performance is better under pressure-sensitive owners.

Furthermore, Elysian and Jia (2010) notice a positive relationship between institutional ownership and firm performance, and like Cornett et al. (2007), it is better under pressure-insensitive institutional investors. But, Elysian and Jia (2010) are more concerned with the stability of institutional ownership and its effect on performance. They find that with more stability in ownership, agency costs and information asymmetry are minimized, which has its positive effect on performance.

Finally, the reasons mentioned for this positive relationship do not differ to a great extent among the studies, yet they all complement each other. Examples of this are the institutional investors’ better access to information and their tendency to encourage investments with long-term profitability (Wahal and McConnell, 2000). In addition, as pointed by Rubin and Smith (2009), institutional ownership minimizes stock volatility in non-dividend paying stocks because they have high skills in collecting and analyzing information, which in return minimize the cost of information asymmetry, leading to good firm performance.

2.4 Effect of Ownership Concentration on Risk and Return

Ownership concentration is measured as the percentage of a firm's outstanding stocks held by the largest five institutional investors. In the USA, ownership concentration has not increased as much as the growth in institutional ownership because institutional investors have the tendency to diversify their portfolios as they increase to more firms. This is actually due to the obstacles faced by some institutions, imposed by the USA legal structure that prohibits them from holding sizeable shares (Edwards and Hubbard, 2000).

Actually, it is not easy to identify a significant relationship between ownership concentration and stock market returns. Added to the reasons discussed in a previous section in this chapter about the factors affecting the stock market returns evaluation, there is the attitude of the investors who may or may not be rational in some instances (Shleifer 2000 and Shiller 2000). Thus, it is difficult to determine a certain and concrete relationship between the two variables under study (Clark and Wojcik, 2005).

In an early study done by Demsetz and Lehn (1985), they realize that with empirical evidence ownership concentration is normally associated with both high returns and high stock price volatility.

In their study of the financial valuation of the German model, Clark and Wojcik (2005) find that the relationship between ownership concentration and stock market returns is negative. They have conducted their study by analyzing the companies of the DAX100 stock market index from 1997-2001. The DAX100 consists of two indices, DAX30 and MDAX⁽²¹⁾. The DAX30 contains the top 30 highly traded German companies in Frankfurt Stock Exchange according to their size or market capitalization. The other 70 companies, which are considered the mid-capitalization firms, are included in the MDAX. Over the period under study, DAX30 represented about 85% of the total market capitalization and 96% of the turnover of DAX100 (Deutsche Borse 2003).

In analyzing the relationship between ownership concentration and stock market returns, the authors have used two measures of ownership concentration: the share of the largest holder

⁽²¹⁾ In March 2003, the structure of the German stock market indices witnessed a change, and MDAX was reduced from 70 to 50 firms covering only the traditional industries.

with voting rights in the company, and the Herfindahl index, which is calculated based on “the structure of holdings of major voting rights”. The results show that for the three indices under study, the relationship between ownership concentration and stock market returns is negative. In addition, the authors find that the effect of ownership concentration on adjusted returns is stronger than that for unadjusted returns. This means, according to Sharpe ratio,⁽²²⁾ there is a positive relationship between ownership concentration and volatility of stock market returns. The closed corporate governance system associated with high ownership concentration means that the outside investors have little information and there is a high probability of insider trading. As a consequence, these companies tend to have more volatile stock market prices (Clark and Wojcik, 2005).

Clark and Wojcik (2005) extend their analysis of the relationship between ownership concentration and stock market returns by including some control variables. One of these control variables is the size of the company. Previous literature has concluded with the result that there is a negative relationship between ownership concentration and size. This can be explained by the large amounts of capital needed by large companies, which cannot be provided except by diversified sources of capital (Demsetz and Lehn, 1985 and Morck et al., 2000).

Another control variable, which is included by the authors, is the inclusion in the DAX30 index. They find that this variable is important for two reasons. The investors could prefer the companies listed in this index due to their “market visibility” (Morck et al., 2000). In addition, it is expected that a relationship exists between ownership concentration and inclusion in the index. Inclusion means more participation in trading as portfolio investors. This means that the companies included should have more dispersed ownership to achieve the needed level of liquidity for its shares (Jurgens and Rupp, 2002).

The result reached by the authors after accounting for the control variables is that there is still a negative relationship between ownership concentration and stock market returns (Clark and Wojcik, 2005).

⁽²²⁾ Sharpe ratio is a measure of the excess return or risk premium per unit of deviation in an investment asset. It is used to calculate how well the return on asset compensates the investor for the risk taken. The higher the number of the Sharpe ratio the better.

A study by Alzeaideen and AL-Rawash (2014) investigates the effect of different ownership structure on the share price volatility of listed companies in Amman Stock Exchange. They apply a panel data procedure to the dataset that includes 51 Jordanians companies from 2005 to 2009. The results reveal a positive and significant relationship between the five greatest shareholder and share price volatility.

In summary, it seems that identifying a significant relationship between ownership concentration and both stock returns and volatility is difficult due to the irrational behavior of investors. According to Demsetz and Lehn (1985), they find with empirical evidence that there is a positive relationship between ownership concentration and both stock returns and volatility. Clark and Wojcik (2005) in their financial valuation of the German model, find that the relationship is negative with respect to stock returns, even after adding control variables, and positive with respect to stock return volatility. The reason as mentioned by Clark and Wojcik (2005), is the closed corporate governance system associated with high ownership concentration, which prohibits the outside investors to have the necessary information, and therefore, the probability of insider trading increases. The companies in this case will have more volatile stock market prices. Finally, Alzeaideen and AL-Rawash (2014) find positive and significant relationship between the five greatest shareholder and share price volatility.

2.5 Effect of Ownership Concentration on Firm Performance

A central question on corporate governance has been the ability to solve the problems accompanied by “dispersed ownership” (Berle and Means, 1932). Over a period of time, the dispersion of ownership by individuals has been substituted by institutional ownership, or shares managed by institutional investors such as; mutual and pension funds (Chen et al., 2007). Institutional investors are considered the biggest owners of the USA corporations (Gillan and Starks, 2000). With more ownership concentration, it is expected that the large block holders will exercise some kind of control over the management, which could enhance the firm performance. If ownership dispersion exists, the main reliance is on the secondary market trading to create concentration whenever needed to induce some kind of intervention in the management decision-making. Although ownership concentration enhances firm performance as evident from most of the past literature, there are still some benefits associated with ownership dispersion mainly greater market liquidity and better risk diversification (Bolton and Thadden, 1998).

Moreover, if institutions are not developed to a great extent, ownership concentration can be a substitute for the defects of the institutions and the weak investor protection rights as a feature of corporate governance. Therefore, ownership concentration is supposed to be directly related to firm performance especially in institutions of fragile legal structure (Shleifer and Vishney, 1997). Consequently, this means that ownership concentration may affect firm performance to a high level especially when the institutional environment is fragile. In addition, it is highly evident that the effectiveness of ownership concentration differs according to the level of institutional development especially in emerging market economies (Boubakri et al., 2005).

According to Shleifer and Vishney (1986), when there is a certain level of ownership concentration, there will be improvement in the management control and therefore, the value of the firm will increase. The evidence is provided by the experience of the German and French companies in that respect. Small shareholders do not have enough information and experience to monitor the management efficiently.

According to Clark and Wojcik (2005), in contrast to the relationship discussed in the past section, ownership concentration, represented by an organized and effective board of directors, has a positive and significant correlation with the firm performance. Theoretically speaking, the costs of coordination are lower when there are few shareholders, which will affect the firm's performance positively. As a matter of fact, in such cases the motives will be high to supervise the managers' work, and cooperate with the other board members to recruit the highly skilled and experienced representatives. Also as mentioned by Hutton (2002), ownership concentration is better for both the shareholders and stakeholders.

Moreover, Bhattacharya and Graham (2009) have revealed that the voting power associated with the three largest institutional owners is important in taking decisions linked to the firm performance and firm value, using share differences and share concentration as proxies for vote.

Balsmeier and Czarnitzki (2010) analyze the relationship between ownership concentration and firm performance in 28 central and Eastern European countries, where the level of

institutional development differs to a certain extent. As for other companies situated in the non-European member countries with less developed legal structures, the results show that the above relationship is inverted u-shape. This means, according to the authors, that there is an agency problem due to weak monitoring from the side of the shareholders and it increases with low ownership concentration. Berle and Means (1932) are the first to point out this problem, whereby the managers of the firm seek their own self-interests at the expense of the shareholders. Another interpretation could lie in the weak investor protection rights that prevail in these countries. So, in either high or low ownership concentration, the investors are afraid to invest, which hinders the potential of growth in these less developed countries.

Kapopoulos and Lazaretou (2006) investigate whether there is strong evidence supporting the belief that differences across firms in observed ownership structure result in systematic variations in observed firm performance. They test this hypothesis by analyzing the effect of the structure of ownership on corporate performance measured by profitability, using data for 175 Greek firms. Empirical results suggest that a more concentrated ownership structure leads to higher firm profitability.

The existing literature shows that the equilibrium ownership structure of a firm depends on the legal environment (La Porta et al., 2000). In weak legal environment, it is difficult to find external investors because of the existence of high private benefits control (Zingales, 1995; La Porta et al., 1999, and Bebchuk, 1999). Moreover, in such environments, the owner's reputation is important to get external funds without losing the control rights (La Porta et al., 2000). That is why the highly concentrated firm ownership exists in small countries among few families or individuals and they gain political power in their countries where the firms are located (La Porta et al., 1999). Based on these arguments, it is expected that there is a negative correlation between ownership concentration and firm performance.

Also, the study by Zeitun (2009) on 167 Jordanian firms covering the period from 1989-2006 shows with empirical evidence that there is a negative correlation between ownership concentration and firm performance measured by ROA and Tobin's Q. Similarly, Roszaini and Mohamed (2006) find a negative association between ownership concentration and firm performance measured by return on assets in Malaysia using OLS regression.

Hence, we have two opposing arguments. On one hand, there is an argument of positive relationship between ownership concentration and firm performance due to the low agency costs. On the other hand, there is a negative relationship due to lost investment opportunities and high private benefits of control.

According to the existing empirical literature, the relationship between ownership concentration and firm performance has always been non-linear. Some studies find an up/down/up relationship (Cho, 1998; Short and Keasey, 1999; Cosh et al., 2001, Gugler et al., 2004). According to these studies, when ownership concentration is low, raising it will lower the agency costs until a certain point; this positive effect will be offset by the negative effect of rent seeking by large investors at the expense of the small investors. With high ownership concentration, there is not much exploitation of small investors and there is more agreement between the shareholders and managers, which results in the upward slope of the ownership concentration performance relation at the right tail of the distribution.

Other studies find an inverted U-shaped relationship between ownership concentration and firm performance, which means that the positive effect of good alignment of interests between shareholders and managers in the case of high ownership concentration could be small relative to the negative effect resulting from the private benefits of controlling shareholders (McConnell and Serveas, 1990; Han and Suk, 1998; Thomsen and Pedersen, 2000).

Balsmeier and Czarnitzki (2010) conduct their study on 28 different transition economies, since most of the past studies concentrate on the highly developed economies especially the USA. The authors' study covers countries such as: Albania, Armenia, Azerbaijan, Belarus, Bosnia, Bulgaria, Croatia, Czech and Estonia. These countries have different levels of institutional development. Moreover, the authors use pooled cross-sectional data to avoid the loss of many observations, and to analyze the differences in institutional development at the firm level for each country. The method and the variables used in the regression are analyzed in the literature review summary table at the appendix. According to the Freedom House ratings of political rights and civil liberty, a country is considered institutionally weak if the score is 5 points or more, where the scale is 1 for the highest and 7 for the lowest.

The results show that a single shareholder owns the majority of firms in the countries under study, so a high ownership concentration exists in these countries. This is an expected result since in these transition economies, the capital markets are less developed than in other developed economies such as the USA and Japan. It is clear that ownership concentration increases when there is weakness in the institutional environment, all else constant. The largest owner in the non-EU member countries holds about 1.2% more than in EU countries. Moreover, the results show that ownership dispersion increases with the larger and older firms, those firms employing a higher percentage of skilled labor, publicly quoted firms and firms with more access to foreign markets.

Furthermore, the results show that for the whole sample, the relationship between ownership concentration and firm performance is inverted U-shape. The interpretation given is the same as mentioned above for the previous studies. The estimated slopes show that the efficient monitoring effect is offset with high ownership concentration in the non-EU member nations. In weak legal structures, high ownership concentration is preferred to dispersed ownership structure. The models for the subsamples of EU countries, where there is strong legal structure, show that the ownership concentration has no impact on firm performance. In these countries, the private benefits of control are not common as in the weaker institutional environment plus large owners are not needed for effective monitoring as such. In the other transition economies, firm performance increases in terms of employment growth with firms above 50% ownership concentration, but it decreases after reaching a certain peak around 55% on average.

Actually, the studies based on most developing countries show no association between ownership concentration and firm performance. This is evident in the studies conducted by Karaca and Eksi (2012) in Turkey, and Najjar (2012) in Bahrain and Wahla et al. (2012) in Pakistan. The three studies employ panel regression, pooled data method and multiple regression respectively.

A study by Alimehmeti and Paletta (2012) investigates the ownership concentration as a governance mechanism, and its effects on firm value. They conduct an empirical analysis over all Italian listed firms in a four-year period (2006-2009). Their results show a positive relationship between ownership concentration and firm value except in 2008, when the results

show a non-linear relationship, suggesting that the financial crisis had a strong effect at that time.

The study by Soliman (2013) seeks to examine the effect of ownership concentration on firm financial performance in Saudi Arabia, using pooled cross-sectional observations from the listed Saudi firms for three years between 2006 and 2008. He finds that firms' financial performance measured by the accounting rate of return on assets and rate of return on equity generally improves as ownership concentration increases. He also finds that firm performance peaks at intermediate levels of ownership concentration. The study provides some empirical support as most of the other studies support the hypothesis that as ownership concentration increases the positive monitoring effect of concentrated ownership first dominates but later is offset by the negative effects, such as the expropriation of minority shareholders.

Scholten (2014) analyzes the effect of total ownership concentration and insider ownership concentration on two measures of firm performance. With sample of two annual observations of 2011 and 2012 for 80 Dutch listed companies, significant empirical evidence is detected for a quadratic effect of total ownership concentration on firm performance measured by the ROA-ratio. The firm performance first improves when total ownership concentration increases, and after a certain point (around 48% of total ownership concentration) firm performance decreases.

In summary, it is clear that ownership concentration can be a substitute for weak institutional environment as a feature of corporate governance. That is why it is highly related to firm performance. Moreover, the effectiveness of ownership concentration differs according to the level of institutional development especially in emerging market economies. The experience of German and French companies shows that with a certain level of ownership concentration, there is improvement in the management control and the value of the firm increases.

Most studies document a positive relationship between ownership concentration and firm performance. According to Clark and Wojcik (2005), the costs of coordination are lower with few shareholders. Moreover, Bhattacharya and Graham (2009) reveal that the voting power associated with the three largest shareholders is important in taking decisions related to firm performance. Balsmeier and Czarnitzki (2010) show that the relationship is inverted U-shape in the transition economies of central and Eastern Europe. The reasons as they mentioned are

the agency costs associated with low ownership concentration and the weak investor protection rights. Soliman (2013) finds that as ownership concentration increases; the positive monitoring effect of concentrated ownership first dominates but later is offset by the negative effects, such as the expropriation of minority shareholders. Finally, Scholten (2014) detects a quadratic effect of ownership concentration on firm performance.

2.6 Literature on Egypt

Abdel Shahid (2003) has done one of the pioneer studies investigating the relationship between ownership structure and firm value in Egypt. She takes a sample of the 90 active companies, which constitute the bulk of trading at that time. Analysis is based on a cross-sectional single year data, which is the year 2000. She tests how the ownership type affects some key accounting and market performance indicators of the Egyptian listed firms namely; return on equity and return on assets as accounting performance measures, and price-earning ratio and price to book value as stock market performance measures. Her ownership structure variables consist of the top four means of ownership namely; other private institutions, holding companies, public banks and insurance firms. She uses the OLS method. Her results show the existence of significant relationship between ownership structure and accounting performance measures and insignificant relationship with regards to the stock market performance measures.

Another study by Abdelsalam et al. (2008) shows that there is a strong positive association between institutional ownership and firm performance, as well as the dividend decision and the payout ratio, using pooled cross-sectional observations from the top 50 listed Egyptian companies between 2003-2005.

The study of Azzam (2010) shows that, for the period from 2004 to 2007, private institutional ownership has a positive impact on stock volatility for the non-dividend paying stocks only because of the institutional herding effect unlike the dividend paying stocks, which has no effect on stock returns. On the other hand, ownership by public companies, individuals, insurance companies and top management has insignificant impact on stock volatility. His study shows that the dividend policy has a significant effect on the direction of the relationship between institutional ownership and stock volatility. Azzam (2010) uses the panel data method in estimation, after testing for endogeneity, to investigate the relationship

between institutional ownership and dividend policy on stock returns and volatility of the 50 most actively traded companies in the Egyptian Stock Exchange during the period from 2004-2007. He finds no endogeneity problem. He uses risk, return and payout ratio as dependent variables. While, the independent variables are percentage of equity ownership held by institutional investors, ownership concentration and a number of control variables including return on assets, return on equity, debt ratio, size and market to book ratio. He finds out that only private institutional ownership has positive significant effect on stock volatility, while ownership concentration has significant and negative effect on volatility. On the other hand, he finds that institutional ownership has no effect on stock returns.

Desoky and Mousa (2012) have done the most recent study, and they investigate how board ownership and characteristics affect the firm performance of 96 of the most active listed companies in the Egyptian Stock Exchange (EGX). Their financial performance is measured by return on assets, return on equity and Tobin's Q. The ownership variables include chairman ownership, CEO ownership, directors' ownership, board size and non-executive directors. They employ OLS regression analysis. The results reveal that some managerial ownership and board characteristics variables affect financial performance when measured by return on assets. When measured by return on equity, only one of the managerial ownership variables is significant. Findings related to the market measure of financial performance, Tobin's Q show that all models are insignificant.

2.7 Summary

In conclusion, it is evident that the studies, conducted on the relationship between institutional ownership and either stock returns or volatility have different results. Most studies examine the relationship between the level or changes in institutional ownership and both the ex post and contemporaneous returns. Little emphasis is given to the relationship between institutional ownership and future returns. In my study, analyzing the impact of institutional ownership on ex ante returns and volatility will fill this gap left by former studies.

Most studies document a negative relationship between institutional ownership and both stock returns and volatility. Yet, other studies find a positive relationship between institutional ownership and both stock returns and volatility. Other researchers such as: Gompers and Metrick (2001) find the relationship between institutional ownership and stock returns

volatility insignificant, but they have significant positive forecasting power of returns in the subsequent quarter due to the experience of institutions.

Moreover, most of the studies done on the relationship between institutional ownership and firm performance reveal that it is a positive relation. The reasons mentioned for this positive relationship do not differ to a great extent among the studies, yet they all complement each other. Examples are the institutional investors' better access to information and their tendency to encourage investments with long-term profitability. Yet, most studies on developing countries reveal that there is no association between institutional ownership and firm performance.

In addition, it is evident from the studies conducted, that identifying a significant relationship between ownership concentration and both stock returns and volatility is difficult due to the irrational behavior of investors. Furthermore, it is clear from the previous studies that ownership concentration can be a substitute for weak institutional environment as a feature of corporate governance. That is why it is highly related to firm performance. Also, the effectiveness of ownership concentration differs according to the level of institutional development especially in emerging market economies.

It seems that the existing literature focuses more on the effect of institutional ownership and ownership concentration on ex-post returns and volatility and firm performance. Moreover, the previous studies pay little attention to the small emerging countries, where the above-mentioned relationship could be different than what the previous papers have concluded, and have only dealt with developed and large emerging economies. In Egypt specifically, very few studies are conducted as pointed earlier.

In light of the above, this research attempts to study the effect of ownership structure on financial and firm stock returns performance. The study will be analyzed and tested using data from the Egyptian stock market, which is one of the emerging markets that are dealt by very few studies in literature. Both the effect of institutional ownership and ownership concentration on ex-post and ex-ante returns and risk will be examined, in addition to their effect on financial performance. Most studies in literature focus on all institutional investors as a group. While institutional investors share some important properties, they are not

homogeneous. An important aspect of heterogeneity is the investment time span. Institutions may have varying investment horizons because of differences in investment objectives, legal obstacles, and competitive burdens; in addition, their investment horizons may differ because of their different informational sources (Yan and Zhang, 2009). The analysis will extend the literature by decomposing the institutional ownership to several types which are; insurance companies, employee associations, public and private banks, holdings, and companies and using ex post and ex ante returns and risk. In addition, the effect of institutional ownership and ownership concentration on stock liquidity will be tested plus their effect on financial performance. Also, most studies use panel data approach while applying the pooled regression, which is not that efficient especially with unbalanced data.

Egypt, as a small emerging economy, is different than other developed and large emerging economies and these differences matter. The legal system in developed economies; the rooted financial structures and practices determine and shape the enforcement of corporate law. Egypt is characterized by late industrialization and the dominance of centrally planned system from 1952 until the mid of 1970s, when the open door policy was first adopted. The market economic system did not enter the picture dynamically except in 1990/1991, when Egypt started its economic reform and structural adjustment program, imposed by the International Monetary Fund and the World Bank (Abdel Shahid, 2003). In spite of the decrease in state intervention, there is state dominance felt in sectors of the economy such as oil, banks, textiles, etc. Therefore, concentrated ownership exists. The Middle East and North Africa (MENA) countries have the weakest legal protection of investors. Hence it is important to emphasize that the MENA region countries including the Egyptian market exhibit similar characteristics. But the results from this study cannot be generalized. It is a unique opportunity to investigate Egypt as it differs from the large and developed countries in a number of ways, which include the legal and political systems, country factors, market structure and development.

Chapter (3): Data Sources and Description

3.1 Population and statistical Sample

A total of 213 companies were listed in the Egyptian Stock Exchange by the year 2011. The market capitalization of these listed companies was 293.6 billion pounds by the end of 2011 (ElSherif, 2015).²³ The sample includes 85 Egyptian companies with small, medium and large firms to avoid any selection bias. I collected daily data on prices of stocks and volume of trade for these companies for the period from 2005-2011. The daily stock prices and volume were collected from the Egyptian stock exchange. The daily total volume of these 85 companies represents on average 99% of the market daily total volume of trade, which means that the sample is relatively representing the population (CASE, 2011). The companies' annual financial data were collected from the Egyptian stock exchange. Then, the ratios from the annual financial data for the period 2005-2011 were calculated. While, the annual ownership structure data were collected from Egypt for Information Dissemination (egID)²⁴. The total number of observations is 323 after removing the outliers.

Table 3.1 lists the market capitalization of the Egyptian Stock Exchange in Egyptian Pounds for all indices from 2005-2014.

Year	The Whole Market	EGX 30 ²⁵	EGX 70 ²⁶	EGX 100 ²⁷
2005	460,364,375,415	245,756,287,810		
2006	533,974,963,435	300,512,098,158		414,411,171,502
2007	768,277,414,311	449,470,053,404		605,015,313,227
2008	473,741,940,347	169,834,871,922	53,871,278,335	223,706,150,258
2009	499,613,710,047	228,739,772,532	70,452,327,107	299,192,099,639
2010	488,209,352,757	258,260,246,093	53,530,801,152	311,791,047,246
2011	293,592,802,841	159,565,248,245	30,991,734,988	190,556,983,233
2012	375,612,638,473	207,738,490,988	62,813,223,796	270,551,714,784
2013	426,810,398,402	175,675,314,274	130,511,573,406	306,186,887,680
2014	500,020,829,725	224,278,294,439	45,280,720,499	269,559,014,938

²³ More details on the market capitalization during the period under study are provided in table and figure 3.1.

²⁴ "For more than ten years now Egypt for information dissemination –egID has been the sole aggregator and authorized distributor of the Egyptian exchange listed companies information"- www.egidegypt.com (accessed on 18/10/2014)

²⁵ Represents the most active and most liquid 30 companies in the Stock Exchange.

²⁶ Represents the most active small and medium 70 companies in the Stock Exchange excluding the companies in EGX 30.

²⁷ Represents the most active 100 companies in the Egyptian Stock Exchange.

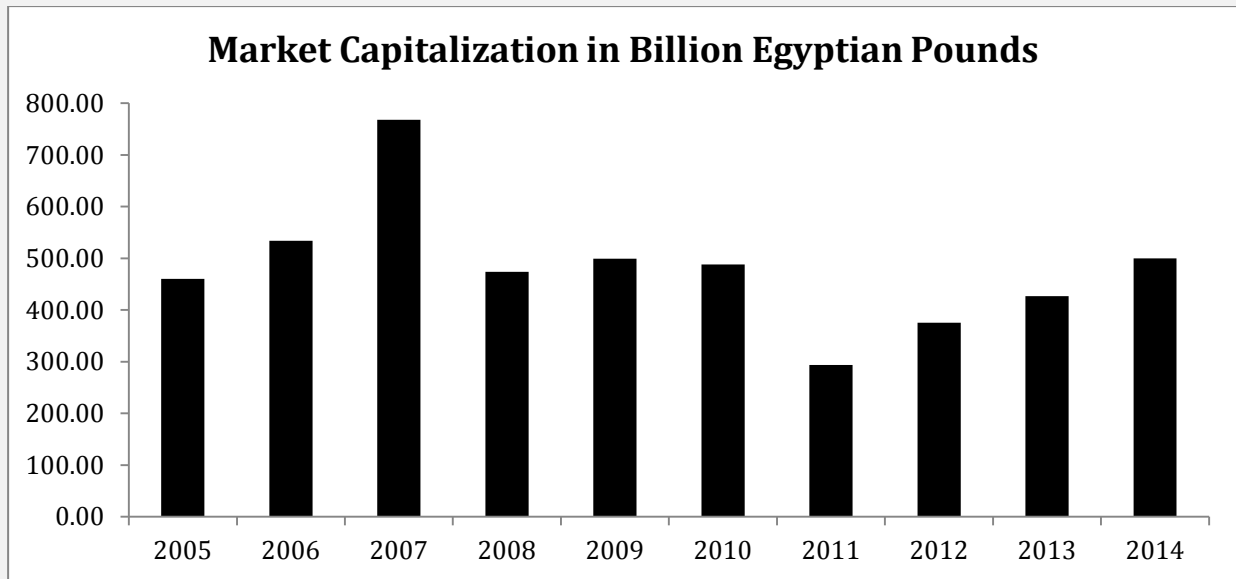


Figure 3.1: The market capitalization of the whole market from 2005-2014.

These 85 companies constitute the EGX 100 index. The sample ends at 2011, since the starting year of data collection is the beginning of the year 2013. The financial statements of each year are only available at the end of the first quarter a year after. So, it is not feasible to get the data until the year 2012 since the financial statements are available in April 2013²⁸. Daily data for prices and volumes for each of these stocks are used to calculate ex post and ex ante returns and volatilities. In order to minimize the effect of outliers on the results, the observations with the highest and lowest 20% of each return measure used in this sample are omitted. The reason is that the daily price limit movement is 20%. The percentage of equity ownership held by institutions in a company's shareholders and ownership concentration are calculated from the ownership structure data. It should be mentioned that the data available about ownership structure in Egypt is very limited. Collecting the data on ownership structure and concentration for each firm constituted a large part of the research for this thesis. This big effort is what made this research possible, since the analysis uses real figures. Moreover, the changes in real figures over years are helpful in the sense of shedding light on the effect of changes in ownership structure on firm performance. Also, it is worth noting that the unavailability of enough data for the years following 2011 prevented the researcher from further investigation of the possible effects that could have accompanied the post 25th of

²⁸ According to Ohlson (1980), the timing issue is a vital problem in data collection. It happens because firms' financial statements are not always available to the public on a timely basis.

January revolution. In addition, the Egyptian stock exchange collapsed after the revolution for a long period of time causing the total returns of most stocks to be negative.

The data collected are representing quantitative micro variables of 85 companies; they are considered cross section data of time series observations covering seven years. The years that have a lot of missing data on the variables required for the empirical test are eliminated from the sample, and thus the final sample consists of 323 observations.

Regarding the firm stock returns performance variables, this study has used ex post returns, ex ante returns, ex post risk, ex ante risk and volume of trade as dependent variables. As far as the financial performance is concerned, the study has used return on assets, return on equity and debt to total assets ratio as dependent variables for the measure of firm performance since they are considered accounting ratios usually used to measure the effective performance of management. On the other hand, institutional ownership with its different decompositions and ownership concentration are used as independent variables. The data on other control variables are also collected as will be highlighted and extensively discussed in the table below and the data collection section.

3.2 Data Description and Sources

Sources and descriptions of all variables are given in Table 3.2.

Table 3.2: Description of Variables

Variables	Description	Source
Age	Number of years since the establishment of the firm	Egyptian Exchange (EGX)
Cash	Ratio of cash to total assets	EGX
Volatility Clustering	Estimate of the parameter of the GARCH model	Calculated from the stock prices from EGX
Debt Ratio	Ratio of total debt to total assets	EGX
Employee Associations	Percentage of equity ownership held by employees association in a company	egID

Variables	Description	Source
Ex-Ante Returns	The expected return of a stock forecasted from the GARCH model	Calculated from the stock prices from EGX
Ex-Ante Risk	The future expected risk of a stock forecasted from the GARCH model	Calculated from the stock prices from EGX
Ex Post Returns	Average daily total return for year i calculated as $\ln(P_t) - \ln(P_{t-1})$, where P_t is the daily price of the stock at time t	Calculated from the stock prices from EGX
Ex Post Risk	Standard deviation of the daily total return for year i	Calculated from the stock prices from EGX
Free Float	Percentage of stocks available to the public to trade to the number of listed shares	egID
GDRs	Percentage of global depository receipts to the number of listed shares	egID
Individuals	Percentage of equity ownership held by individuals in a company	egID
Investment Funds	Percentage of equity ownership held by investment funds in a company	egID
Market Return	$\ln index_t - \ln index_{t-1}$	Calculated from the market index (EGX30) from EGX
Market Risk	Standard deviation of the daily market return	Calculated from the market index (EGX30) from EGX
Market to Book Value	Market price per share for common stock divided by book value per share of common stock	EGX
Net Profit Margin	Net income divided by sales	EGX
Ownership Concentration	Percentage of equity ownership held by the largest three institutional investors (own more than 5%) in a company	egID

Variables	Description	Source
Payout Ratio	Dividends divided by earnings per share (EPS)	EGX
Volatility Persistence	Estimate of the parameter of the GARCH model	Calculated from the stock prices from EGX
Private and Public Banks	Percentage of equity ownership held by private and public banks in a company	egID
Private and Public Companies	Percentage of equity ownership held by private and public companies in a company	egID
Private and Public Holdings	Percentage of equity ownership held by privat and public holdings in a company	egID
Private and Public Insurance	Percentage of equity ownership held by private and public insurance companies in a company	egID
Return on Asset (ROA)	Net income divided by total assets	EGX
Return on Equity (ROE)	Net income divided by shareholders' equity	EGX
Size	Natural Logarithm of total assets	EGX
Top Management	Percentage of ownwrship held by top management of a company	egID
Volume	Daily volume of trade of a stock	EGX

3.3 Descriptive Statistics

The following table provides the summary of statistics for our sample that includes 85 companies listed in the Egyptian Stock Exchange. The means, medians, minimum, maximum, standard deviation, Jarque-bera test and other summary measures for 29 variables are calculated.

According to the statistics in table 3.3, the mean proportion of institutional ownership with its several decompositions adds up to 48.5%, with the highest percentage dominated by private

and public companies (18.3 %) and the lowest by investment funds (0.02%). The table also shows that on average 44.4% of the companies' finances was through debts. The average free float is approximately 42.7%. Moreover, the mean ownership ratio for the largest three block shareholders is 47.8%. The average age of the companies in our sample is approximately 37 years. The ratio of cash to total assets represents on average 11%. The mean ex post daily return of all companies from 2005-2011 is 0.02%. The mean ratios of return on assets and return on equity are 6.4% and 14.4%, respectively. The relatively high mean of return on equity compared to return on assets is due to having an average debt ratio of 44.4%. The mean net profit margin is 30%. The mean payout ratio is 28%, which means that the companies on average distribute 28% of their earnings and retain 72%. Figures 3.2, 3.3 and 3.4 display the mean of the variables used in this study.

Moreover, the table highlights that the variability is quite similar for ex post returns and ex ante returns (0.006 and 0.008, respectively), and it is higher than the variability in market returns (0.002). Regarding the financial performance indicators, debt ratio displays the highest variability (0.235) compared to ROA (0.072) and ROE (0.171). The skewness results for all variables show that the null hypothesis of skewness coefficients in compliance to the normal distribution value of zero is always rejected at the 5% significance level. Also, most variables display excess kurtosis, which means that the null hypothesis of coefficients in compliance to the normal value of three is rejected. Thus, the distributions have thicker (fatter) tails than a normal distribution. Therefore, the hypothesis of unconditional (normality) is always rejected by Jarque-bera test statistics showing that the variables are not normally distributed, and confirming the results based on either skewness or kurtosis.

Table 3.3: Descriptive Statistics

This table provides summary of the statistics for a sample that includes 85 companies listed in the Egyptian Stock Exchange. The table reports the means, medians, minimum, maximum, standard deviation, skewness, kurtosis, Jarque-bera , probability, sum, sum sq. Dev. and observations for 29 variables. All variables are defined in Table 3.2.

	Mean	Median	Minimum	Maximum	Std. Dev.	Skewness ²⁹	Kurtosis ³⁰	Jarque-Bera ³¹	Probability	Sum	Sum Sq. Dev.	Observations
Age	36.718	33	6	107	23.326	1.226	4.296	103.526	0.000	11860	175203.4	323
Cash	0.111	0.072	0.0002	0.658	0.113	1.477	5.141	179.17	0.000	35.77	4.092	323
Clustering	0.675	0.736	-0.312	1.254	0.262	-1.344	4.909	146.34	0.000	218.06	22.12	323
Debt Ratio	0.444	0.461	0	0.94	0.235	0.087	2.142	10.31	0.006	143.39	17.76	323
Employee Associations	0.012	0	0	0.1	0.025	2.067	6.167	365.09	0.000	3.84	0.209	323
Ex Ante Return	0.001	0	-0.049	0.055	0.008	2.362	25.46	7092.22	0.000	0.415	0.018	323
Ex Ante Risk	0.044	0.036	0.000	0.622	0.048	7.800	81.21	85591.4	0.000	14.36	0.734	323
Ex Post Return	0.002	0.0001	-0.023	0.048	0.006	2.964	21.04	4851.02	0.000	0.485	0.012	323
Ex Post Risk	0.038	0.036	0	0.124	0.015	1.498	7.63	408.9	0.000	12.297	0.076	323
Free Float	0.427	0.386	0	0.99	0.225	0.433	2.44	14.32	0.0008	137.96	16.32	323
GDR	0.034	0	0	0.847	0.127	4.59	25.13	7725.6	0.000	10.99	5.19	323
Individuals	0.039	0	0	0.807	0.103	4.39	26.47	8449.8	0.000	12.75	3.44	323
Investment Funds	0.002	0	0	0.116	0.011	7.81	65.79	56359.06	0.000	0.506	0.042	323
Market Return	0.0001	0.0007	-0.003	0.003	0.002	-0.365	1.891	23.73	0.000	0.039	0.002	323
Market Risk	0.019	0.021	0.011	0.026	0.005	-0.339	1.95	21.15	0.000	6.11	0.008	323
Market to Book Value	2.776	1.58	0	45.37	4.66	5.706	44.12	24511.8	0.000	896.77	7005.7	323
Net Profit Margin	0.299	0.166	-1.904	10.61	0.76	8.62	110.68	160063.1	0.000	96.85	186.47	323
Ownership Concentration	0.478	0.486	0	0.956	0.245	-0.109	2.148	10.42	0.005	154.36	19.33	323

²⁹ The value of the skewness coefficient for a normal distribution is equal to zero.

³⁰ The value of the kurtosis coefficient for a normal distribution is equal to 3.

³¹ The Jarque-Bera test for normality distributed as C_2^2 (2 degrees of freedom). The critical value for the null hypothesis of normal distribution is 5.99 at the 5% significance level. Higher test values reject the null hypothesis.

	Mean	Median	Minimum	Maximum	Std. Dev.	Skewness ³²	Kurtosis ³³	Jarque-Bera ³⁴	Probability	Sum	Sum Sq. Dev.	Observations
Payout Ratio	0.288	0	0	2.72	0.42	5.917	40.93	21248.93	0.000	207.93	1360.42	323
Persistence	0.833	0.908	-0.006	1.108	0.213	-2.224	8.075	612.94	0.000	269.02	14.55	323
Private & Public Banks	0.045	0.002	0	0.729	0.106	3.439	16.78	3190.8	0.000	14.63	3.61	323
Private & Public Companies	0.183	0.061	0	0.956	0.235	1.178	3.448	77.35	0.000	59.17	17.82	323
Private & Public Holdings	0.117	0	0	0.917	0.211	2.081	6.704	417.79	0.000	37.83	14.39	323
Private & Public Insurance	0.033	0.001	0	0.343	0.060	2.449	9.621	912.85	0.000	10.51	1.173	323
ROA	0.064	0.052	-0.159	0.404	0.072	1.142	6.609	245.50	0.000	20.75	1.69	323
ROE	0.144	0.115	-0.411	1.039	0.171	1.378	8.77	550.19	0.000	46.59	9.45	323
Size	8.985	8.863	6.605	12.69	0.874	0.459	3.453	14.11	0.0009	2902.09	246.16	323
Top Management	0.093	0.001	0	0.858	0.181	2.208	7.022	480.04	0.000	29.99	10.55	323
Volume	5.633	5.639	2.868	7.581	0.767	-0.371	3.641	12.96	0.002	1819.45	189.29	323

³² The value of the skewness coefficient for a normal distribution is equal to zero.

³³ The value of the kurtosis coefficient for a normal distribution is equal to 3.

³⁴ The Jarque-Bera test for normality distributed as C_2^2 (2 degrees of freedom). The critical value for the null hypothesis of normal distribution is 5.99 at the 5% significance level. Higher test values reject the null hypothesis.

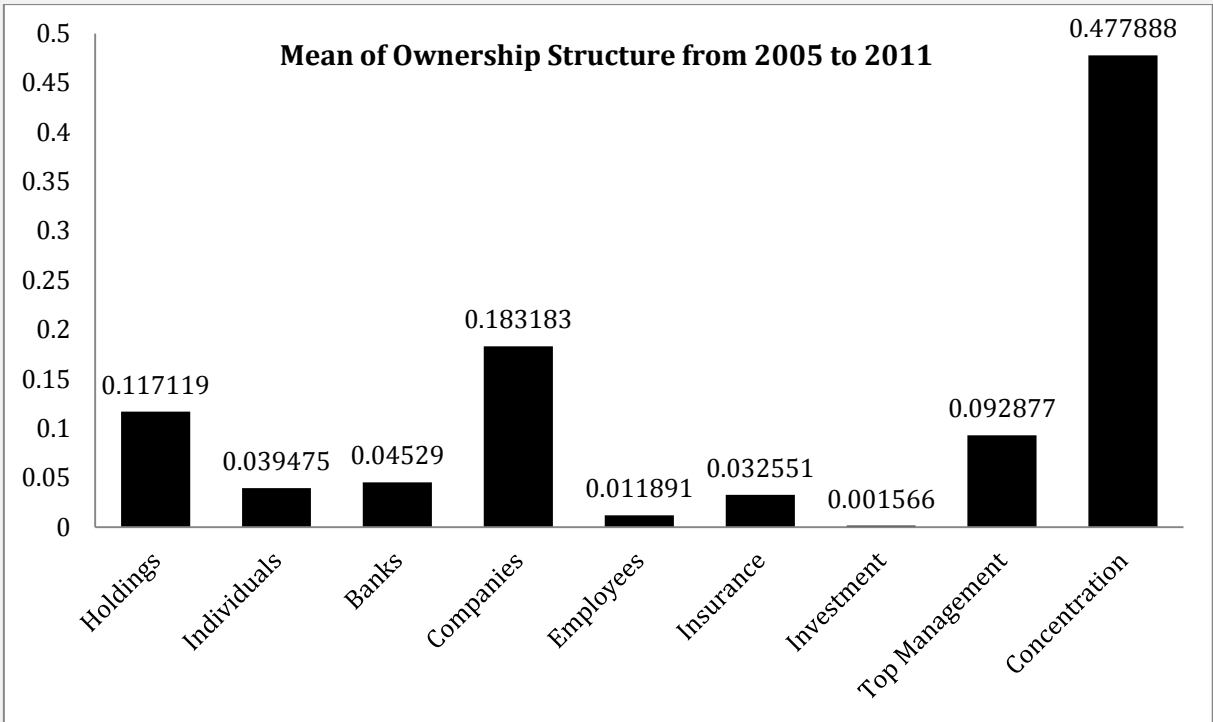


Figure 3.2

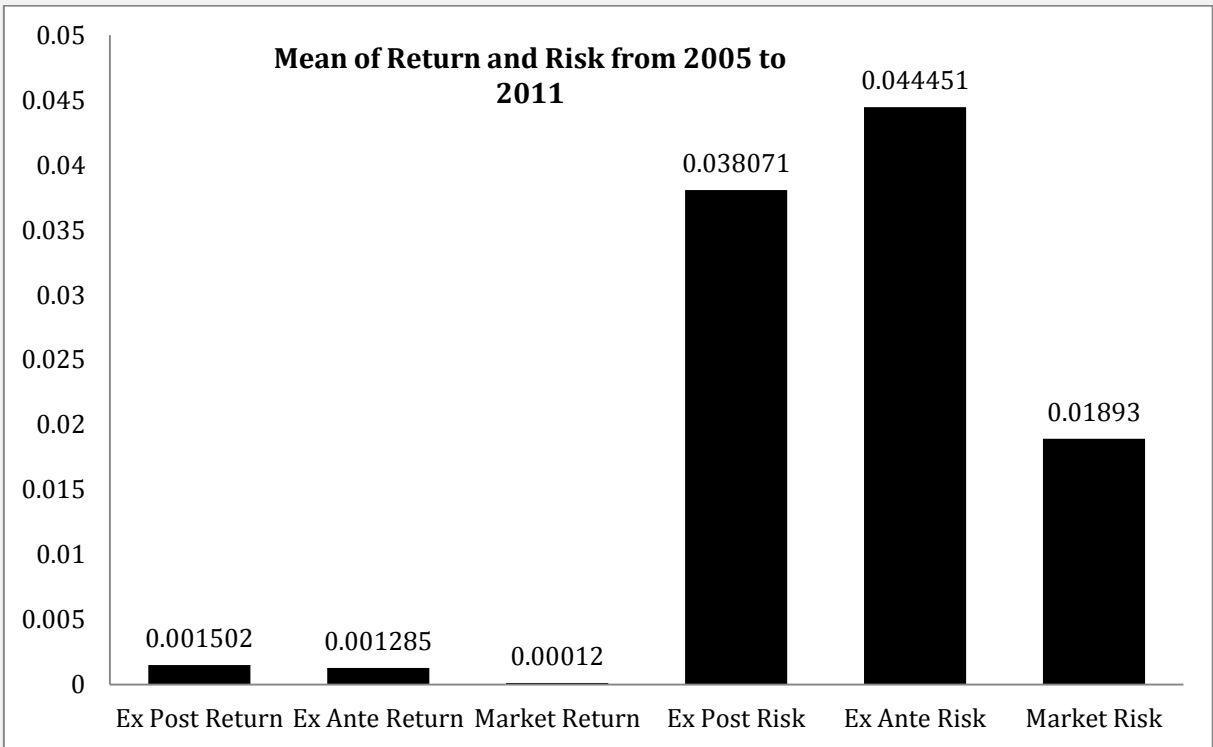


Figure 3.3

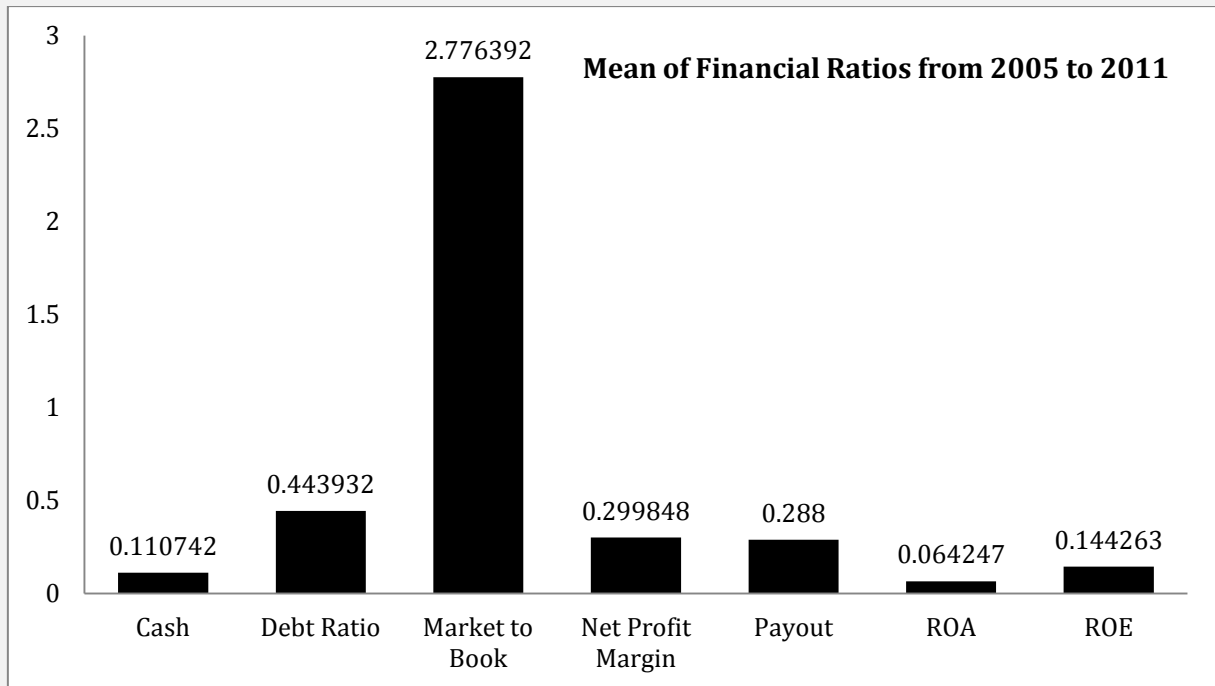


Figure 3.4

3.4 Summary

The chapter explains the data set and the variables used in the study, the sample compared to the whole population and the sources of data collection. Also, a complete definition of all the variables used is provided. In addition, the chapter includes a table of descriptive statistics with elaboration plus some figures representing the mean ratios of all variables used. Each step is explained in details in order for the reader to have a comprehensive understanding of the data collection process.

Chapter (4): Research Methodology

4.1 Research Questions

Most of the previous studies focus on the effect of institutional ownership and ownership concentration on ex-post returns and volatility of stocks. Few studies concentrate on the effect of institutional ownership and ownership concentration on ex-ante returns and volatility. Moreover, the attention is mainly devoted to developed countries and large emerging countries. Little attention is given to the small emerging countries like Egypt. In this study, the effect of institutional ownership and ownership concentration on stock returns and financial performance in Egypt is tested.

To evaluate the impact of institutional ownership and ownership concentration on stock returns and financial performance in Egypt, the research attempts to answer the following three questions.

Question No.1

What is the impact of institutional ownership on ex-post and ex-ante returns and volatility of stocks in the Egyptian market, and to what extent does this affect the stock liquidity? Does institutional ownership influence the firm financial performance positively or negatively?

Question No.2

What is the impact of ownership concentration on ex-post and ex-ante returns and volatility of stocks in the Egyptian market, and to what extent does it affect the stock liquidity? Does ownership concentration influence the firm financial performance positively or negatively?

Question No.3

What is the effect of the firm characteristics on ex-post and ex-ante returns and volatility, and to what extent do they affect the stock liquidity? Do firm characteristics influence the firm financial performance positively or negatively?

It could be argued that the impact of institutional ownership and ownership concentration should have a positive effect on both returns and volatilities in the stock market, and also a positive effect on the firm financial performance. As most of the previous studies concentrate on developed and large emerging countries and this study is conducted in Egypt, one of the small emerging countries, different relationships might emerge.

In the next section, the main hypotheses to answer these questions are addressed.

4.2 Hypothesis Development

4.2.1 Institutional Ownership, Ownership Concentration, Ex post and Ex ante Returns

It is evident that the studies conducted on the relationship between institutional ownership and either ex post returns or future returns have different results. Most studies examine the relationship between the level or changes of institutional ownership and both the past and contemporaneous returns. Little emphasis is given to the relationship between institutional ownership and future returns. It is logical to have these differences since each study is done using different sample periods and sometimes, different countries under study. What is important, are the reasons mentioned to justify the underlying relationship. Also, it seems that identifying a significant relationship between ownership concentration and stock returns is difficult due to the irrational behavior of investors. Accordingly, I propose the following hypotheses:

Hypothesis 1a. There is a positive relationship between institutional ownership and ex post returns.

Hypothesis 1b. There is a positive relationship between institutional ownership and ex ante returns.

Hypothesis 1c. There is a positive relationship between ownership concentration and ex post returns.

Hypothesis 1d. There is a positive relationship between ownership concentration and ex ante returns.

4.2.2 Institutional Ownership, Ownership Concentration, Ex post and Ex ante Risk

Although most academic theories suggest a negative relationship between institutional ownership and volatility, the empirical evidence is different. Most studies document a positive relationship between institutional ownership and volatility. Researchers such as: Potter (1992) and Sias (1996) rationalize this relationship by the temptation of institutional investors to invest in more risky securities since they have higher market performance, added to this, their ability to get better information about these risky securities. Lee (1992) has added that trading in larger volumes by institutions results in higher volatility. Moreover, the herding behavior, followed by institutional investors, could result in frequent price alterations and increase in volatility. Also, it seems that identifying a significant relationship between ownership concentration and volatility is difficult due to the irrational behavior of investors. Accordingly, I propose the following hypotheses:

Hypothesis 2a. There is a positive relationship between institutional ownership and ex post risk.

Hypothesis 2b. There is a positive relationship between institutional ownership and ex ante risk.

Hypothesis 2c. There is a positive relationship between ownership concentration and ex post risk.

Hypothesis 2d. There is a positive relationship between ownership concentration and ex ante risk.

4.2.3 Institutional Ownership, Ownership Concentration, and Stock Liquidity

In their study regarding institutional investors and equity prices, Gompers and Metrick (2001) find out that with more institutional demand for liquid stocks, institutional ownership is positively related to stock liquidity. So, it is expected that institutional ownership will have a positive effect on stock liquidity. Also, it is well known that with more ownership dispersion, there is greater market liquidity than with ownership

concentration (Bolton and Thadden, 1998; Jacoby and Zheng, 2010). Accordingly, I propose the following hypotheses:

Hypothesis 3a. There is a positive relationship between institutional ownership and stock liquidity.

Hypothesis 3b. There is a negative relationship between ownership concentration and stock liquidity.

4.2.4 Institutional Ownership, Ownership Concentration, and Firm Financial Performance

Most of the studies done on the relationship between institutional ownership and firm financial performance reveal that it is a positive relationship. According to McConnell and Serveas (1990), Nesbitt (1994), Smith (1996) and both Del Guercio and Hawkins (1999), “corporate monitoring” by institutional investors pushes the managers to focus more on firm performance. Maug (1998) adds that this desire by institutional investors increases when they invest for the sake of long-term profitability. Also, most studies document a positive relationship between ownership concentration and firm performance. According to Clark and Wojcik (2005), the costs of coordination are lower with few shareholders. Yet, in developing countries, the studies show that there is no association between institutional ownership, ownership concentration and firm financial performance. Accordingly, I propose the following hypotheses:

Hypothesis 4a. There is no significant relationship between institutional ownership and firm financial performance.

Hypothesis 4b. There is no significant relationship between ownership concentration and firm financial performance.

4.3 Model Building

The study tries to answer the question of whether ownership structure matters for firm performance. The starting point for the analysis is the agency theory by Jensen and Meckling (1976), which predicts the positive significant relationship between higher levels of managerial ownership structure and firm performance due to an incentive effect. Other

authors as a consequence have suggested that large outside owners might have a role to play as monitors of the management and might thus improve performance (Shleifer and Vishny 1986). On the other hand, the private benefits literature³⁵ (Barclay and Holderness, 1989 and Bebchuk, 1999) suggests that high ownership concentration may result in drawing out the firm's resources by the dominant owners at the expense of other shareholders. In my study, combining other stock market performance measures utilized by Fama and French (1993) in their five factor model³⁶, in addition to the agency theory proposed by Jensen and Meckling (1976), and analyzing the effect of ownership structure on that stock market based performance measures will highlight the whole picture from a market and financial based performance criteria. As one single model combining ownership structure, stock market and financial performance variables does not exist, models have to be specified separately out of theoretical and empirical findings and have to meet statistical requirements.

I propose a panel model that directly links the predetermined firms ownership structures and firm characteristics to time and cross sectional varying stock returns and financial performance measures. Using a large cross section of companies over time, I parsimoniously³⁷ estimate returns, risk, volume and financial performance ratios of companies as functions of ownership structure variables and firm characteristics. In comparison to Jensen and Meckling (1976) agency theory and Fama and French (1993) five factor model, my stock market and financial based performance model provide a comprehensive overview of the main determinants affecting historical and expected returns and risk, volume and financial performance of companies listed in the Egyptian Stock Exchange from 2005-2011. In this respect, I am following Heracleous (2001) who

³⁵ The private benefits can be divided into benefits coming from ownership and benefits coming from control. Hwang and Hu (2009) find that private benefits grow slowly with respect to the ownership level but grow rapidly with respect to the block holder's likelihood of exercising control.

³⁶ In their paper "Common risk factors in the returns on stocks and bonds", Fama and French (1993) identify the stock market risk factors related to the stocks as an overall market factor and factors related to firm size, leverage and market to book ratio. Yet, they find that either these factors used alone or in combination with other variables have little information about average returns. Size and market to book ratio used together do a good job in explaining the cross-section of average returns on NYSE, Amex and NASDAQ stocks for the 1963-1990 period.

³⁷ Going from more generic models using the ownership structure variables and firm and market control variables listed in section 4.6 in this chapter to more parsimonious ones, I chose the most significant explanatory variables in my final model.

motivates researchers to develop other methodologies that can combine multiple and multi-directional factors that can affect firm performance, and avoid models that relate only one element such as ownership structure with firm performance.

In this model, I am seeking to discover the significance of a variable, in other words determining the main variables affecting the dependent variable. In this case, the method best utilized is called “multi-variant regression”. The multivariate regression method has different forms and all related to the way of independent variables selection (Pindyck and Rubinfeld, 2001). In my case, the statistical data could be managed via the panel data method. It has to be mentioned that most of the previous researches in related topics have utilized the panel data method as well. The panel data method is the approach combining time series of cross sectional observations. In this study, the data type and the analysis approach are best tackled by the panel method. By employing this method, I can use a large number of cross sectional variables (N) obtained during a time period (T). In this case, the numbers of observations are $N \times T$, and can be estimated by different models. Also, using the panel data method will result in efficient estimators.

4.3.1 Panel Data Model

A panel data model is estimated with unbalanced data after controlling firm characteristics. In panel data, the same cross-sectional units (example; institutional ownership, firms, ownership concentration) are surveyed over time. The panel data is now being used extensively in economic research.³⁸

Baltagi (2005) lists some advantages of panel data, which can be summarized as follows

1. The techniques of panel data estimation can take into account the heterogeneity accompanied by different individuals, firms, countries, etc., over time.
2. Panel data gives “more informative data, more variability, less collinearity among variables, more degrees of freedom and more efficiency” since it combines time series of cross-section observations.
3. Since it combines the frequent cross section of observations, panel data is better at

³⁸ The regression using panel data is done by E-views 8 software package. It is econometric modeling software that assists in estimating efficiently statistical and forecasting equations. It can rapidly analyze time series, cross section and panel data. Also, it can produce presentation quality graphs and tables. Moreover, several tests on the data can be done using specification and diagnostic tests.

analyzing the dynamics of change.

4. Panel data can capture the factors that cannot be detected in pure cross-section or pure time series data.
5. Panel data is better at studying the more complicated behavioral models.
6. The availability of data for several thousand units, using panel data, can reduce the bias that could result from the “broad aggregates” of firms and individuals.

4.3.2 General Modeling Framework for Analyzing Panel Data

The basic advantage of a panel data set over a cross section is that it allows the researcher greater flexibility in modeling differences in behavior across entities. The general form of the panel model is

$$Y_{it} = \beta_1 + \sum_{j=2}^K \beta_j X_{jit} + \sum_{p=1}^S Y_p Z_{pit} + \delta_i + \varepsilon_{it} \quad (1)$$

In this formula, Y is the dependent variable, X is the observed explanatory variable and Z is the unobserved explanatory variable, affecting the dependent variable each period. There are K regressors not including a constant term. T is the time duration, while j and p are observed and unobserved variables. ε_{it} is the estimated errors of the panel model. The model seems to be a classical regression model. If there are no unobserved explanatory variables, the entire model can be treated as ordinary linear model fitted by least squares. The problems arise with the unobserved effects, which is the case in most applications. The assumption is that the error term is uncorrelated with the independent variables in all periods. Another assumption, that underlies the random effects model, is that the unobserved variables are uncorrelated with the included variables, and in this case, they may be included in the error term. While, in the fixed effects model, the unobserved effects will enter into the fixed statement of the regression model. Here, the effects of the unobserved variables can be controlled (Greene, 2010).

There are a variety of different models for panel data. They can be arranged as follows:

- 1) **Pooled Regression:** If there are no unobserved variables, and Z in the above equation contains only a constant term, then ordinary least squares is the best method for producing consistent and efficient estimators.

- 2) **Fixed Effects:** If there are unobserved variables Z , and correlated with X . In this case, the least squares method will produce biased and inconsistent estimators. In this case, the model will be

$$Y_{it} = \beta_1 + \sum_{j=2}^K \beta_j X_{jit} + \alpha_i + \delta_t + \varepsilon_{it} \quad (2)$$

and $\alpha_i = \sum_{p=1}^S Y_p Z_{pi}$ embodies all the observable effects and determines an estimable conditional mean. The fixed effects model takes α_i to be a “group-specific constant term in the regression model.”

- 3) **Random Effects:** If the unobserved individual heterogeneity is assumed to be uncorrelated with the included explanatory variables, then the model can be formulated as

$$Y_{it} = \beta_1 + \sum_{j=2}^K \beta_j X_{jit} + \alpha + u_i + \varepsilon_{it} \quad (3)$$

In this case, it is a linear regression model with a compound disturbance that can be consistently, yet inefficiently, estimated by least squares. This approach “specifies that u_i is a group-specific random element, similar to ε_{it} except that for each group, there is but a single draw that enters the regression identically in each period.”

The most important distinction between the fixed and random effects model is whether the unobserved individual effects have elements correlated with the regressors in the model or not, and not whether these effects are stochastic or nonstochastic (Greene, 2010).

4.3.3 General Autoregressive Conditional Heteroskedasticity (GARCH)

Most financial decisions are based on forecasted returns and risk. It is important because the volatility over a future period is the one that should be considered the risk. Hence, the forecast of volatility is needed as well (Engle, 2004). Also, the average investor is not only worried about the rate of returns on his or her own investment but also about the risk of the

investment and the volatility of this risk. Consequently, it is very important to empirically show whether the stock markets display any volatility behaviors such as volatility clustering or volatility persistence. It is worth mentioning that Mecagni and Sourial (1999) are among the pioneers in using GARCH (p,q)-M models in estimating the four best known daily indices in Egypt (Capital Market Authority Index, Egyptian Financial Group Index, Hermes Financial Index, Prime Index for Initial Public Offerings). Their results indicate significant departures from the efficient market hypothesis, and the tendency for returns to exhibit volatility clustering. Also, they find a significant positive association between risk and returns.

In calculating ex ante returns and ex ante risk, the GARCH (1,1) is used. Pilotte and Sterbenz (2006) have used the GARCH (1,1) to forecast ex ante returns and ex ante risk in modeling total returns and volatility of bonds markets. Their goal was to identify a substantial amount of the predictable variation in returns. Also, Azzam and Fouad (2010), in evaluating the impact of day trading on the Egyptian Stock Market, have used the GARCH (1,1) to predict the ex ante returns and risk. They specifically examine the effect of day trading on ex ante returns and risk using GARCH (1,1)- GED model. A more detailed explanation of the model is provided below.

The Autoregressive Conditional Heteroskedasticity (ARCH) model, (Engle, 1982) and its generalization, the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model (Bollerslev, 1986) are widely used methodologies applied on daily financial data. Engle (1982) introduced the standard Autoregressive Conditional Heteroskedasticity (ARCH) model, and proposed model time-varying conditional volatility using past innovations to estimate the variance of the series. Bollerslev (1986), seeing that high ARCH orders are sometimes needed to catch the dynamics of the conditional variance, introduced the Generalized ARCH (GARCH) model, which modeled time-varying volatility as a function of both historical disturbances and ex post volatility. Today, the ARCH and GARCH models have grown extremely and their applications have expanded from stock returns to other variables such as interest rates, inflation, exchange rates and so on. Actually, the importance of estimating and forecasting the financial market volatility has grown recently due to its “importance in the portfolio selection and asset management

processes, in addition to its importance in the pricing of primary and derivative assets” (Engle and Ng, 1993).

Engle and Ng (1993) find that in spite of the agreement by most researchers on the possibility of predicting volatility in many asset markets, they differ on how to model this volatility predictability within an ARCH/GARCH context. As a result, a variety of new representations were produced, some of which are the result of pure theory, while others are simply empirical trial-and-error suggestions. Among the most widespread are GARCH-M, EGARCH and PGARCH. Other famous asymmetric GARCH models include Threshold GARCH (TGARCH) of Zakoian (1994), the Quadratic GARCH (QGARCH) of Sentana (1995), the Volatility Switching ARCH (VS-ARCH) of Fornari and Mele (1996), and Logistic Smooth Transition ARCH (LST-ARCH) of Gonzales-Rivera (1998) and Hagerud (1997).

Also, the method of estimation is very important in the GARCH world. GARCH models are estimated using a Maximum Likelihood (ML) approach. ML assumes and maximizes a density function for the parameters that are conditional on a set of sample outcomes. Bollerslev and Wooldridge (1992) suggest a Quasi Maximum Likelihood (QML) method that corrects small deviations from normality. This technique’s estimator, however, is inefficient, as the deviation from normality increases making the “fully efficient ML estimates more preferred” (Bollerslev et al., 1992). So, there is clearly a penalty imposed for being unaware of the true conditional density. This has accordingly led to the use of non-normal distributions to better represent third and fourth moments “because it may be expected that high kurtosis and skewness shown by the residues of conditional heteroscedasticity models will be minimized when a more convenient distribution is used”(Lambert and Laurent, 2000). Bollerslev (1987) and Baillie and Bollerslev (1989) among others use Student- t distribution while Nelson (1991) and Kaiser (1996) propose the Generalized Exponential Distribution (GED).

Moreover, the financial literature, (Arago and Nieto, 2005) use the application of GARCH models with a wide variety of densities (i.e. Normal, GED (Generalized Error Distribution), Student- t , GED with a fixed parameter, and Student- t with a fixed degree of freedom).

To determine whether the error ε_t in equation 1 follows an autoregressive conditional heteroskedasticity model, an ARCH Lagrange multiplier (LM) test is run on ε_t , to investigate whether the standardized residuals exhibit additional ARCH effects. The Lagrange Multiplier (LM) test is one of the principal tools to detect ARCH and GARCH effects in financial data analysis.

Then the normality of ε_t is tested using the Jarque-Bera test. The Jarque–Bera test is a goodness-of-fit test, which analyzes whether sample data have the skewness and kurtosis matching a normal distribution. Since skewness and kurtosis are important features in financial applications, the use of a GARCH model seems more appropriate. If the residual is not normally distributed, a GARCH model with Generalized Error Distribution (GED) must be applied, and the GARCH model is added to the GED log-likelihood function for a normalized random error (Nelson, 1991 and Hamilton, 1994).

The GARCH (1, 1)-GED model is as follows

$$TR_t = \alpha_0 + \alpha_1 TR_{t-1} + \alpha_2 Volume_t + \varepsilon_t \quad (4)$$

$$\sigma_{\varepsilon,t}^2 = \beta_0 + \beta_1 \varepsilon_{t-1}^2 + \beta_2 \sigma_{\varepsilon,t-1}^2 \quad (5)$$

$$L_{GED} = \sum_{t=1}^T \left[\ln\left(\frac{v}{\lambda_v}\right) - 0.5 \left| \frac{z_t}{\lambda_v} \right|^v - (1+v^{-1}) \times \ln(2) - \ln \Gamma\left(\frac{1}{v}\right) - 0.5 \ln(\sigma_t^2) \right]$$

$$\lambda_v = \sqrt{\frac{\Gamma\left(\frac{1}{v} 2^{-2/v}\right)}{\Gamma(3/v)}} \quad (6)$$

For v (positive parameter for the thickness of the tails of distribution) = two, constant $\lambda =$ one, the GED becomes the standard normal distribution.

To sum up, the above-mentioned GARCH (1, 1)-GED model is used to generate ex-ante returns and volatility and to estimate volatility clustering and volatility persistence. 396 GARCH equations are run, comprising the 85 companies, for the seven years period from

2005-2011, to calculate ex-ante returns, ex-ante risk, volatility clustering and volatility persistence. Ex-ante returns are the average of the forecasted returns from the mean equation in the GARCH (1, 1)-GED model (Equation 4). The ex-ante risk is the ex-ante standard deviation, which is the average of the square root of the variances generated from the variance equation of the GARCH (1, 1)-GED model (Equation 5). The volatility clustering, which means high volatilities are followed by high volatilities and vice versa, is measured by β_2 in equation 5. The volatility persistence is measured by the sum of $\beta_1 + \beta_2$ in equation 5.

Based upon preceding explanations, this study's model is presented as below.

4.4 Model Specification

Our econometric model has eight equations. The first five equations have the stock returns performance as the dependent variable represented by ex post returns, ex post risk, ex ante returns, ex ante risk and volume. The last three equations have the firm financial performance as the dependent variable represented by return on assets, return on equity and debt ratio.

4.4.1 Ownership Structure and Firm Stock Returns Performance

4.4.1.1 Institutional Ownership, Ownership Concentration, Ex post and Ex ante Returns

$$PostRet_{it} = f(Institution_{it}, Concent_{it}, Size_{it}, MB_{it}, ROA_{it}, Volume_{it}, MarketRet_{it}, U_{it})$$

$$AnteRet_{it} = f(Institution_{it}, Concent_{it}, Size_{it}, ROA_{it}, U_{it})$$

This can be written in explicit form as:

$$PostRet_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 ROA_{it} + \beta_2 Size_{it} + \beta_3 MB_{it} + \beta_4 MarketReturn_{it} + \beta_5 Volume_{it} + U_{it} \quad (7)$$

$$AnteRet_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 Size_{it} + U_{it} \quad (8)$$

Where:

$PostRet_{it}$ = Ex post returns are a proxy for contemporaneous returns of year i.

$AnteRet_{it}$ = Ex ante returns are a proxy for the expected returns of the stock.

$Institution_{it}$ = Percentage of equity ownership held by banks, private and public companies, employee associations, private and public holding companies, individuals, private and public insurance companies, investment funds, and top management.

$Concentration_{it}$ = Percentage of a firm's outstanding stocks held by the largest three block holders.

ROA_{it} = Return on assets is a proxy for firm profitability.

$Size_{it}$ = Size of the company is a control variable.

MB_{it} = Market to book ratio is a control variable.

$Market Return_{it}$ = Average daily market return is a control variable.

$Volume_{it}$ = Proxy for stock liquidity.

U_{it} = Error term.

4.4.1.2 Institutional Ownership, Ownership Concentration, Ex post and Ex ante Risk

$$Post Risk_{it} = f(Institution_{it}, Concent_{it}, Size_{it}, Clustering_{it}, Persist_{it}, U_{it})$$

$$AnteRisk_{it} = f(Institution_{it}, Concent_{it}, Size_{it}, Clustering_{it}, Persist_{it}, U_{it})$$

This can be written in explicit form as:

$$PostRisk_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 Size_{it} + \beta_2 Clustering_{it} + \beta_3 Persist_{it} + U_{it} \quad (9)$$

$$AnteRisk_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 Size_{it} + \beta_2 Clustering_{it} + \beta_3 Persist_{it} + U_{it} \quad (10)$$

Where:

PostRisk_{it} = Ex post risk is a proxy for the standard deviation of the daily total returns for year i.

AnteRisk_{it} = Ex ante risk is a proxy for the expected future risk of the stock.

Institution_{it} = Percentage of equity ownership held by banks, private and public companies, employee associations, private and public holding companies, individuals, private and public insurance companies, investment funds, and top management.

Concentration_{it} = Percentage of a firm's outstanding stocks held by the largest three block holders.

Size_{it} = Size of the company is a control variable.

Clustering_{it} = Volatility clustering.

Persist_{it} = Volatility persistence.

U_{it} = Error term.

4.4.1.3 Institutional Ownership, Ownership Concentration, and Stock Liquidity

$$Volume_{it} = f(Institution_{it}, Concent_{it}, MB_{it}, ROA_{it}, U_{it})$$

This can be written in explicit form as:

$$Volume_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 Size_{it} + U_{it} \quad (11)$$

Where:

Volume_{it} = Proxy for stock liquidity.

Institution_{it} = Percentage of equity ownership held by banks, private and public companies, employee associations, private and public holding companies, individuals, private and public insurance companies, investment funds, and top management.

Concentration_{it} = Percentage of a firm's outstanding stocks held by the largest three block

holders.

$Size_{it}$ = Size of the company is a control variable.

U_{it} = Error term.

4.4.2 Ownership Structure and Firm Financial Performance

$$ROA_{it} = f(Institution_{it}, Concent_{it}, Cash_{it}, Freefloat_{it}, U_{it})$$

This can be written in explicit form as:

$$ROA_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 Cash_{it} + \beta_2 Freefloat_{it} + U_{it} \quad (12)$$

Where:

ROA_{it} = Return on assets is a proxy for firm profitability.

$Institution_{it}$ = Percentage of equity ownership held by private and public companies, private and public holding companies, individuals.

$Concentration_{it}$ = Percentage of a firm's outstanding stocks held by the largest three block holders.

$Cash_{it}$ = Cash holdings is a control variable.

$Free float_{it}$ = Free float is a control variable.

U_{it} = Error term.

$$ROE_{it} = f(Institution_{it}, Concent_{it}, Cash_{it}, Freefloat_{it}, U_{it})$$

This can be written in explicit form as:

$$ROE_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 Cash_{it} + \beta_2 Freefloat_{it} + U_{it} \quad (13)$$

Where:

ROE_{it} = Return on equity is a proxy for firm profitability.

$Institution_{it}$ = Percentage of equity ownership held by private and public companies, private and public holding companies, individuals.

$Concentration_{it}$ = Percentage of a firm's outstanding stocks held by the largest three block holders.

$Cash_{it}$ = Cash holdings is a control variable.

$Free\ float_{it}$ = Free float is a control variable.

U_{it} = Error term.

$$DABOOK_{it} = f(Institution_{it}, Size_{it}, Freefloat_{it}, GDR_{it}, Concentration_{it}, U_{it})$$

This can be written in explicit form as:

$$Dabook_{it} = \beta_0 + \sum_{i=1}^8 \alpha_i Institution_{it} + \delta_1 Concentration_{it} + \beta_1 GDR_{it} + \beta_2 Size_{it} + \beta_3 Free\ float_{it} + U_{it} \quad (14)$$

Where:

$Dabook_{it}$ = Debt ratio is a proxy for firm debt.

$Institution_{it}$ = Percentage of equity ownership held by private and public companies, private and public holding companies, individuals.

$Concentration_{it}$ = Percentage of a firm's outstanding stocks held by the largest three block holders.

$Size_{it}$ = Size of the company is a control variable.

GDR_{it} = Global depository receipts is a control variable.

$Free\ float_{it}$ = Free float is a control variable.

U_{it} = Error term.

4.5 Identification and Specification of Dependent Variables

It is important to identify and introduce the key variables of our model separately. As dependent variables, I use ex post returns and risk, ex ante returns and risk and stock liquidity as a proxy for stock returns performance. Also, I use return on assets, return on equity and debt ratio as a proxy for financial performance.

4.5.1 Ex-post returns and risk

The ex-post returns is another term for actual returns, and is defined as the average daily total returns for year i . Following Sias (2004), the daily total returns is calculated as $\ln(P_t) - \ln(P_{t-1})$, where P_t is the daily price of the stock at time t . Following Belghitar et al. (2011), the ex-post risk is the standard deviation of the daily total returns for year i .

4.5.2 Ex-ante returns and risk

The ex-ante returns are the expected returns of a stock. While, ex-ante risk is the future expected risk of a stock. I use the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model to generate ex-ante returns and ex-ante risk. Ex-ante returns are the average of the forecasted returns from the mean equation in the GARCH model. The ex-ante risk is the ex-ante standard deviation, which is the average of the square root of the variances generated from the variance equation of our GARCH model. Using the E-Views 8 software package, I estimate equation using GARCH method. In the GARCH specification in the software, there are two equations needed. The first is the mean equation, and the second is the variance equation. In the mean equation, I run autoregressive AR (1) model where I regress the daily total returns on their lag and the volume. I do not include any exogenous variables in the variance equation. I use the GED specification for the residuals. The residuals then are tested and are found not normally distributed. After estimating the GARCH (1,1) - GED model, I command the software to forecast the total returns from the mean equation and the variance of the returns from the variance equation. Then, the ex-ante return is the average of the forecasted total returns generated from the mean equation, and the ex-ante variance is the average of the forecasted variance generated from the variance equation. The ex-ante risk is the square root of the ex-ante variance. This process is done for each individual stock for each year.

4.5.3 Stock Liquidity

Liquidity is the degree to which an asset or security can be bought or sold in the market without affecting the asset's price. A high level of trading activity characterizes the liquid stocks. It will be calculated as the average daily trading volume of the stock. I follow Girard and Omran (2009) in selecting trading volume as a measure of liquidity.

4.5.4 Firm Profitability

Profitability is the way any firm assesses its ability to generate earnings as compared to its expenses and other costs incurred during a specific period of time. Return on assets is used as a measure of firm profitability. It is calculated as net income divided by total assets. It is an indicator of how profitable a firm is relative to its total assets. Also, return on equity is used which is calculated as net income divided by shareholders equity. The main reason for selecting these accounting variables is that they keep a stable relationship with the firm's strategies and performances. Also, they have been used frequently in related literature, including the following: Omran et al. (2008), Cornett et al. (2007) and Elyasiani and Jia (2008).

4.5.5 Firm Debt

Debt is the money raised by a firm by selling bonds, bills, or notes to individuals and/or institutional investors. In return, the individual or the institutional investor receives a promise that the principal and the interest on the debt will be repaid. Debt to assets ratio is used as a measure of firm debt. It is calculated as ratio of total debt to total assets. It is a measure of the firm's financial risk by determining how much of the company's assets are financed by debt. This variable has been used by (Lee, 2008) to explain the variation in firm performance in South Korea.

4.6 Identification and Specification of Independent Variables

Under the panel data model, a number of independent variables are introduced. The following are the specification of each variable.

4.6.1 Institutional ownership structure variables

Similar to Azzam (2010), institutional ownership is decomposed to insurance companies, employee associations, investment funds, individuals, top management, private and public banks, private and public holdings and private and public companies. Yet differently, I am going to add private and public firms for each category together. For example, I will define private and public holding companies as holdings and private and public companies as companies.

- 1. Employees Associations:** represent the percentage of equity ownership held by employees associations in a company.
- 2. Individuals:** represent the percentage of equity ownership held by individuals in a company.
- 3. Insurance Companies:** represent the percentage of equity ownership held by both private and public insurance companies in a company.
- 4. Banks:** represent the percentage of equity ownership held by private and public banks in a company.
- 5. Companies:** represent the percentage of equity ownership held by private and public companies in a company.
- 6. Holdings:** represent the percentage of equity ownership held by private and public holdings in a company.
- 7. Top Management:** represent the percentage of equity ownership held by the top management of a company.
- 8. Investment Funds:** represent the percentage of equity ownership held by investment funds in a company.

4.6.2 Ownership concentration variable

Following Omran et al. (2009) and Azzam (2010), ownership concentration is measured as the percentage of a firm's outstanding stocks held by the largest three block holders.

4.6.3 Volatility clustering

In finance, volatility clustering refers to the observation, as documented by Mandelbrot (1963) that "large changes tend to be followed by large changes, of either sign, and small changes tend to be followed by small changes". This pattern has been observed by various

other studies, such as Baillie *et al* (1996), Chou (1988) and Schwert (1989). The implication of such volatility clustering is that volatility shocks today will affect the forecasting of volatility many periods in the future. It will be calculated from the estimates of the parameters of the GARCH model as mentioned earlier.

4.6.4 Volatility persistence

Volatility is said to be persistent if the current returns has a large impact on the expected variance many periods in the future (Engle and Patton, 2001). High persistence means that a shock to the stock return stays for a long time. It will be calculated from the estimates of the parameters of the GARCH model.

4.6.5 Control variables

In order to control the effects of other exogenous variables on the performance of the companies, some control variables are selected. Control variables are the variables that control the separate effect of the independent variables on the dependent variable. Some variables are selected from the review of literature as well be mentioned below and as shown in the literature review summary table in the appendix.³⁹ In our model, the control variables are listed as follows.

4.6.5.1 Firm characteristics variables

1) **Size:** calculated as the natural logarithm of total assets. This variable has been utilized in other studies as well such as Himmelberg et al. (1999) and Habib and Ljungqvist (2000). Himmelberg et al. (1999) argue that firm size has a great effect on the agency problems' characteristics. Also, following McConnell and Servaes (1990), size is calculated as logarithm of total assets.

2) **Age:** is the number of years since the establishment of the firm. This control variable has been utilized by Hassanzadeh et al. (2013) in their study of the relationship between institutional ownership and stock returns fluctuations in Tehran between 2006-2010.

3) **Debt Ratio:** calculated as ratio of total debt to total assets. It is a measure of the firm's financial risk by determining how much of the company's assets are financed by debt. Morck et al. (1988) use leverage measured by total debt to total assets as a control variable.

³⁹ Some of the control variables are removed after checking their insignificance in the model. Yet, they are all presented here.

- 4) **Return on Assets:** calculated as net income divided by total asset. It is an indicator of how profitable a firm in relation to its total assets.
- 5) **Return on Equity:** calculated as net income divided by shareholders equity. It is another measure of the firm's profitability by identifying how much profit a firm generates with the money shareholders have invested.
- 6) **Payout Ratio:** calculated as dividend per share divided by earning per share.
- 7) **Cash:** calculated as the ratio of cash to total assets, following Abushammala and Sulaiman (2014) in their study of Amman Stock Exchange.
- 8) **Market to book ratio:** calculated as the ratio of market price to the book value. It has been used by Gompers and Metrick (2001) in USA, and Namzi and Kermani (2013) in Iran.
- 9) **GDR:** calculated as the percentage of the global depository receipts to the number of listed shares.
- 10) **Free float:** is the percentage of stocks available for the public to trade to the number of listed shares.
- 11) **Net Profit Margin:** calculated as the percentage of net income to sales.

4.6.5.2 Market characteristics variables

- 1) **Market return:** Is the average of the daily total returns of the market calculated as $\text{Ln Index}_t - \text{Ln Index}_{t-1}$.
- 2) **Market Risk:** Is the standard deviation of the daily market return.
- 3) **Volume of Trade:** Is the average of the daily volume of trade of the stock.

4.7 Expected signs

In equation 7, it is expected that the coefficient of ownership type (α_i) is positive, which indicates that there is a significant positive relationship between changes in institutional ownership and ex post returns as reported previously by Sias et al. (2006). Also, institutional investors, as mentioned earlier, have better access to information. Griffin et al. (2003) think of one potential explanation for the strong positive relationship between changes in institutional ownership and ex-post returns. They say that institutions and individuals react to the price variations in a completely different manner and this reflects on their trading pattern. The expected sign of (δ_1) is unclear since it is not easy to identify a

significant relationship between ownership concentration and stock market returns. There is the attitude of the investors who may or may not be rational in some instances (Shleifer 2000; Shiller 2000). In addition, there are some other reasons that are discussed in chapter 2. (β_1) is expected to be positive and significant, since the stock prices are the discounted value of the expected profits. Fama and French (1993) have found that the high returns of small sized firms associated with low market-to-book ratio are a premium for the high risk that is not diversifiable. So, a negative and significant (β_2) and (β_3) is expected. (β_4) is expected to be positive. It is normal that market returns are positively related to stock returns. Large volume of trade is often associated with more liquid stocks, where the return is low. So, β_5 is expected to be negative and significant.

In equation 8, it is expected that the coefficient of ownership type (α_i) will have a positive sign, which indicates that there is a significant positive relationship between changes in institutional ownership and ex-ante returns as reported previously by Sias et al. (2006) and Gompers and Metrick (2001)). Also, it is expected that there is statistically significant but weak relationship between institutional ownership and ex-ante returns as documented by the above-mentioned authors. The coefficient of ownership concentration α_1 is expected to be insignificant as reported by Lskavyan and Spatareanu (2006), who find that this is especially true in transition countries, where the market monitoring is weak. Fama and French (1993) have found that the high returns of small sized firms are a premium for the high risk that is not diversifiable. So, a negative and significant (β_1) is expected.

In equation 9, according to See Del Guercio (1996), (α_i) is expected to have a negative sign, which means that there is a significant negative relationship between institutional ownership and ex post risk, if prudence considerations are available. (δ_1) is expected to be negative since there are no market makers in Egypt and the largest three shareholders act as the market makers to stabilize the stock prices (Azzam, 2010). Also, it is expected that (β_1) is negative and significant since the payout ratio is positively related to performance, and as a result it is expected that it has a negative and significant impact on volatility as mentioned by (Ben-Zion and Shalit, 1975; Rozeff, 1982; Eades, 1982, Nazir et al., 2010). Since volatility clustering and volatility persistence are components of the volatility structure of returns, it is expected that β_2 and β_3 are positive. Yet, since volatility clustering

is often associated with time series of financial assets returns, it is expected also that the effect is insignificant. Larger firms are usually associated with less risk, so a negative β_1 .

In equation 10, α_i is expected to have a negative sign, which means that there is a significant negative relationship between institutional ownership and ex-ante risk, if prudence considerations are available as mentioned before by Del Guercio (1996). Also, (δ_1) is expected to be negative since there are no market makers in Egypt and the largest three shareholders act as the market makers to stabilize the stock prices (Azzam, 2010). As the firm size decreases, the expected risk increases, which results in an expected negative (β_1) . Regarding volatility clustering, it has been usually known that the estimate of volatility or correlation over the last n periods is used to forecast volatility over the next n periods, and the rationale for this is that long-term volatility predictions should be unaffected by volatility clustering behavior. In short-term volatility predictions, the current market conditions do matter and so the immediate past returns are used (Alexander, 1998). As a result, β_2 and β_3 are expected to be insignificant.

In equation 11, in their study regarding institutional investors and equity prices, Gompers and Metrick (2001) use firm size, per-share stock price and share turnover as proxies for liquidity, and they find out that with more institutional demand for liquid stocks, institutional ownership is positively related to each of the above variables. So, it is expected that institutional ownership will have a positive effect on stock liquidity. Therefore, α_i is expected to be positive. Also, it is well known that with more ownership dispersion, there is greater market liquidity than with ownership concentration (Bolton and Thadden, 1998; Jacoby and Zheng, 2010). So, δ_1 is anticipated to be negative.

In equations 12 and 13, firm profitability is measured by return on assets (ROA) and return on equity (ROE). The coefficient sign of cash (β_1) is expected to be positive as reported Abushammala and Sulaiman (2014), who find a positive significant relationship between cash holdings and profitability in testing 65 firms listed in Amman Stock Exchange. In addition, it is expected that the coefficient signs of ownership type are positive as reported by past studies of Elyasiani and Jia, 2010; McConnell and Serveas, 1990; Nesbitt, 1994; Smith, 1996 and both Del Guercio and Hawkins, 1999. (Gorton and Schmid, 2000; Mitton, 2002; and Claessens and Djankov, 1999) find a positive relationship between ownership

concentration and firm performance. Therefore, it is expected that the coefficient of ownership concentration is positive as reached by the above studies and the studies of Shleifer and Vishney (1986) and Clark and Wojcik (2005). Shahrabi et al. (2014) find that there is a positive relationship between free float and return. Therefore, it is expected that free float has a positive effect on profitability.

In equation 14, debt ratio is calculated as ratio of total debt to total assets. It is a measure of the firm's financial risk by determining how much the company's assets are financed by debt. As a result, β_1 and β_2 , the coefficients of size and GDRs are expected to be negative. Also, (β_3) the coefficient of free float is expected to have a negative sign, since it is positively related with profitability. Finally, it is expected that the coefficient signs of ownership type (α_i) and ownership concentration (δ_i) are negative. Michaely and Vincent (2012) find a negative relationship between the level of institutional holdings and leverage. The theory suggests that institutional ownership is a substitute for debt mainly in the role of reducing asymmetric information between management and outside shareholders.

4.8 Specification Tests

4.8.1 Endogeneity Test

The Durbin-WU-Hausman test is used to test for endogeneity for all of the equation regressors. It was first proposed by Durbin (1954), and separately by Wu (1973) and Hausman (1978). A regressor is said to be endogenous if it is explained by the instruments in the model, whereas the exogenous variables are those that are not explained by the instruments. Therefore, I am here testing whether a subset of the endogenous variables are actually exogenous, by running a secondary estimation where the tested variables are treated as exogenous, and then comparing the J-statistic between this secondary estimation and the original estimation. I used the test on the pooled cross section data since it is not possible to use it on the panel data.

4.8.2 Hausman Test

Hausman test statistic is used to test whether a fixed or random effects model should be used (Hausman, 1978). The test questions whether there is significant correlation between the unobserved country-specific random effects and the regressors. If there is no such correlation, then the random effects model may be more powerful. A Hausman test is run for all panel regressions to choose between fixed and random effects where the null hypothesis is that the preferred model has random effects vs. the alternative fixed effects (Greene, 2010). It tests whether the unique errors (ε_i) are correlated with the regressors, the null hypothesis is that they are not. The estimates of running both a fixed effects model and a random effects model are saved, and then the test is performed.

4.9 Diagnostic Tests

To test the normality of observations and regression residuals, the Jarque Bera test of normality is used. It is a large sample test, which is based on OLS residuals, and computes the skewness and kurtosis of the OLS residuals (Jarque and Bera, 1987). It is defined as:

$$\frac{N}{6} \left(S^2 + \frac{(K-3)^2}{4} \right)$$

with S , K , and N denoting the sample skewness, the sample kurtosis, and the sample size, respectively.

Also, the Dickey-Fuller (DF) test is used to test for stationarity. In this test, the authors Dickey and Fuller have computed the critical values on the basis of Monte Carlo simulations (Dickey and Fuller, 1979). It is a test for a unit root in a time series sample. The augmented Dickey–Fuller (ADF) statistic, used in the test, is a negative number. The more negative it is, the stronger the rejection of the hypothesis that there is unit roots at some level of confidence. The unit root test is carried out under the null hypothesis $\gamma = 0$ against the alternative hypothesis of $\gamma < 0$. Once a value for the test statistic is computed it can be compared to the relevant critical value for the Dickey–Fuller Test.

$$DF_T = \frac{\hat{\gamma}}{SE(\hat{\gamma})}$$

If the test statistic is less than the (larger negative) critical value, then the null hypothesis

of $\gamma = 0$ is rejected, as no unit root is present. The results of the DF test are found in chapter 5. Comparing the values of the test statistic with the critical values shows that all variables are stationery.

4.10 Summary

This chapter analyzes the methodology used in this research. It emphasizes the main research questions to achieve the main objectives of this research and the main research hypotheses to answer these questions. It analyzes the model building and model specification along with the specifications of the key variables used in the study. Also, it highlights the expected signs of the explanatory variables. It ends with defining the specification and diagnostic tests carried out in this study.

Chapter 5: Results

5.1 Introduction

In the previous chapter, a detailed discussion of the research methodology is addressed. The main purpose is to introduce and explain the most important variables that might affect the stock returns and financial performance of the Egyptian listed companies in the Stock Exchange. The emphasis is mainly on both the effect of institutional ownership and ownership concentration, and to what extent they affect the stock returns and financial performance in Egypt.

This chapter is divided into three parts. The first part includes the results of testing the data. The second part displays the results of the regression, examining the effect of both institutional ownership and ownership concentration on stock returns and financial performance of the Egyptian listed companies, after controlling for firm characteristics. The third part analyzes and interprets the results.

As a preliminary step, a pooled OLS regression is run. Because of the variability that is available across companies and time in my data, a random or fixed effect model should be used. Another econometric issue needs to be addressed here since panel data are used in this study. Speaking econometrics wise, there are two major regression models for panel data: fixed effects and random effects. There have been discussions about the advantages and disadvantages of each model.⁴⁰ Fixed effects model is used when controlling for omitted variables that vary between individuals but are constant over time. If some omitted variables might be constant over time but differ between individuals, and others might be fixed between individuals but vary over time, then random effects model will be the most appropriate in taking the two types into account. The random effects model would be appropriate if data are representative of a sample rather than the entire population, because the individual effect term can be a random outcome rather than a fixed parameter.

In order to compare the suitability of these models, three tests are run using the data set. First, fixed effects are tested by F test and the null hypothesis that all individual effects terms except one are zero is rejected at 10% significance level. This suggests that the fixed

⁴⁰ More details about each model can be found in chapter 4.

effects model is better than the pooled OLS model. Second, random effects are examined by the Breusch-Pagan Lagrange multiplier (LM) test and the null hypothesis that cross-sectional variance components are zero is rejected at 10 % significance level. This argues in favor of the random effects model against the pooled data model. According to the Breusch-Pagan test the null hypothesis is that random components are equal to zero. This test also provides support for the Generalized Least Squares (GLS) over a pooled Ordinary Least Squares (OLS) regression. Only one model in this study is in favor of the random effects model.

Finally, Hausman test is used to compare fixed effects and random effects and the null hypothesis is that there is no significant correlation between the individual effects and the regressors and it is rejected at 10% significance level in this test. My results confirm the argument that most of the models are in favor of the fixed effects model against the random effects model. Only one model is in favor of the random effects. In sum, the test results confirm that the fixed effect model is superior to any other models in dealing with the data.

In each panel model, I run a regression of the dependent variable on all ownership structure and control variables representing the firm and market characteristics that have been used before in literature, in addition to the variables I introduced.⁴¹ Then, the model is respecified again after removing most of the insignificant variables to find the most significant ownership structure and control variables that affect the dependent variables. I use the ordinary least squares (OLS), in addition I use in my entire panel least squares regressions corrective methods of robust White cross section covariance and White period which provide consistent estimates of the coefficient covariances in the presence of conditional heteroskedasticity of unknown form.

5.2 Testing for Stationarity

Comparing the Augmented Dickey-Fuller test statistic with the critical value at the 5% significance level, table 5.1 shows that all variables are stationary.

⁴¹ All variables are explained in chapter 4 plus the new variables introduced in the models.

Table5.1: Augmented Dickey Fuller Test Results

Variable	Augmented Dickey- Fuller (Test-Statistic)	Critical Value at 5% significance level	Probability
Age	-6.148	-2.868	0.000
Ex Ante Return	-21.405	-2.869	0.000
Ex Ante Risk	-15.652	-2.869	0.000
Cash	-12.793	-2.868	0.000
Clustering	-17.546	-2.869	0.000
Debt Ratio	-11.322	-2.868	0.000
Employees	-10.126	-2.868	0.000
Association			
Free Float	-9.348	-2.868	0.000
GDR	-7.969	-2.868	0.000
Individuals	-13.219	-2.868	0.000
Investment Funds	-8.875	-2.868	0.000
Ownership	-8.447	-2.868	0.000
Concentration			
Market Return	-19.131	-2.868	0.000
Market Risk	-26.122	-2.868	0.000
Market to Book	-16.254	-2.869	0.000
Value			
Payout Ratio	-16.294	-2.869	0.000
Persistence	-17.724	-2.869	0.000
Ex Post Return	-20.951	-2.869	0.000
Ex Post Risk	-15.552	-2.869	0.000
Banks	-11.81	-2.868	0.000
Companies	-10.38	-2.868	0.000
Holdings	-9.47	-2.868	0.000
Insurance	-6.91	-2.868	0.000
Companies			
Return on Assets	-11.924	-2.868	0.000
Return on Equity	-11.422	-2.868	0.000
Size	-10.044	-2.868	0.000
Top Management	-10.999	-2.868	0.000
Volume	-10.395	-2.869	0.000

5.3 Testing for Normality

The Jarque-bera test for normality of the standardized residuals in table 5.2 shows that the errors are not normally distributed.

Table 5.2: Jarque-Bera Test for normality of the standardized residuals results.

Variable	Jarque-Bera	Probability
Ex Post Return	785.71	0.000
Ex Ante Return	2647.15	0.000
Ex Post Risk	188.10	0.000
Ex Ante Risk	5040.8	0.000
Volume	77.23	0.000
Return on Assets	214.53	0.000
Return on Equity	1339.09	0.000
Debt ratio	87.74	0.000

5.4 Testing for Endogeneity

The question of endogeneity has been addressed in this study. According to some studies in literature (Bhattacharya and Graham, 2009 and Lskavyan and Spatareanu, 2006), some variables are suspected to be endogenous especially the financial performance variables with the ownership structure variables. Therefore, I undertook a Durbin Hausman-Wu test. As a general rule, when a variable is endogenous, it will be correlated with the error term, leading to biased estimators.

So before using a 2SLS or an IV approach, I need to confirm the existence of endogeneity.⁴² The test for endogeneity developed by Hausman (1978) is used in the structural model. In the first stage, we estimate the eight equations using OLS, using the eight dependent variables as the suspected endogenous variables and a list of instrumental variables including (Size, market return, market to book value, payout ratio, cash, GDR, free float, clustering, persistence, market risk). The Hausman approach tests the null hypothesis that there is endogeneity problem. In this case, using IV is more efficient. The instruments used have the property of significant correlation with the key independent variables. After analyzing each instrument and their combinations, the results confirmed that there is no endogeneity in the model, which supports the exogenous ownership-performance hypothesis.

⁴² The 2SLS estimator is less efficient than OLS when the explanatory variables are exogenous (uncorrelated with the error term in the structural model).

Yet, I have to mention that I do not think that I was in need for such a test since if such a problem already exists, another way to solve it is to use panel data and control fixed individual effect. In one of their studies, Himmelberg et al. (1999) find that managerial ownership and performance are both endogenously determined by exogenous variations in the firms' contracting environment, i.e. observable and unobservable firm characteristics. The unobserved firm heterogeneity may induce a false regression. When they use unbalanced panel data from the Compustat universe over the period 1982-1992 and control both for observed firm characteristics and firm fixed effects, they find no evidence to confirm that managerial ownership affects firm performance. They have also explored the use of instrumental variables as an alternative to fixed effects to control the endogeneity of ownership, and they find it difficult to choose suitable instruments that are correlated with ownership, but not with the error terms of equations.

Moreover, some researchers believe that the endogenous ownership hypothesis is not applicable in studying emerging markets, because developing countries do not have liquid and developed capital markets, and thus it is difficult for investors to trade and adapt ownership structure in response to the changing market circumstances. In other words, market forces do not function efficiently in the stock markets of such economies (Stiglitz, 1994). The evidence in favor of the exogenous ownership hypothesis is consistent with the model of the emerging stock market of Egypt.

5.5 Correlation Table Analysis

The variance covariance matrix table 5.3 is analyzed below. It represents a correlation matrix for the selected variables. The Pearson's correlation matrix shows that the degree of correlation between the independent variables is either low or moderate, which suggests the absence of multicollinearity between independent variables. As suggested by Bryman and Cramer (1997), the Pearson's R between each pair of independent variables should not exceed 0.80; otherwise, independent variables with a coefficient in excess of 0.80 may be suspected of displaying multicollinearity. Correlations coefficients in the sample are within the acceptable range. The only highest Pearson correlation is between volatility clustering and volatility persistence, suggesting that multicollinearity is not a problem.

Table 5.3: Variance Covariance Matrix

	AGE	ANTER	ANTER	BANKS	CASH	CLUSTE	COMP/	CONCE	DABOC	EMPLO	FREEFL	GDR	HOLDII	INDIVII	INSUR/	INVEST	MARKE	MARKE	MB	NPM	PAYOU	PERSIS	POSTRI	POSTRI	ROA	ROE	SIZE	TOPMC	VOLUME
AGE	1																												
ANTERET	-0.001	1																											
ANTERISK	0.015	-0.064	1																										
BANKS	-0.084	0.110	0.127	1																									
CASH	0.020	-0.077	0.025	-0.036	1																								
CLUSTERINC	0.003	0.156	0.035	-0.035	0.012	1																							
COMPANIES	-0.086	0.074	0.083	-0.095	-0.041	-0.127	1																						
CONCENTR/	0.001	0.005	0.078	0.175	-0.053	-0.109	0.311	1																					
DABOOK	0.123	0.122	-0.029	-0.112	-0.178	0.009	0.017	0.103	1																				
EMPLOYEES	0.376	0.027	0.070	-0.133	-0.006	-0.002	-0.125	-0.163	0.145	1																			
FREEFLOAT	-0.001	-0.053	-0.085	-0.243	0.060	0.082	-0.330	-0.874	-0.072	0.126	1																		
GDR	-0.102	0.002	-0.066	-0.064	-0.032	-0.039	-0.121	-0.049	0.239	-0.123	0.171	1																	
HOLDING	0.260	-0.093	-0.002	-0.083	0.167	0.019	-0.279	0.365	0.159	0.099	-0.318	-0.058	1																
INDIVIDUAL	-0.013	0.166	0.008	-0.022	-0.159	0.012	-0.132	0.006	0.010	-0.039	-0.074	-0.057	-0.167	1															
INSURANCE	0.345	0.028	0.003	-0.040	0.103	0.018	0.012	0.059	-0.068	0.243	-0.118	-0.137	0.065	-0.132	1														
INVESTMEN	0.114	-0.009	-0.013	0.042	-0.018	-0.005	-0.080	-0.091	0.085	0.149	0.009	-0.037	0.052	-0.029	-0.054	1													
MARKETREL	-0.010	0.243	-0.143	-0.022	0.026	0.078	-0.035	-0.098	0.104	0.059	0.017	0.034	-0.013	-0.034	0.096	0.086	1												
MARKETRISI	-0.027	-0.129	0.212	0.055	-0.067	0.065	0.047	0.058	0.023	0.004	-0.041	-0.069	-0.028	0.043	0.014	-0.004	-0.611	1											
MB	0.173	0.104	0.025	-0.073	0.057	0.119	-0.080	0.061	0.251	0.093	-0.097	0.047	0.160	0.231	-0.008	0.023	0.183	-0.082	1										
NPM	0.031	0.028	0.003	0.131	0.155	0.079	0.026	0.026	-0.093	-0.040	-0.010	-0.035	0.027	-0.063	-0.003	-0.013	0.045	0.002	0.020	1									
PAYOUT	0.032	-0.018	-0.064	-0.010	0.050	-0.042	0.091	-0.005	0.026	-0.080	-0.025	0.060	-0.024	-0.011	-0.009	-0.006	0.096	-0.018	0.010	0.042	1								
PERSIST	0.027	0.052	0.156	-0.031	0.018	0.833	-0.097	-0.054	-0.029	-0.056	0.049	-0.030	0.051	-0.023	0.024	0.006	-0.084	0.081	0.107	0.049	-0.046	1							
POSTRET	0.053	0.621	0.070	0.034	0.012	0.094	0.138	0.038	0.118	0.031	-0.082	-0.035	-0.033	0.057	0.070	0.031	0.346	-0.175	0.137	0.027	-0.007	0.004	1						
POSTRISK	0.133	0.197	0.272	0.096	0.013	0.105	0.047	-0.040	0.006	0.174	-0.016	-0.142	-0.033	-0.001	0.075	0.000	-0.058	0.336	0.051	0.044	-0.093	0.042	0.156	1					
ROA	-0.014	0.039	-0.006	0.083	0.298	0.085	0.049	0.103	-0.068	-0.096	-0.172	0.050	0.055	-0.107	0.020	0.015	0.089	-0.068	0.219	0.276	0.102	0.096	0.095	0.081	1				
ROE	0.052	0.034	-0.030	-0.017	0.113	0.068	0.050	0.148	0.356	-0.003	-0.131	0.181	0.142	-0.125	-0.066	0.035	0.090	-0.048	0.386	0.186	0.084	0.066	0.074	0.007	0.763	1			
SIZE	-0.265	-0.167	-0.136	-0.015	-0.142	-0.052	0.113	0.206	0.148	-0.217	-0.132	0.295	-0.050	-0.103	-0.132	0.000	0.024	-0.053	0.036	-0.079	-0.016	0.032	-0.250	-0.439	0.048	0.180	1		
TOPMGMT	-0.262	-0.052	-0.052	-0.119	-0.110	0.066	-0.264	0.070	0.132	-0.190	-0.091	0.232	-0.239	0.019	-0.214	-0.028	0.028	-0.037	0.008	-0.073	-0.007	0.050	-0.070	-0.103	0.068	0.079	0.117	1	
VOLUME	-0.093	-0.225	-0.107	-0.112	0.068	0.065	-0.093	-0.191	-0.171	-0.005	0.257	0.096	-0.062	-0.177	0.162	-0.050	0.076	-0.031	-0.032	0.053	0.035	0.130	-0.205	-0.298	0.035	-0.015	0.415	-0.067	1

Table 5.4: Cross sectional average correlation

	NPM	Payout	Size	ROA	ROE	Cash	MB	Age	DABOOK	Topmgmt	Individuals	Holding	Companies	Banks	Insurance	Employees	Investment	GDR	FreeFloat	Concentration	PostRet	PostRisk	Volume	Clustering	Persist	AnteRet	AnteRisk	Marketret	Marketrisk
NPM	1																												
Payout	0.689282	1																											
Size	-0.51261	-0.37228	1																										
ROA	0.358633	0.414435	-0.68684	1																									
ROE	0.409122	0.527442	-0.6425	0.974125	1																								
Cash	0.45373	0.297541	-0.30905	-0.01947	-0.02762	1																							
MB	0.583325	0.800601	-0.60668	0.869235	0.901093	0.117087	1																						
Age	0.123122	0.042997	-0.20151	0.433638	0.298242	0.516676	0.346062	1																					
DABOOK	0.432183	0.744954	-0.70439	0.82474	0.878591	-0.02736	0.919735	0.064817	1																				
Topmgmt	0.70668	0.231259	-0.71075	0.533888	0.449072	0.620682	0.455172	0.607257	0.280988	1																			
Individuals	0.023805	0.10573	-0.2168	-0.45454	-0.40959	0.546201	-0.29419	-0.27719	-0.09701	-0.01904	1																		
Holding	-0.71377	-0.26797	0.437358	-0.16482	-0.15552	0.110043	-0.24728	0.264364	-0.23544	-0.4392	0.095999	1																	
Companies	-0.63592	-0.5743	0.408403	-0.65923	-0.6466	-0.58356	-0.74517	-0.75853	-0.47102	-0.73572	0.259869	0.055424	1																
Banks	-0.24602	-0.39051	0.303867	-0.04565	-0.06632	-0.91604	-0.20614	-0.45795	-0.14809	-0.39444	-0.62419	-0.36936	0.517685	1															
Insurance	0.228069	0.698493	-0.15236	0.583195	0.679356	-0.41013	0.773676	-0.12157	0.79256	-0.17916	-0.4209	-0.1312	-0.27392	0.21369	1														
Employees	0.06729	0.611197	-0.29588	0.589267	0.613786	-0.37183	0.744729	0.012523	0.811709	-0.15265	-0.27867	-0.06238	-0.2024	0.125727	0.902628	1													
Investment	0.165454	0.46234	-0.12679	0.685593	0.77701	-0.51542	0.700491	-0.10237	0.704344	-0.11383	-0.63761	-0.10653	-0.2792	0.372953	0.90722	0.721053	1												
GDR	0.434223	0.384256	-0.6463	0.53554	0.516441	0.808161	0.517134	0.644526	0.424309	0.7473	0.2673	0.140239	-0.77612	-0.82557	-0.06721	-0.00986	-0.06955	1											
FreeFloat	0.391433	0.179308	0.153684	-0.40118	-0.37031	0.859342	-0.18072	0.309252	-0.38632	0.346491	0.45169	0.100878	-0.38179	-0.70164	-0.49409	-0.58473	-0.58653	0.439111	1										
Concentration	-0.69884	-0.76033	0.725566	-0.6919	-0.66636	-0.50345	-0.86397	-0.54127	-0.74077	-0.70891	-0.01945	0.305687	0.815369	0.505716	-0.41446	-0.50279	-0.24861	-0.72165	-0.16379	1									
PostRet	0.341924	0.791013	-0.32125	0.713462	0.753594	-0.0519	0.918918	0.29588	0.839508	0.128072	-0.35062	-0.04188	-0.6014	-0.12569	0.89123	0.891425	0.74274	0.291515	-0.25757	-0.72393	1								
PostRisk	0.356823	0.382438	-0.62022	0.588191	0.636461	-0.44729	0.561039	-0.41305	0.752457	0.122885	-0.16509	-0.61449	0.024601	0.397013	0.621333	0.588081	0.642047	-0.06436	-0.66671	-0.31818	0.427127	1							
Volume	0.584783	0.553532	0.336774	-0.21909	-0.07222	0.303096	0.151101	-0.1104	-0.0501	0.024879	-0.0093	-0.19288	-0.34404	-0.18578	0.203681	-0.12105	0.126533	0.005606	0.616219	-0.13158	0.170348	-0.18049	1						
Clustering	0.584807	0.767626	-0.81953	0.586926	0.653839	0.404311	0.745945	0.042871	0.850381	0.455935	0.378599	-0.2538	-0.47506	-0.52704	0.440301	0.48297	0.290775	0.663372	0.026736	-0.78593	0.571112	0.565384	0.058698	1					
Persist	0.410643	0.382523	-0.57449	0.196024	0.305056	0.576422	0.241099	-0.1421	0.385217	0.364377	0.63673	-0.03287	-0.24012	-0.63789	-0.06155	-0.13685	-0.05893	0.659598	0.334639	-0.33021	-0.00731	0.232429	0.139719	0.745301	1				
AnteRet	0.335066	0.70935	0.42478	0.814463	0.818906	0.00005	0.030643	0.360503	0.050143	0.232053	0.42031	0.10464	0.61062	0.050037	0.051403	0.000030	0.74451	0.210700	0.25103	0.75370	0.070116	0.400035	0.036060	0.55003	0.04003	1			

Another correlation table 5.4 is also presented above representing cross sectional averages of the variables for the seven years from 2005-2011. The mean is calculated for each variable every year and then a correlation table is reproduced. It is evident from the table that the results of my regressions are compatible with the cross-sectional correlation signs and significance of the variables. The above table suggests the potential for at least most of the results to be supported (see discussion below).

5.6 Hausman Test Results

Table 5.5: Hausman Test Results

Variable	Statistic	Prob.	Decision
Ex Post Return	4.444	0.000	Reject Null Hypothesis (use Fixed Effects)
E Ante Return	2.113	0.000	Reject Null Hypothesis (use Fixed Effects)
Ex Post Risk	6.354	0.000	Reject Null Hypothesis (use Fixed Effects)
Ex Ante Risk	6.079	0.000	Reject Null Hypothesis (use Fixed Effects)
Volume of Trade	21.262	0.000	Reject Null Hypothesis (use Fixed Effects)
Return On Assets	1.087	0.336	Accept Null Hypothesis (use Random Effects)
Return on Equity	4.527	0.000	Reject Null Hypothesis (use Fixed Effects)
Debt Ratio	5.935	0.000	Reject Null Hypothesis (use Fixed Effects)

5.7 Empirical Results

The following tables represent the results of my regression for the eight models specified before in chapter four.

Table 5.6: Regression Analysis of the effect of institutional ownership and ownership concentration on stock market performance variables

The t-statistics in parantheses marked as *, ** and *** denote the 90%, 95% and 99% significance level respectively. Statistical significance t-statistics are determined by White standard errors to correct for heteroskedasticity.

Variable	Ex Post Return	Ex Ante Return	Ex Post Risk	Ex Ante Risk	Volume of Trade
C	0.059 (5.986)***	0.018 (1.274)	0.051 (2.554)**	0.049 (0.713)	6.171 (90.056)***
Size	-0.005 (-4.638)***	-0.003 (-1.648)	-0.002 (-0.751)	-0.008 (-1.040)	0.015 (3.520)***
Banks	-0.001 (-0.325)	0.003 (0.728)	0.004 (0.446)	-0.003 (-0.096)	-0.246 (-0.671)
Companies	0.004 (1.037)	0.009 (2.039)**	-0.002 (-0.294)	-0.0003 (-0.011)	-0.161 (-1.368)
Concentration	-0.002 (-0.558)	0.009 (2.923)***	0.0008 (0.095)	0.072 (2.946)***	-0.894 (-2.757)***
Employees	-0.022 (-1.768)	-0.013 (-0.595)	0.109 (1.664)*	0.626 (4.451)***	-2.449 (-2.225)**
Holdings	0.0001 (0.053)	0.002 (0.053)	-0.009 (-1.608)	-0.028 (-1.033)	-0.128 (-1.027)
Individuals	0.009 (1.905)*	0.014 (1.896)*	-0.025 (-2.369)**	-0.027 (-0.731)	-1.008 (-3.028)***
Insurance	0.023 (1.379)	0.0009 (-0.228)	-0.006 (-0.121)	-0.102 (-0.798)	-1.527 (-0.982)
Investment	0.019 (0.749)	-0.005 (0.749)	-0.042 (-0.608)	-0.160 (-0.837)	-1.171 (-1.138)
Top Management ROA	0.006 (1.242)	-0.0003 (-0.060)	-0.019 (-1.997)**	-0.015 (-0.458)	-0.179 (-0.583)
Volume	0.011 (2.233)**				
Market Return	-0.003 (-3.981)***				
MB	0.663 (5.725)***				
Clustering			-0.009 (-1.671)*	-0.106 (-5.341)***	
Persistence			0.014 (2.275)**	0.106 (5.642)***	
R ²	0.716	0.552	0.739	0.747	0.911
Adjusted R ²	0.593	0.351	0.619	0.631	0.871
S.E of Regression	0.004	0.006	0.009	0.029	0.276
F- statistic	5.838	2.739	6.189	6.450	22.656
Prob. (F-stat.)	0.000	0.000	0.000	0.000	0.000

Table 5.7: Regression Analysis of the effect of institutional ownership and ownership concentration on financial performance variables

The t-statistics in parantheses marked as *, ** and *** denote the 90%, 95% and 99% significance level respectively. Statistical significance t-statistics are determined by White standard errors to correct for heteroskedasticity.

Variable	Return on Assets	Return on Equity	Debt Ratio
C	0.039 (3.734)***	0.266 (6.123)***	1.064 (3.825)**
Cash	0.079 (2.282)**	0.023 (0.331)	
Banks			-0.473 (-2.400)**
Free Float	-0.036 (-2.219)**	-0.144 (-2.069)**	-0.492 (-3.367)***
GDR			0.283 (2.497)**
Size			-0.044 (-1.534)
Companies	-0.027 (-1.848)*	-0.161 (-1.969)**	
Concentration	-0.029 (-0.833)	0.009 (-0.699)	-0.094 (-0.705)
Employees			1.949 (2.147)**
Holdings	-0.026 (-2.018)**	-0.178 (-1.588)	
Individuals	-0.055 (-1.649)	-0.312 (-2.019)**	
R ²	0.488	0.636	0.734
Adjusted R ²	0.473	0.499	0.630
S.E of Regression	0.050	0.121	0.143
F- statistic	32.765	4.638	7.099
Prob. (F-stat.)	0.000	0.000	0.000

5.8 Discussion of Findings

Tables 5.6 and 5.7 provide findings of the eight models for regression using the stock returns and financial performance measures as dependent variables. The results show the explanatory power of the eight models as measured by the adjusted R^2 , which provides a better estimation of the true population value, especially with a small sample. Values of the adjusted R^2 are 0.593, 0.351, 0.619, 0.631, 0.871, 0.473, 0.499 and 0.630. Also, the F (p-value < 0.05) for all models confirms that all models are statistically significant. Aiming to achieve improved results in some models, some ownership structure variables are eliminated especially in models 6, 7 and 8.

5.8.1 First Hypothesis

The results of Table 5.6 show that institutional ownership as well as ownership concentration has no effect on ex post stock returns as shown in previous studies (Azzam, 2010; Faugere and Shawky, 2003). Also, the results coincide with past studies of (Shleifer, 2000; Shiller, 2000) which state that there is no significant relationship between ownership concentration and stock returns. The results do not support hypotheses 1a and 1c in chapter 4. One possible explanation for that insignificant effect is that the Egyptian stock exchange has inefficient information, as the information arrives to the market chronologically and there is a lot of noise and speculative trading (El_ansary and Atuea, 2012). Thus, it is very difficult to rely on a specific variable to explain the variations that happen to stock returns, especially as far as the Egyptian Exchange is concerned. Also, the stock market performance is mainly affected by economic and market conditions rather than ownership structure variables. The financial crisis that happened in 2008 had a sound negative effect on the stock market. In addition, the results confirm the market inefficiency of the Egyptian stock market. The stock prices in this case might not reflect the costs and benefits of diversification. In other studies (Grinblatt and Titman, (1989, 1993); Grinblatt et al., 1995; Jones et al., 1999; Nofsinger and Sias, 1999; Wermers, (1999,2000), the relationship is proved to be positive and significant due to certain factors mentioned before. For example, institutional investors are “momentum traders” and they have tendency to be guided by the historical prices (Grinblatt et al., 1995). Also, mutual funds as a category of institutions sometimes engage in institutional “herding” (Wermers, 1999). In addition, the coexistent relationship between changes in institutional ownership and stock returns is more solid than the “trend chasing effect” (Nofsinger and Sias, 1999). This is

not the case for Egyptian Stock Exchange. The Egyptian Exchange performance sometimes moves contradictory to what most theories say, part of it depends on speculation.⁴³

Profitability (represented by ROA) has a positive and significant effect on ex post returns (5% level), which also coincides with previous studies (Azzam, 2010). Size has a negative and significant effect on ex post returns (1% level), since bigger firms are usually associated with less returns and lower risk. Also, Volume has significant and negative effect on stock returns (1% level). It is true that large volume of trade is often associated with more liquid stocks, where the return is low. Market return has a positive and significant effect on stock returns (1% level), which is normal. Also, market to book ratio has a positive and significant impact on ex post returns (5% level), which is consistent with Zeytinoglu et al. (2012) in their study of the impact of market based ratios on stock returns in the insurance sector in Turkey.

The results in Table 5.6 show also that institutional ownership has no effect on ex ante returns except for companies, which have a positive and significant effect (5% level) and individuals, who have a positive and significant effect (10% level). This means that the effect is very weak and this actually coincides with Gompers and Metrick (2001) and Sias et al. (2006) who find that the relationship between changes in institutional ownership and next quarter's returns insignificant. Sias et al. (2006) add that the ability to forecast future returns is only strong in the case of mutual funds, which means that these institutions have better access to information than the others. In addition, Cai and Zheng (2004) find that changes in institutional ownership do not predict the stock returns. Moreover, Griffin et al. (2003) find no evidence to support that the increase in institutional imbalances forecast future daily returns. In most economies, the relationship between changes in institutional ownership and future stock returns might be of a concern simply because changes in institutional ownership act as a proxy for changes in the strength of corporate governance. It seems that this is not the case in Egypt as evident from the results. On the other hand, the relationship between ownership concentration and ex ante returns is positive and significant (1% level). This could be the case since Parigi and Pelizzon (2006) find that controlling shareholders with the highest concentration get higher expected returns than non-controlling shareholders because they can distract a part of the profits of the firm they control. The results support hypotheses 1b and 1d in chapter 4. It is

⁴³All analysis and opinions related to the Egyptian stock market in the empirical section is based on an interview with Dr. Islam Azzam, the associate professor and head of Finance in the American University in Cairo and the Capital market specialist. I hereby express my deep gratitude to him.

worth mentioning that in computing the ex-ante return, the GARCH model is used, which has not been employed in literature before to estimate the forecasted returns.

5.8.2 Second Hypothesis

The results in Table 5.6 show that institutional ownership represented by top management and individuals have a negative and significant effect on stock volatility (10% level). The results coincide with most academic studies that support the existence of negative relationship between institutional ownership and stock volatility. The positive relationship between employees associations and stock volatility (1% level) coincides with the results of table 5.7, where there is a positive association between employees associations and debt ratio. It is known that companies with high debt to assets ratio are more risky. Belghitar et al. (2011) find that institutional investors are more likely to be attracted to less risky securities since they follow the prudent man rules. Moreover, Lin et al. (2007) find that the institutional investors' access to better quality of information is likely to result in investment in less volatile securities. Furthermore, institutional investors are likely to act in a rational way than individual traders (Shiller, 1984). They are called "smart-money" investors by some academics. While, ownership concentration has no effect on stock volatility, which is not consistent with the past studies by (Demsetz and Lehn, 1985; Clark and Wojcik, 2005), which finds either a positive or negative relationship between ownership concentration and stock volatility. The results do not support hypotheses 2a and 2c in chapter 4. Two important components of volatility; clustering and persistence show significant relationship with stock volatility. Volatility clustering has a negative and significant effect (10% level), while volatility persistence has a positive effect (5% level).

Moreover, the results in table 5.6 show that institutional ownership has no effect on ex ante risk except for employees associations that have positive and significant effect on ex ante risk (1% level), which coincides with the results in table 5.7. As reported by Chicernea, Petkevich and Reza (2013), institutional ownership no longer explains idiosyncratic volatility in the last decade. As a consequence, it is difficult to predict whether the stock return volatility will exhibit an upward or downward trend with the increase in institutional ownership. Sias (1996) finds that the changes in volatility can be forecasted by the variation in the lag changes in institutional ownership. In our results, this can be true for employees associations, since they are the only institutions that show a significant effect on ex ante risk.

It is worth mentioning that in the traditional asset pricing theory, the composition of ownership on a financial asset does not affect future returns or risk. If the existing holders of an asset buy or sell for reasons unrelated to fundamentals, new owners immediately take their place, with no effect on price (Greenwood and Thesmar, 2009). Our results regarding the effect of institutional ownership on ex ante returns and risk support this theory.

Also, it is worth mentioning that in computing the ex-ante risk, the GARCH model is used which so far has not been employed in literature to estimate the forecasted risk.

Moreover, ownership concentration shows positive and significant relationship with ex ante risk (1% level). It is logical since it shows a positive and significant relationship with ex ante returns. It is known that there is a positive correlation between risk and return. Also, it is known that with the closed corporate governance system associated with high ownership concentration, the outside investors could have little information and there is a high probability of insider trading. As a consequence, the companies with high ownership concentration are expected to have more volatile stock market prices. The results do not support hypothesis 2b but support hypothesis 2d in chapter 4.

Two important components of volatility, clustering and persistence show also significant relationship with ex ante risk. Volatility clustering has a negative and significant effect (1% level), while volatility persistence has a positive effect (1% level), which reveals their stronger influence on the expected risk than for the ex post risk. This means that there is a high probability of high volatility days being followed by other high volatility days due to high volatility persistence. The ultimate outcome is that the tails of the distribution of stock market returns become fatter or that there will be a high probability of extreme price movements. This means that the stock market in Egypt displays other volatility behavior related to clustering and persistence that have to be taken into account when forecasting risk.

5.8.3 Third Hypothesis

The results in Table 5.6 show that institutional ownership has no effect on stock liquidity except employees associations and individuals who have a negative and significant effect on stock liquidity, but with a greater influence of individuals (1% level) than for employees

associations (5% level). The results do not support hypothesis 3a in chapter 4. Actually, the results regarding the relationship between institutional ownership and stock liquidity are mixed. Yet, Golonji et al. (2013) find no significant relationship between institutional ownership and stock liquidity. Other studies find negative relationship between institutional ownership and stock liquidity (Nekounam et al., 2012). In Egypt, employees associations are associated with higher risk and higher debt ratio, so it is expected that they have low stock liquidity. High volume of trade is usually associated with low risk.

In addition, ownership concentration has a negative and significant effect on stock liquidity (1% level). The result supports hypothesis 3b in chapter 4. Also, the result coincides with the study of Nekounam et al. (2012), who find negative relationship between ownership concentration and stock liquidity in a study including 74 companies listed in Tehran Stock Exchange. It is well known that with more ownership dispersion, there is greater market liquidity than with ownership concentration (Bolton and Thadden, 1998; Jacoby and Zheng, 2010). It is worth mentioning that a key aspect in evaluating the performance of any particular financial system is its liquidity. This means that it is expected that firms with high market to book ratios are usually associated with higher stock liquidity, as in the case of these results (1% level).

5.8.4 Fourth Hypothesis

The results in Table 5.7 show that institutional ownership represented by companies have negative and significant effect on financial performance represented by ROA and ROE (10% and 5% level, respectively), and holding companies have negative and significant effect on ROA (10% level). While, individuals have negative and significant effect on ROE (5% level). In Egypt, firms with more individual ownership are less profitable. Our results show that institutional ownership has very weak effect on firm financial performance. The results are consistent with Namzi and Kermani (2013) who find that institutional ownership has a negative and significant impact on firm performance, using data from Tehran Stock Exchange during the period 2003-2008 and employing a panel data model as well. The results contradict with Abdelsalam et al. (2008) who show that there is a strong positive association between institutional ownership and firm performance using pooled cross-sectional observations from the top 50 listed Egyptian companies between 2003-2005.

On the other hand, Agrawal and Knoeber (1996), Karpoff et al. (1996), Duggal and Miller (1999) and Faccio and Lasfer (2000) have reached the conclusion that there is no significant relationship between institutional ownership and firm performance. One reason might be that institutional investors in Egypt do not engage in active monitoring of the management, so they are called passive investors or pressure sensitive as classified by Cornett et al. (2007), which means that the institutional investors prefer not to interfere with the management decisions. Demsetz (1983) analyzes this relationship and argues that there should be no systematic relationship between changes in ownership structure and variations in firm performance.

Moreover, the results show that ownership concentration has no effect on firm financial performance represented by ROA and ROE. The results support hypotheses 4a and 4b in chapter 4. The results coincide with the study of Lyskavyan and Spatareanu (2006), who find that concentration, is insignificant in explaining performance both in the transition countries, where market monitoring is very weak, and even in the UK, where market monitoring is considered to be strong. The authors add that this insignificant relationship is the result of the availability of different monitoring mechanisms, of which takeover threats are one of the most important. Also, the results are consistent with those of Balsmeier and Czarnitzki (2010) who find the models for the subsamples of EU countries, where there is strong legal structure, showing that the ownership concentration has no impact on firm performance.

Moreover, the results support other results reached by (Demsetz and Lehn, 1985; Demsetz and Villalonga, 2000 and Kocenda, 2003) that there is no significant relationship between ownership concentration and firm performance. Demsetz and Lehn (1985) claim that if dispersed ownership is not good, it would not be there in a rational world. They admit the role of ownership concentration as a monitoring mechanism, but they say that it might change across firms in a way coherent with value maximization. Burkart et al. (1997) say that even if shareholders practice tight control in the past and it is efficient, in the future it includes an expropriation threat that could limit managerial initiative and non-contractible investments.

Some studies, that find a significant relationship, use Tobin's Q as a measure of firm performance. Compared to return on assets and return on equity, the two measures used in this study are much stronger in revealing the degree of firm performance. A Conference

Board Survey of financial indicators in 57 companies (Walsh, 1987) has declared that return on assets, return on sales, and return on equity are the most important performance measures employed. These measures were among those employed by Peters and Waterman (1982) to differentiate among excellent and non-excellent companies. Krueger (1989) has stressed on the use of return on assets as an important performance measure in management analysis.

Actually, the ownership-performance relationship has been a controversial topic for decades. Scholars have not reached an agreement with it, therefore empirical researches become more important to examine the logically possible explanations is the most acceptable (Fazlzadeh et al., 2011). Based on the above results and the results of past studies, it can be concluded that different types of ownership structure may have diverse effect on firm performance due to the different environmental conditions.

Cash has a positive and significant effect on financial performance represented by ROA (5% level). Cash is usually associated with high firm profitability. Free float has a negative and significant effect on ROA and ROE (5% level). This means that companies with relatively low ownership by strategic investors and block shareholders are less profitable.

In addition, the results in table 5.7 show that institutional ownership has no effect on debt ratio except banks that have negative and significant effect (5% level) and employee associations that have positive and significant effect (5% level). According to Stulz (1988), institutional ownership affects positively and significantly debt ratio. This is true in the case of employee associations in my results. On the other hand, Michaely and Vincent (2012) find a negative relationship between the level of institutional holdings and leverage, which is true in the case of public banks in my results. This result also supports theories that suggest institutional ownership is a substitute for debt mainly in the role of reducing asymmetric information between management and outside shareholders. Yet, I cannot generalize since this can be true for only one category of institutional ownership in the results.

Ownership concentration has no effect on debt ratio. The results are similar to (McConnell and Servaes, 1995; Jensen, 1986; Stulz, 1990, Booth and Maksimovic, 2001), who find that ownership concentration does not affect significantly the firm's debt ratio for all industry sectors except for the sectors of information technology and research and development.

GDRs have positive and significant effect on debt ratio (5% level). This means that companies with high GDRs are associated with high debt ratio. Free float has a negative and significant effect (1% level). In Egypt, free float is often associated with low debt ratio, since the problem of financing is solved through offering more stocks to the public.

5.9 Summary

This chapter interprets the regression results of my models. It begins by analyzing the regression method and how it is applied. Also, it explains how I have compared the suitability of the models by testing them. It has been obvious from the tests that the fixed effect model is superior to any other models in dealing with the data. OLS is used for all regressions with corrective methods of robust White cross section covariance and White period to correct for heteroskedasticity if it is present in any form. The unit root test for stationarity reveals that all my variables are stationary. The Jarque-bera test for the normality of standardized residuals shows that the errors are not normally distributed. Also, the results of the endogeneity test confirmed that there is no endogeneity in the model. The variance-covariance matrix shows no presence of multicollinearity.

Regarding the empirical results, the results show that institutional ownership as well as ownership concentration has no effect on stock returns, which coincide with some of the past studies. Also, institutional ownership has no effect on ex ante return except for companies, which have a positive and significant effect and individuals, who have a positive and significant effect. On the other hand, the relationship between ownership concentration and ex ante returns is positive and significant.

The results also show that institutional ownership represented by top management and individuals have a negative and significant effect on stock volatility. Ownership concentration has no effect on stock volatility.

Moreover, the results confirm that institutional ownership has no effect on ex ante risk except for employees associations that have positive and significant effect on ex ante risk, which coincides with the results on ex post risk. Ownership concentration shows positive and significant relationship with ex ante risk. Two important components of volatility, clustering and persistence show also significant relationship with ex ante risk. This means that the stock

market in Egypt displays other volatility behavior related to clustering and persistence that have to be taken into account when forecasting risk.

The results show that institutional ownership has no effect on stock liquidity except employees associations and individuals who have a negative and significant effect on stock liquidity, but with a greater influence of individuals than for employees associations. In Egypt, employees associations are associated with higher risk and higher debt ratio, so it is expected that they have low stock liquidity. In addition, ownership concentration has a negative and significant effect on stock liquidity.

Regarding the financial performance measures, the results show that institutional ownership represented by companies have negative and significant effect on financial performance represented by ROA and ROE, and holding companies have negative and significant effect on ROA. Only individuals have negative and significant effect on ROE. My results show that institutional ownership has very weak effect on firm financial performance. One reason might be that institutional investors in Egypt do not engage in active monitoring of the management. Moreover, the results show that ownership concentration has no effect on firm financial performance represented by ROA and ROE.

Finally, the results confirm that institutional ownership has no effect on debt ratio except banks that have negative and significant effect and employee associations that have positive and significant effect. Also, ownership concentration has no effect on debt ratio.

Chapter 6: Summary and Conclusion

6.1 Introduction

In this chapter, the main findings and conclusions of the previous chapters are summarized. The main aim of this chapter is to bring together and highlight the most important conclusions related to the objectives of this research. Therefore, section 6.2 provides a summary of the research objectives and the research questions to address these objectives, the research hypotheses to answer these questions and the research methods followed in this thesis. Section 6.3 highlights the main findings. Section 6.4 displays the research contribution. Section 6.5 presents the research implications. Finally, Section 6.6 presents the research limitations and lists some suggestions for future research.

6.2. Summary of Research Objectives and Research Methods

The main objectives related to the research questions are evaluating the effect of institutional ownership on ex-post and ex-ante returns and volatility in the Egyptian stock market and stock liquidity, studying the effect of institutional ownership on firm financial performance, evaluating the effect of ownership concentration on ex-post and ex-ante returns and volatility and stock liquidity, and studying the effect of ownership concentration on firm financial performance.

The research uses panel data model with unbalanced data after controlling for firm characteristics. In panel data, the same cross-sectional units (example; institutional ownership, firms, ownership concentration) are analyzed over time. Also, GARCH (1, 1)-GED model is used to generate ex-ante returns and volatility and to estimate volatility clustering and volatility persistence. A panel model is proposed that directly relates the predetermined firms ownership structures and firm characteristics to time and cross sectional varying stock returns and financial performance measures. Using a large cross section of companies over time, returns, risk, volume and financial performance ratios of companies are parsimoniously estimated as functions of ownership structure variables and firm characteristics.

Hausman test statistic is used to test whether a fixed or random effects model should be used (Hausman, 1978), after running a pooled regression, which turned out to be inefficient.

Normality of observations and regression residuals are tested using Jarque Bera test of normality. Also, the augmented Dickey-Fuller (DF) unit root test is used to test for stationarity, and the Durbin-Wu-Hausman test is used to test for endogeneity.

6.3 Main Findings

This research is the first comprehensive study done to investigate the impact of ownership structure on ex post and ex ante returns and volatility on the stock returns and financial performance in the Egyptian Stock market. Past studies concentrate on past and contemporaneous returns and volatility and how they are affected by the percentage of institutional ownership and ownership concentration. Few studies test the impact on future returns and volatility. Moreover, the study analyzes the effect of two components of volatility, clustering and persistence on the historical and expected stock volatility. In addition, the study analyzes the effect of ownership structure on the firm financial performance, through measuring the effect on three important and strong performance variables (Return on assets, Return on equity and Debt to equity ratio).

The detailed findings of this research are summarized as follows

The results of the first research question show that institutional ownership has no effect on stock returns. Also, institutional ownership has no effect on ex ante return except for companies, which have a positive and significant effect and individuals, who have a positive and significant effect. The results also show that institutional ownership represented by top management and individuals have a negative and significant effect on stock volatility. Moreover, the results confirm that institutional ownership has no effect on ex ante risk except for employees associations that have positive and significant effect on ex ante risk, which coincides with the results on ex post risk. In addition, institutional ownership has no effect on stock liquidity except employees associations and individuals who have a negative and significant effect on stock liquidity, but with a greater influence of individuals than for employees associations.

Regarding the financial performance measures, the results show that institutional ownership represented by companies have negative and significant effect on financial performance represented by ROA and ROE, and holding companies have negative and significant effect on

ROA. Individuals have negative and significant effect on ROE. Finally, the results confirm that institutional ownership has no effect on debt ratio except banks that have negative and significant effect and employee associations that have positive and significant effect.

The results of the second research question show that ownership concentration has no effect on stock returns. Also, the relationship between ownership concentration and ex ante returns is positive and significant. While, ownership concentration has no effect on stock volatility, it shows positive and significant relationship with ex ante risk. In addition, ownership concentration has a negative and significant effect on stock liquidity.

Regarding the financial performance measures, the results show that ownership concentration has no effect on firm financial performance represented by ROA, ROE and debt ratio.

The results of the third research question show that Profitability (represented by ROA) has a positive and significant effect on ex post returns. Size has a negative and significant effect on ex post returns. Also, Volume has significant and negative effect on stock returns. Market return has a positive and significant effect on stock returns. Also, market to book ratio has a positive and significant impact on ex post returns. Two important components of volatility; clustering and persistence show significant relationship with ex post and ex ante risk. Volatility clustering has a negative and significant effect, while volatility persistence has a positive effect. Market to book ratio shows positive and significant effect on stock liquidity.

Regarding the effect on firm financial performance; Cash has a positive and significant effect on financial performance represented by ROA, while free float has a negative and significant effect on ROA, ROE and debt ratio. Finally, GDRs have positive and significant effect on debt ratio.

6.4 Research Contribution

This thesis makes an original contribution to the literature in five respects:

1. Most studies examine the relationship between the level or changes in institutional ownership and both the ex post and contemporaneous returns. Little emphasis is given to the relationship between institutional ownership and future returns. In this study, analyzing the impact of institutional ownership on ex ante returns and volatility fills

this gap left by former studies. No studies have been conducted to test the effect of ownership structure on ex-ante returns and risk in Egypt.

2. The effect of both volatility clustering and persistence is tested on stock volatility for the first time as far as the Egyptian stock market is concerned.
3. The analysis extends the literature by decomposing the institutional ownership to several types which are; insurance companies, employee associations, public and private banks, holdings, and companies.
4. The previous studies pay little attention to the small emerging countries, where the above-mentioned relationship could be different than what the previous papers have concluded, and have only dealt with developed and large emerging economies. This study is analyzed and tested using data from the Egyptian stock market, which is one of the small emerging markets that are overlooked in literature. The differences between Egypt and large emerging and developed countries in legal and political systems, country factors, and market structure and development make Egypt an interesting case to investigate.
5. GARCH (1, 1)-GED model is used to generate ex-ante return and volatility, volatility clustering and volatility persistence. Previous studies have not used GARCH to measure forecasted returns and volatility and how they are affected by ownership structure according to the author's knowledge.

6.5 Implications of the Results

The research has generated several implications that would be of interest to policy makers, investors (Local and foreigners) and capital market specialists. Firstly, it helps the investment community in Egypt to better understand the role of institutional investors and their effect in the capital market. The high degree of turbulence in the international capital markets in the last decade has led the foreign investors to raise their risk expectations and minimize their portfolio exposure to emerging markets, and made them worried with regards to equity investments in Egypt. Determining the risk factors through several studies of the Egyptian market should clarify the scene in one way or another. Secondly, it helps those who are in charge to consider the factors that affect in a significant way the financial and market performance of firms. It has been evident from the study that important variables such as; institutional ownership and ownership concentration does not have big effect on financial and market performance of firms in Egypt, contrary to other studies done in other countries. So, it

is very important to determine these factors to help improve the efficiency of firms in Egypt. Thirdly, it can help in identifying whether ownership concentration or dispersion is better in enhancing the market and financial performance of firms. In most studies, it has been reported that ownership concentration has a positive effect on firm performance. Yet, the case is different in Egypt, which also coincides with some studies done on transition economies, where the market monitoring is weak. Fourthly, the study can help in formulating certain policies that could help later in achieving a certain kind of transparency as far as the market is concerned. Returns and risks are important factors that are of major concern to any investor. It has been evident from this study that the Egyptian market is highly unexpected. So, the aim of the capital market specialists should be promoting a well-functioning stock market for the achievement of Egypt's key policy objectives of higher rates of savings, investment and economic growth. Also, investors will find it difficult to make an investment decision in markets where information on firm performance and policies is less available and known sequentially to market participants. As a result, the uncertainty in such a market will induce investors to withdraw until the uncertainty issue is resolved.

6.6 Limitations of the Study and Recommendations for Future Research

This research focuses mainly on quantitative variables as independent variables. Many other qualitative and quantitative variables are of extreme importance and can affect the returns and volatility in the Egyptian Stock Exchange. The research does not examine the effect of the industry type, political and economic factors on returns and volatility. Many factors such as; the legal system, macroeconomic variables, political instability, global financial crises and exchange rates can have an impact on stock returns and volatility as well as the financial performance, and may represent significant variables as well. The impact of the above-mentioned variables on market and financial performance is beyond the interest of this research and calls for further investigations in future researches.

In addition, the research focuses on Egypt. So, the results of this research must be interpreted carefully and not generalized to all emerging countries. Further researches must examine more emerging countries, in order to better understand the impact of ownership structure and concentration on returns and volatility.

On the other hand, the researcher believes that this study provides wide scope for further

research to investigate other factors and their effect on the market and financial performance in Egypt. The following are some suggestions for future research:

- i) This research could be extended to cover more years (Pre and post the period covered). This helps to identify a clear picture of how ownership structure and concentration affects returns and volatility over time.
- ii) Moreover, a comparative study between Egypt and another emerging country in the same context can be investigated. In this case, one could gain better insight on the comparative impact of ownership structure and concentration on returns and volatility in two different environments.
- iii) In addition, as mentioned earlier, researchers can investigate other factors (macroeconomic, political, etc.) and their effect on returns and volatility in the Egyptian Stock Exchange.

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Appendix 1: Literature Review Summary Table

Study	Objectives	Methodology			Main Results
		Variables	Measures	Method	
Arbel et al. (1983)	Testing the relationship between the level of institutional holdings and the performance of firms in terms of return and risk (USA 1971-1981)	Institutional Concentration Ratio (ICR), Return, Risk, Risk-Adjusted Returns, Company Size	ICR measures the securities intensively held, moderately held & institutionally neglected by institutions. Return is the equally weighted monthly return for all the securities included in the portfolio during the year. Risk is the standard deviation of returns. Risk-Adjusted Returns is the return/unit of total risk and return/unit of systematic risk. Company Size is the log of market value.	CAPM	Firms neglected by institutions performed better than those widely held by institutions on a risk-adjusted basis.
Sias (1996)	Testing the “contemporaneous” relationship between institutional investors and volatility, testing whether an increase in institutional ownership is followed with an increase in volatility (USA 1977-1991)	<u>Contemporaneous Relationship:</u> Volatility, Annual institutional holdings, Annual market capitalizations for all securities listed in NYSE, Institutional Ownership. <u>Future Relationship:</u> Volatility at time t, Volatility at time t-1, Institutional ownership at time t-1, Return at time t-1.	<u>Contemporaneous Relationship:</u> Volatility measured by standard deviation of Weekly Returns, market capitalization measured by price multiplied by number of listed shares, Institutional ownership measured by number of shares held by institutional investors as of the 3rd quarter each year. <u>Future Relationship:</u> Natural Log of volatility in Year t, natural log of volatility in year t-1, change in institutional holdings in year t-1, returns in year t-1.	Wallis rank-sum test, Wilcoxon rank-sum test, Fama-Macbeth method.	Institutional Investors have a positive effect on stock return volatility, holding capitalization constant. Variation in lag changes in institutional ownership predicts variation in volatility.

<p>Bushee & Noe (2000)</p>	<p>Testing whether the disclosure practices of the firm affect the structure of institutional ownership and, as a result, its stock return volatility (USA 1982-1996)</p>	<p>Disclosure, Institutional holdings, Stock return volatility, control variables: firm performance, level of trading volume in the stock, firm size, an indicator variable, leverage, dividend yield, earnings-price ratio, book-price ratio, sales growth, control the S&P stock rating, systematic risk, unsystematic risk.</p>	<p>Disclosure measured by the percentile ranking of corporate disclosure practices published by AIMR, Institutional holding measured by the % ownership from the sum of shares owned by the 3 groups of institutions, Stock return volatility is the log of the standard deviation of daily stock returns measured over a year, annual market-adjusted returns is a proxy for firm performance, level of trading volume in the stock measured by average monthly volume/year over average shares outstanding, firm size is the log of market value, an indicator variable measures the institutions' preference for firms listed in S&P500, leverage is the ratio of debt-to-assets, systematic risk calculated from a market model using daily stock returns over a year, unsystematic risk measured as the standard deviation of market model residuals over a yearly interval.</p>	<p>Fama-McBeth methodology</p>	<p>More transient Institutional ownership is associated with more future volatility, higher quasi-indexer & dedicated ownership lead to lower future volatility</p>
<p>Gompers & Metrick (2001)</p>	<p>The analysis of the institutional investors' demand for stock characteristics & the consequences of this</p>	<p>Dependent Variable: Return to stock I in quarter t+1. Independent Variables: Firm age, dividend yield, S&P membership as a dummy variable, stock-price</p>	<p>IO is the sum of all reporting institutional divided by the total shares outstanding for the firm, firm size measured by market capitalization, book-to-market ratio is the book value for the fiscal year ended before June 30 divided by size as of</p>	<p>Fama-McBeth methodolog, Weighted least squares.</p>	<p>Institutional ownership at the end of the quarter has positive forecasting effect of</p>

	demand on stock prices and returns (USA 1989-1996)	volatility, firm size, per-share stock price, share turnover, book-to-market ratio, momentum, Institutional Ownership (IO).	December 31, dividend yield is cash dividends for the fiscal year ended before June 30 divided by size as of December 31, stock-price volatility is the variance of monthly returns over the last two years, firm age is the number of months since first return shows in CRSP file, momentum is past three months gross return, and 9 months gross return before the quarter of filing, turnover is volume divided by outstanding shares measured for the month before the beginning of the quarter.		the returns in the subsequent quarter.
Ali et al. (2002)	Examining the issue of informed trading by institutions utilizing a different approach from the previous studies and how this affects the future returns (USA 1985-1999)	Dependent Variable: AR is size adjusted abnormal return during the 3 day period around earnings announcement. Independent variables: change in the percentage of institutional ownership during a quarter. AR2 is size adjusted abnormal return during the three day earnings announcement period for the second next quarterly earnings announcement following the calendar quarter over which change in institutional ownership is measured. LCHE is lagged	AR is calculated as total return during this period minus the return on the CRSP decile capitalization portfolio corresponding to the firms' market value at the last calendar year end (Bernard & Thomas, 1989). LCHE is measured as the change in earnings relative to the same quarter of the past year divided by the market value of common equity at the beginning of the quarter.	Ordinary Least Squares	The change in a company's institutional ownership during a calendar quarter is positively related to the three-day abnormal returns at the time of the subsequent announcement of the company's quarterly earnings.

		unexpected earnings. LRET is raw return measured during the quarter for which change in institutional ownership is measured.			
Sias (2004)	Evaluating the relation between institutional demand and returns (USA 03/1983- 12/1997)	<p>Dependent Variable: Previous quarter return, Same quarter return, Following quarter return, Following 6-month return, Following 12-month return.</p> <p>Independent Variable: Fraction of institutional traders increasing their position n a stock.</p>	Change in the fraction of shares held by institutional investors measured as the difference between the fraction of shares held by institutional investors at the beginning and end of the quarter. Returns = ln Pt-lnPt-1	Cross-Sectional Regressions	Positive correlation between changes in institutional ownership and the same and ex-post quarter returns, weak positive correlation between changes in institutional ownership and future returns.
Clark & Wojcik (2005)	Financial Valuation of the German Model (Germany 1997-2001)	<p>Independent Variables: Ownership Concentration, Index of shareholder value orientation (SVO), Size of the company, the firm's inclusion in the DAX30 index as a dummy variable</p> <p>Dependent Variable: Corporate</p>	Two Measures of Ownership Concentration: the share of the largest holder of voting rights in a firm, Herfindahl index calculated as $\Sigma = S, n$ is the number of major holders of voting rights, S is the share of a holder in the total number of voting rights. SVO is composed of the quality of yearly reports information, investor relations quality, the	Single factor regressions between ownership concentration and stock returns. Another	Negative relationship between ownership concentration and stock market returns that holds for all variables

		stock market returns.	setup of profitability goals, the arrangement of managerial compensation with the firm's share price. Corporate stock market returns are measured using daily variations in the stock market prices of the DAX100 companies. Sharpe ratio is used as a measure of the risk-adjusted rate of return (Solnik 2000). Size of the company is measured as the log of its market capitalization.	regression analysis but adding control variables.	mentioned and for all indices DAX100, DAX30 and MDAX. Higher ownership concentration affects more risk-adjusted returns than risk- undjusted returns. According to the Sharpe ratio, this means that there is a positive relationship between ownership concentration and stock return volatility.
Cornett et al. (2005)	Examining the relationship between institutional investor ownership and firm performance (USA 1993-2000)	Dependent Variable: Firm Performance. Independent Variables: Institutional ownership, other control variables such as: director and executive officer stock ownership, `board of director characteristics such as: % of	Firm performance is measured y operating performance which is the yearly earnings before interest and taxes plus depreciation divided by total assets at the end of the year, denoted by ROA Industry -adjusted ROA (IAROA) is the firm cash-flow return on assets minus industry-average cash-flow return on assets this year.	Multivariate Regressions of first differences and fixed effect regressions with lag on institutional ownership.	Changes in institutional ownership affect significantly in a positive way the firm financial performance as

		<p>independent outside directors on the board, CEO/ Chair duality, board size, age & tenure of CEO, CEO's pay-performance sensitivity and Firm size.</p>	<p>Institutional investor ownership is measured by the percentage of total institutional investor ownership in each firm. CEO's pay-performance sensitivity is measured by the ratio of the dollar value of stock options granted to the dollar value of total compensation, Firm Size is measured as the log of the market value of equity.</p>		<p>revealed by the industry-adjusted ROA. Pressure-insensitive institutional investors affect positively the firm performance.</p>
<p>Lskavyan & Spatarea nu (2006)</p>	<p>Analyzing the relationship between ownership concentration and firm performance (UK, Czech & Poland 1995-1999)</p>	<p>ROA, ownership concentration, PL, CZ, Size, Capex, Regul, ROA (-1), Ratio-debt, Ratio-tfas, SD</p>	<p>Dependent and Independent: ROA is ratio of pre tax profits over total assets, Ownership concentration is Herfindahl index of concentration of ownership (above 5%). Independent variables: PL and CZ are country dummies for Poland and the Czech Republic, Size is log of total assets, Capex is a proxy for capital expenditures calculated as the difference between the level of tangible fixed assets from 1998 to 1999 divided by the book value of the assets, Regul is a dummy variable for regulated industries, ROA(-1) stands for the the lagged (one year) ROA, Ratio_debt is the lagged ratio of debt to total assets, Ratio_tfas is the lagged ratio of tangible fixed assets to total assets, SD is the standard deviation of pre-tax returns on assets for</p>	<p>Generalized Method of Moments (GMM)</p>	<p>Ownership concentration is insignificant in explaining firm performance both in the transition countries, where market monitoring is weak, and in the UK, where market monitoring is strong.</p>

			the previous four years		
Sias, et al. (2006)	The relationship between quarterly changes in institutional ownership and lag, immediate and future returns (USA 1979-2000)	Independent Variables: Quarterly change in the number of institutional investors, Quarterly change in the fraction of shares held by institutional investors. Dependent Variable: quarterly returns computed over three periods: the past quarter, the same quarter and the coming quarter.	Quarterly change in the number of institutional investors measured as the difference between the number of institutional shareholders at the beginning and end of the quarter, Quarterly change in the fraction of shares held by institutional investors measured as the difference between the fraction of shares held by institutional investors at the beginning and end of the quarter. Returns = ln Pt-lnPt-1	Estimating higher frequency correlations between variations in institutional ownership and past, current and future returns.	Strong and positive correlation between change in institutional ownership and the same and past quarterly stock returns, while it is weak with regards to future stock returns.

<p>Hong Zou & Mike B Adams (2008)</p>	<p>Analyzing the effect of certain forms of corporate ownership on the company' stock return and stock return volatility (China 1996-2000)</p>	<p>σ is the standard deviation of firm I's daily return in year t. ADJR is the market-adjusted compound daily return for stock i in year t, α represent dummies for firm specific fixed effects, γ represents year dummies to account for the macroeconomic and policy variations over time. Control variables: Firm's MBV ratio to control for the effect of cross-sectional variations in growth opportunities on equity risk, DEBT is the book value of long term debt + short term liabilities, TA is the book value of total assets, company size, Financial & operating leverage, ratio of net fixed assets to total assets. Gov't subsidies, & Regulatory Influence.</p>	<p>Daily returns are measured from share prices adjusted for dividends, rights offerings and share splits over the sample period, MBV calculated as (MVE+DEBT)/TA, where MVE is the firm's daily average share price per year times the no. of ordinary shares issued, Company Size measured as the log of the firm's total asset, Financial & operating leverage measured as the ratio of total debt to the book value of total assets</p>	<p>Fixed effects Panel Data Model.</p>	<p>Firms with more state ownership have higher stock volatility and lower stock returns and vice versa for firms with more "legal-person" ownership.</p>
<p>Bhattacharya & Graham (2009)</p>	<p>Studying the relationship between institutional ownership and firm</p>	<p>Independent Variables: Equity ownership, Voting power, Identity of the institutional owners, Year-end market value of common</p>	<p>Firm performance is measured by Tobin's Q, two measures are used for voting powers, share differences and share concentration. Share difference is a herfindahl index, calculated as the</p>	<p>Three Stage Least Squares, Ordinary Least Squares.</p>	<p>Two-way feedback between firm performance and voting power. Two-</p>

	<p>performance in Finland (Finland 2004)</p>	<p>stocks, Cash flow, Sales growth, Firm size, Capital expenditure, Market risk, Leverage. Dependent Variables: Return on equity as a measure of firm performance</p>	<p>log of the sum of squares of the differences between the largest and the second largest, and the second and third largest owners' ownership shares. Share concentration is calculated as the log of the sum of squares of the three largest owners' ownership shares. Sales growth is measured by the % change in yearly sales. Leverage is the ratio of total debts to assets, Capital expenditure is measured by total assets, Market risk is measured as the standard deviation of monthly stock returns over the last six months, Firm size is the book value of total assets.</p>	<p>way feedback between institutional ownership and firm performance. A negative relationship between voting power proxies and firm performance, which in return increases the possibility of more even distribution of voting power by institutional investors. A simple ownership concentration index does not affect firm performance.</p>
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Qiu (2009)	Studying the return predictive power of institutional ownership (USA 1982-2006)	Dependent Variables: Returns. Independent variables: % change in the number of institutions holding stock I during quarter t, change in the fraction of shares of stock I owned by institutions during quarter t, Size, book to market, momentum	Size is the log of market capitalization, book to market is the log of the ratio of book value of equity to market value of equity, momentum is the stock return of the previous six months up to the end of Q, where Q is the portfolio formation period.	Fama-French (1993) 3-factor model and Carhart (1997) 4-factor model.	Institutional ownership strongly predicts short run future stock returns.
Gutierrez & Kelly (2009)	Examining the relation between longer run stock returns and institutional herding (USA 1980-2005)	Independent Variables: Data on institutional stock ownership, stock prices, shares outstanding, and book value of equity, herding by institutions for each stock in quarter t. Dependent Variable: abnormal returns	Herding t = number of net buyers/number of net buyers+ number of net sellers. Abnormal Returns is calculated as the equally weighted returns for each of the benchmark portfolios over the next quarter& subtracting each specific stock's corresponding benchmark return from the stock's quarterly return.	Cross-Sectional Regressions	Herding forecasts future returns reversal.
Balsmeier & Czarnitzki (2010)	Analyzing the relationship between ownership concentration and firm performance (Central & Eastern Europe 2002-2009)	Dependent Variable: Employment growth over the last 3 years as a proxy for firm performance. Independent Variables: Block holder, Block holder squared to allow for a nonlinear relation, Legal system development as an	Employment growth measured as employment at time t minus employment at time t-3 divided employment at time t-3 times 100. Block holder is the % of a company's shares owned by the largest owner. Legal system development is measured by a dichotomous variable according to the Freedom House ratings of political rights &	Panel Data Model	Inverted U-shaped relationship between ownership concentration and firm performance in transition economies, with

		<p>alternative measure of institutional development, ln employment at time t-3, log of a firm's age, 2 dummy variables indicating firms that are state-owned or foreign-owned, a binary variable to indicate whether a firm is publicly quoted, Human capital intensity, Access to foreign markets, Black market competition is included as a dummy variable</p>	<p>civil liberty, human capital intensity is measured by the fraction of employees with a university degree, access to foreign markets is measured by the % of sales to foreign customers</p>		<p>weak institutional environments. Ownership concentration plays an important role in monitoring management in less developed non-EU member countries with weak legal systems.</p>
<p>Elyasiani & Jia (2010)</p>	<p>Analyzing the relation between firm performance and level of institutional ownership (USA 1992-2004)</p>	<p>Independent Variables: Institutional ownership stability, share volume turnover, transaction costs, dividend yield, a dummy for positive earnings in the previous year, the number of analysts following, log of stock's daily turnover, leverage, insider ownership and insider ownership squared. The control variables are: firm size, growth opportunities, firm risk, firm age, CEO incentive-compensation ratio, S&P 500</p>	<p>Institutional ownership stability measured by IOP (Institutional ownership persistence) or institutional ownership proportion standardized by its standard deviation. The second and third measures of institutional ownership stability are: Non-zero-points duration and maintain-stake-points duration. Non-zero-points duration is the number of quarters in which an institutional investor has non-zero holdings out of the 20 quarters over a 5-year period. Maintain-stake-points duration is the number of quarters in which an institutional investor maintains its stake out of the 20 quarters. Leverage is total debt</p>	<p>Simultaneous Equations Model, Probit Model</p>	<p>Positive relationship between firm performance and institutional ownership stability.</p>

		dummy. Dependent Variable: Firm Performance	divided by total assets, insider ownership is the % of company's stocks held by all the executives. Growth opportunities are measured by the 3-year sales growth rate, Firm size is measured by the log value of total assets, Firm risk measured by the standard deviation of monthly stock returns, Firm age measured by the number of years a firm has been on the CRSP database, CEO incentive-compensation ratio is the fraction of total pay that the CEO gets in stocks and options. Dependent variable: Firm performance is measured by ROA , net income divided by the book value of assets		
Islam Azzam (2010)	Examining the effect of institutional ownership on stock volatility, returns, and dividend policy in Egypt, with the effect of dividend policy on the direction of the relation between institutional ownership and stock	Dependent variables: Risk, return & payout ratio. Independent variables: % of equity ownership held by the different institutions as classified by the author, Ownership concentration. Control variables: return on assets, return on equity, leverage, firm size, proxy for growth options, dummy variables for the industry and the year.	Return measured as the average daily total return calculated yearly, Risk measured as the standard deviation of the daily total return per year, Payout ratio is ratio of dividend to earning per share per year, % of equity ownership held by each institution, Ownership concentration is the % of equity ownership held by the largest three private (public) shareholders who own more than 5% in a firm. Return of assets is net income over total assets, Return on equity is net income over shareholders' equity, Leverage is ratio of total	Panel Data, Two dimensional clustered standard errors.	Positive relation between institutional ownership and stock volatility for the dividend paying stocks and negative for the non-dividend paying stocks. Ownership concentration has a

	returns and volatility, testing the impact of dividend policy on the direction of the relation between ownership concentration and stock volatility (Egypt 2004-2007)		debt to book value of total assets & ratio of total debt to book value of total equity, firm size is the log of total assets, ratio of market price/share to book value/share for common stock is the proxy for growth options.		negative impact on volatility. Institutional ownership has insignificant effect on returns.
Belghitar et al. (2011)	Examining the effect of “Prudentially “obligated strategic institutional ownership on the performance of the company’s stock returns (USA 2002-2009)	To test for prudent behavior, Dependent variable: annual average daily stock returns including dividends (RET), To test the effect on firm performance, Dependent variable: total stock performance (TSP) which includes moments such as: stock return volatility. Firm Size, leverage is used to control for the effect of the debt, dividend yield, firm age, auditing quality also is included as a dummy variable.	Stock return volatility (annual standard deviation of daily returns), Firm Size measured as the log of total assets, leverage is used to control for the effect of the debt measured as total debt to total assets, dividend yield measured as total cash dividend to total assets, Firm age is the number of years since the establishment of the firm, auditing quality also is included as a dummy variable.	Marginal Conditional Stochastic Dominance (MCSD), Applying the Chow test to compute total stock performance (TSP), measured as the ratio of the average difference in returns divided by the standard deviation of these differences.	Positive Relationship between strategic institutional ownership and stock performance, Negative relationship between RET and institutional ownership

Uwuigbe & Olusanmi (2012)	Examining the relationship between ownership structure and the financial performance of firms (Nigeria 2006-2010)	Dependent variable: Return on assets. Independent variables: Board ownership, foreign ownership, institutional ownership.	ROA calculated as net income divided by total assets. Board, foreign and institutional ownership is the percentage of ownership by each in the firm.	Multivariate Multiple Regression Analysis	Institutional ownership has a significant positive impact on the financial performance of Nigerian firms.
Karaca & Eksi (2012)	Investigating the relationship between ownership structure and firm performance (Istanbul 2005-2008)	Ownership structure, tobin's q, ROA, leverage, size	Ownership structure measures share of the largest shareholders, ROA is profit before taxes divided by total assets, size is log of total assets, leverage is long term liabilities divided by total assets	Panel Data Analysis	Ownership concentration shows insignificant effect on Tobin's Q and positive significant effect on ROA.
Shkreta (2013)	Testing the effect of institutional ownership on the financial performance of Real Estate Investment Trusts (USA 2007-2012)	ROA, ROE, Institutional ownership, market capitalization, women on board of directors, corporate governance index, Tobin's q, Dividend payout ratio, free funds from operation, insider ownership	Not Shown	Univariate Regression, Multivariate Regression, Pooled OLS Regression	Institutional ownership, in levels between 30% and 50%, is accompanied by higher financial returns, represented by ROA and ROE.

<p>Namzi & Kermani (2013)</p>	<p>Testing the relationship between Companies' ownership structures and their performances (Iran 2003-2008)</p>	<p>Dependent variables: ROA, ROE, Q-Tobin's average and market to book value. Independent variables: institutional investors, corporate shareholding, managerial shareholding and foreign investors shareholding.</p>	<p>ROA is profit before depreciation, interest expenses and taxes (PBDIT) divided by total assets. ROE is (PBDIT) divided by equity capital. Q-Tobin' average is total borrowings (TB) plus market value (equity) (MV) divided by total assets. Market to book value is TB+MV divided by book value. The independent variables are measured by the percentage of total equity shares held by each type of investors.</p>	<p>Panel Data Model</p>	<p>Institutional ownership has negative and significant effect on the firm performance.</p>
<p>Hassanza deh et al. (2013)</p>	<p>Studying the relationship between institutional ownership and stock return fluctuations (Tehran 2006-2010)</p>	<p>Dependent variable: Return fluctuation. Independent variables: Institutional ownership, Size, Age, Leverage, Market to book value, Ratio of firm's stock dividends</p>	<p>Return fluctuation is equal to daily return deviation scale of firm I's stock in the year t, Institutional ownership is the percentage of institutional ownership in year t in firm I, Size is the log of total assets, Age is the number of days a company has been a member in stock exchange, Leverage is the long term liabilities divided by total assets, market to book value is the ratio of market price to the book value and the ratio of the firm's stock dividends in year t.</p>	<p>Linear Regression model and Pooled data approach</p>	<p>There is a positive relationship between institutional ownership and stock return fluctuations.</p>