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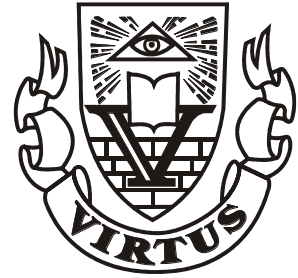
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ON RAPID INCREASE OF HOUSEHOLDS IN SOUTH AFRICA AND IMPLICATIONS ON MANAGEMENT OF DELIVERY OF BASIC SERVICES

Remigius C Nnadozie*

Abstract

Official sets of data from Statistics South Africa in the post-apartheid era suggest a general trend of rapidly increasing numbers of households against the population of individuals which is increasing at a decreasing growth-rate. Using multivariate statistical methods, this study investigates the interaction of demographic variables and their impact on the rapid increase in household numbers in South Africa. This study also examines the impact of the rapid increase of households to delivery of basic services. The results provide a scientific confirmation that the rapid increase could best be attributed to fragmentation of households. The paper recommends that the fast pace of household growth in South Africa should adequately be factored into household-based service delivery models of government at least to the next decade as the trend is expected to continue into the near future.

Keywords: Households, Population, Rapid Growth, Natural Increase, Net Migration, Household Size, Fragmentation, Service Delivery

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1. Introduction

The household is an important point of access to a number of essential services such as water, sanitation, housing, electricity amongst other services. Therefore, deeper understanding of the dynamics of household formation and dissolution in South Africa is vital for effective planning, monitoring and evaluation of service delivery especially for those services of which the household is the unit of access.

There are divergent views on the correct definition of the household. For the purpose of the article the working definition of household for the census and surveys given by Statistics South Africa (Stats SA) is adopted since most of the data sets for the analysis in the article are from Stats SA surveys.

“A household is a group of persons who live together and provide themselves jointly with food and/or other essentials for living, or a single person who lives alone (Statistics South Africa, 1995 - 2006)”.

In the recent years, there has been a rapid increasing trend in household numbers in South Africa especially when compared with individual population. The 1996 census recorded about 9 million households, this number increased by almost 60% to about 14.4 million households in 2011 as revealed by the 2011 census while the individual population increased by about 28% from 40.5 million to 51.7 million over the same period (Statistics South Africa, 2012). The rapidly rising number of households puts

increase on the yearly additional demand for household-based services.

The problem is not that households are increasing but rather the manner of increase in relation with the base population. Household numbers are bound to increase especially for a growing economy like South Africa where householders are increasingly getting empowered to leave home. Even in these instances, exponential growth pattern is a good subject for investigation. Some researchers on this issue opine that the exponential growth phenomena in the number of households in South Africa could best be attributed to household mitosis or fragmentation (van Aardt, 2007). This opinion could mainly have been out of mere observations from household data and thus a robust empirical verification becomes necessary. This paper explains how the interaction of various factors has played out through the main components of demographic change to influence the changing household structure and the rapid increase of households in South Africa and how the trends affects access to household-based services in recent times in South Africa.

In the light of the above discussion, the objectives of this article are:

- To explain the drivers of the rapidly increasing trends in household numbers in South Africa with regard to main components of demographic change.
- To elucidate the impacts of rapid increasing trends in household number would have on demand and access to essential services in South Africa.

The analysis is done using multivariate statistical method of least squares analysis; this is implemented on the platform of the Statistical Package for the Social Sciences (SPSS) regression models. The initial hypothetical postulation was that the rapid increase in household numbers in post-apartheid South Africa is driven by the main components of demographic change, namely; changes in the natural increase in the population and net migration.

This paper is organised into five sections. In section one the background of the paper and research objectives were provided, section two discusses changing household structure in South Africa linking the phenomenon to relevant literature and conceptual framework. The methodological approach to the study and data sources is presented in section three. Section four present dwells on the results of analysis and discussions around the results especially the impact of the findings on service delivery. Concluding remarks and recommendations are presented in section five.

2. Changing Household Structure in South Africa

For most instances of demographic study there has been little emphasis on the demographic unit (Household) intermediate between the individual and the larger community in an area, state, province, country or nation. Greater emphasis has been on two units; the individual and the general population. However, for certain demographic analysis an intermediate unit between the individual and the larger population remains very vital for development planning. For forecasts of total population, of the

future labor force, of pension weight, of social grants, it is satisfactory to work at the level of individual unit. However, individual population information alone does not reveal how the general population fits into for instance the housing supply, water/sanitation demand and supply (van Imhoff *et al*, 1995).

During the apartheid era in South Africa restriction from geographical mobility and access to land were imposed onto the dominant black Africa race. This to a great extent changed the pre-colonial family and household formation system in South Africa. To this Amaoteng (2007) argues that the situation necessitated urban-rural homesteads and internal circular migration as a survival strategy especially for the migrant mine workers who were predominantly males. This created a deficit of males in the rural areas and thus marriage was either delayed or avoided. In the cases where there was marriage, the man often left the wife and children behind. The situation led to household/family patterns as female-headed households, out-of-wedlock births leading to unstable households among the dominant African population (Amaoteng, 2007).

Against this backdrop, a culture of tiny household pattern gradually became a norm against the African traditional setting in which households normally comprised of both nuclear and extended family members. The situation was further intensified with the attainment of democracy in 1994, the new sense of freedom meant massive movement of economic in-migrants into the urban cities leading to the formation of new households almost at an exponential rate as shown in Figure 1.

Figure 1. Household Trends in South Africa

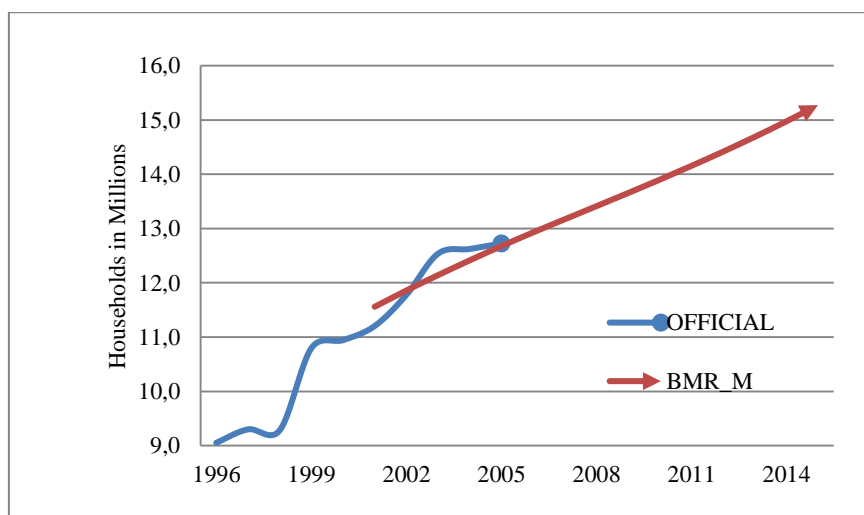
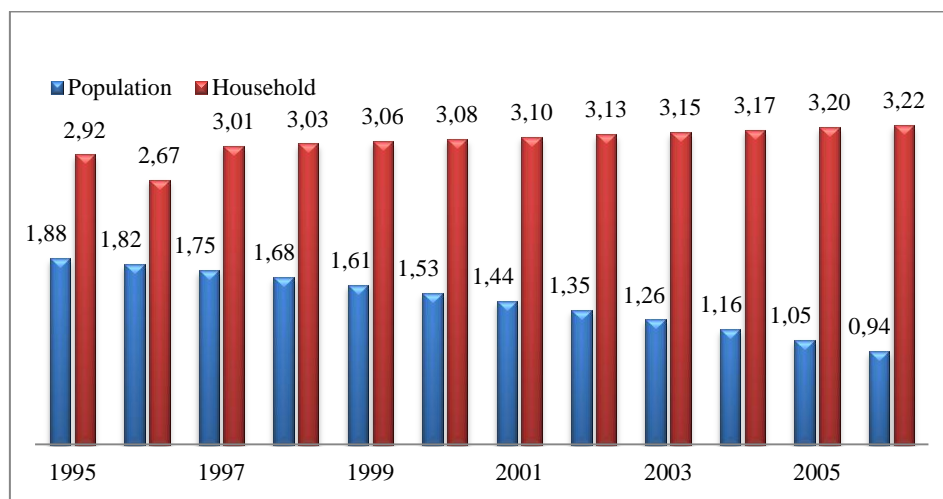


Figure 1 shows plots of total household numbers as obtained from the national surveys from Statistics South Africa 1995 to 2006 and household projection model (van Aardt, 2007) from the Bureau for Marketing Research (BMR). The general trend in

Figure 1 shows almost an exponential pattern of growth of household number, however, the individual population has comparatively been growing almost at a steadily decreasing growth rate as shown in Figure 2.

Figure 2. Comparing Population and Household Growth Rates

The general trend in Figures 1 and 2 suggest a rapid increase in household numbers in the post-apartheid South Africa. This is supported by the empirical evidences from the works of Amoateng (2007) and van Aardt (2007) which reflect that in the post-apartheid era the proportion of one-person households has increased between the census period 1996-2001 from 15% to 16% respectively over the period. This increase is believed to have reached a high of almost 18% in 2007. Conversely while this remarkable increase is noted for single-person household, the proportion of couple-based households decreased from about 42% in 1996 to about 36% in 2001. A substantial increasing trend could also be noted for household type with nonrelated-persons which increased from about 1.5% in 1996 to almost 5% in 2006 (van Aardt, 2007). This implies that there could be an evolution of living arrangements that differ from the conventional status quo in the recent times in South Africa in which household size is getting smaller in time.

The declining household size and faster growth of households in South Africa is in conformity with the global trends. According to Bongaarts (2001) in the past century, household structures in both the developed and developing world have undergone much transformation. Household size declined from an average of 4.7 in 1900 to 2.5 in 2000 for the developed countries, while the decline for the developing countries is about 6.0 in 1900 to 4.3 in 2000 (Bongaarts, 2001).

Conceptually, the above phenomenon could be linked to global progression from the so-called The First Demographic Transition (FDT) to the Second Demographic Transition (SDT). Demographers argue that towards the end of the FDT households in all parts of the world would tend towards the nuclear type comprised of married couples and their children (Verdon, 1998). However, the SDT (current situation) is a new development that brings sustained sub-replacement fertility and less stability of households

with an evolution of new living arrangements other than marriage and psychological detachment of marriage and procreation (Verdon, 1998). For South Africa these may have played out through a number of variables and recent events to produce the types of households as observed in the recent times as the child headed household, skip generation household, increasing single person household and even the so-called headless households (Cross, 2009). These could be linked to factors such as; the scourge of HIV and AIDS, increasing internal migration as people migrate in mass to urban and commercial cities for economic engagement, this is evident in the 2011 census report which reveals that the province of Gauteng has overtaken KwaZulu-Natal as the province with the largest population mainly due to massive internal migration to Johannesburg (Stats SA, 2012).

3. Data Sources & Methodology

This study is a secondary data analysis using quantitative methodology. The researcher collected historical quantitative data from different sources and synthesized them to establish trends and patterns of events in relation to household dynamics in South Africa and implications for service delivery.

3.1 Data and Data Sources

The bulk of data used for this study are from the South African national household surveys by Statistics South Africa, which have been accessed through the national data archive. The surveys collected household-based data on the following themes; demographics, household services, income, expenditure, land access and use and general perceptions of household dwellers. The surveys used are the October Household Surveys from 1994 to 1999, the General Household Surveys from 2002 to

2005, the Community Surveys of 2006 and 2007, the South African National Censuses of 1996 and 2001.

Information was also obtained from some local and international research bodies and institutions. These are the population and household projection data from the Bureau for Marketing Research at the University of South Africa date?, South African demographic data from the Population Reference Bureau (2000 to 2010) and South African migration data from the United States Census Bureau (1995 to 2008).

3.2 Fitting the Regression Model

This study basically uses multivariate statistical techniques to explore the relationship between the response variable and the control variables. The dependent variable is annual increase in household numbers while the independent variables are annual natural increase in the population, annual net-migration and the computed interacting variable for annual household fragmentation.

Exploring the data-sets, SPSS frequency tabulations and descriptive statistics were implemented. Basic computation of average household sizes and household headship rates were done to prepare the data for the analysis. The average household size is basically the quotient of total population and total household number for a given year. The headship rate gives an indication of the proportion of heads of households in a population for the year of interest. As each household is assumed to have just one head, the number of household heads in a state equals the number of households (O'Neill and Jiang, 2007). The rate can only be in the range 0 to 1 and calculated as follows:

$$\text{Headship Rate} = \frac{\text{Household Heads}}{\text{Population}} \quad (1)$$

and so total household would be

$$\text{Total Households} = (\text{Headship Rate}) \times (\text{Population}) \quad (2)$$

The headship rate and the average household size are used for the computation of the household fragmentation variable as explained later in this section. For investigation of the interaction of demographic variables and their impact on the rapid increase of household numbers in South Africa, we used the method of least squares through the SPSS multiple regression analysis.

The standard least squares model is given as

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + \epsilon_i \quad (3)$$

where y_i represent the response variable, the β_s represent the coefficients for the predicting variables the x_i , while ϵ_i represents an error term (SPSS Inc, 1999). Ultimately we want to build a model for y with the line of best fit, i.e. of least (squared) residual between observed values and predicted values. For this analysis we would require consistent historical data on trends in household numbers, fertility, mortality, emigration and immigration. For the household numbers we use the national household survey data from the October Household Surveys (1994 - 1999) to the later General Household Surveys (2002 - 2005) from Statistics South Africa. Noting that the data from these surveys are inconsistent, outliers were replaced with imputed values. From the obtained consistent household numbers and mid-year population estimates, annual increase in household numbers, average household size and household headship rates are computed. The fertility and mortality data are obtained from mid-year population estimates from Statistics South Africa and the U.S Census Bureau. From these data sets we compute estimates for Natural Increase in the population for South Africa which is the difference between fertility and mortality for each year. The Net-migration (difference between immigration and emigration) data was obtained entirely from the U.S Census Bureau because there is a general lack of quality migration data from local sources in the developing countries. In Table 2 we present the input variables and data for the SPSS regression analysis.

Table 1. Variables and Data for the Least Square Model

Year	Ad HH	NI	NM	HH Size	H Rate
1995	393,522	687,000	-193,000	4.6000	0.2232
1996	410,616	655,000	-29,000	4.3793	0.2283
1997	428,452	612,000	-22,000	4.2811	0.2336
1998	447,063	560,000	-23,000	4.1852	0.2389
2000	466,482	500,000	37,000	4.0914	0.2444
2001	486,745	438,000	49,000	3.9997	0.2500
2002	507,888	373,000	143,000	3.8550	0.2594
2003	529,949	310,000	155,000	3.8406	0.2604
2004	552,969	257,000	214,000	3.8316	0.2610
2005	576,989	224,000	210,000	3.8278	0.2612
2006	602,052	106,000	247,000	3.8283	0.2612
2007	628,203	187,000	240,000	3.8333	0.2609
2008	655,491	161,000	243,000	3.8399	0.2604

Source: Computed from Stats SA Household Surveys 95 - 07

In Table 1 *Ad HH* represents estimates for annual additional households, *NI* represents estimates for natural increase in the population (the difference between total births and total mortality), *NM* represents estimates for net migration (the difference between immigration and emigration), *HH Size*

represents average household size and *H Rate* represents the headship rates. It is notable that most of the variables in Table 1 are in the scale of hundreds of thousand therefore some transformation need to be done to reduce the data to a manageable scale for the SPSS regression model.

Table 2. Variables and Data for the Least Square Model

Year	<i>logAd_HH</i>	<i>logNI</i>	<i>logNM</i>	<i>HH_frag</i>
1995	5.5950	5.8370	3.8451	0.04853
1996	5.6134	5.8162	5.2330	0.05214
1997	5.6319	5.7868	5.2504	0.05456
1998	5.6504	5.7482	5.2480	0.05709
2000	5.6688	5.6990	5.3747	0.05974
2001	5.6873	5.6415	5.3962	0.06251
2002	5.7058	5.5717	5.5353	0.06729
2003	5.7242	5.4914	5.5502	0.06780
2004	5.7427	5.4099	5.6170	0.06811
2005	5.7612	5.3502	5.6128	0.06825
2006	5.7796	5.0253	5.6503	0.06823
2007	5.7981	5.2718	5.6435	0.06805
2008	5.8166	5.2068	5.6464	0.06782

Source: Computed from Stats SA Household Surveys 95 - 07

In Table 2 the data is reduced to a manageable scale for ease of computation and also to improve the normal spread of the data as a basic assumption of the regression model, we do a log transformation of the affected variables controlled for inconsistency. We also create an additional variable (*HH frag*) out of the variables representing household size and headship rates. The quotient of these two variables forms the additional variable which is an interaction variable that gives an indication of the influence of household fragmentation. It could be noted from Table 1 that some of the values for net-migration have negative values, a constant figure of 200,000 was added to each value in the series to control for the negative values before the log transform and this figure was chosen to be able to eliminate all the negative values in the series.

Graphs of lines of access to water, housing and sanitation and their respective backlogs were computed from census and household data as mentioned above, the lines were projected forward to 2010 using linear time series projection.

Pearson Correlation technique was also used to correlate the trend in annual additional household increase and annual backlogs for water, housing and sanitation services.

4. Results and Discussion

In the regression equation the variable *logAd HH* for annual additional household numbers is the dependent variable while the three other variables (*logNI*, *logNM* & *HH frag*) for natural population increase, net-migration and household fragmentation respectively are the predictors for increase in household numbers. In our case the regression equation is

$$Ad_{HH} = \beta_0 + \beta \log NI + \beta \log NM + \beta \log HH_frag + \epsilon_i \quad (4)$$

Table 3. SPSS Output Results for the Multiple Regression Model

Variables	Coefficients	β	<i>Sig</i> (α)
Constant	6.215	22.537	0.000
Natural Increase	-0.145	-4.043	0.003
Net Migration	0.007	0.443	0.668
Fragmentation	4.272	2.608	0.028

Source: Computed from Stats SA Household Surveys 95 - 07

From the above results in Table 3 it could be observed that the partial regression coefficients were

statistically significant for both Natural Increase ($\beta = -0.145$, $t_{268} = -4.043$, $p < 0.05$) and Household

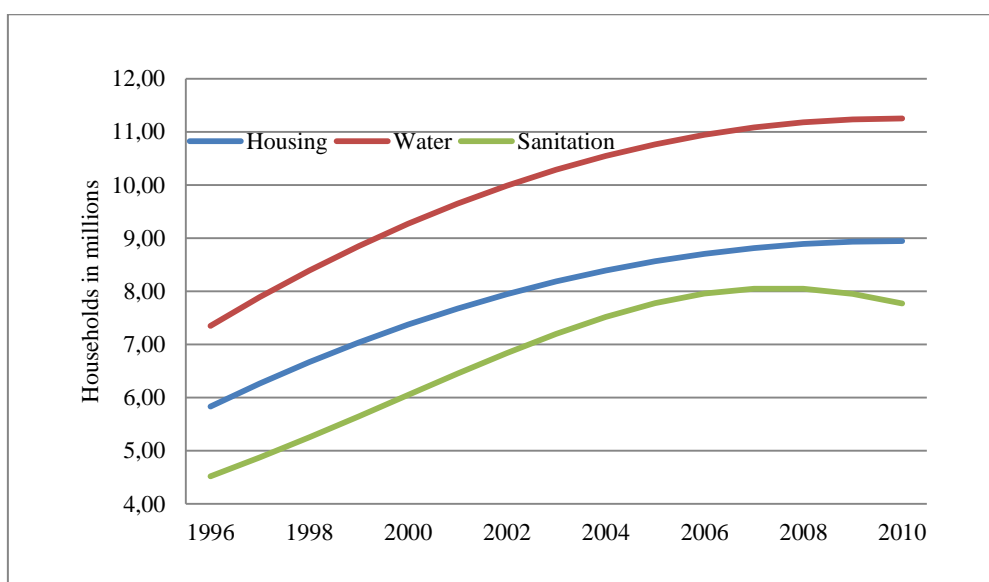
Fragmentation ($\beta = 4.272$, $t_{268} = 2.608$, $p < 0.05$), however, that negative value for the coefficient for natural increase and the negative partial correlation coefficient (-0.947) indicate an inverse relationship between the natural increase in the population of South Africa and the annual household increase. The partial regression coefficient for Net Migration ($\beta = 0.007$ & $p > 0.05$) indicates no statistically partial regression with annual household increase. The overall goodness of fit statistic ($R^2 = 0.954$, standard error of estimate = 0.017) indicate that the partial combination of the control variables in the model explains to a satisfactory measure the variability in annual household increase.

These outputs indicate that the main driver of the rapidly increasing household numbers in South Africa is most likely fragmentation or household mitosis. This is an empirical confirmation of the view of van Aardt, (2007). Even though net-migration appears to be statistically insignificant, one cannot rule out the influence of emigrants especially from the neighbouring Southern African countries in the light of the socioeconomic crisis in neighbouring Zimbabwe and the fact that South Africa is increasingly becoming a choice destination for economic migrants from the rest of Sub-Saharan Africa. This needs further research.

Regarding service delivery and the reporting of progress in service delivery, the fast growth of households as a result of fragmentation could imply that there could seemingly be a reflection of progress when the trends of access to household-based services are reported using percentage scores (as in most

reports) as delivery is accelerated, but that may not translate to an equitable measure of progress when reported in real numbers as a result of the fast pace of increase in household numbers. For instance the 1996 census data show a backlog of about 18.8% of 9 million households in 1996 with regard to access to piped water; this translates to about 1.6 million households without piped water in 1996 (Statistics South Africa, 1998). The percentage score for 2007 using the 2007 CS data implies a substantial decrease in the deficit of piped water access to about 11.4%, but because of the fast pace of increase in household numbers the actual decrease is not commensurate with reported percentage scores. The actual situation in number terms is that 1.4 million households had no access to piped water in 2007 despite considerable efforts in the delivery of water (Statistics South Africa, 2008). Housing statistics present more clearly the effect of the rapid household growth on service delivery. The 1996 census shows that about 35.6% of 9 million households in 1996 had no access to formal housing (Statistics South Africa, 1998); this translates to about 3.2 million households without formal housing in 1996. The percentage score for 2007 implies a substantial decrease in the deficit of housing access to about 29.5%, but because of the fast pace of increase in household numbers (12.5 million in 2007) the actual situation in number terms is that 3.7 million households had no access to formal housing in 2007 which is actually an increase in housing backlogs in real terms from 1996 to 2007 despite considerable efforts in the delivery of housing as shown in Figure 3 below.

Figure 3. Lines of Access to Water, Housing and Sanitation



The lines of households access to water, housing and sanitation have shown remarkable increase over time. Access to water seems to have improved much more than housing and sanitation. Even though the

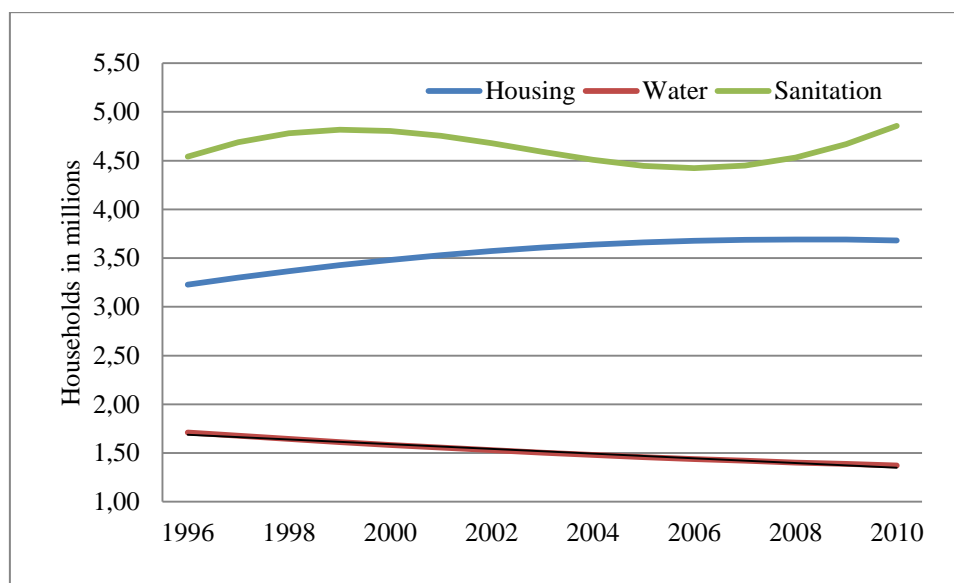
advancement in water may be attributed to the fact that many households access water from community stand pipes which are less than 200 metres away as

opposed housing for instance which requires one housing unit to a specific household.

Looking at backlogs for water, housing and sanitation, Figure 4 for backlogs shows that housing backlogs have been on the increase over time from about 3.2 million households in 1996 to about 3.72 million in 2010. Sanitation recorded remarkable improvement during the first decade of democracy in South Africa. This could be partly due to the roll out

of ventilated improved latrines (VIP) during the late 1990s and early 2000s. The recent fast increasing trend in sanitation backlog could be partly attributed to the fill-up of the VIP especially for area where maintenance and emptying of VIPs are lacking. The downwards trend in the water backlog as explained earlier could be attributed to many household accessing water from community stand pipes.

Figure 4. Lines of Backlog of Water, Housing and Sanitation



An important indicator of the ability of government and other stake holders towards achieving set targets in terms of various services is a

measure of the relationship between backlog in those services and annual additional demand as a result of increasing household numbers.

Table 4. Correlating Annual Additional Households & Service Backlogs

		<i>Ad_HH</i>	<i>Wat_Blg</i>	<i>House_Blg</i>	<i>Sani_Blg</i>
<i>Ad_HH</i>	Pearson Correlation	1	-.988**	.958**	.883**
	Sig. (2-tailed)		0.00	0.00	0.00
	N	12	12	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4 indicates an inverse relationship (*Pearson Correlation* = -0.988, *p* = 0.00) between annual additional household and water access backlogs. This implies that water backlogs are decreasing as households increase in time. Therefore, with community standpipes within 200 metres from households as an acceptable operational standard for water access, government targets in the sector seem feasible to achieve. However, housing and sanitation backlogs show high positive correlations with annual additional households. The means that backlogs for housing and sanitation are increasing with increase in household numbers, for these services targets may not be reached without a significant increase in delivery

that could mitigate the effect of rapidly increasing household numbers.

5. Conclusion

This paper emphasizes the importance of the household as a socioeconomic unit for demographic analysis and development planning. The paper further highlights the structural changes in household patterns in South Africa with the average household size getting smaller over time. Even though studies suggest that globally average household sizes are decreasing over time, the issue with South Africa is that the resulting (almost exponential) trend in the

household line of growth is not commensurate with the dynamics of the individual population.

This paper provides empirical evidence to the opinion of some scholars on the subject that the rapid growth in household numbers in South Africa could be attributed to household Mitosis. The concept of Mitosis or Fragmentation of households has not been previously tested against the main components of demographic change to explore their respective contributing effects on the rapid growth phenomena respect. The results confirm that indeed fragmentation of household is the main driver of the rapid increase in households in South Africa, while natural increase in the population has an inverse effect on the rapid increase of households. Even though net-migration reflected a statistically insignificant coefficient, the surge of migrants into South Africa cannot be overlooked; further research with most recent data is needed in this regard.

Service delivery evidently has received high priority in post-apartheid regimes. Rapid household growth puts enormous pressure on the service delivery programmes for household-based services. Understandably, the rapidly increasing trends may not continue forever, the trends may not change in the near future. Further studies are needed to investigate the possible saturation point and time to the saturation point. Meanwhile adequate provision should be made in the service delivery models of government and other stake holders for this rapidly increasing phenomenon into the near future in order for the various targets of universal access to basic services to be achieved in South Africa. This would in a nutshell entail the numerical apportionment of at least an average of three hundred thousand new delivery units per annum to compensate the additional households in addition to the annual delivery units that are directed towards dealing with historic backlogs especially for housing and sanitation delivery.

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THE LINK BETWEEN FINANCIAL MANAGEMENT, ORGANIZATIONAL CAPACITY BUILDING AND EFFECTIVENESS IN NOT-FOR-PROFIT ORGANIZATIONS: AN EXPLORATORY STUDY

Ron Kluvers*

Abstract

The third sector literature argues that organizational capacity is important for Not-For-Profit (NFP) organizations to achieve their missions. Financial management skills are important for the enhancement of effectiveness, accountability and viability of NFP organizations. While effectiveness is a contested concept its attainment is an important aspect of NFP management. This paper examines the relationship between financial management, the development of capacity and the encouragement of effectiveness. A survey of 67 NFP organizations affiliated with the Victorian Council of Social Services (VCOSS) was conducted and the findings establish a link between financial management and organizational capacity.

Keywords: Earnings Informativeness, Split Share Structure, Agency Problems

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Introduction

Not-For-Profit (NFP) organizations are established to address a need or problem in their community (Holland and Ritvo, (2008). A NFP organization is considered to be effective if it achieves its stated objectives and reduces the need or introduces the desired change. However, effectiveness is a contested concept and therefore the methods of achieving organizational effectiveness are unclear. Intuitively, the ability to undertake programs, manage funds assess performance and develop strategy should lead to organizational effectiveness. These skills can be grouped under the heading of “capacity” and the enhancement of those skills referred to as “capacity building”. However, the development of capacity cannot happen in isolation but requires antecedent conditions to be present. An important component of those antecedent conditions is the existence within the organization of financial management skills (FMS).

An important aspect of the governance in NFP organisations is the ability to monitor the continued viability of the organisation, and the ability to plan and implement programs fulfilling the mission of the organisation. This paper explores the link between financial management skills, capacity building and organizational effectiveness. It will be argued that if a link can be established then a case can be made for the development of FMS in NFPs being an important part of governance of third sector organizations.

The model being suggested in this paper is that the acquisition of financial management skills will

enable a NFP organization to develop capacity. The development of capacity enables a NFP organization to operate effectively. According to Herman and Renz (2008) effectiveness in third sector organizations is a contested concept and it is also a socially constructed concept. However, they argue that it is not an arbitrary concept. Herman and Renz (2008) point out that there are meaningful dimensions of effectiveness such as financial condition, fundraising performance or program outcomes that can be supported by hard data. Further, they argue that the use of generally accepted accounting principles can provide evidence about revenues, costs, and surplus that can provide indications of an organization’s ability to manage resources. The aim of this paper is to examine the relationship between FMS, capacity building and organizational effectiveness. The study reported in this paper will focus on the FMS that may lead to the enhancement of capacity in a NFP organization and the development of organizational effectiveness. This is an exploratory study that seeks to understand how FMS might lead to enhanced capacity and the ability for a NFP organization to operate effectively.

In the next section of this paper the literature regarding capacity building and effectiveness will be discussed. This will be followed by the posing of the research question and an explanation of the research method. The findings will then be reported followed by a discussion of the results. Finally, conclusions will be suggested.

The relationship between FMS, capacity and effectiveness

For the purposes of this paper FMS includes the ability to: understand an organization's accounting system and financial statements; to be able to analyse the organization's financial statements and use the information to assess the viability of the NFP and likely impact of the organizations strategic direction; to manage cash and develop monitor budgets. These skills are important for the enhancement of an organization's ability to achieve its mission. Without capacity a NFP is limited in its ability to operate effectively. The acquisition of FMS, as described above, is an important component of a NFP organization's capacity building.

Capacity is defined by Eisinger (2002) as: *a set of attributes that help or enable an organization to fulfil its mission* He goes on to point out that effective organizations have a broad range of capacity attributes and the ability to use that capacity to meet organizational objectives. Eisinger argues that, based on the findings of others, that the critical components of capacity include acquiring appropriate resources, effective leadership, skilled and sufficient staff, a certain level of organizational structure and links to the broader community from which the organization can receive assistance.

According to Wagner (2003) there is no one single initiative that increases the effectiveness of Not-For-Profit (NFP) organization but rather a systematic approach to improve the organization's capabilities at all levels. However, Wagner (2003) goes on to point out that building capacity utilizes many resources that NFP management would prefer to use on programs. Wagner (2003) argues that donors have sought to increase the leverage from their donations by encouraging NFP capacity building. He continues that donors are justified in their demand that organizations undertake systematic capacity building to improve their effectiveness. However, Wagner (2003) also points out that NFPs have been impeded in their efforts to develop capacity by a lack of knowledge about how to do so.

It is argued by Fredericksen and London (2000) that internal organizational capacity enables organizations to implement programs and achieve goals and is derived from various elements within the organization. They propose that there are four elements of organizational capacity: 1) Leadership and Vision, 2) Management and Planning, 3) Fiscal Planning and Practice and 4) Operational Support. Financial management is a significant component of elements 2 and 3. Management and Planning and the ability to adapt to changing circumstances are essential to the survival of NFP organizations. While Fiscal Planning and Practice enables a NFP organization to support operations with adequate and predictable financial resources.

Fredericksen and London (2000) emphasize that this element of capacity is centred upon the existence and use of a formal fiscal systems incorporating fundraising, financial tracking systems and financial reporting systems. A formal fiscal system provides important information for planning as well as evidence of accountability. The elements of capacity operate interdependently with other organizational components such as the existence of a budget and the process of developing the budget both indicate the ability of an organization to adapt to its environment (Fredericksen and London (2000).

Dart (2010) states that effectiveness can be defined in a number of ways but argues that the concept of effectiveness centres on the extent to which a NFP fulfils the purpose for which it exists. However, Dart continues that there is no evidence that effectiveness is understood beyond the initial steps which commence but do not fulfil the causal chain required to produce the change to which the NFP aspires. He goes on to state that effectiveness is linked to the ability to evaluate an organization's programs and the accountability of the organization. Both require the existence of FMS within the NFP. In keeping with Dart (2010) is the argument made by Chenhall et al. (2010) that within the resource dependent environment in which most NFPs operate the ability to attract resources is linked to the ability to plan and demonstrate that actions are consistent with plans and that governance is maintained.

Herman and Renz (2008) state that a key element found in the more effective organisations is that they are more likely to use accepted management practices. They also note that some NFP leaders are uncomfortable with the idea that NFP effectiveness is a social construct. However, they go on to say:

" although effectiveness is socially constructed, there are useful dimensions of effectiveness (for example, financial condition, fundraising performance, or program outcomes) that can be grounded in hard data. For example, use of generally accepted accounting principles provides solid evidence about revenues, costs, and surplus. Other dimensions of effectiveness, such as those related to community collaboration or working with volunteers, are likely to be less amenable to hard evidence. We support and encourage the use of hard evidence to the extent it is legitimately possible." (p. 410)

Thus, the effective operation of an NFP organization is linked to capacity of which FMS is an important element. The link between capacity and effectiveness was further reinforced by Eisinger who quoted Forbes (1998) as defining effectiveness in two ways: 1) the extent to which an organization achieves its goals; and 2) the extent to which an organization has the ability to acquire and use resources to function and sustain its own survival.

The ability of an organization to achieve its goals and marshal resources is enabled by the organization's capacity. While capacity is linked to

the ability to undertake the following activities: strategic planning, budgeting, costing, recording and reporting financial transactions, monitoring cash-flow, measuring financial and non-financial performance (Anthony and Young 2003, and Zietlow Hankin and Seidner, 2007). In addition Ritchie and Kolodinsky (2003) point out that a significant

component of organizational capacity and effectiveness is supported by management skills, particularly financial management skills. They argue that the ability to use financial analysis by NFP managers is important for ensuring sound financial management of NFP organizations and enabling the organization to fulfil its objectives.

Table 1. Correlations

Statements	1	2	3	4	5	6	7
1	1						
2	.557** .000	1					
3	.354** .004	.600** .000	1				
4	.417** .001	.294* .020	.400** .001	1			
5	.299** .017	.238 .063	.509** .000	.647** .000	1		
6	.327** .009	.255* .046	.464** .000	.457** .000	.625** .000	1	
7	.866** .000	.609** .000	.313* .013	.215** .049	.135 .259	.130 .312	1

** Correlation is significant at the 0.01 level.

* Correlation is significant at the 0.05 level.

Statements

1. We are able to analyse the information presented on our organizations financial statements.

2. We have used information presented on our financial statements to make decisions about our organization's activities.

3. We have used information presented on the financial statements in the budgeting process.

4. There is an informed discussion about the budget every month

5. Our organization is very good at managing cash

6. The information provided on our organization's financial statements is useful for planning.

7. We understand the information presented on our organization's financial statements.

The strongest correlation reported in Table 1 shows an association between statements 1 and 7 showing that the ability to understand the information presented on an NFP's financial statements enable the analysis of the financial statements. Being able to understand the information reported in a NFP's financial statements was also correlated with the ability to use financial information to make decisions about the organization's activities. The ability to understand financial statements supports the ability to analyse the NFP's financial results and using financial information in decision making. This relationship is

confirmed by the correlation between statements 1 and 2 (see table 1).

A statistically significant correlation was found to exist between statements 2 and 3 (see table 1) showing a link between using financial information to make decisions about the NFP's activities and constructing a budget. Statement 3 also correlates significantly with statement 4 (see table 1) indicating that there is a relationship between being able to use information on the financial statements in the budgeting process and there being informed discussions about the budget. Being able to have an informed discussion about the budget is also correlated with the ability to analyse the financial statements.

The ability to analyse an organization's financial statements enables the development and use of financial management skills. Having an understanding of the information presented on an organization's financial statements correlates with the ability to analyse the statements. The ability to analyse an organization's financial statements is correlated with an ability to make decisions about an organization's activities and encourage discussion about the budget. Using information from the financial statements in the budgetary process is correlated with making decisions about the organization's activities, having a regular discussion about the budget, believing that the organization is good at managing cash and believing

that information provided by the financial statements is useful for planning.

The results reported in Table 1 suggest that there is a relationship between being able to analyse

financial statements and being able use information presented on our financial statements to make decisions about our organization's activities.

Table 2. Correlations

Statements	1	2	3	4
1	1			
2	.374** .002	1		
3	.566** .000	.509** .000	1	
4	.290* .019	.460** .000	.345** .005	1

** Correlation is significant at the 0.01 level.

* Correlation is significant at the 0.05 level.

Statements

1. *Financial management is an important aspect of capacity build in our organisation.*

2. *We have used the information presented on our organization's financial statements in the budgeting process.*

3. *Our organisation is very good at managing cash.*

4. *We are able to determine the reasons for the difference between our budgeted and actual results.*

The correlations reported in Table 2 are all statistically significant however only three are of moderate strength. There is a correlation between considering financial management being an important aspect of organizational capacity building and the perception that the organization is good at managing cash. The belief that the organization is good at managing cash is also correlated with using information presented in the organization's financial statements in the budgetary process. This last statement is also correlated with the ability to determine the reasons for the differences between actual and budgeted results.

Discussion and Conclusions

The research reported in this paper has investigated the link between FMS and the enhancement of capacity in a NFP organization and the development of organizational effectiveness. This was an exploratory study that sought to understand how FMS might lead to enhanced capacity providing the ability for a NFP organization to operate effectively. The results reported in this paper indicate that there is an association between the acquisition and use of FMS, the strengthening of organizational capacity and the creation of an environment in which organizational effectiveness could be enhanced.

The results reported in Tables 1 and 2 show that having the FMS of being able to understand and

analyse an organization's financial statements encourages the use of financial statement information in budgeting and planning and is also linked to good cash management. Good cash management is fundamental to the continued viability and development of NFP organizations.

It should be noted that the FMS of being able to analyse a NFP organization's financial statements was correlated with using financial statement information to make decisions (capacity building), understanding and the financial statements (a financial skill) and having informed monthly discussions about the budget (capacity building), indicating that it is the understanding of and ability to analyse the financial statements that form the basis for capacity building. Having the FMS to understand and analyse an organization's financial reports encourages capacity building by providing useable financial information that can be used in planning and budgeting. This process was also supported by informed budgetary discussions.

The results reported in tables 1 and 2 point to an association between FMS and capacity building that is non-linear. The presence of FMS skills creates opportunities for the development of capacity as suggested by the literature. The ability to understand and analyse a NFP's financial statements allows the staff and board of the NFP to understand the implications of their decisions and to better monitor the financial management of the NFP.

However, the evidence for effectiveness to develop directly from capacity is not as clear. While capacity must be present for a NFP organization to operate effectively a direct link between the two is difficult to substantiate. Capacity enables an organization to plan, enhance decision making and encourages a discourse around purpose therefore providing the initial steps towards effectiveness as suggested by Dart (2010).

As stated initially this was an exploratory study to understand whether there is a correlation between the acquisition and use of financial management skills, the strengthening of organizational capacity and the creation of an environment in which organizational effectiveness is enhanced. The findings reported in this paper indicate the presence of FMS can support capacity building leading to the development of effectiveness in a NFP organization. However, this conclusion must remain tentative until further research can be undertaken, in particular, qualitative research to investigate the nature of the relationships between FMS, capacity and effectiveness.

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CORPORATE GOVERNANCE AND FIRM VALUATION IN EMERGING MARKETS: EVIDENCE FROM UAE LISTED COMPANIES IN THE MIDDLE EAST

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Abstract

There has been previous empirical research on corporate governance and board of directors which focused on attempting to find a direct relationship between internal governance variables and firm valuation. It has however also been argued that there are differences in the nature, direction, magnitude and processes of operation of this relationship between developed and developing financial markets because of differences in their respective economic, social, regulatory framework and market behaviour. This study examines this relationship in the context of the United Arab Emirates (UAE) as one of the emerging markets in order to extend evidence further beyond the western developed capital markets into the Middle East. Does the prevalence of family-ownership in the UAE for example matter to the company valuation? What about the presence of institutional ownership or ownership concentration? And do the corporate communication and disclosure scores published by the UAE Institutional Investor in cooperation with Hawkamah, The Institute for Corporate Governance; have any relationship to corporate valuation? More specifically this study, using multiple regression analysis, examines the impact of firm level internal corporate governance indicators namely board structure, ownership structure, and transparency and disclosure governance practices on the valuation of listed companies in the UAE after controlling for company size, industry, leverage, and dividend payout using Tobin's Q, Price - Earning Ratio (PER) and Price - Book Value Ratio (PBVR) as surrogates for company valuation. The results show no significant relationship between internal corporate governance indicators and company valuation when using Tobin's Q and PBR as measures of company valuation. However they reveal statistically significant links between some of the internal corporate governance indicators on the one hand and company market valuation on the other when company valuation is measured by the price earnings ratio (PER) which is one of the most common and important stock market indicators for investors. These results suggest that the company valuation measures like the price earnings ratio which explicitly reflects the financial markets assessment of the firm investment and dividend policies lead to a better correlation with internal corporate governance indicators. Moreover, the regression results indicate that the frequency of board meetings, adoption of best transparency practices and the presence of private institutional investors such as sovereign wealth funds are the most significant internal corporate governance variables in accounting for differences in company market values in the UAE. The structural aspects of the board such as size and composition turned out not to be statistically significant in their impact on company valuation.

Keywords: Corporate Governance, Company Valuation, Corporate Board, Emerging Markets, Middle East, United Arab Emirates (UAE), Abu Dhabi Stock Exchanges (ADX)

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1. Introduction

1.1 Corporate Governance

One of the preoccupations of effective corporate governance is the promotion of the attainment of high level financial performance and market valuation on behalf of the shareholders (Klapper & Love, 2004; Rajagopalan & Zhang, 2008). La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000) argue however that emerging economies have traditionally been discounted in financial markets because of their weak governance.

This paper specifically investigates aspects of internal corporate governance as an important driver in corporate governance. Such a study may provide insights to improvements in corporate governance and possible better valuations in an emerging market economy like UAE.

In the UAE the research is specifically motivated by the UAE Securities and Commodities Authority (SCA) recommendation to address the corporate governance challenges that face the country as its opportunities for investment and growth emerge.

The exercise of corporate governance is normally associated with the structure and function of the board of directors and much of the discussion focuses on the composition of the board in regard to the role of non-executives, separate chairman and chief executives, and establishing board committees (remuneration, audit and nominating committees). A large body of empirical research has examined different board characteristics such as board size (Yermack, 1996), and the proportion of outsiders to insiders (Baysinger and Butler, 1985). Empirical research has also been carried out to analyse the conduct and processes of the board by exploring the dynamics of power, influences and the behaviour of board members and their relationship with management and mainly the CEO (Leblanc and Gillies, 2005). But not much has been investigated about the relationship between internal corporate governance and corporate valuation beyond the usual developed markets and with specific focus on emerging markets, not to talk about the UAE socio-economic environment in particular.

1.2 Importance of the Proposed Research

The study of corporate governance in UAE is important because this type of economy possibly has a number of unique governance features and issues not prevalent in more widely researched developed economies, like family-dominated ownership structures which may be associated with unique agency problems and firm valuation in the UAE. Family-run companies may also present challenges in terms of monitoring the transparency of operations in order to meet international standards of corporate governance (Jackling & Johl, 2009). The weak

investor protection inherent in many MENA countries offers an opportunity for firms to differentiate themselves from the rest and send strong and credible signals to attract investors by self adopting good corporate governance practices and policies, thus partially compensating investors for the weak legal environment in which these firms operate. Klapper and Love (2004) and Durnev and Kim (2005) show that corporate governance provisions matter more in countries with weak legal protection.

In summary the objectives of this research will be:

1. To investigate the relationship between internal corporate governance variables and corporate market valuation of UAE listed companies
2. To expand the understanding of corporate governance practices in UAE listed companies and specially the transparency and disclosure practices adopted by listed firms.

The specific research questions to be addressed here are:

1. What are the internal firm level governance variables that significantly influence firm valuation of listed companies in the UAE?
2. To what extent do boards' structure variables significantly influence firm valuation in UAE listed companies?
3. To what extent do variables for ownership structure influence firm valuation in the UAE?

2. Review of the Literature

2.1. Classifications of Corporate Governance Mechanisms

A significant amount of theoretical and empirical work has been undertaken in order to describe and classify corporate governance mechanisms (Jensen and Meckling 1976; Fama and Jensen, 1983, Jensen 1986, Jensen 1993). Denis and McConnell (2003) presented the dual classification of corporate governance mechanism as (1) internal governance mechanisms including boards of directors and ownership structure and (2) external ones including the takeover market and the legal regulatory system. Farinha (2003) describing the internal disciplining mechanisms as opposed to the external disciplining mechanism, indicates that it includes large and institutional shareholders, board of directors, insider ownership, compensation packages, debt policy, and dividend policy. Shleifer and Vishny (1997), calls the two complimentary disciplining mechanisms as market oriented and large shareholder - oriented systems.

Weimer and Page (1999) focusing largely on developed markets and Rwegasira (2000) focusing on emerging markets in Africa, in different types of analyses, reach a broadly similar classification distinguishing between "market-oriented" and

“network oriented” or “institutionally- based” systems of corporate governance.

The market –based disciplining mechanism is prevalent in developed markets particularly the USA and UK where shareholding is characteristically widely spread.

In contrast, shareholding is concentrated in developing financial markets and follows a hybrid system of corporate governance suggesting that the block holders play an important role in monitoring the activities of a firm in these financial markets. Pyramidal and cross-shareholding, illiquid capital markets and ineffective regulatory authority are also features of those markets (Franks and Mayers, 1997; Allen and Gale, 2001). The regulatory and judicial framework in a developing market is rather ineffective in playing any role in improving the value of a firm.

In summary there is a broad consensus that corporate governance mechanisms can be classified into two broad categories: 1) the internal or firm-level mechanisms which focus on the contribution to governance by, inter alia, large and institutional shareholders, board of directors, insider ownership, compensation packages, debt policy, and dividend policy, and 2) the external governance mechanisms which are driven largely by the discipline imposed by the financial markets via corporate take-over market and the regulatory framework. The focus in this paper is on the internal disciplining mechanism.

2.2. Relationship between Corporate Governance and Company Valuations

According to Black, Jang, and Kim (2003), companies with better corporate governance have better operating performance than companies with poor corporate governance. They used Standard and poor's corporate governance indicators ranking, which include the structure of the board of directors, the structure of ownership, and information transparency.

Javed & Iqbal (2007) investigated whether differences in quality of firm-level governance mattered to performance in a cross section of 50 companies listed on the Karachi Stock exchange. They analysed the relationship between firm level values as measured by Tobin's Q and the total Corporate Governance Index (CGI) which had three sub indices (board, shareholding and ownership, and disclosure and transparency). The results indicate that corporate governance does matter in Pakistan.

Bai, liu, Lu & Zhang (2004) constructed an index to reflect overall level of governance practices for China listed companies. The categories in their index include four internal governance mechanisms: board of directors, executive compensation, ownership structure & financial transparency. Their results indicate better corporate governance leads to higher firm value and Chinese investors are willing to pay premium for better corporate governance.

According to Lei & Song (2004) the major areas of internal corporate governance mechanisms are board structure, executive compensation, ownership structure, conflict of interest in executives, and financial transparency. Based on these five areas, he constructed general model representing overall corporate governance in Hong Kong and ranked the listed companies accordingly.

There is evidence that broad measures of firm-level corporate governance predict higher share prices in emerging markets. This evidence comes from both single country studies (Black, 2001 in Russia, Black, Jang & Kim, 2003 in South Korea, Gompers, Ishii and Metrick, 2003 in the U.S) and multi -country studies (Durnev & Kim, 2005; Klapper and Love, 2004)

Javed & Iqbal (2007) investigated whether differences in quality of firm level governance mattered to performance in a cross section of companies listed at Karachi Stock exchange. They analysed the relationship between firm level values as measured by Tobin's Q and the total Corporate Governance Index (CGI) which has three sub indices (board, shareholding and ownership, and disclosure and transparency) for a sample of 50 firms. The results indicate that such corporate governance does matter in Pakistan.

The list of other related studies which have sought to establish the relationship between corporate governance and the performance or valuation of the firm include Immik (2000) , Beiner, Drobetz, Schmid & Zimmermann(2004) in the case of Switzerland , (Bradley, 2004) , Mitton (2001) in a cross country study of the Asia-Pacific region , Banerjee et al. (2009) in India , Brown and Caylor (2004) who looked at 2327 U.S. firms, and found that better governed firms are also more profitable more valuable and pay higher dividends, Klapper and Love (2004) who find evidence that firm-level corporate governance provisions matter more in countries with weak legal environments, Black (2001) in Russia who demonstrates that corporate governance behavior has a powerful effect on market value in a country where legal and cultural constraints on corporate behavior are weak and Kravchenko & Yusupova (2005) analysis which shows that investors tend to pay less for companies with lower level of corporate governance in Russia.

2.3 Company valuation and its measurement

In economics or finance, the term value refers to the price for which a good or object can be exchanged (exchange value or market value) and is approximated by the discounted cash flow expected to be generated by the good or asset. Some of the important measures or indicators of value a firm in the existing literature include the following

1/ Tobin's Q

Tobin's Q is defined as the ratio of the market value of assets (equity and debt) to the replacement value of assets. Tobin's Q is widely used to value a firm in both developing and developed financial markets as exemplified by MacAvoy & Millstein (2003) and Sanda, Mikailu, & Garba (2005).

2/ Market to Book Value Ratio (MBVR)

Market to book value ratio is also used to value a firm in the financial market (see: Drobetz, Schillhofer, and Zimmermann 2002). This measure relates the market value of a firm to its book value. Higher market to book value ratio shows that a firm is in a position to generate more returns with respect to the capital invested, while a lower ratio suggests that the company is unhealthy and will not be able to create value for the shareholders by generating higher returns as suggested by Peirson, Brown, Easton (2000).

3/ Price Earnings (P/E) Ratio (PER)

PER is calculated by dividing the current market price of a share by the earnings per share. It is widely used to measure the value of a firm in developing and developed financial markets Sanda, Mikailu, and Garba (2005) Drobetz, Schillhofer, and Zimmermann (2002). And the price-earnings ratio (P/E ratio) can also be related to the theoretical valuation Discounted Dividends Model (DDM) of the firm which suggests that $P = d_1 / (k - g)$ as shown below (when either side of the equation is divided by E)

$$P/E = (d_1/E) / (k - g)$$

where

d_1 = dividend amount expected at the end of the current year and thus d_1/E is dividend payout ratio

E = Earnings per share (EPS)

k = required rate of return on this company share

P = current share market price or value

g = expected rate of growth of the firm dividends (p.a.)

The variable reflects how much investors in the market are prepared to pay for the current earnings of the firm and it can be taken as an indicator for a company's future earnings growth and value potential. It represents the market assessment of the investment and dividend policies of a firm as suggested by Morin and Jarrell (2001) and Copeland, Weston and Shastri (2005).

There is a substantial literature in support for the choice of the three measures used in this study viz. Tobin's Q, Price-Market Book Value Ratio, and Price-earnings Ratio. Bhagat and Jefferis, (1994), Gompers et al. (2003), Beiner and Schmid (2005), Morck, Shleifer & Vishny (1988) as well as Kravchenko &

Yusupova (2005) employ the above market based measures in their research on corporate governance and firm performance. Sanda, Mikailu, and Garba (2005) in their study of corporate governance mechanisms and firm performance of Nigerian companies used also alternative measures of firm performance: ROA, ROE, PE ratio & Tobin's Q.

Drobetz, Schillhofer, and Zimmermann (2002) in their study 63 German stock market companies and trying to relate governance ratings to fundamental valuation measures, used measures such as dividend yield, price-earnings ratio, and market to book ratios. And finally Abdo and Fisher (2007) in their study in South Africa used three measures for the firm value, namely the annual average share price returns, market to book ratio, and price earning ratios.

Despite several weakness in both financial and market based, more and more studies now rely on market based measures. For instance, Demsetz et al. (1985) used accounting measures, but Demsetz et al. (2001) shifted to market - based measures. Banerjee et al. (2009) believe higher reliance on market based measures is justifiable because market-based measures are less susceptible to accounting manipulation or variations and they reflect investor perceptions about the firm's future prospects. Price-Earning Ratio (P/E) is a forward looking measure. It shows the premium paid by the investors to own a share on the basis of anticipated cash flow of a company (Banerjee et al. (2009)).

In the study reported herein, we undertook to measure company valuation in different ways simultaneously to test the consistency of the research results.

2.4. Internal Corporate Governance Indicators Affecting Firm Valuation

In as much as according to Rashid (2008) corporate governance in general has a positive relationship with the value of a firm in developing and developed financial markets, this study focus specifically on the internal corporate governance. And adopting the Standard and Poor's (S&P) classification of internal corporate governance indicators we put these variables into three sub-categories: 1/ board and management structure and processes 2/ ownership structure and investor relations and

3/ financial transparency and information disclosure. Studies which have followed and used similar S&P corporate governance indicators include those of Black, Jang, and Kim (2003), and Javed & Iqbal (2007).

2.4.1 Board Structure Variables and Company Valuation

Board structure here focuses on the optimum size of the board, board composition, board meetings, the number of board committees that are needed, and the

board leadership structure. These are the board structural elements largely influenced by the roles the board chooses to play like it is well explained further by Carter and Lorsch (2003)

2.4.1.1 Board Size:

There are two hypotheses regarding the effect of board size on corporate performance. Jensen (1993) and Lipton and Lorsch (1992) suggest that large boards can be less effective than small boards, because director free riding increase and the board becomes more symbolic and less a part of the management process. In support of this position Yermack (1996) finds an inverse relationship between firm performance and board size for US firms.

The other hypothesis is that larger boards contribute to higher firm value, because they bring together specialists from various functional areas, and thus enhance their problem solving capabilities. (Haleblian and Finkelstein, 1993). A larger board has a wider range of expertise to make better decisions for a firm and it is harder for a CEO to dominate a bigger board because the collective strength of its members is higher and can resist the irrational decisions of a CEO (Pfeffer, 1972) and Zahra & Pearce, 1989). However larger boards being usually associated with higher agency costs which impact negatively the value of the firm and smaller boards usually being more efficient in decision making as highlighted by Yermack (1996), the likely relationship between corporate board size and corporate market value may as well be of an inverted V-shaped or as non-linear inverted U-shaped, we will however still simply hypothesize that

H1: The larger the size of the board the higher the positive impact on the company valuation.

2.4.1.2 Board Meetings

The bulk of board's work is carried out in meetings. Board meetings can therefore be used to measure the contribution by board members to ensure their full commitment and engagement in overseeing the running of the company business and monitoring management. Chidambaran, Palia & Zheng (2006) quote Vafeas (1999) and Adams, Almeida and Ferreira (2005) finding that firm value is increased when boards meet more often. Mace (1986) argues that firm performance is a function of so many different factors that it is difficult to imagine that the effect of occasional board meetings would be detectable especially in case studies.

But Charan (2005) suggests that holding more or longer meetings will not always improve board dynamics or add value, unless the board members prepare well for these meetings and the meetings themselves are well run.

Where does the UAE stand on the impact of the frequency of board meetings on corporate value?

Carter and Lorsch (2003) hold that currently, there are some signs of a global convergence on around eight meetings per year. In the sample used in this study, on average only two board meetings were held per year. This is representative of current practices in UAE. In contrast the corporate governance code proposes six meeting every year, which leaves the majority of listed companies well below the threshold of good governance with regard to meetings. So, we will test if the value of UAE listed companies' has increased when they scheduled more board meetings and proceed to hypothesize here that.

H2: The higher the number of actual board meetings the higher the company valuation

2.4.1.3 Board Composition (Non Executive Directors)

The composition of the board is an important factor for its effectiveness, because of the need to build and sustain the right team, according to Carter and Lorsch (2003). With respect to board composition, we will assess how the company valuation could be affected by the representation of non-executive directors.

Weisbach (1988) is one of the earliest studies to report an association between the presence of outside directors and firm performance calculated using accounting measures. A second set of studies by Morck et al. (1988), Hermalin and Wiesbach (1991), and Bhagat and Black (2000) using Tobin's q and accounting measures to calculate firm performance suggests that there is no significant relationship between the proportion of outside directors and firm valuation.

In this case it is hypothesized that company valuation rises with a higher percentage of non-executive directors on the board and thus

H3: The higher the percentage of non-executive directors on the board the higher the company valuation

2.4.2 Ownership Structure Variables and Company Valuation

2.4.2.1 Private Institutional Ownership

The primary focus here is on the impact of institutional ownership on firm valuation, as independent outside directors with their investor's wealth at stake. Institutional investor's representative on the board can have a positive impact through their ability to discipline management as well as monitor and influence corporate performance. (Shleifer & Vishny, 1986; Maug, 1998) Other shareholders can free ride on the large shareholder's activities, because they do not bear the costs of information gathering and other process. Results of empirical research on the impact of institutional ownership and monitoring on firm's financial and market valuation are however mixed. They include

McConnell and Servaes (1990) who find a positive relationship between firm performance as measured by Tobin's Q, and ownership by institutional investors and large block holders on the one hand and . Agrawal and Knoeber (1996) get a negative relationship.

Maug (1998) noted that whether institutions use their ability to influence corporate decisions is in part a function of the size of their shareholdings. If shareholding by institutional investors is high, shares are less marketable and are thus held for longer periods. In this case, there is greater incentive to monitor a firm's management. However, when institutional investors hold relatively few shares in a firm, they can easily liquidate their investments if the firm perform poorly, and there have less incentive to monitor. Several studies including those of Coffee (1991), and Maug (1998) conclude that institutional investors' goal of maintaining the liquidity of their holdings and their desire for short-term profit outweighs the benefits of monitoring management in the hope of promoting higher long-term profitability. In this study we seek to test out the hypothesis that

H4: The larger the percentage of private institutional ownership the higher the company valuation.

2.4.2.2. Ownership Concentration

Ownership concentration refers to the proportion of a firm's shares owned by a given number of the largest shareholders. A high concentration of shares tends to create more pressure on managers to behave in ways that are value- maximizing. In support of this argument, Schleifer & Vishny (1997) and Morck et al. (1988) suggest that an increase in concentration will be associated with an increase in firm value, but that beyond a certain level of concentration, the relationship might be negative.

Other studies such as Renneboog (2000) reported results not totally in agreement with the hypothesis of a positive relationship. Agrawal & Knoeber (1996) reported no evidence to support the positive relationship between firm performance and ownership concentration. Holderness & Shehan (1988) find little evidence that high ownership concentration directly affects performance,

The role of majority shareholders (concentrated shareholding) is important in affecting the value of a firm. The studies conducted by Pinkowitz, Stulz, and Wikliamson (2003) and the World Bank (2003) argue that large shareholders are mostly involved in tunnelling and suppressing the rights of minority shareholders. On the contrary, Shleifer and Vishny (1986) and Kaplan and Minton (1994) suggest that block holders play a constructive role in improving the value of a firm in developing markets as they inject the provisions of corporate governance into a firm making it more democratic.

Grossman and Hart (1982) maintain that majority shareholders also solve free rider problem. Free rider problems arise when some of the shareholders do not pay the monitoring cost and acquire benefits from the cost paid by others. Frank and Mayer (1997) support the same views and confirm that majority shareholders discipline the board by removing the underperforming directors and by preventing managers from over spending the free cash flow. These measures protect the rights of the shareholders and improve the value of a firm. Dispersed ownership is preferred in the US, UK, and Europe in order to deny any single shareholder or group privileged access to or excessive influence over decision making. There is a belief that in emerging markets concentrated ownership is preferred and thus it is hypothesized that

H5: A higher concentrated ownership is associated with a higher company valuation.

2.4.3 Transparency Practices and Company Valuation

While disclosure is required to keep the investing public informed, it is also a tool to ensure that management and the board keeps the best interest of all shareholders in mind. Weak non-transparent practices and weak disclosure standards can actually encourage fraudulent and unethical activities. The transparent and timely disclosure of financial policy (dividend and investment policy) is important for the value creation of shareholders. The management of a firm is responsible for spreading the information between majority and minority shareholders on an equal basis (Peirson et al., 2000; Full disclosure and transparency are vital components of the corporate governance framework (OECD, 1999) and are regarded as important good corporate governance ingredients. Recently, a significant number of studies have investigated the relationship between transparency practices employed by the board and changes in company performance and stock prices. The results reveal that corporate performance and especially company valuation is associated strongly with the standard of corporate communication and disclosure practices that are employed by the company, and that companies with better corporate governance have higher standards of disclosure and transparency (Black, Jang, and Kim, 2006; Botosan, 1997). Well-governed companies (those that have transparency of information, accountability for management and that operated efficiently) attract investors and ultimately facilitate the long term growth of the company.

Abdo and Fisher (2007) constructed a broad measure of corporate governance in South Africa .Their score is based largely on King II principles and the standard and Poor's international corporate governance index. Using three measures for the firm value (the annual average share price returns, market

to book ratio, and price earning ratios), they conclude that there is a positive relationship between the level of disclosure and corporate performance. Amidst the pervasive culture of secrecy about corporate governance practices and disclosure by firms in this region, we are therefore proceeding to test out the hypothesis that

H6: The higher the transparency in corporate governance practice the higher the company valuation.

2.4.4. Control Variables and Company Valuation

Given that internal corporate governance is not the sole determinant of economic performance and company valuation, we seek to identify the effects of other determinants and attempt to control for them. MacAvoy and Millstein (2003) used two variables, the economic performance of a firm's industry and the life-cycle position of the firm within that industry. Industry performance matters because some firms are in industries that experience substantial growth in demand, while others are in industries that are stagnant.

Ng (2003) in a related study on firm performance chose the control variables to include firm size, debt ratio, firm growth, director's remuneration, board size, board composition, dummy year, and dummy industry.

Wan and Ong (2005) include three control variables: board size, industry and company size. Also, dividend per share has been widely used in previous studies.

Shleifer and Vishny (1986) note that institutional investors prefer to own shares of firms making regular dividend payments, and argue that large institutional investors are more willing and able to monitor management than are smaller and more diffuse owners. As a result, corporate dividend policies can be tailored to attract institutional investors who in turn provide important monitoring services.

Debt ratio also has been employed by several studies including Larcker, Richardson & Tuna (2004); Bohren and Odegaard (2003) and Weir, Laing & McKnight (2002). It is argued that debt ratio has a mixed effect on firm performance. On one hand, a positive effect may stem from reducing the free cash flows, exposing the firm more to monitoring by the market (the interest tax savings is an additional source of the positive effect of the debt ratio, but is not applicable to UAE firms since there is no corporate income tax). In addition, the threat caused by failure to pay debts serves as an effective motivating force that makes firm more efficient (Bhandari and Weiss, 1996). On the other hand, a negative effect of debt on firm performance may be caused by either the bankruptcy cost or the debt agency cost (Ross et al. 2002). Garay and Gonzalez (2005) used three control variables in their Venezuela study: company size, return on assets and leverage measured as the quotient

between total debt and total assets. Javed and Iqbal (2007) in their study of Pakistan listed companies used control variables which included as company size, company age, and leverage which they defined as debt to total asset ratio. This study chose as control variables to be company size, dividend per share, industry, and financial leverage.

3. Corporate Governance in the UAE

What is the current state of the economic and corporate governance environment in the UAE?

3.1 The State of the Economy in the UAE

The UAE has an open economy with a higher per capita income and sizable annual trade surplus. Its wealth is based on oil and gas output, and the fortunes of the economy fluctuate with the prices of those commodities. Since the UAE discovered the oil 30 years ago, the country has undergone a profound transformation from an impoverished region of small desert principalities to a modern state with a high standard of living (the World Fact book, 2006).

The UAE corporate sector began to develop in the middle of the seventies, which witnessed the creation of many companies due to the rise in oil prices and the strong interest of the federal government to build a strong national economy. Most of the UAE companies are either sole proprietorship or partnership; a few are corporations. All companies operate under Federal Commercial Law No 8/1984 and its amendments, with the exception of a few companies which were established and operated under royal decrees.

Over the past ten years, the UAE corporate sector has grown rapidly due to the inception of the country's official stock market and the federal tendency toward privatizing some large infrastructure companies. The main regulatory bodies in the UAE corporate sector are the ministry of Economy, the Central Bank, and the Securities & Commodities Authority (SCA).

The UAE stock market was inaugurated in 2000 and is represented by two governmental security exchanges, Dubai and Abu Dhabi, under the supervision of the SCA. Compared to other stock markets in the region, the UAE stock market is relatively new and small one. However, from 2004 to today, it has enlarged, gained strength, and become more active in terms of the number of IPOs and the listed companies, market capitalization, and the range of market participants such as brokerage firms and investment funds.

3.2 The State of Corporate Governance in UAE

There has been a significant improvement in the standards of corporate governance in the Arab Gulf

region. However, there is still more room for improvement in this regard because corporate governance is still in its initial stages. Nevertheless, real progress is being made; the countries in the region have started to amend their current company laws and strengthen their mechanism for accountability to meet the demand for corporate governance. In the six Gulf States decision makers have started to take control of the situation and are more committed towards implementing standards that promote corporate governance. These steps have been taken to ensure sustainable growth and development, as well as to encourage investment and boost the confidence of international market investors in the Gulf region.

The UAE, like many other developing countries trying to merge with the global economy, has initiated the application of international standards of corporate governance. The turning point began with the introduction of a draft of corporate governance code in Abu Dhabi Stock Exchange in 2006 and the establishment of the *Hawkamah* Institute of Corporate Governance by the Dubai International Financial Centre (DIFC)

In March 2007, the Security and Commodities Authority (SCA) which is the main regulatory body of the two securities markets in the UAE issued a code of corporate governance for listed companies. This code was expected to be implemented with effect from 2010 and compliance with it will be compulsory. The new code is meant to improve the practices of corporate governance focusing mainly on independence board independence, the duties and structure of the board in term of size, composition, committees, meetings and leadership structure. There is a strong expectation that the company law and auditors' law would also contain articles on corporate governance, transparency, and accountability on financial date according to international standards for accountability. The study reported herein will test all the internal corporate governance practices including board attributes as of 2007 which have been implemented voluntarily by ADX listed companies prior to the compulsory enforcement of the code of corporate governance for listed companies which is due in 2010.

3.3 The State of Corporate Governance in Abu Dhabi Stock Exchange

Seeking to ensure that ADX listed companies represent the best practice reputation of the market, ADX issued in October 2006 its own Draft of Corporate Governance Code to be included in its Listing Rules those internationally accepted mandatory requirements which all companies must follow and which are not yet present or otherwise covered in the law. The Listing Rules are to ensure that the conduct of public joint stock companies on the Exchange meets the standards expected by

shareholders and investors of public listed company's internationally. To give Companies time to adopt the new requirements and incorporate them as necessary into their Articles of Association, the Listing Rules would be introduced over time in three stages.

In summary the corporate governance environment in the UAE can be said to be characterized by:

1/ prevalence of concentrated family ownership structure, where shares are controlled by block holders.

2/ boards dominated by non-independent directors.

3/ lack of significant international institutional investor's base: the lack of international investors has limited the degree and pace of change in corporate governance as regulators and issuers have not been exposed to the demands of international investors.

4/ high degree of liquidity in the region and demands for IPOs, a situation which has not helped in developing a sound framework for corporate governance

5/ non- prevalence of pension plans in the region: more prominence of pension plans as major investors would contribute positively to corporate governance.

6/ general compliance with good practice and regulations of financial disclosures

7/ weak non-financial disclosure by UAE listed companies, in particular with respect to corporate governance related information ; with firms tending to be relatively secretive in their governance practices.

8/ the majority of boards having on average eight members.

9/ the positions of board chairman and CEO being distinct and separated in almost all companies

10/ the majority of companies having Audit committees, but, their structure, composition and activity needing to be strengthened and aligned with corporate governance requirements;

11/ other board committees such as nomination and remuneration committees being less prevalent

4. Research Methodology & Design

4.1 The Model

This research is done in the quantitative paradigm .It is deductive in nature where a conceptual and theoretical framework is developed and then hypotheses are logically drawn and tested by applying regression analysis on numerical cross sectional data about board characteristics, shareholders characteristics, and other company characteristics such as company performance.

On the basis of the previous studies mentioned in section 2.4, we can classify the internal corporate governance factors that determine the dependent variable (company valuation) into four general categories:

A. Board Structure being characterized here in terms of Board Size, Board Meetings, Board Composition ((Non-) Executive Directors)

B. Ownership Structure factors here including Private Institutional Ownership, and Major Shareholders (Ownership Concentration / dispersion) and

C. Transparency Practices.

D. Control Variables taken into account here include: Company size, Industry, Dividend per share and financial leverage.

4.2 Measurement of Variables

1/ Company Valuation (Dependent Variable):

The following variables would be used as proxy of company valuation

A/ Tobin q

B/ Price / Earning Ratio

C/ Market /Book value per share Ratio

A/ Tobin's Q

In line with the studies of MacAvoy and Millstein (2003), and Sanda, Mikailu, and Garba (2005) Tobin Q was used as one of the measures of company valuation in this study. Tobin Q was measured by computing the market value (MV) of debt and equity divided by book value (BV) of total assets on the balance sheet, i.e. $MV (Equity + LTD) / BV (TFA + NWC)$. Here LTD is long term debt, TFA is total fixed assets and NWC is net working capital i.e. current assets minus current liabilities.

B/ Price / Earning Ratio (PER)

In line with the studies of Drobetz, Schillhofer, and Zimmermann (2002), and Sanda, Mikailu, and Garba (2005) price earnings ratio was used as one of the measures of company valuation in this study. Price earnings ratio was measured by dividing the share market price by the earning per share.

C/ Market Book value Ratio (MBVR)

In line with the studies of Drobetz, Schillhofer, and Zimmermann (2002) market book value ratio was used as one of the measures of company valuation in this study. This variable was measured by dividing its market price by the book value per share.

2/ board size, was measured by the number of board members.

3/ number of outside directors, was measured by the percentage of Non Executive Directors

4/ Major Shareholders was the proxy for ownership concentration, measured by the number of shareholders who owns 5% and more of the total outstanding shares of the concerned company (Major shareholders are defined by UAE Security and

Commodity Authority by the shareholders who own 5% or more of the company listed shares)

5/ Private institutional ownership, was measured by the percentage of their shareholding.

6/ Board Meetings were measured by the actual number of board meetings during the year.

7/ Company Size (control variable), was measured by taking the natural logarithm of the net sales value

8/ Dividend per share (control variable), was measured by the total amount of dividend paid divided by the number of outstanding shares.

9/ Industry (control variable), was used as a dummy variable given number from 1 – 9 as per the concerned industry Weighted Average Accounting Return (WAAR) which reflects the overall financial performance in term of weighted average of return on equity, return on assets and return on sales. Dummy number (9) will be given to the industry with the highest WAAR, and Dummy number (1) will be given to the industry with the lowest WAAR.

10/ Financial leverage (control variable) was measured by the Total liabilities / Total assets ratio.

4.3 Research Sample and Data

The empirical study was carried out using publicly listed companies in Abu Dhabi Securities Exchange (ADX) as the sample frame. Established in November 2000, ADX is the official stock exchange of Abu Dhabi, the federal capital of the United Arab Emirates (UAE). ADX serves the domestic cash equity market, has 64 listed companies and a market capitalisation of AED 258 billion (USD 70 billion) as at 31 December 2008. Private companies were not used as it is often difficult to obtain data about these companies. Information from listed firms is also more accurate, since they have to be certified. The whole population of 64 ADX incorporated companies will be targeted for the study. ALL the 64 listed companies in Abu Dhabi Securities Exchange (ADX) were included, and only companies with missing data were dropped. The data mainly were secondary data about board structure which are generally available from UAE security and commodities authority (SCA), the regulatory body for public companies in UAE as well as from both Abu Dhabi Securities Exchange publications and websites.

5. Data Collection & Regression Results

5.1 Data Preparation

Appendix 10 presents the preparation steps we followed in ranking the nine industries of Abu Dhabi Securities Exchange (ADX), all the industries have been ranked as per their financial performance, which is calculated as the weighed average of return on sales, return on assets, and return on equity and this variable called weighted average accounting return

(WAAR). We used WAAR as opposed to the other three variables to have an objective and unbiased measure of the overall financial performance of the concerned industry. Accordingly, companies in the real estate industry which have the highest WAAR have been given dummy value 9 and companies in the Energy industry which have the lowest WAAR have been given dummy value 1.

Appendix 11 present the preparation steps we followed in re calculating or adjusting the published data for institutional ownership, the reason for adjusting the data is due to the researcher disagreement with the criteria used by the published data of ADX for breaking down institutional ownership into private ownership and government ownership, in the published data they classified all shares owned by the sovereign wealth fund of Abu Dhabi Investment Authority (ADIA) as government ownership. In our opinion ADIA shareholding should be reclassified as private ownership as it has more resemblance with them than with UAE government agencies in term of having a very professional investment team which manage all of it's portfolios in term of equity, fixed income, and property investment. It worth mentioning here that ADIA is the world biggest sovereign wealth fund (SWF) estimated at 1.3 trillion dollar. We subtracted ADIA ownership percentage from government ownership and added to private institutional ownership.

In Appendix 12 we calculated the score for transparency practices (TP) by calculating the average of the corporate communication score and disclosure score together, both of them are published by The Institutional Investor (TNI) in their report Back to BASICS. The following preparatory steps have been followed: corporate communication score was a weighted average of 9 measures and disclosure score was a weighted average of 25 measures. So, the published figure for corporate communication was multiplied by 9 and the published figure for disclosure was multiplied by 25 and we added the result of two variable and we divide it by 34 to reach the final figure for measuring the score for transparency practices. The descriptive statistics for the independent and dependent variables are calculated to

ascertain the general characteristics of the firms in UAE and presented in appendix 1.

5.3 Regression Results Presentation

The results of the multiple regression analyses are presented in appendices 2 – 9:

Appendix 2 shows that the correlation between each of the independent variables is not so high. The highest correlation (0.439) was found between transparency practices (TP) and company size (CS), which is quite satisfactory.

Appendix 3 reveals that the coefficient of determination (R^2) is equal to 37.7 percent and the adjusted R^2 is equal to 24.1 percent which is a quite acceptable result. The table also shows that the model reaches statistical significance where the F test statistic equal 2.782 with 10 and 46 degrees of freedom with a p-value < .01.

Appendix 4 presents the tolerance values, which are all above 0.10. These results verify that no significant collinearity exists between the independent variables (Hair et al., 2005). In addition, all the VIF values of the independent variables are less than 10, which suggest that there is no collinearity ((Hair et al., 2005). Moreover, Table 5.4.3 presents the beta coefficients for the independent variables. The largest t statistics are -2.805 (p-value < 0.05) for industry (IND), 1.973 (p-value < 0.01) for transparency practices (TP), 1.863 (p-value < 0.01) for private institutional ownership (PIO), -1.86 (p-value < 0.01) for company size (CS) and 1.733 (p-value < 0.01) for number of board meetings (MEET). This indicates the variables have a comparable degree of importance in the model. In other words, they make the strongest unique contribution to explaining company valuation as measured by price earning ratio.

In short, these results confirm that there is enough evidence to support the proposition that internal corporate governance mechanisms have a significant impact on company valuation measured by Price Earning Ratio (PER) , in this Middle Eastern socio-economic environment.

The rest of the results of the tests of the drawn up hypotheses are presented in Appendices 4-9.

6. Conclusion

Table 6.1. Hypotheses Testing Results Summary

Hypotheses	Testing Outcome
H1: The bigger the Board size the higher the company valuation (Discussed in section 2.4.1)	Rejected
H2: The higher the number of actual board meetings the higher the company valuation (discussed in section 2.4.1.4)	Accepted
H3: The higher the percentage of non-executive directors the higher the company valuation (discussed in section 2.4.1.5)	Rejected
H4: The larger the percentage of private institutional ownership the higher the company valuation (discussed in section 2.4.2.1)	Accepted

H5: The higher the number of Major Shareholders who owns more than 5% of the company share the higher the company valuation (discussed in section 2.4.2.2)	Rejected
H6: the higher the transparency and disclosure in corporate governance practice the higher the company valuation (discussed in section 2.4.3)	Accepted

Table 6.2 is the summary of the research findings and the way they compare and contrast with other studies in the literature.

Table 6.2. Research Findings Summary

#	Research Question	Research – based Answer	Comments
1	What are the internal firm level governance variables that significantly influence firm valuation of listed companies in the UAE?	1. Transparency practices 2. Private institutional ownership, and 3. Board meetings frequency	Transparency practices result is consistent with Abdo & Fisher (2007) in South Africa but contrary to Attiya & Robina (2007) findings in Pakistan.
2	To what extent do boards' structure variables significantly influence firm valuation in UAE listed companies	Board meetings are significantly and positively associated with company valuation in the case of the UAE, whereas, board size and composition were not	Consistent with Adams & Ferreira (2005) in USA, but contrary to Vafeas (1999)
3	To what extent do variables for ownership structure influence firm valuation in the UAE	Type of shareholder whether individual, government, or private institutional investors is a significantly associated with company valuation in the UAE	Consistent with McConnell & Servaes (1990) in USA, and Lei & Song (2000) in Hong Kong

The research reported herein is the first integrated model to link the company valuation with the internal corporate governance indicators including board structure variables, ownership structure variables, and transparency practices in the ADX as one of the emerging markets in the Middle East. The study makes a number of improvements over the achievements of previous related studies.

It incorporates in its analysis two board processes variables (meetings frequency and the score for transparency practices) to go beyond the more traditional structural board attributes commonly used in similar studies. It has confirmed the significance of the use of P/E ratio as a company valuation measure in this emerging market in the Middle East. Finally the study tests one of the major ownership structure variables in the region, namely the sovereign wealth funds ownership in listed companies and its ultimate effect on the company valuation, where the empirical results indicated their positive impact on company valuation through their massive role in corporate governance implementation and efficient corporate control.

The results of the study showed that for ADX listed companies there is no significant relationship between internal corporate governance indicators and company valuation as measured by well-known company valuation measures such as Tobin's Q and Market – Book Value Ratio. However a significant

relationship emerges when company valuation is measured by PER.

Three of the internal governance variables used in the model (private institutional investors ownership, transparency practices, and number of board meetings) appeared to have significant impact on firm valuation in the UAE socio-economic environment. In addition, the two of the three control variables that were used (company size and industry) showed a strong relationship with company valuation. On the other hand three other governance variables, namely board size, number of non-executive directors, and ownership concentration (as measured by the number of major shareholders owning 5% and above the company shares) were found to have no significant effect on firm valuation which could be attributed to the large similarity among UAE listed companies with respect to those internal governance variables.

Our results suggest that the transparency practices implemented and board activity in term of number of board meetings play a more important role than board size and The UAE Corporate Governance Code for Listed Companies which will be in effect from 2010 states in Article 3.6 'Meetings of the Board of Directors shall be held at least once every two months upon a written convocation of the Chairman of the Board of Directors, or upon a written request submitted by at least two thirds of the Directors. The Convocation of the meeting shall be given, together

with the agenda, at least one week before the meeting is held. A director has the right to add any matter that he may deem necessary, for discussion in the meeting'. So, if the performance and value of UAE listed companies' is to improve they must schedule more board meetings with well-structured, smart agenda that enclose important topics. In the sample that was studied, only two board meetings were held, on average per year. This is representative of current practices in UAE. In contrast the corporate governance code proposes six meeting every year, which leaves listed companies well below the threshold of good governance with regard to meetings. However, the good news is that this gap could be compensated for by directors focusing more on ensuring that the time spent during meetings is quality time, so that they can be more productive and effective.

Given the size of their shareholding, the power of the institutional investors cannot be underestimated. In the sample used in the study the average ownership for institutional investors is 50% of the total shareholding 35% for private institutional investors and 15% for government agencies). The institutional investors' capacity to exert significant influence on companies has clear implications for corporate governance and consequently company valuation. The results of the study confirmed this suggestion: private institutional investor's ownership was confirmed to have a significant positive relationship with company valuation. Regulators favours the presence of institutional investors especially private ones because of their ability to use their power as owners to ensure that the companies in which they invest comply with standards of corporate governance and can enforce all the regulator codes. Given the constructive effect that private institutional investors have on company market valuation, they need to be attracted to invest.

Another interesting result of the study is related to confirming the positive role played by sovereign wealth funds such as ADIA in inducing best-practices corporate governance and playing a leading role in influencing company valuation. This result confirms that SWF motives for investment is for financial and economical return rather than for political reasons as some opponent of SWF argue. For the UAE to increase the presence of SWF, the UAE needs to make them a magnet for more local and foreign investors by establishing an attractive investment environment by creating the relevant economic, regulatory and enforcement institutions that are capable of drafting best-practices codes and standards.

This study, in short, has managed to:

1/ establish the relevance of transparency and disclosure practices, private institutional ownership and actual board meetings frequency in corporate valuation in the UAE socio-economic environment.

2/ reconfirm that the degree to which transparency practices are relevant to corporate

valuation is likely to differ from one socio-economic environment to another.

3/ highlight the role of corporate governance in effective utilisation of assets to improve the value of a firm.

Therefore, the results of the study support the argument that the differences in economic, social, organisational and institutional structures and systems influence the process by which the value of the firm is affected by governance variables in developing and developed financial markets, and are very useful in explaining the differences in the relationship between corporate governance and the value of the firm in different markets.

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Appendices

Appendix 1. Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
PER	0.61	2.06	1.0949	.27983	57
MEET	0	11	2.0351	1.88949	57
PIS	0.091	0.778	.3682	.18281	57
IND	1	9	5.6842	2.31577	57
TP	1.55	6.17	4.0147	.80558	57
CS	3.02	6.92	5.6207	.70141	57
BS	3	15	7.7193	2.02444	57
OC	1	8	1.6491	.91595	57
FL	.04	11.43	4.824	.29625	57
DPS	0	5	.2520	.66833	57
NEDP	.80	1.00	.9724	.05539	57

Appendix 2. Correlations

		PER	MEET	PIS	TP	CS	IND	NEDP	OC	DPS	FL	BS
Pearson Correlation	PER	1.000	.254	.346	.252	-.128	-.321	-.013	-.163	-.130	.066	.130
	MEET	.254	1.000	.262	.132	.187	.084	-.053	-.013	.009	.271	.199
	PI0	.346	.262	1.000	.371	.075	.137	-.070	-.136	-.020	.173	.227
	TP	.252	.132	.371	1.000	.439	.095	-.279	-.248	-.126	.351	.165
	CS	-.128	.187	.075	.439	1.000	.242	.034	-.158	.105	.299	-.150
	IND	-.321	.084	.137	.095	.242	1.000	.099	.258	.207	.235	.099
	NEDP	-.013	-.053	-.070	-.279	.034	.099	1.000	-.055	-.009	-.397	.025
	OC	-.163	-.013	-.136	-.248	-.158	.258	-.055	1.000	.051	.157	-.083
	DPS	-.130	.009	-.020	-.126	.105	.207	-.009	.051	1.000	.042	-.040
	FL	.066	.271	.173	.351	.299	.235	-.397	.157	.042	1.000	.069
	BS	.130	.199	.227	.165	-.150	.099	.025	-.083	-.040	.069	1.000
	Sig. (1-tailed)	PER	.	.028	.004	.029	.171	.007	.462	.113	.168	.313
MEET		.028	.	.025	.165	.081	.267	.347	.461	.475	.021	.069
PI0		.004	.025	.	.002	.289	.156	.303	.156	.441	.099	.045
TP		.029	.165	.002	.	.000	.242	.018	.031	.176	.004	.110
CS		.171	.081	.289	.000	.	.035	.401	.120	.218	.012	.133
IND		.007	.267	.156	.242	.035	.	.232	.026	.061	.039	.232
NEDP		.462	.347	.303	.018	.401	.232	.	.343	.472	.001	.428
OC		.113	.461	.156	.031	.120	.026	.343	.	.353	.122	.270
DPS		.168	.475	.441	.176	.218	.061	.472	.353	.	.379	.383
FL		.313	.021	.099	.004	.012	.039	.001	.122	.379	.	.306
BS		.168	.069	.045	.110	.133	.232	.428	.270	.383	.306	.
N		PER	57	57	57	57	57	57	57	57	57	57
	MEET	57	57	57	57	57	57	57	57	57	57	57
	PI0	57	57	57	57	57	57	57	57	57	57	57
	TP	57	57	57	57	57	57	57	57	57	57	57
	CS	57	57	57	57	57	57	57	57	57	57	57
	IND	57	57	57	57	57	57	57	57	57	57	57
	NEDP	57	57	57	57	57	57	57	57	57	57	57
	OC	57	57	57	57	57	57	57	57	57	57	57
	DPS	57	57	57	57	57	57	57	57	57	57	57
	FL	57	57	57	57	57	57	57	57	57	57	57
	BS	57	57	57	57	57	57	57	57	57	57	57

Appendix 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.614 ^a	.377	.241	.24373	.377	2.782	10	46	.009	1.987

Appendix 4. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.384	.739		.519	.606	-1.104	1.872					
	MEET	.033	.019	.222	1.733	.090	-.005	.071	.254	.248	.202	.826	1.210
	PIO	.379	.203	.247	1.863	.069	-.031	.788	.346	.265	.217	.768	1.301
	TP	.110	.056	.316	1.973	.054	-.002	.221	.252	.279	.230	.529	1.889
	CS	-.113	.061	-.282	-1.860	.069	-.234	.009	-.128	-.265	-.217	.589	1.699
	IND	-.046	.016	-.378	-2.805	.007	-.078	-.013	-.321	-.382	-.326	.748	1.338
	NEDP	.979	.695	.194	1.409	.166	-.420	2.379	-.013	.203	.164	.716	1.398
	OC	-.002	.041	-.005	-.039	.969	-.083	.080	-.163	-.006	-.005	.770	1.299
	DPS	.007	.051	.017	.140	.890	-.096	.110	-.130	.021	.016	.906	1.104
	FL	.099	.139	.105	.715	.478	-.180	.378	.066	.105	.083	.628	1.592
	BS	-.005	.018	-.040	-.307	.760	-.041	.030	.130	-.045	-.036	.817	1.225

Appendix 5. Annova

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	1.653	10	.165	2.782	.009
	Residual	2.733	46	.059		
	Total	4.385	56			

Appendix 6. Coefficient Correlations

Model	BS	NEDP	DPS	OC	MEET	CS	PIS	INDU	FL	TP	
Correlations	BS	1.000	-.120	-.007	.102	-.194	.320	-.074	-.132	-.054	-.203
	NEDP	-.120	1.000	.103	.058	.000	-.248	-.046	-.180	.380	.287
	DPS	-.007	.103	1.000	.042	.020	-.141	-.027	-.192	.002	.210
	OC	.102	.058	.042	1.000	-.012	.175	.100	-.308	-.203	.198
	MEET	-.194	.000	.020	-.012	1.000	-.184	-.220	.053	-.190	.122
	CS	.320	-.248	-.141	.175	-.184	1.000	.159	-.199	-.209	-.442
	PIO	-.074	-.046	-.027	.100	-.220	.159	1.000	-.125	-.033	-.313
	IND	-.132	-.180	-.192	-.308	.053	-.199	-.125	1.000	-.147	-.024
	FL	-.054	.380	.002	-.203	-.190	-.209	-.033	-.147	1.000	-.137
	TP	-.203	.287	.210	.198	.122	-.442	-.313	-.024	-.137	1.000
Covariances	BS	.000	-.001	-6.289E-6	7.390E-5	-6.553E-5	.000	.000	-3.823E-5	.000	.000
	NEDP	-.001	.483	.004	.002	-8.407E-6	-.010	-.006	-.002	.037	.011

DPS	-6.289E-6	.004	.003	8.721E-5	1.969E-5	.000	.000	.000	1.522E-5	.001
OC	7.390E-5	.002	8.721E-5	.002	-8.893E-6	.000	.001	.000	-.001	.000
MEET	-6.553E-5	-8.407E-6	1.969E-5	-8.893E-6	.000	.000	.000	1.622E-5	.000	.000
CS	.000	-.010	.000	.000	.000	.004	.002	.000	-.002	-.001
PIO	.000	-.006	.000	.001	.000	.002	.041	.000	.000	-.004
IND	-3.823E-5	-.002	.000	.000	1.622E-5	.000	.000	.000	.000	-2.157E-5
FL	.000	.037	1.522E-5	-.001	.000	-.002	.000	.000	.019	-.001
TP	.000	.011	.001	.000	.000	-.001	-.004	-2.157E-5	-.001	.003

Appendix 7. Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions										
				(Constant)	MEET	PIO	TP	CS	IND	NEDP	OC	DPS	FL	BS
1	1	8.944	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	.865	3.216	.00	.00	.00	.00	.00	.00	.00	.00	.89	.00	.00
	3	.423	4.599	.00	.72	.00	.00	.00	.01	.00	.04	.01	.01	.00
	4	.253	5.946	.00	.04	.12	.00	.00	.00	.00	.34	.01	.11	.01
	5	.207	6.573	.00	.16	.01	.00	.00	.00	.00	.12	.00	.58	.00
	6	.130	8.295	.00	.02	.74	.00	.00	.00	.00	.18	.00	.01	.01
	7	.100	9.474	.00	.00	.02	.00	.00	.90	.00	.11	.05	.01	.01
	8	.052	13.074	.00	.02	.01	.02	.02	.00	.00	.00	.00	.02	.76
	9	.020	21.373	.01	.01	.07	.71	.01	.00	.02	.12	.02	.14	.01
	10	.006	38.366	.04	.04	.03	.16	.96	.04	.05	.06	.02	.04	.20
	11	.001	90.341	.95	.00	.00	.10	.00	.04	.93	.03	.01	.10	.00

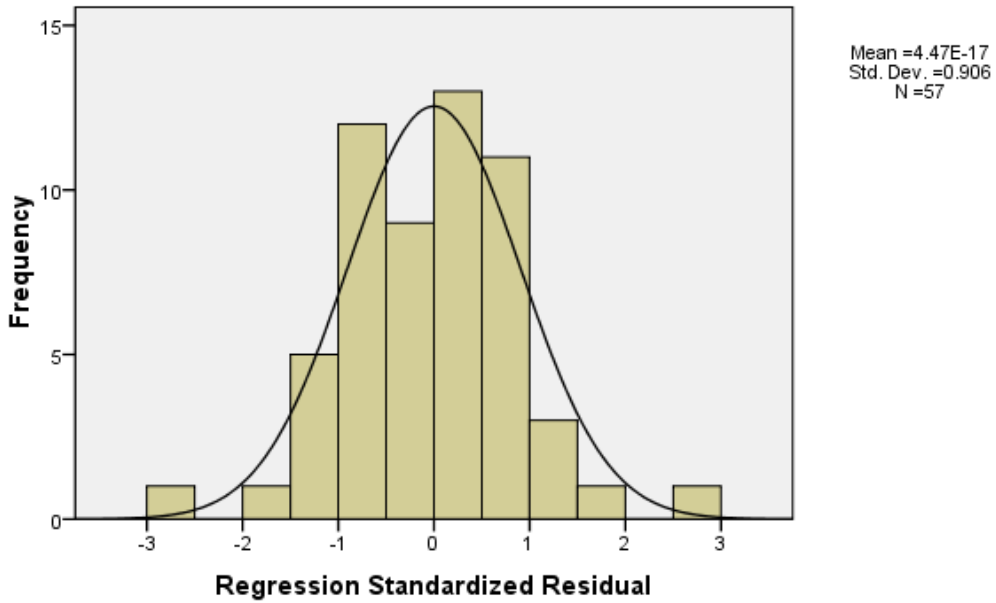
a. Dependent Variable: LPER

Appendix 8. Residual Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.6547	1.7290	1.0949	.17179	57
Std. Predicted Value	-2.562	3.691	.000	1.000	57
Standard Error of Predicted Value	.056	.236	.102	.032	57
Adjusted Predicted Value	-.3248	1.7029	1.0737	.25597	57
Residual	-.63670	.67317	.00000	.22090	57
Std. Residual	-2.612	2.762	.000	.906	57
Stud. Residual	-3.343	2.925	.016	1.039	57
Deleted Residual	-1.04289	1.25482	.02118	.33426	57
Stud. Deleted Residual	-3.801	3.206	.014	1.087	57
Mahal. Distance	1.943	51.741	9.825	8.160	57
Cook's Distance	.000	2.269	.072	.315	57
Centered Leverage Value	.035	.924	.175	.146	57

Appendix 9. Histogram

Dependent Variable: LPER



Appendix 10. Industry Ranking Table

Industry	Return on Sales (ROS)	Return on Assets (ROA)	Return on Equity (ROE)	Weighted Average Accounting Return (WAAR)	Industry Ranking
Banking & Financial Services	43.11	4.81	21.95	23.29	7
Construction	36.23	12.52	16.49	21.75	5
Consumer	35.45	9.81	11.94	19.07	3
Energy	11.52	2.33	10.05	7.97	1
Health	31.03	14.86	22.19	22.69	6
Industrial	34.97	5.29	11.70	17.32	2
Insurance	44.26	14.21	19.79	26.09	8
Real Estate	70.20	13.57	23.45	35.74	9
Telecommunication	27.72	10.78	23.09	20.53	4

Appendix 11. Calculation of Private Institutional Investors Ownership

#	Company Symbol	Original Institution Ownership %	Original Govt. Ownership %	Original Private Ownership %	Abu Dhabi Investment Authority (ADIA) Ownership %	Adjusted Govt Ownership %	Adjusted Private Ownership %	Institution Ownership %
2	NBAD	0.78	0.73	0.05	0.73	0.00	0.78	0.78
3	ADCB	0.78	0.65	0.13	0.65	0.00	0.78	0.78
6	UNB	0.73	0.60	0.13	0.10	0.50	0.23	0.73
15	UCC	0.65	0.61	0.04	0.20	0.41	0.24	0.65
20	FCI	0.35	0.35		0.20	0.15	0.20	0.35
27	ASMAK	0.38	0.08	0.30	0.05	0.03	0.35	0.38
37	ALAIN	0.29	0.20	0.09	0.20	0.00	0.28	0.29
38	EIC	0.47	0.12	0.35	0.12	0.00	0.47	0.47
40	ADNIC	0.36	0.24	0.12	0.24	0.00	0.36	0.36
53	ADAVIATION	0.41	0.30	0.10	0.30	0.00	0.40	0.41
54	ADNH	0.32	0.18	0.14	0.18	0.00	0.32	0.32

Appendix 12. Calculation of Corporate Communication & Disclosure

#	Symbol	Corporate Communication	Disclosure	Corporate Communication
1	ADIB	6.67	4.62	5.16
2	NBAD	6.44	3.72	4.44
3	ADCB	6.67	3.85	4.60
4	CBI	7.33	3.38	4.43
5	FGB	6.67	4.62	5.16
6	UNB	6.44	4.23	4.82
7	BOS	7.56	5	5.68
8	SIB	6.22	3.68	4.35
9	UAB	4.22	3.85	3.95
10	INVESTB	3.11	3.8	3.62
11	NBQ	7.56	3.85	4.83
12	RAKBANK	6.00	4.19	4.67
13	NBF	6.22	3.42	4.16
14	GCEM	6.22	3.46	4.19
15	UCC	2.00	3.12	2.82
16	RAKWCT	4.89	3.59	3.93
17	RAKCEC	3.78	3.46	3.54
18	RAKCC	7.11	3.16	4.21
19	QCEM	4.00	3.21	3.42
20	FCI	4.00	3.38	3.54
21	SCIDC	6.00	3.29	4.01
22	BILDCO	5.33	3.16	3.73
23	ARKAN	5.33	3.76	4.18
24	FBICO	2.67	3.38	3.19
25	FOODCO	5.33	2.99	3.61
26	RAPCO	4.78	3.21	3.63
27	ASMAK	4.89	3.68	4.00
28	AGTHIA	7.11	3.85	4.71
29	TAQA	8.89	3.46	4.90
30	AABAR	4.89	4.23	4.40
31	DANA	6.00	3.46	4.13
32	ADSB	6.44	3.08	3.97
33	JULPHAR	5.11	3.21	3.71
34	AKIC	5.11	4.06	4.34
35	DHAFRA	4.00	4.1	4.07
36	AWNIC	3.33	4.06	3.87
37	ALAIN	5.11	1.67	2.58
38	EIC	6.67	4.23	4.88
39	UIC	5.33	2.78	3.46
40	ADNIC	6.22	4.23	4.76
41	UNION	3.33	2.82	2.96
42	ABNIC	3.33	2.95	3.05
43	TKFL	6.22	3.59	4.29
44	RAKNIC	2.00	3.29	2.95
45	SICO	5.11	2.82	3.43
46	FH	6.22	4.23	4.76
47	OILC	3.33	3.68	3.59
48	ALDAR	6.22	6.15	6.17
49	SOROUH	6.00	4.62	4.99
50	DRIVE	4.89	2.56	3.18
51	NMDC	1.78	3.38	2.96
52	ADAVIATION	5.11	3.46	3.90
53	ADNH	6.22	4.23	4.76
54	NCTH	6.67	3.16	4.09
55	GMPC	4.22	2.82	3.19
56	FTC	3.11	3.46	3.37
57	AFNIC	1.56	1.54	1.55

SPONSORED ANALYST COVERAGE, INFORMATION ASYMMETRY AND STOCK TURNOVER

Yee-Boon Foo *

Abstract

This study draws on Merton's investor recognition hypothesis to investigate whether (1) the sponsored analyst coverage scheme introduced by the Bursa Malaysia in April 2005 is associated with stock turnover, and (2) the relationship is stronger for firms with high information asymmetry. The results show that stock turnover is positively associated with the frequency of coverage and the association is stronger for firms with higher information asymmetry. In addition, it is found that during the initial stage of the scheme where the stock market was experiencing a downturn, analyst coverage has a significant constraining effect on the reduction in stock turnover.

Keywords: Sponsored Analyst Coverage; Stock Turnover; Board Independence; Information Asymmetry; Malaysia

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1. Introduction

This study examines whether there is an association between the sponsored analyst research scheme adopted by Bursa Malaysia and stock turnover. In this scheme, analyst research reports are available to investors free of charge through the stock exchange's websites. The unique feature of the research scheme is that companies are assigned to analyst research firms rather than the analyst research firms choosing the companies to follow. In addition, given the centrality of information asymmetry theory in the determination of liquidity, we also evaluate whether information asymmetry moderates the relationship between analyst coverage and stock turnover; we expect the linkage between the analyst research scheme and stock turnover to be stronger (weaker) for firms with high (low) information asymmetry.

We are motivated to examine these issues for four reasons. First, it is generally recognised that stock liquidity plays a critical role in economic development, especially for an emerging economy. Levine (1991) derives a growth model where more liquid stock markets improve the incentives to investing in long-duration projects because investors can easily sell their stake in the project if they need their savings before the project matures. Thus, enhanced liquidity facilitates investments in the long run, higher-return projects and is likely to boost productivity economic growth. Levine and Zervos (1998) provide empirical evidence to support this linkage. Stock liquidity is also important for stock exchanges, listed firms and investors. From the

perspective of stock exchanges, liquidity is an argument often used to attract companies to cross-list (Pagano et al., 2001) and is a key variable in the competition with other exchanges for order flow (Parlour and Seppi, 2003). At the individual firm level, stock liquidity is an important determinant of the company's cost of capital (Amihud and Mendelson, 1986). From the investors' point of view, stock liquidity determines their cost of trading and future returns (Bekaert et al., 2007). Thus, an understanding of the links between sponsored analyst coverage and stock liquidity would be of interest to both practitioners and scholars alike. Second, despite the fact that many exchanges have launched these analyst research schemes, little is known whether these schemes achieve the goal of increasing stock liquidity¹. Prior studies have focused on firms self-selected by analysts and there is no or little evidence from firms that participate in the exchange analyst program. Third, prior studies on the link between analyst following and liquidity have yielded mixed results. For example, while Brennan and Subrahmanyam (1995) show a positive link between analyst following and liquidity, Chung et al. (1995) show a negative link. The difference in these results may be explained in terms of the different role played by analyst. Brennan and Subrahmanyam (1995) view

¹ Mak and Sequeira (2007) report some evidence on the impact of stock initiation by a research firm in Malaysia. He et al. (2010) evaluate the effectiveness of the Research Incentive Scheme pioneered by the Singapore Stock Exchange.

analysts as proxy for privately informed traders. Thus, they argue that the positive relation between analyst following and liquidity is due to increased competition among informed traders which subsequently reduced the adverse-selection component of the spread. In contrast, Chung et al. (1995) argue that analysts would follow a stock with a greater extent of information asymmetry as the value of private information increases with information asymmetry. Therefore, analyst following is viewed as a signal of the higher level of information asymmetry which results in a negative relationship between analyst following and stock liquidity. Recently, Roulstone (2003) provides evidence of a positive association and argue that the increase in liquidity is due to the increase in public information provided by analyst which reduces information asymmetry. This study by investigating this issue sheds some light on this controversy. Finally, most research on analyst coverage² has been conducted in developed markets, namely the U.S. and the European market. Little or no evidence is available on the links between analyst coverage and stock liquidity in relatively less developed markets such as Malaysia which is also an order-driven market³ environment.

In this study, we focus on stock turnover as our dependent variable since it has been the focus of considerable interest and attention lately. A reason for this is because stock turnover could represent a number of important factors, including liquidity, momentum and information (Brown et al., 2009). It has also been adopted as primary measure of liquidity in previous empirical studies (e.g. Datar et al., 1998; Jayaraman and Milbourn, 2012). Datar et al. (1998) point out that stock turnover is a good proxy for liquidity because it is correlated with trading frequency in equilibrium (Amihud and Mendelson, 1986). In addition, Datar et al. (1998) suggest that stock turnover is an intuitive metric of stock liquidity as it does take into account the differences in the number of shares outstanding, rather than focus on number of shares traded itself. A high value of stock turnover indicates that the average holding period for

a stock is shorter. Thus, it is not surprising that several prior studies recommend stock turnover as a proxy for liquidity.

In developing a theoretical framework for the link between the analyst research scheme and stock turnover, we rely on the theoretical work developed by Merton (1987), who proposes a model in which investors hold the stocks that they are “aware of”. In the model, Merton incorporates limited investor recognition of stocks in his analyses of capital market equilibrium and asset prices. He posits that firms with that are relatively unfamiliar to investors should provide higher expected stock returns and demonstrate lower stock liquidity (see also Amihud et al., 1999; Grullon et al., 2004).

Using a sample of 240 companies that participated in the first phase of the research scheme, the results show that stock turnover is positively associated with the frequency of coverage throughout the first phase of the scheme. However, it is found that the positive association between analyst coverage and stock turnover is weaker for a low information asymmetry firms⁴. By comparing the pre- and post-scheme period between the participating companies covered by analyst and not covered by analyst, it is found that during the stock market downturn period, the reduction in stock turnover is significantly less severe for companies that are covered by analysts. As in the earlier tests we also find that the reduction is less severe for firms with high information asymmetry.

This study makes a number of significant contributions to the literature. First, this study by showing that sponsored analysts following is associated with higher stock turnover, especially for firms with high information asymmetry, adds to a strand of prior literature that subscribes to the theory that analysts following positively affects stock turnover by reducing information asymmetry (Brennan and Subrahmanyam, 1995; Roulstone, 2003). Second, by examining the impact of the exchange sponsored research scheme on stock turnover, the findings have important implications for policy makers and listed companies which aim to improve stock liquidity at the market and company level respectively. The empirical findings also provide information to the Malaysian government and the Bursa Malaysia on the effectiveness of the scheme. Third, this study contributes to the literature by examining the impact of analyst coverage where analysts are assigned to a firm, unlike the prior studies whereby analysts choose the companies to follow. Fourth, this study adds to the capital market literature by providing empirical evidence on the association between stock liquidity and analyst coverage from an emerging order driven market perspective. Finally, the results we obtain are consistent with the investor

² The term is used interchangeably with analyst following throughout the study.

³ There are two types of market, namely order-driven market and quote-driven market. In an order-driven market, all orders are displayed in the market and can be seen by people who access to this information. The price and the amount of the stock/share at which the seller are willing to buy or sell are submitted to an order book. On the other hand, a quote-driven market relies on specialist/dealers/market makers who buy stocks when public participants wish to sell and sell stocks when public participants wish to buy. The specialists' bid quotes are lower than their ask quotes for them to make profit. Prices are adjusted by the market makers over time to keep supply and demand approximately balances. Prices are increased if market makers run short of stock and vice versa.

⁴ Information asymmetry is proxied by bid-ask spreads and firms' age.

recognition hypothesis and thus, to this extent, validate Merton's (1987) theory in an emerging market context.

The remainder of the paper is structured as follows. Section 2 provides an overview of the institutional and the analyst research scheme background. Section 3 discusses the prior literature on analyst coverage and develops the research hypotheses. Section 4 describes the sample and data sources, the measurement of variables and model specification. Section 5 reports results of descriptive statistics, regressions and some robustness tests. Section 6 discusses the limitations of the study and the final section concludes the paper.

2. Institutional background

2.1. Bursa Malaysia

Public trading of shares commenced in Malaysia in 1960 with the establishment of the Malayan Stock Exchange. In 1964, the Stock Exchange of Malaysia was established and became known as Stock Exchange of Malaysia and Singapore in 1965 with secession of Singapore from Malaysia. With the termination of currency interchangeability in 1973, the Stock Exchange of Malaysia and Singapore was split into the Kuala Lumpur Stock Exchange Berhad and the Stock Exchange of Singapore. With the enforcement of the Securities Industries Act 1976, a new company limited by guarantee, The Kuala Lumpur Stock Exchange (KLSE) was incorporated on 14 December 1976 to replace the Kuala Lumpur Stock Exchange Berhad. In 2003, the KLSE was demutualised with the aim to create a more competitive and efficient market. Its name was renamed to Bursa Malaysia on 14 April 2004.

Before the implementation of the new structure on 3 August 2009, Bursa Malaysia comprises of the Main Board, the Second Board and the Malaysian Exchange of Securities Dealing and Quotation Berhad (MESDAQ). Main Board is the platform for the listing of large companies (with a minimum of RM60 millions of paid-up capital) while Second Board was launched in 1988 to encourage smaller, viable and strong growth potential companies (with a minimum of RM40 millions of paid-up capital) to be listed. On 6 October 1997, MESDAQ was launched as a separate market for technology-based and high growth companies listing. It was conceived by the Securities Commission in 1996 and it commenced trading in April 1999. Under the new structure, the Main and Second Board were merged into a single unified board for established companies and was called the Main Market. On the other hand, the MESDAQ market was transformed into an alternative market for emerging companies of all sizes and sectors and was called the ACE (Access, Certainty and Efficiency) Market.

Similar to all other stock exchanges in Asia, Bursa Malaysia is a purely order-driven market with no market makers or specialists. Trading takes place from Monday to Friday, except on public holidays. Trading on the Bursa Malaysia is fully automated where orders are keyed into WinSCORE (a broker front end system) and orders are matched automatically by the system. All prices are determined by market forces of supply and demand through a process where bids and offers are matched. In every transaction, a security is sold to the highest bidder and purchased at the lowest offer.

2.2. Capital Market Development Fund-Bursa Research Scheme (CBRS)

To help create more liquidity in the market, Bursa Malaysia has implemented a number of measures⁵. One such important measure implemented is the initiation of an exchange sponsored analyst research scheme in April 2005, namely CBRS. The main objective of the scheme is to generate investors' interests in smaller capitalised stocks and at the same time to create balancing research coverage on public listed companies. This scheme is in line with the argument that security analysts are prominent information intermediaries between firms and investors in capital markets (Chung and Jo, 1996; Frankel et al., 2006; Chen et al., 2010). Analysts collect information from corporate managers and conduct analysis that interprets a firm's past events as well as forecasting a firm's future earnings and cash flows. Therefore, analyst research reports usually contain recommendation and supporting arguments. They are viewed as the most influential sources of information available to the individual investors for investment decision making (SRI International, 1987).

The scheme is similar to the Research Incentive Scheme pioneered in December 2003 by the Singapore Stock Exchange (SGX) and the Monetary Authority of Singapore (MAS) which sponsored analyst coverage of previously un-followed or poorly followed stocks. In 2009, SGX introduced a new research scheme, SGX Equity Research Insights (SERI), to better cater the needs of listed companies and their investors. Around this same period, three of the top ten largest stock exchanges, NYSE Euronext, NASDAQ and London Stock Exchange, also launched a similar exchange sponsored research scheme⁶.

⁵ The measures include the reduction of minimum of bid sizes, setting up of Over the Counter (OTC) model for stock borrowing and lending and short selling, launching of market making guidelines for structured warrants and exchange traded funds and the establishment of Malaysian Investor Relations Association (MIRA).

⁶ NASDAQ Euronext struck a deal with Virtua Research to make financial models of under-researched companies available on the NYSE website and NASDAQ OMX inked

The two-year pilot phase of the CBRS scheme, with a participation of 303 listed companies, was completed in June 2007. More than ten research houses and stock broking firms are involved and Standard & Poor Equity Research being the anchor research provider. The second phase of the scheme, which ran from end-2007 until end-2010, involves 218 listed companies and 15 research firms. Currently, the scheme is in its third phase. Under the scheme, participating companies pay 50% of the cost of RM60,000 for two-year participation while CMDF subsidises the balance. Each participating listed company is covered by at least two research firms. Research reports generated under this scheme are published on the Bursa Malaysia website and made available, free of charge to the public. At a minimum, research firms are required to produce in each year: (i) one initiation of Coverage Report within 3 months from commencement date; (ii) at least four coverage of Results Reports, corresponding to the quarterly results and full year results announcements by the listed company, and (iii) at least two Update Reports to be issued at any time within the year, at the discretion of the research firm. A sample of the Initiation Report, Results Report and Update Reports can be obtained from Bursa website⁷.

According to Bursa Malaysia Annual Report 2008, the average number of hits per day on CBRS website is more than 38,000. In 2010, there are 50,000 downloads of analyst reports a month compared to the 30,000 downloads a month from January 2008. According to media reports, Bursa Malaysia claimed that the scheme has achieved its objective of facilitating informed investing and widening the coverage for small- and mid-cap companies.⁸

3. Prior related literature and hypotheses development

3.1. Prior literature

Prior literature has documented the impact of analyst coverage on firms based on the (a) informational role, (b) monitoring role, and (c) both informational and monitoring role played by analysts in the capital market. Examples of the first strand include Brennan and Subrahmanyam (1995) who conjecture that more analyst coverage results in a greater number of informed traders in the market for a stock. Therefore, prices will tend to be more informative and as a result, uninformed traders face smaller expected losses from

transactions with informed traders which lead to a smaller spread. Using 1,550 common stocks that were listed continuously on the New York Stock Exchange for the calendar year 1988, Brennan and Subrahmanyam (1995) find that greater analyst following reduces adverse selection costs and deepens the market. In a similar vein, Brennan and Tamarowski (2000) also show that the number of analyst who follows a firm has a positive effect on the liquidity of trading in the firm's shares by reducing information asymmetry. Recently, Bowen et al. (2008) hypothesise that analyst coverage reduce information asymmetry among investors and thus lower the cost of raising equity capital. They investigate the effect of analyst coverage on the underpricing of 4,776 seasoned equity offerings whereby underpricing represents a substantial cost of issuing new shares. They find that a higher level of analyst following is associated with less underpricing, which suggests lower cost of equity for heavily followed firms.

Chung and Jo (1996) posit that analysts' monitoring of corporate performance helps motivate managers, thus reducing agency costs associated with the separation of ownership and control. At the same time, analysts also help to expand the breadth of investor recognition. Consistent with these conjectures, they find evidence that analyst following exerts a significant and positive impact on firms' market value, as proxied by Tobin's q . Similarly, Lang et al. (2004) also find that increased analyst following is associated with higher valuations arguing from monitoring perspective.

Using both the informational as well as monitoring role of analysts, Cheng and Subrahmanyam (2008) hypothesise a negative relation between analyst following and default risk. They argue that this relationship is expected because of both the monitoring and the informational roles played by analysts. Consistent with their hypothesis, the results document that default risk, as proxied by credit rating, is lower when a firm is followed by a large number of analysts.

Another strand of research investigates how the market reacts to analyst recommendations published or broadcasted (Davies and Canes, 1978; Groth, et al., 1979; Bjerring et al., 1983; Pari, 1987)⁹. These empirical studies show that abnormal performance is associated with the recommendations. However, these studies do not examine what drives the abnormal performance associated with the recommendations.

an exclusive agreement with Morningstar under which Morningstar will provide research profiles of companies listed on its exchanges. London Stock Exchange launched PSQ Analytics, a service that produces research coverage of smaller companies on the London Stock Exchange's Main Market and AIM.

⁷ <http://www.klse.com.my>.

⁸ See for example The Star, 7th August 2010.

⁹ Davies and Canes (1978) examine the analyst recommendations appearing in the Wall Street Journal's "Heard on the Street" column. Groth et al. (1979) and Bjerring et al. (1983) evaluate the investment advice of a U.S. brokerage house and a leading Canadian brokerage house respectively. Pari (1987) investigates guest recommendations on the Wall Street Week television program.

Barber and Loeffler (1993) address the issue by suggesting two potential hypotheses, namely price pressure hypothesis and the information hypothesis. The price pressure hypothesis states that the recommendation creates temporary buying pressures by uninformed investors. Investors rush out to buy or sell stocks based on recommendations even though these recommendations are tied to no value related information, creating temporary price pressure and thus causes the observed abnormal returns. On the other hand, the information hypothesis proposes that analyst's recommendation reveals relevant information, and thus the abnormal performance on the announcement of a recommendation represents a fundamental revaluation of the security. Using analysts' recommendations published in the monthly "Dartboard" column of the Wall Street Journal, Barber and Loeffler (1993) conclude that the positive abnormal return on announcement of the recommendations is a result of naive buying pressure as well as the information content of the analysts' recommendations. Recently, Keasler and McNeil (2010) examine the market's reaction to stock recommendations of Jim Cramer on *Mad Money*, a CNBC hour long weekday television show. Their results, however, provide greater support for the price pressure hypothesis as opposed to the information hypothesis.

3.2. Theoretical framework and hypotheses development

This study draws on investor recognition hypothesis suggested by Merton (1987) to investigate the impact of analyst research scheme on stock turnover. Merton modifies the rational framework of the capital asset pricing model (CAPM) to account for incomplete information. The key behavioural assumption underpinning Merton's model is that investor's incomplete information affects their trading behaviour and the resulting stock values. Due to incomplete information, some investors may not be aware about certain stocks and as a result, they do not hold the stocks in their portfolio. In such case, investors will be inadequately diversified and their undiversified positions entail the bearing of some non-systematic risk for which they require compensation. Based on this rationale, Merton (1987) shows that when stocks are recognised by large number of investors, the investor base for the stocks will be increased and subsequently the expected rate of return will be reduced. Likewise, analyst research scheme can help to increase the investors' awareness of the companies as information is disseminated to more investors via the stock exchange's website. Therefore, companies are recognised by more investors and the decreased in expected rate of return is likely to improve stock liquidity, as suggested by Merton.

Merton's (1987) model has been empirically tested and supported in a number of studies. Kadlec

and McConnel (1994) provide the first empirical test of Merton's model. Using 273 Nasdaq stocks that listed on the NYSE over the period 1980 to 1989, Kadlec and McConnel examine a few aspects of investor recognition. Their results show that newly listed companies experience a 19% increase in the number of registered shareholders and a 27% increase in the number of institutional shareholders. They also find that after controlling for changes in bid-ask spread, companies that experience the greatest increase in number of shareholders after listing have the greatest increase in stock prices. Chung and Jo (1996) also postulate in their study that the information intermediary function provided by security analysts helps expand the breadth of investor recognition. Using Tobin's q as measure of market value, Chung and Jo (1996) find that market value is significantly and positively associated with the number of analysts following the firm. Chen et al. (2004) study the price effects of inclusion in the S&P 500 index. They document a permanent increase in the price of added firms and explain that the price effect arises from the changes in investor awareness. More recently, Lehavy and Sloan (2008) find that investor recognition can explain more of a firm's stock return than investment fundamentals, such as earnings and cash flows.

Consistent with the above arguments, this study posits that there is positive relationship between analyst coverage and stock turnover. Analyst reduces information asymmetry by collecting and disseminating information to investors. The information increases market liquidity by increased trading of informed or uninformed investors. In a similar vein, the investor recognition hypothesis suggests that more complete information would create investors' awareness in a particular stock and as a result, stock turnover is improved. In addition to the information role, analyst coverage serves as monitoring device to help reduce agency costs and the lower the cost of capital which results in improve stock liquidity. The above reasoning leads to the following hypothesis stated in the alternative form:

H1. Analyst coverage is positively associated with stock turnover.

A central concept in the theoretical and empirical work examining stock turnover is information asymmetry. As pointed out earlier, prior literature suggests that analysts reduce information asymmetry between informed and uninformed investors by disseminating information to investors. Thus, the effectiveness of the analyst is likely to vary with the level of information asymmetry of a company that participates in the analyst research scheme. More specifically, the involvement of analyst is likely to enhance stock turnover more for a high information asymmetry company than for a low information asymmetry company. Thus, we also investigate whether the association between analyst coverage and stock turnover is stronger for firms with

a high level of information asymmetry of a company. To test this reasoning we set up the following hypothesis in alternative form:

H2. The positive association between analyst coverage and stock turnover is stronger for companies with high information asymmetry.

4. Research design

4.1. Sample selection and data

The initial sample consists of all 303 Bursa Malaysia listed companies that participated in the first phase of CBRS. Thirty eight companies that were listed during year 2005, 2006 and 2007 are eliminated from the sample to avoid the confounding effects of newly listed firms (with perhaps different characteristics and incentives to maintain liquidity). The remaining companies are matched with the availability of stock data. If stock data of a company is not available, the company is excluded from the sample. As a result, the final sample comprised 240 participating companies.

For each of the sample companies, analyst research reports from 1 April 2005 to 30 June 2007 are downloaded from the Bursa Malaysia CBRS website. Daily stock data, covers the period from 1 January 2005 to 30 June 2007, are collected from the Datastream. The companies' daily stock data include trading volume (both in number and dollar), last traded price, last ask price, last bid price, market capitalization, number of outstanding shares and market to book ratio. For each of the variables constructed, the daily data has to be available for at least 45 trading days in each calendar quarter and the data are averaged for the calendar quarter. Failing which, the company quarter will be excluded from the analysis.

4.2. Variable Measurement

4.2.1. Dependent Variable

Stock turnover (*TURN*) is proposed by Datar et al. (1998) which reflects trading activity. It is defined as the ratio of the number of shares traded (trading

volume) to the number of shares outstanding for a company. Stock turnover is computed as averages of daily data at quarterly frequencies.

$$TURN_{i,q} = \frac{1}{D_{i,q}} \sum_{d=1}^D VOL_{i,d} / SO_{i,d} \quad (1)$$

where $D_{i,q}$ is the number of trading days for company i in quarter q . $VOL_{i,d}$ is the trading volume (number of shares traded) and $SO_{i,d}$ is the number of shares outstanding for company i on day d . Both the volume and number of shares outstanding data are collected on a daily basis. The use of daily data eliminates the issue of stock changes due to stock splits etc.

4.2.2. Test Variable

The commonly used measure for analyst coverage or analyst following in the prior empirical studies is the number of analyst following a firm (the number of analyst who issued earnings forecast for the firm) and the data is drawn from I/B/E/S (I/B/E/S refers to Institutional Brokers' Estimate System.) (see for example Ahn et al., 2005; Chan and Hameed, 2006). Since the aim of this study is to examine the effect of the exchange sponsored analyst scheme, the analyst coverage measure thus refers to the analyst following a company participating in the scheme.

This study adopts two different measures for analyst coverage. The first measure is the frequency of analyst coverage, proxied by the number of analyst research reports posted on the CBRS website. The second measure is a dichotomous measure to distinguish whether or not there is analyst coverage for a firm in a certain period.

4.3. Model specification

To test for the effect of frequency of analyst coverage on stock turnover, the following regression model is estimated:

$$TURN_{i,Qt} = \alpha + \beta_1 * LOG(1 + RPT_{i,Qt}) + \beta_2 MCAP_{i,Qt} + \beta_3 MTB_{i,Qt} + \beta_4 PRICE_{i,Qt} + \beta_5 SDRET_{i,Qt} + \beta_6 INED_i + \beta_7 QuarterDummies + \beta_8 IndustryDummies + \varepsilon_{i,t} \quad (2)$$

where $TURN_{i,Qt}$ is the stock turnover of company i during quarter Qt , measured as stock turnover (*TURN*). $RPT_{i,Qt}$ is the number of analyst research reports of company i uploaded on Bursa CBRS website during quarter Qt . The number of analyst research reports is used as an indication of the frequency of analyst coverage. If analyst research reports reduce information asymmetry by revealing information, the stock turnover is likely to be

improved. Therefore, the coefficient associated with $Log(1 + RPT_{i,Qt})$ will have a positive sign.

Following previous research (for example Roulstone, 2003; Chung et al., 2010), a total of four firm specific control variables that are known to influence stock turnover are included in this study, i.e. company size (*MCAP*), growth (*MTB*), stock price (*PRICE*) and stock return volatility (*SDRET*). Company size is proxied by market capitalization

(*MCAP*) defined as shares outstanding multiplied by price. Large companies are expected to be more liquid as they are more transparent due to the greater demand from shareholders. On the other hand, high growth companies, proxied by high market to book ratio (*MTB*) are likely to be less liquid as they are associated with higher information asymmetry. *MTB* is defined as the stock price divided by the book value. Stock price (*PRICE*) is the last traded share price at the end of the day whereas stock return volatility is proxied by the standard deviation of daily returns (*SDRET*). We also include board independence (*INED*) as a proxy for corporate governance since Foo and Mat Zain (2010) provide

some evidence on the relationship between board independence and stock liquidity in Malaysia. They argue that the inclusion of independent non-executive directors on corporate boards improves firms' compliance with disclosure requirements and reduces agency costs thus leading to higher liquidity. Similarly, Kent and Steward (2008) as well as Taylor et al. (2010) also provide evidence that disclosure is positively related to some aspects of corporate governance. Board independence is measured as the percentage of independent non-executive directors on the board. Table 1 provides a summary of the variables used in the study.

Table 1. Variable Definitions

Variable	Definition
Analyst coverage variables:	
$RPT_{i,qt}$	= number of analyst research report of company i in Quarter qt .
$COVER_{i,qt}$	= An indicator variable set to one if the company is covered by analyst during Quarter qt .
Dependent variables:	
$TURN_{i,q}$	= stock turnover ratio of company i in quarter q , calculated as the natural log of average daily stock trading volume divided by the number of outstanding shares. $\left[\text{Log} \frac{1}{D_{i,q}} \sum_{d=1}^D VOL_{i,d} / SO_{i,d} \right]$
$\Delta TURN_{i,qt}$	= change in stock turnover of company i in quarter qt , calculated as stock turnover ratio of company i in Quarter qt less stock turnover ratio of company i in quarter $q1$. [$TURN_{i,qt} - TURN_{i,q1}$]
Other variables:	
$MCAP_{i,q}$	= market capitalisation of company i in quarter q , calculated as natural log of average daily share price multiplied by number of outstanding shares. $\left[\text{Log} \frac{1}{D_{i,q}} \sum_{d=1}^D price * OutstandingShares \right]$
$MTB_{i,q}$	= market to book ratio of company i in quarter q , calculated as natural log of average daily shares price divided by the book value. $\left[\text{Log} \frac{1}{D_{i,q}} \sum_{d=1}^D \frac{SharePrice}{BookValue} \right]$
$PRICE_{i,q}$	= share price of company i in quarter q , calculated as natural log of average daily share price. $\left[\text{Log} \frac{1}{D_{i,q}} \sum_{d=1}^D price \right]$
$SDRET_{i,q}$	= standard deviation of return of company i in quarter q , calculated as natural log of standard deviation of return.
$INED$	= proportion of independent non-executive director on board.
$\Delta MCAP_{i,qt}$	= change in market capitalisation of company i in quarter q , calculated as market capitalisation of company i in Quarter qt less stock market capitalisation of company i in quarter $q1$. [$MCAP_{i,qt} - MCAP_{i,q1}$]
$\Delta MTB_{i,qt}$	= change in market to book ratio of company i in quarter q , calculated as market to book ratio of company i in Quarter qt less market to book ratio of company i in quarter $q1$. [$MTB_{i,qt} - MTB_{i,q1}$]
$\Delta PRICE_{i,qt}$	= change in price of company i in quarter q , calculated as share price of company i in Quarter qt less share price of company i in quarter $q1$. [$PRICE_{i,qt} - PRICE_{i,q1}$]
$\Delta SDRET_{i,qt}$	= Change in standard deviation of return of company i in quarter q , calculated as standard deviation of return of company i in Quarter qt less standard deviation of return of company i in quarter $q1$. [$SDRET_{i,qt} - SDRET_{i,q1}$]

Note: Quarter 1 ($q1$) denotes Quarter 1 Year 2005, the quarter before the launch of the analyst research scheme. Quarter t (qt) denotes quarters after the launch of the analyst research scheme.

5. Empirical results

5.1. Descriptive statistics

For the 240 sample companies, a total of 4,439 research reports were posted on Bursa CBRS website during the first phase of the research scheme. Table 2 summarises the descriptive statistics for the pooled data of the 240 sample companies (2160 company-quarter for most of the variables) from April 2005 to June 2007. The average number of analyst research report for a quarter is two with a maximum of seven research reports in a quarter. The mean market

capitalization is RM 341 million and market to book ratio is 1.1213. Table 3 provides simple correlations between variables. As expected, stock turnover (*TURN*) is positively significantly correlated with the number of analyst research report (*RPT*). The size of a company (*MCAP*) is positively related to *TURN*. There is no high correlation between the independent variables, namely market capitalization (*MCAP*), market to book ratio (*MTB*), price (*PRICE*), return volatility (*SDRET*) and the proportion of independent non-executive directors (*INED*).

Table 2. Descriptive Statistics (240 companies) for 9 quarters from April 2005 to June 2007

	Observation	Mean	Std. Dev.	Min	Max
TURN	2160	0.0021	0.0060	0.0000	0.1426
RPT	2160	2.0551	1.2561	0.0000	7.0000
MCAP	2160	340.0668	643.5578	16.90377	8707.69
MTB	2099	1.1213	1.0222	0.1410	14.2750
PRICE	2160	1.6784	2.0030	0.1032	40.4468
SDRET	2160	0.0257	0.0159	0.0029	0.1439
INED	2106	0.3992	0.1148	0.1000	0.8300

Note:

TURN = stock turnover

RPT = number of analyst research report

MCAP = market capitalisation (in MYR million)

MTB = market to book ratio

PRICE = share price

SDRET = standard deviation of return

INED = proportion of independent non-executive director on board

Table 3. Correlations

	RPT	TURN	MCAP	MTB	PRICE	SDRET	INED
RPT	1						
TURN	0.1495**	1					
MCAP	0.03812*	0.0963**	1				
MTB	-0.02325	0.1282**	0.3092**	1			
PRICE	-0.0144	-0.1503**	0.5992**	0.3968**	1		
SDRET	0.0693**	0.3600**	0.2669**	-0.1449**	-0.5011**	1	
INED	-0.0328	0.0750**	0.0482*	-0.0438*	0.0069	0.0279	1

Note:

RPT = natural log of one plus number of analyst research report for company *i* in quarter *t*.

TURN = natural log of stock turnover

MCAP = natural log of market capitalization

MTB = natural log of market to book ratio

PRICE = natural log of share price

SDRET = natural log of standard deviation of return

INED = proportion of independent non-executive director on board

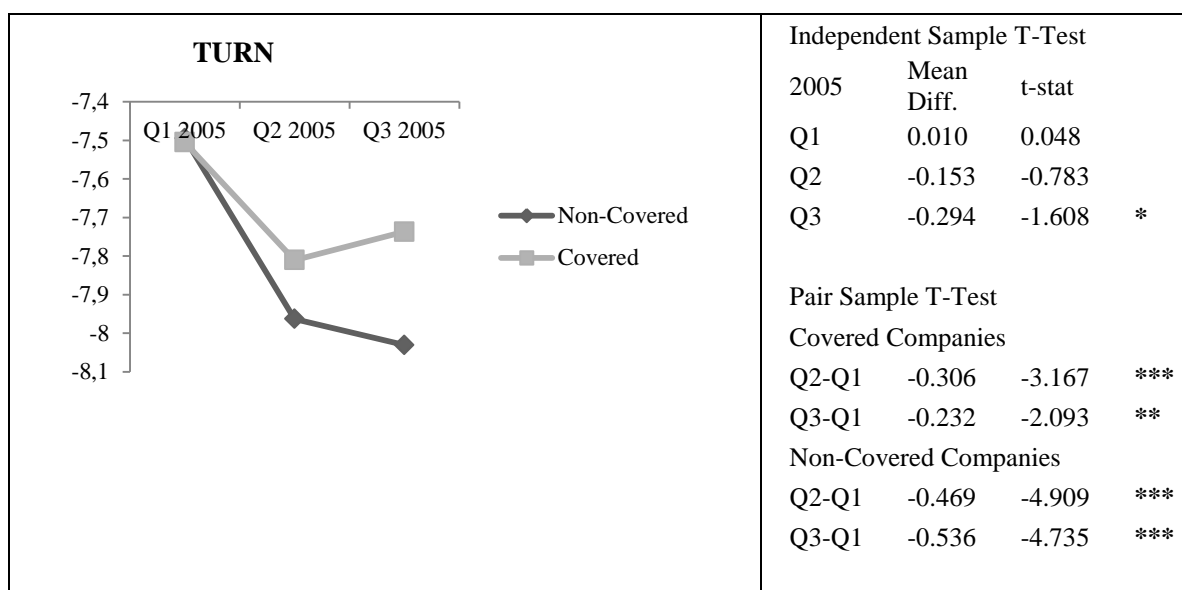
** and * correlation is significant at the 0.01 and 0.05 level (2-tailed).

5.2. Univariate tests of differences

We made a comparison between the covered participating companies (participating companies that were covered by analyst in both quarters) and non-covered participating companies (participating companies that were not covered by analyst in both quarters). It is found that 75 participating companies were covered and 132 participating companies were not covered at the early stage of the scheme. There are 33 companies that were only covered in the second quarter and they were eliminated from the analysis. Figure 1 presents the differences in stock turnover (*TURN*) between covered and non-covered companies for the first three quarters of year 2005. Q1 is the pre-scheme quarter while Q2 and Q3 are the post-scheme quarter. It is noticed that for the covered and non-covered companies, stock turnover decreases in Quarter 2 and 3 compared to Q1. Such decrease is in line with the reduction in trading volume and the

Kuala Lumpur Composite Index (The average daily volume (number of shares traded) for the Kuala Lumpur Composite Index (KLCI) is 72.6 million (Quarter 1, 2005), 62.2 million (Quarter 2, 2005) and 77.6 million (Quarter 3, 2005)). However, *TURN* for covered companies are found to be higher than non-covered companies after the launch of analyst research scheme. The difference in means is statistically significant (t -stat = -1.608, $p < 0.1$) in Q3. The pair sample t -test results show that the reduction in stock turnover is significant for both covered and non-covered companies. However, for the non-covered companies, the t -stat is double of the covered companies. These univariate results are consistent with the findings of Irvine (2003) that liquidity improves after analysts' initiation of coverage; however, these results are preliminary, and inferences can be made only after controlling for other factors.

Figure 1. Stock Turnover Differences between Covered (N=75) and Non-Covered (N=132) Participating Companies for Quarter One to Quarter Three Year 2005



Note:

$TURN$ = natural log of stock turnover

***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively.

5.3. Multivariate analysis results

Table 4 reports regression results for equation (2) relating stock turnover (*TURN*) and other control variables. Table 4 Panel A shows the results using all observations with available data (The assumptions of ordinary least square are met. The problem of multicollinearity is unlikely since all the variance inflation factors are below 10 (Gujarati, 2003). All residuals are normally distributed (Jarque Bera significant value > 0.05). All Durbin Watson statistics are found to be around two hence no autocorrelation

is likely (Gujarati, 2003)). The coefficient on number of analyst research report (*RPT*) is positive (0.1747) on *TURN* and statistically significant at the 1% level. The positive coefficient of *RPT* implies that as the number of analyst research report increases, *TURN* increases, consistent with the investor recognition hypothesis which suggests that there is positive relation between analyst coverage and liquidity. Consistent with prior studies, company size (*MCAP*) and market to book ratio (*MTB*) are significantly positively related to *TURN* while price (*PRICE*) is negatively related to *TURN*. Board independence

(*INED*) is also significantly positively related to *TURN*. Industry and quarter effect are included in the regression analysis but in order to present the results parsimoniously, the individual coefficient on seven industries and eight quarters are excluded from the table.

To test H2, we partitioned the sample based on the level of information asymmetry, proxied by bid-ask spread (Bid-ask spread is measured as the average of closing ask price less bid price scaled by the middle prices. It is commonly used as the proxy for information asymmetry in prior studies (for example Welker, 1995; Petersen and Plenborg, 2006). We also, in additional tests, split the sample by firm age based on the argument that younger firms are associated with higher information asymmetry (Pastor and

Veronesi, 2003; Pittman and Fortin, 2004)). Companies are categorised as HIGH (LOW) if their bid-ask spreads are above (below) median. Table 4 Panel B and C reports the regression results of the companies with HIGH and LOW information asymmetry respective. Consistent with H2, the positive coefficient on RPT on *TURN* is statistically significant at the 5% level for companies with HIGH information asymmetry and not significant for the companies with LOW information asymmetry. We also ran a regression with an interaction term between high/low dummy (1=high, 0=low) variable for the bid-ask spreads and RPT in the same regression and the results (unreported) show a significant negative interaction thus supporting the earlier results.

Table 4. Regression on stock turnover

Variable	Panel A			Panel B			Panel C		
	All			High			Low		
CONSTANT	-7.2467	-16.27	***	-6.8362	-10.31	***	-1.2573	-2.68	***
RPT	0.1747	2.41	***	0.1995	2.03	**	0.0876	1.14	
MCAP	0.4692	10.97	***	0.0066	0.07		-0.0467	-1.13	
MTB	0.3272	5.54	***	0.0357	0.39		0.4942	8.20	***
PRICE	-0.4994	-8.02	***	-0.6564	-6.81	***	-0.2701	-4.85	***
SDRET	0.5652	6.77	***	0.2743	2.24	**	1.2095	14.55	***
INED	0.7298	2.77	***	0.5066	1.16		0.2831	1.24	
INDUSTRY		included			included			included	
QUARTER		included			included			included	
F-stat	44.25 (p<0.01)			20.84 (p<0.01)			50.93 (p<0.01)		
Adj R ²	30.8%			30.4%			50.8%		
N	2044			1022			1022		

Note:

Refer to Table 1 for variable definition.

***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively (1-tailed)

t-statistics are White-corrected.

5.4. Additional tests

5.4.1. Pre and post scheme liquidity

To evaluate the impact of analyst coverage on the changes in stock liquidity, we estimate equation (3) with the subsample of the first six months of the analyst scheme.

$$\Delta TURN_{i,Q_t} = \alpha + \beta_1 COVER_{i,Q_t} + \beta_2 \Delta MCAP_{i,Q_t} + \beta_3 \Delta MTB_{i,Q_t} + \beta_4 \Delta PRICE_{i,Q_t} + \beta_5 \Delta SDRET_{i,Q_t} + \beta_6 INED_i + \varepsilon \quad (3)$$

where $\Delta TURN$ is the change in stock turnover, defined as $TURN_{i,Q_t} - TURN_{i,Q_{t-1}}$. $TURN_{i,Q_t}$ is the quarterly average stock liquidity post analyst research scheme while $TURN_{i,Q_{t-1}}$ is the stock turnover before

the launch of the analyst research scheme. $COVER_{i,Q_t}$ is an indicator variable set equal to one if there is analyst coverage for company i during quarter q . If analyst coverage improves stock liquidity, then the

estimated coefficient on $COVER_{i,Q_t}$ should be positive for stock turnover ($\Delta TURN$). Similar to the equation (2) mentioned above, four company-level control variables, i.e. size (measured by market capitalization, $MCAP$), growth (measured by market to book ratio, MTB), share price ($PRICE$) and share return volatility (measured by standard deviation of return, $SDRET$), are added in the model to capture the shifts in the company market data after (Q_t) and before (Q_1) the analyst research scheme. $\Delta MCAP_{i,Q_t}$ is the change in natural log of company i 's market capitalisation for quarter Q_t , defined as $MCAP_{i,Q_t} - MCAP_{i,Q_1}$. $\Delta MTB_{i,Q_t}$ is the change in natural log of company i 's market to book ratio volume for quarter Q_t , defined as $MTB_{i,Q_t} - MTB_{i,Q_1}$. $\Delta PRICE_{i,Q_t}$ is the change in natural log of company i 's share price for quarter Q_t , defined as $PRICE_{i,Q_t} - PRICE_{i,Q_1}$ and $\Delta SDRET_{i,Q_t}$ is the change in natural log of company i 's standard deviation of share return for quarter Q_t , defined as $SDRET_{i,Q_t} - SDRET_{i,Q_1}$. Board independence (INED) is also included.

The results are reported in Panel A of Table 5. The coefficient on analyst coverage ($COVER$) is 0.2886 with a significant t -value of 2.92, thus providing evidence that analyst coverage has an impact on the changes in stock turnover comparing the post-scheme and pre-scheme quarter. However,

the results are not clearly interpretable as some companies experience reduction while some experience increase in stock turnover. To further examine the impact of analyst coverage on the increase or decrease in stock turnover, we partition the sample into increase in stock turnover and decrease in stock turnover and run the regression on the subsample respectively. The results in Panel B Table 5 clearly indicate significantly negative coefficient (-0.3964) on $COVER$ for those companies experiencing a decrease in stock turnover. However, there is no significant association between $COVER$ and stock turnover for companies which experienced an increase in stock turnover (Panel C Table 5). The evidence suggests that the presence of analyst coverage reduces the reduction in stock turnover. In other words, reduction in stock turnover is less severe for companies that are covered by analyst, as shown in Figure 2. We also split the sample (based on terciles) for the test in Panel B in terms of high and low information asymmetry. The results (untabulated) are significant for firms with high information asymmetry (coefficient -0.3476, t -stat = 2.12) and not for firms with low information asymmetry (coefficient -0.1863, t -stat = 1.41), consistent with hypothesis 2.

Table 5. Regression on changes in stock turnover

	Panel A $\Delta TURN$			Panel B Decrease in TURN			Panel C Increase in TURN		
Variable	Coef	t-Stat	Sig	Coef	t-Stat	Sig	Coef	t-Stat	Sig
CONSTANT	-0.6601	-2.69	***	-1.4336	-6.21	***	0.5810	2.95	***
COVER	0.2886	2.92	***	-0.3964	-4.72	***	0.0601	0.61	
$\Delta MCAP$	1.4258	4.55	***	0.9574	2.32	**	0.6417	2.49	
ΔMTB	0.0015	0.01		0.0027	0.02		-0.4177	-0.96	
$\Delta PRICE$	-0.1860	-0.69		-0.6003	-1.40		0.2932	2.69	***
$\Delta SDRET$	0.7152	6.58	***	0.4028	3.30	***	0.3549	0.81	
INED	0.1526	0.35		0.2594	0.68				
INDUSTRY		included			included			included	
QUARTER		included			included			included	
F-stat	7.59 (p<0.01)			4.07 (p<0.01)			2.25 (p<0.01)		
Adj R^2	19.9%			12.8%			19.2%		
N	442			294			148		

Note:

Refer to Table 1 for variable definition.

***, **, and * indicate significance at the 1%, 5% and 10% levels, respectively (1-tailed).

t-statistics are White-corrected.

5.4.2. Sensitivity tests

First, we perform tests to control for the possible correlation in the time-series and cross-sectional error structure by using the methodology discussed in Petersen (2009) to control for clustered standard errors. The results (untabulated) are qualitatively similar to those reported in Table 4.

Second, we perform sensitivity checks by using firm age as another proxy for information asymmetry and partition the sample into HIGH and LOW information asymmetry. Prior research suggests that information problems subside with age as firms' accumulate a history in the capital markets (Pittman and Fortin, 2004). By examining the link between auditor choice and debt pricing for newly public firms, Pittman and Fortin (2004) provide evidence that the economic value of auditor reputation to the cost of credit declines over time as borrowers gradually shift toward relying on their own reputations to moderate information asymmetry. In a similar vein, we conjecture that older firms have less information asymmetry than younger firms. Thus, the positive association between analyst coverage is likely to be stronger for younger firm. The results (untabulated) are qualitatively similar to those reported using bid-ask spread as a proxy for information asymmetry for tests in Table 4 and Panel B of Table 5.

6. Limitations

This study is subject to several limitations. First, the empirical evidence provided in this study is confined to participating companies in the first phase of the analyst research scheme, i.e. from April 2005 to June 2007. Future research may expand the investigation to the second phase of the analyst research scheme which has just been completed in December 2010. Second, this study has only taken into account the number of analyst research reports as a proxy for frequency of analyst coverage without considering the content of analyst research reports which could have an impact on stock liquidity. One could therefore extend the study by examining the content as well as the type of recommendation ("buy", "sell" or "hold") presented in the analyst research reports.

Third, this study has not taken into account the time that an analyst research report is posted on Bursa's website. Timeliness is a necessary component of financial information disseminate through internet (Abdelsalam and Street, 2007). The availability of high frequency data (intraday data) would enable a study into the speed with which the information generated on analyst research reports is impounded into stock prices. Lastly, the results cannot be generalised to other countries as the evidence is drawn from companies listed on the Malaysian stock exchange. It may be worthwhile for future studies to consider a comparative analysis of the analyst

research scheme offered by stock exchanges in different countries.

7. Conclusion

This study examines whether the analyst research scheme has an impact on stock turnover. Using a sample of 240 companies that participated in the first phase of the research scheme, the results show that stock turnover is positively associated with the frequency of coverage throughout the first phase of the scheme. The positive association between analyst coverage and stock turnover is stronger for firms with higher information asymmetry. By comparing the pre- and post-scheme period between the companies covered by analyst and not covered by analyst, it is found that during the stock market downturn period, the reduction in stock turnover is significantly less severe for companies that are covered by analysts. Thus, the results support the investor recognition hypothesis as suggested by Merton (1987).

The fundamental contribution of this study is that it sheds light on the controversy regarding the link between analyst following and stock turnover discussed earlier. The results support the theory that analyst coverage improves stock turnover due to the reduction in information asymmetry, consistent with the findings in Brennan and Subrahmanyam (1995) and Brennan and Tamarowski (2000). Further, these results have implications for Malaysian policy makers in the sense that it demonstrates that sponsored analyst scheme does indeed achieve the objective of increasing stock liquidity. Other emerging countries with low stock liquidity might very well emulate the Malaysian practice.

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THE CORPORATE USE OF DERIVATIVES BY LISTED NON-FINANCIAL FIRMS IN AFRICA

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Abstract

This paper presents the results of an extensive analysis of derivative use by 692 companies in 20 countries across the African continent. The results show that 29% of non-financial companies in Africa use derivatives but that derivative use is dominated by firms within South Africa. The study finds that 54% of firms in South Africa use derivatives but only 5% of non-financial firms in Africa (excluding South Africa) use derivatives for hedging purposes. The majority of derivative use is directed toward the management of currency risks and the derivative instrument of choice is OTC forwards. Swaps are used to hedge interest rate risk and minimal use is made of OTC or exchange traded options and futures.

Keywords: Derivatives, Currency Exposure, Hedging, Interest Rate Risk, Forwards, Swaps, Options, Commodity Price Risk, Equity Derivatives

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Introduction

Markets have been characterised by increased volatility in foreign exchange rates, interest rates, market prices for securities and commodity prices and as a consequence, companies face increased exposure to a broad spectrum of financial risks. There is increasing shareholder expectation that management not only identify but effectively manage the company's exposure to these risks (Bodnar *et al.*, 1999) and risk management has become a key strategic focus for companies. The availability of a variety of derivative instruments may be instrumental in enabling effective financial risk management by companies and can have a positive impact on the value of the firm (Prevost *et al.*, 2000; Nance *et al.*, 1999 and Berkman *et al.*, 1996).

Benson and Oliver (2004) set out the reasons for risk management which include the reduction of financial distress and agency costs, achieving economies of scale at the company level, taking advantage of differing tax rates and the minimisation of the costs of external financing. Increased volatility in earnings and cash flows may result in an increase in the costs of financial distress and the use of derivatives may be effective in reducing the volatility of earnings and cash flows.

Increased volatility in currency rates, interest rates and commodity prices have been matched by a significant growth in the use of derivatives such as swaps, futures, forwards and options. Managers now have a wide range of derivative instruments available to manage a corporation's exposure to volatility in

exchange rates, interest rates and commodity prices. Nguyen and Faff, (2002) reported that the notional value of derivatives employed within the corporate sector rose from USD18 trillion in 1994 to USD70 trillion in 1998. This significant growth in the use of derivatives continued over the next decade with the notional value of derivatives used exceeding USD600 trillion by December 2008 (Deutsche Borse, 2009). The total over-the-counter (OTC) derivative contracts outstanding amounted to \$632.6 trillion in December 2012 (Bank for International Settlements, June 2013).

Smithson and Simkins (2005) in a comprehensive review of the evidence conclude that risk management and derivative use by the corporate sector adds value and refer to a ISDA study which reported that 92% of the world's 500 largest companies used derivatives, with 92% of the firms using derivatives to manage interest rate risk, 85% of firms using derivatives to manage currency risks and 25% of firms using derivatives to manage commodity price risks.

Derivatives markets can facilitate the management of financial risk exposure, since they allow investors to unbundle and transfer financial risk. The development of derivatives markets in sub-Saharan African countries would enable companies to self-insure against volatile capital flows and reduce their dependence on bank financing (Adelegan, 2009).

Research into the extent of the use of derivatives by the corporate sector and the motives for the use of derivatives by this sector has thus far mainly focused on North America, South America, the UK and Europe, East Asia, Australia and New Zealand. There

is little published research into derivative use in Africa. This paper aims to bridge this gap by analysing the extent to which companies in Africa make use of derivatives, investigating the motives for derivative use and identifying the main instruments used to hedge financial risks. This study addresses the following research questions;

- To what extent do non-financial companies in Africa make use of derivatives?
- Which types of risks are hedged by companies?
- What types of derivatives are most commonly used by firms in Africa to hedge these risks?
- What number of derivative instruments do companies employ?
- To what extent are there regional differences in the use of derivatives by firms in Africa, particularly between South Africa and the rest of Africa?
- How does derivative use in Africa compare to derivative use in other developed and emerging markets?
- What is the derivative use per sector?

An objective of this study is to understand the extent to which the use of derivatives by companies in Africa compares with the use of derivatives in other countries; however there are some limitations attached to such a comparison. Sprčić (2007), Jalilvand (1999) and Correia et al (2012) point out that the timing of the studies may have an impact on any comparative analysis of results. Comparisons are more meaningful between studies that have been carried out over the same period or in periods that are as close as possible to each other. Similarly, differences in the scope of the studies undertaken may limit direct comparison of one with the other. As an example, the studies by Junior (2007 and 2011) and Schiozer and Saito (2009), are specifically focused on the use of currency derivatives, this is a narrower focus than the studies based on the Wharton School surveys of Bodnar, *et al.* (1995). This study endeavours to focus on the use of derivatives by non-financial firms so that the use of derivatives by financial institutions are not included as part of this study. The intent is to focus on the use of derivatives for risk management purposes.

This study is organised as follows; the first section consists of the introduction which includes the rationale for the study, the context and the research questions. This is followed by the second section which consists of a review of prior studies undertaken in developed and emerging economies. The third section represents an outline of the data and research methodologies employed in this study. The fourth section sets out the results of the study which includes a detailed descriptive analysis of the use of derivatives by companies in Africa and includes a comparative analysis of the use of derivatives in

Africa in relation to derivative use in other parts of the world. A further comparative analysis is undertaken of derivative use by South African companies in relation to the use of derivatives by companies in the rest of Africa.

Literature Review

Format of prior studies

Prior studies of derivative use can be broadly classified into two approaches; firstly, there are those that follow a questionnaire-based survey approach (see Bodnar *et al.* 1995, 1996, 1998, 1999, 2003 & 2008; Jalilvand 1999; Phillips 1995; Berkman *et al.* 1997; Pramborg 2003; Correia, Holman & Jahreskog 2012) and secondly, there are studies of derivative use based on the review of company financial statements (see Berkman & Bradbury 1996; Junior 2007 & 2011; Schiozer & Saito 2009; Martin *et al.* 2009; Marsden & Prevost 2005; Prevost, *et al.* 2000; Shu *et al.* 2003; Ameer *et al.* 2011; Selv *et al.* 2010; Brunzell *et al.* 2011; and Bartram *et al.* 2009). There are also variations. For example, Sprčić, (2007) followed up a survey with interviews with companies whilst Sheedy (2006) used the survey approach introduced by the Wharton school, but completed the surveys by interviewing the treasury staff at the targeted companies. Ameer, *et al.* (2011), followed up his questionnaires with a review of secondary data on derivatives obtained from the 2007 and 2008 annual reports of the companies reviewed in Malaysia.

Limitations of survey questionnaires relate to poor response rates, issues regarding interpretation, non-response bias and comparability issues. The improvement in disclosure required in terms of International Financial Reporting Standards (IFRS), specifically IFRS 7 and IAS 39 relating to mandatory disclosure required in relation to financial instruments, has improved the ability to extract information from annual reports in respect to derivative use. Whilst the use of annual reports may limit the ambit of the study in relation to such issues as investigating the motives for derivative use, the use of annual reports improves the objectivity of such analysis even though such a study may be limited in scope.

In relation to Africa, Modack, Holman and Correia (2012) analysed derivative use of South African companies by reviewing annual financial statements and yet the results of this study of annual reports of the largest 100 companies in South Africa was closely correlated to the results of using a questionnaire survey of derivative use undertaken by Correia, Holman and Jahreskog (2012).

Companies reported to be using derivatives

In the USA, of the companies that responded to the survey by Bodnar, Hayt, Marston, and Smithson (1995), 35% reported the use of derivatives. This is significantly lower than the 63.2% reported by Phillips (1995) for the USA. This difference may stem from the characteristics of the sample of companies targeted in the two studies; Bodnar, Hayt, Marston,

and Smithson (1995), restricted their sample to non-financial companies whilst Phillips (1995) included financial and non-financial companies in his study. Studies by Bodnar, Hayt and Marston (1998) indicate a greater intensity of derivative use by companies but this increased intensity is partially explained by a higher percentage of large companies within the sample.

Table 1. Percentage of companies reporting the use of derivatives (USA and Canada)

	Country	% Companies using Derivatives
Bodnar et al. (1995)	USA	35.0%
Bodnar et al. (1996)	USA	41.0%
Bodnar et al. (1998)	USA	50.0%
Phillips (1995)	USA	63.2%
Jalilvand (1999)	Canada	75.0%

Pramborg (2003) reports the percentage of companies using derivatives in Sweden at 81% and this is significantly higher than the 59% of companies that indicated using derivatives by Alkeback *et al.* (2006). Whilst Pramborg (2003) makes no reference to such a distinction, Alkeback *et al.* (2006) restricts their sample to non-financial firms with headquarters inside Sweden. It is therefore not clear whether the difference relates to the sample size employed by Pramborg (250 companies) as compared to that of Alkeback (134 companies). Further, the potential impact of centralised risk management decision-making may explain the huge difference in reported derivative use between the two studies; Alkeback *et al.* (2006) report that up to 60% of companies use

centralised risk management decision-making. The growth in the percentage of companies using derivatives from 52% to 59% (Alkeback *et al.* 1999 & 2006) is attributable to a greater intensity of derivative use by medium and small firms.

Bodnar and Gebhardt (1999), Bodnar *et al.* (2001) and De Ceuster *et al.* (2000) report similar levels of derivative usage for Germany, Belgium and the Netherlands respectively. The surveys conducted by Sprčić *et al.* (2008), Spyridon (2008) and Selv, Y. *et al.* (2010) reported a lower percentage of derivative use amongst companies in Croatia, Greece and Turkey respectively. Table 2 presents derivative use by European companies (excluding the UK);

Table 2. Percentage of companies reporting the use of derivatives (Europe excl. UK)

	Country Covered	% Companies
Alkeback & Hagelin (1999)	Sweden	52.0%
Alkeback <i>et al.</i> (2006)	Sweden	59.0%
Pramborg, (2003)	Sweden	81.0%
Bodnar & Gebhardt (1999)	Germany	77.8%
Bodnar <i>et al.</i> (2003)	Netherlands	60.0%
De Ceuster, <i>et al.</i> (2000)	Belgium	65.8%
Sprcic (2007)	Slovenia	65.9%
Sprcic (2007)	Croatia	43.0%
Spyridon (2008)	Greece	33.9%
Selv & Türel (2010)	Turkey	28.0%

A number of studies of derivative use have been undertaken for the UK. Grant and Marshall (1997) report that 90% of companies in the UK use derivatives. This is significantly higher than that reported in other studies for the UK (see Bailly *et al.* 2003, Mallin *et al.* 2001 and El-Masry 2006). Grant and Marshall restricted their sample of companies to 250 of the largest firms in the UK, whereas the studies

of Bailly *et al.* (2003), Mallin *et al.* (2001) and El-Masry (2006) included smaller companies.

The results of the studies by Bailly *et al.* (2003) supports the premise of a positive correlation between firm size and the intensity of derivative use and this may partially explain the difference in the reported use of derivatives between the study by Grant and Marshall (1997) and Bailly *et al.* (2003), Mallin *et al.* (2001) and El-Masry (2006).

Table 3. Percentage of companies reporting the use of derivatives in the UK

	Country Covered	% Companies using Derivatives
Bailly <i>et al.</i> (2003)	UK	72.0%
Grant and Marshall (1997)	UK	90.0%
Mallin <i>et al.</i> (2001)	UK	60.0%
El-Masry (2006)	UK	67.0%

Studies on derivative use have been undertaken in other countries in Asia as well as Australia, New Zealand and emerging economies. The percentage of companies reporting the use of derivatives in Hong Kong and Singapore is high at 81% and 75% respectively (Sheedy, 2006). As large companies were poorly represented in the sample of companies surveyed by Sheedy (2006), the expectation would have been that the overall rate of derivative use would be low since the level of derivative use is found to be positively correlated with company size (Bodnar *et al.* 1996 & 1998). Yet, derivative use amongst small and medium companies in Hong Kong and Singapore is high and this partially explains the higher overall rate of derivative use by companies in Hong Kong and Singapore.

Berkman, Bradbury and Magan (1997) found that 53.1% of companies in New Zealand used derivatives. A subsequent study for New Zealand by Prevost *et al.* (2000) reported a higher usage rate of 67.1% by companies in New Zealand. Both surveys

reported a high percentage of derivative use by large companiesⁱ which is consistent with other studies, however, Prevost *et al.* (2000) reported a higher percentage of smaller companies using derivatives; with more than 50% compared to 36% reported by Berkman *et al.* (1997). A similar level of derivative use by companies in the Industrial sector (52.8%) and Mining sector (61.5%) was reported by Berkman, Bradbury, Hancock, and Innes (2002) for Australia.

In Malaysia, Ameer, *et al.* (2009), reported a derivative usage rate of 24% and this is supported by Bartram *et al.* (2009) who reported that only 20.9% of firms in Malaysia used derivatives based on a review of financial statements.

ⁱ For Berkman *et al.* (1997) company size is based on market value. Large >\$250m; Medium < \$250m and >\$50m and small <\$50m For Prevost *et al.*, (2000), large firms are defined as those with sales value in excess of NZ\$750m and small firms are defined as those with sales value below NZ\$50m.

Table 4. Percentage of companies reporting the use of derivatives (Asia, New Zealand and Australia)

	Country	% Companies using
Berkman <i>et al.</i> (1997)	New Zealand	53.1%
Prevost <i>et al.</i> (2000)	New Zealand	67.1%
Berkman <i>et al.</i> (2002)	Australia	(Industrial) 52.8%
Berkman <i>et al.</i> (2002)	Australia	(Mining) 61.5%
Sheedy (2006)	Hong Kong	81.0%
Sheedy (2006)	Singapore	75.0%
Shu & Chen (2003)	Taiwan	37.0%
Pramborg (2003)	Korea	51.0%
Ameer (2009)	Malaysia	43.0%

Junior (2007) studied the use of foreign currency derivatives of 212 Brazilian firms, which represented more than two thirds of all publicly traded firms, and found that the growth in the percentage of firms using currency derivatives to be significant. In 1996, 8.2% of firms were found to be using foreign currency derivatives but this had grown to 21.9% by 2004. A change from a fixed to a flexible exchange rate system during this period would have partially contributed to the growth in the use of foreign currency derivatives. Bartram *et al.* (2009) found from a sample of 89 large firms that 69.6% of firms in Latin America use derivatives.

Al-Momani and Gharaibeh (2008) studied the extent to which firms in Jordan engage in the use of derivatives to manage foreign exchange risk. Their study found that 66% of firms engage in the management foreign currency risk. However, only a small fraction of these companies engage in derivative transactions to manage these risks. The most common methods used by firms to reduce foreign exchange risks include the use of “natural hedging techniques” (Al-Momani & Gharaibeh 2008, p.219). In another study, Bartram *et al.* (2009) reported on derivative use

in two countries in the Middle East and found that 67.6% of firms in Israel reported to be using derivatives and yet no firms were found to be using derivatives in Jordan. Al-Momani and Gharaibeh (2008) gathered information on the use of derivatives via questionnaires to directors; and these were written in Arabic. Bartram’s primary source of information was obtained by matching firms on the Thomson Analytics database with firms that have annual reports in English.

The percentage of companies reporting the use of derivatives in South Africa remained consistent over the period 2006 to 2010 (Correia, Holman & Jahreskog 2012; Modack, Holman & Correia 2012). The study by Correia *et al.* (2012) was carried out by mailing questionnaires to 98 of the largest listed non-financial companies in South Africa in 2006, whilst the study by Madock *et al.* (2012) was carried out by reviewing the annual financial reports in 2009 and 2008 of the largest 100 listed companies in South Africa. This partially explains the high percentage of reported derivative use by companies in these studies. The results are set out in Table 5.

Table 5. Percentage of companies reporting the use of derivatives (South Africa)

	Country Covered	% Companies using Derivatives
Correia, Holman & Jahreskog (2012)	South Africa	90.0%
Modack, Holman & Correia (2012)	South Africa	93.0%

2.3 The relationship between the use of derivatives and the size of the firm

Company size has been identified as a significant determinant of derivative use and may be linked to the existence of economies of scale as well as to the greater range of risk exposures that larger companies are expected to experience (Bodnar *et al.* 1999;

Bodnar *et al.* 2003). For Canada, Jalilvand (1999) reported that the companies using derivatives are significantly larger than non-users. Table 6 summarises differences in derivative use amongst large (>\$250m), medium (\$50m-\$250m) and small (<\$50m) companies in the USA. Company size is based on market capitalisation.

Table 6: Percentage of companies using Derivatives (by company size) (USA)

	Large	Medium	Small
Bodnar <i>et al.</i> (1998)	83%	45%	12%
Bodnar <i>et al.</i> (1996)	59%	48%	13%
Bodnar <i>et al.</i> (1995)	65%	30%	12%

In studies carried out in the UK and Europe region, the percentage of large companies reporting the use of derivative exceeded 75%; the only exception being Belgium. Only 40% of large companies in Belgium reported the use of derivatives (De Ceuster *et al.* 2000). One of the reasons cited for

the low level of derivative use by large companies in Belgium is related to policy restrictions imposed on the treasury department by the board of directors; 90% of non-users cite this as an important consideration in their decision concerning the use of derivatives. As with all other studies, a decrease in the

tendency toward the use of derivatives as company size declines is evident, which supports the premise that derivative use is positively related to company

size . Table 7 depicts derivative use by company size for Europe, including the UK.

Table 7. Percentage of companies using Derivatives by company size* (Europe)

	Large	Medium	Small
Alkeback <i>et al.</i> (2006) - Sweden	89%	68%	34%
Bodnar <i>et al.</i> (2003) - Netherlands	88%	57%	42%
Bailly <i>et al.</i> (2003) - UK	97%	70%	40%
Mallin <i>et al.</i> (2001) - UK	100%	63-81%	29-66%
De Ceuster <i>et al.</i> (2000) - Belgium	40%	23%	37%
Bodnar & Gerhardt (1999) - Germany	75-94%	84-88%	50-55%

* Definition of company size:

- Bodnar *et al.*, (2003) (the Netherlands) - Company size is based on turnover: Large >\$800m; Medium < \$800m and >\$250m and small <\$250m
- Bailly *et al.*, (2003) (The UK) - Company size is based on market value: Small = Market Value < GBP100m; Medium= Market Value between GBP100m and GBP1bn; Large = Market Value > GBP1bn
- Mallin *et al.*, (2001) (UK) - Company size is based on Turnover: Small = BGP0-GBP90m; Medium=GBP91m-GBP1bn; Large=GBP1bn and higher
- De Ceuster *et al.*, (2000) (Belgium) - Company size is based on turnover: Small=,8.23bnBEF; Medium = 8.23bnBEF - 22.43bnBEF; Large=>22.43bnBEF

Bodnar G.M and Gerhardt G (1999) (Germany) - Company size is based on market value: Large >DM3.3b, Medium <DM3.3b and >DM0.66b; Small <DM0.66b

Sheedy (2002) found that companies across all sizes within Hong Kong and Singapore tend to use derivatives. A likely explanation for this high use of derivatives among companies of all sizes in these two countries is cited by Sheedy to be due to a greater

international orientation of companies as compared to their American counterparts (Sheedy 2002, p.9). In New Zealand, 100% of large companies reported the use of derivatives (Berkman *et al.* 1997).

Table 8. Percentage of companies using Derivatives by company size (Asia & NZ)

	Large	Medium	Small
Sheedy, E (2002) - Hong Kong	86%	88%	68%
Sheedy, E (2002) – Singapore	91%	77%	55%
Berkman <i>et al.</i> , (1997) - New Zealand	100%	70%	36%
Definition of company size:			
<ul style="list-style-type: none"> • Berkman <i>et al.</i>, (1997) (New Zealand) - Company size is based on market value. Large >\$250m; Medium < \$250m and >\$5m and small <\$50m • Sheedy (2002) does not define the size categories but compares results to the Bodnar et al (1998) and is therefore assumed to apply similar size categorisations as Bodnar. 			

With the exception of Belgium, all countries outside of the USA show a greater tendency toward the use of derivatives amongst medium and small firms as compared to their USA counterparts. This

result is attributed to the potentially greater currency exposure of many of the countries outside of the USA given the openness of these economies relative to that of the USA (Berkman *et al.* 1997; Bodnar *et al.* 2003;

Sheedy 2002) as well as the international pricing of products in US Dollars. It is also evident that there has been a growth in the use of derivatives by companies of all sizes over time. Alkeback *et al.* (2006), reported that the use of derivatives amongst the medium and smaller companies in Sweden increased significantly from 1996 to 2003. Medium companies who reported the use of derivatives increased from 43% to 68% and smaller companies using derivatives increased from 18% to 34%. This trend is also evident in the studies by Bodnar *et al.* (1994) and Bodnar *et al.* (1998). Junior (2007) in a study of the use of currency derivatives by Brazilian companies reported that larger firms were more likely to use currency derivatives. Shiozer and Saito (2009) reported a greater intensity of derivative use by large firms in Latin America (Argentina, Brazil, Chile and Mexico) and indicated that this may be due to the fact that large firms in Latin America have often had debt stated in foreign currency.

2.4 The relationship between the use of derivatives and industry sector

As with the analysis of the use of derivatives by size of the firm, a number of studies (see Jalilvand 1999; Spric 2007; Alkeback *et al.*, 2006; Bodnar &

Gerhardt 1999; Junior 2007 and Schiozer & Saito 2009) did not analyse the use of derivatives use by industry sector. Bodnar *et al.*, (1995, 1996, and 1998) for the USA found the use of derivatives to be most common amongst companies in commodity-based (primary sector) industry sectors and manufacturing industries. Bodnar *et al.* (1998) reported that 68% of commodity based companies used derivatives, 48% of manufacturing companies used derivatives and 42% of transportation, retail / wholesale and services companies used derivatives. The higher percentage of companies using derivatives in the commodity-based industries in the USA is linked to the availability of suitable derivative products and relative maturity of commodities derivatives exchanges in the USA (Bodnar *et al.*, 1995). These percentages had increased since Bodnar *et al.* (1995) but were consistent across industry classification.

All studies of derivative use in the UK and Europe show consistently that the use of derivatives by firms across all sectors is higher than that of their North American counterparts. Manufacturing firms in the UK and Europe show on average a greater tendency toward the use of derivatives than firms in the primary sector.

Table 9. Percentage of companies using Derivatives by Industry Classification (Europe)

	Primary	Manufacturing	Service
Bodnar <i>et al.</i> (2003) - Netherlands	<i>not given</i>	66%	48%
Bailly <i>et al.</i> (2003) - UK	77%	75%	<i>not given</i>
Mallin <i>et al.</i> , (2001) - UK	57%	63%	57%
Alkebach and Hagelin (1999) - Sweden	63%	79%	39%

Alkeback *et al.*, (1999) attributes the trend in the UK and Europe to that fact that economies such as that of Sweden and the Netherlands are characterised as small open economies; as such manufacturing companies in these countries who engage in high levels of international trade are exposed to a high level of foreign exchange risk. Companies in the UK show a higher level of derivative use in the manufacturing sector as compared to their US

counterparts (Mallin *et al.* 2001; Bailly *et al.* 2003). There is a greater tendency toward derivative use by firms in the manufacturing sector in countries such as New Zealand, Taiwan and Hong Kong relative to their counterparts in the USA [Berkman *et al.* 1997; Shu & Chen 2003; Sheedy 2002). However, this may also be related these economies being small open economies.

Table 10. Percentage of companies using Derivatives by Industry Classification (Asia & NZ)

	Primary	Manufacturing	Service
Shu & Chen (2003) - Taiwan	54%	47%	0%
Sheedy (2002) - Hong Kong	93%	81%	58%
Sheedy (2002) - Singapore	100%	85%	63%
Berkman <i>et al.</i> (1997) - New Zealand	29%	82-86%	32-86%
Ameer <i>et al.</i> (2011) - Malaysia	38%	20%	27%

For the New Zealand study by Berkman *et al.* (1997), derivative use for the service category includes services (32%), retail and wholesale (86%)

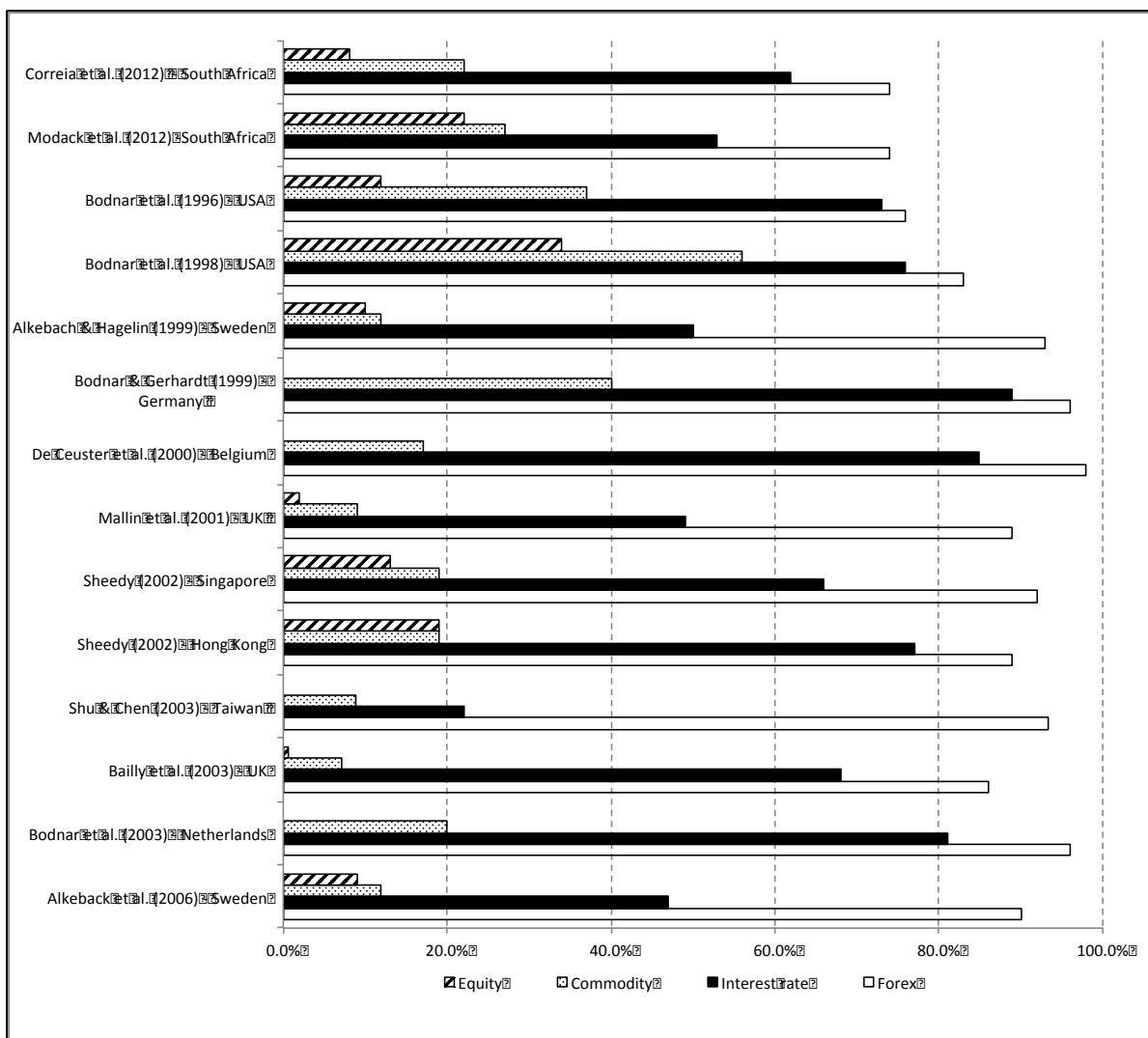
and transport & utility (73%) whilst manufacturing is divided between non-durables (82%) and durables (86%). One of the characteristics of firms in Hong

Kong and Singapore is the higher rate of derivative use across all sectors. The service sector within Singapore and Hong Kong is relatively large as compared to service sectors in many other economies. Bodnar *et al.* (1998) report a lower tendency among service sector firms to use derivatives and this finding is reaffirmed in the studies by Bodnar *et al.* (2003) for the Netherlands, Mallin *et al.* (2001) for the UK, Alkebach and Hagelin (1999) for Sweden. Sheedy (2002) found that there was no significant difference in the percentage of companies using derivatives across all sectors in Hong Kong and Singapore and the service sectors recorded a significantly high level of derivative use of 58% and 63% for Hong Kong and Singapore, respectively.

2.5 Financial price risk exposures and derivative use

Corporate exposure to financial price risk is broadly categorised as foreign exchange, interest rate, commodity and equity exposures and the kinds of derivatives used are generally classified as OTC forwards, futures, swaps, OTC options and exchange traded options. Figure 1 presents the types of risk exposures that are hedged by companies in prior studies. All studies report significant hedging by non-financial companies of foreign currency and interest rate risks and significantly lower hedging or exposure to commodity and equity price risks.

Figure 1. Types of risk exposures hedged by companies



The high percentage of companies using derivatives to manage currency exposure is consistent across all studies and more than 75% of companies in all studies indicated that they use derivatives to manage foreign exchange exposure. The higher percentage of companies using derivatives to manage

foreign exchange exposure in many of the economies outside of the USA is often consistent with their status as open economies.

Modack *et al.* (2012) and Correia *et al.* (2012) found for South Africa that the largest 100 companies primarily used OCT forwards to hedge foreign

exchange exposure and interest rate swaps to hedge interest rate risk. OTC options were also used but little use was made of exchange traded options or futures. Modack *et al.* (2012) reported that 65% of swaps were entered into to hedge interest rate risk; 83% of forward contracts were undertaken in order to hedge foreign currency risk and 47% of all option contracts were entered into to hedge equity price risk. The study found that all futures contracts were undertaken to hedge commodity price risk.

Whilst Sprcic (2007), De Ceuster *et al.* (2000), Berkman *et al.* (1997), Bailly *et al.* (2003), Bodnar *et al.* (1996, 1999 and 2003) and Correia *et al.* (2012) found OTC Forwards to be the most preferred instrument for the management of foreign exchange exposure, Alkeback and Hagelin (1999) found that firms in Sweden use a wider range of instruments to manage currency exposure and companies use OTC Forwards, Exchange-traded Forwards, Swaps and Futures. The most preferred instruments to manage currency risks in Malaysia is cited as OTC Forwards (Ameer *et al.* 2011) and this is due to the greater flexibility of Forward foreign-exchange contracts (which are available from licensed local banks) over other standardized foreign-exchange Options and Futures contracts. In New Zealand, OTC Forwards is cited as the derivative instrument of choice to manage currency risk (Berkman *et al.* 1997). Interestingly, Junior (2007) reported a preference by Brazilian firms to use swaps to hedge currency exposure. However, this may be due to the longer term nature of currency exposures of Brazilian firms to foreign currency debt financing.

Interest rate risk exposure is the second most commonly managed exposure cited in all studies. Studies indicate that firms mostly use interest rate swaps to hedge interest rate risk and the growth in the use of swaps to hedge interest rate risk has been impressive. More than 60% of firms in all studies indicated the use of derivatives to manage interest rate exposure; the only exceptions being the UK (Mallin *et al.* 2001), Sweden (Alkeback & Hagelin 1999 and Alkeback *et al.* 2006), South Africa (Modack, *et al.* 2012 and Correia *et al.* 2012) and Taiwan (Shu & Chen, 2003). Alkeback *et al.* (2006) found that the reason behind the lower use derivatives to manage interest rate exposure in Sweden to be size related; they found that only 5% of small companies managed interest rate exposure and that interest rate exposure tended to be managed to a larger extent by larger companies than medium-sized companies. In South Africa, more than 50% of companies used interest rate swaps to hedge interest rate risk (Modack, *et al.* 2012 and Correia *et al.* 2012) but both these studies refer to the use of swaps by large companies. Across all studies the most favoured derivative instrument for the management of interest rate exposure tended to be Swaps. Studies reported a significant growth in the use of swaps to manage interest rate risk exposure (see Bartram *et al.* 2004; Correia *et al.* 2012).

A pattern of significantly lower use of derivatives to manage commodity price risk and equity risk, is consistent across all studies and all countries. The use of derivatives to manage commodity price risk is highest in the USA which is consistent with a larger primary sector and a more developed market for these types of derivatives.

2.6 The most important objective in the hedging decision of firms

The studies of De Ceuster *et al.* (2000), Bodnar and Gerhardt (1999), Mallin *et al.* (2003), Bailly *et al.* (2003) and Alkeback *et al.* (2006) conclude that a major objective of European companies in hedging with derivatives is to minimise fluctuations in accounting earnings. An exception relates to the Netherlands (Bodnar *et al.* 2003) where 60% of firms cite the minimisation of fluctuation in cash flow as a major objective. It is believed that the role of accounting and taxation rules has a material influence on the motives for hedging activity in Europe (De Ceuster *et al.* 2000, p. 311).

The initial studies by Bodnar *et al.* (1995 & 1996) indicate a greater concern for the minimisation of cash flow volatility in determining the hedging decision in the USA. The management of cash flow volatility is also cited as a major objective in the hedging decision amongst Korean companies (Pramborg 2003). According to Schiozer and Saito (2009), the important objectives behind the hedging decision by Latin American firms relates to the reduction of financial distress costs and in order to guarantee adequate funding for investment opportunities.

The hedging of the balance sheet involves using derivatives to protect the balance sheet values and balance sheet ratios and will therefore reduce the volatility of asset and liability values (Correia *et al.* 2009, p.22). Yet few companies cited the protection of balance sheet values as a major objective for using derivatives. Alkeback *et al.* (2006) quotes the highest percentage of companies citing the protection of the balance sheet as a major objective (30%); in every other study, fewer than 14% of companies cited protection of balance sheet values as a major objective in the hedging decision.

2.7 Reasons for not using Derivatives

Some of the reasons cited for not using derivatives include the lack of exposure to financial risk (Mallin *et al.* 2001; El-Masry 2006) and the high cost relative to the perceived benefit due to onerous reporting requirements (El-Masry 2006; Sprčić *et al.* 2008). Other reasons for not using derivatives include policy restrictions within the firm, lack of knowledge and concerns about disclosure (De Ceuster *et al.* 2000); Al-Momani & Gharaibeh 2008; Alkeback & Hagelin 1999). Correia *et al.* (2012) found that companies in

South Africa refrained from using derivatives due to a lack of exposure to movements in interest rates, exchange rates and commodity and equity price risks. In addition, concerns about the accounting treatment thereof and the cost of establishing and maintaining a derivatives program as well as transaction costs were cited as concerns or reasons for not using derivatives.

2.7 Other findings

Jalilvand (1999) found that large multi-national companies are more likely to use derivatives and that derivative users have higher leverage ratios and lower credit ratings than non-users. It is thought that hedging reduce(s) the adverse wealth effects of keeping longer term debt by lowering the firm's default risk (Jalilvand 1999, p.220) Consistent with the conclusions by Jalilvand (1999) for Canada, Sprčić *et al.* (2008), for Croatia and Slovenia, found a positive relationship between derivative usage and foreign ownership and/or the company's status as a multi-national company.

Derivative use by non-financial firms is more likely to be driven by economic factors rather than cultural influences (Alkebäck & Hagelin 1999; Spyridon 2008). This finding was consistent with the findings by Bodnar and Gebhardt (1999) for North America. Bodnar *et al.* (2001) concluded that the higher propensity of Dutch firms to use derivatives, as compared to USA firms, can be explained by the greater openness of the Dutch economy and broader economic factors but not by institutional differences. Schiozer and Saito (2009) concluded that firms operating in economies with sophisticated financial markets, volatile currencies and high level of foreign corporate ownership such as in Brazil and Chile are more likely to use derivatives. Schiozer and Saito (2009) reported that 84.6% and 91.6% of firms were found to be using derivatives in Brazil and Chile respectively. These high rates of derivative use may be driven by the make-up of the sample of companies on which the study was carried out which consisted of companies in Brazil and Chile that were part of the Bank of New York Latin American ADR (American Depositary Receipts) index as at year end 2004. Junior (2007) concluded that larger companies with a higher ratio of foreign sales to total sales and those with higher ratio of foreign debt to total debt were more likely to use derivatives to reduce the probability of financial distress and that firm leverage was positively correlated with derivative usage.

Although there is little research on derivative use in Africa, the African Fixed Income and Derivatives Guidebook by the African Development Bank Group (2010) sets out country guides on financial markets in Africa. Whilst this guide indicates that there are active if illiquid fixed income markets, and foreign currency markets (many subject to restrictions), there are few active derivative markets in Africa. Adelegan (2009) in an IMF study, reported that the derivatives market

had grown significantly in South Africa and that this provided lessons for the rest of Africa which should focus on regional co-operation in the listing and trading of derivative instruments.

3. Data and methodology

3.1 Data collection

The sample of firms include all listed non-financial firms in Africa. This required an extensive search for published annual reports of all listed firms across Africa. Disclosure of derivative use and qualitative and quantitative information should be disclosed in the financial statements and notes to the financial statements. Annual reports are mainly prepared in accordance with International Financial Reporting Standards (IFRS) or in line with local Generally Accepted Accounting Practice (GAAP). In terms of IFRS, annual reports were analysed and reviewed on the basis of the information required to be disclosed in terms of IFRS 7 (Financial Instruments: Disclosures) and IAS 39 (Financial Instruments: Recognition and Measurement). For African companies with annual reports prepared in accordance with local GAAP, a manual search was performed searching for key words such as "derivatives", "forwards", "swaps", "futures", "options", and "hedging".

Several financial resources were employed in order to procure the required annual reports;

- The Bloomberg financial database was used as the initial source of information. However, the searches returned company details that did not include the notes to the financial statements and in some cases financials were not listed at all.
- The BFA McGregor financial database was then used as a secondary source of information. There were approximately thirty financial statements available from this source.
- As a third option, the website *African Financials* (www.africanfinancials.com) was used as a source of information. This website contains a database of annual financial reports of companies trading in Africa. The database has in excess of 4000 current and historical financial reports and proved to be a useful source of financial information.
- As a fourth option the financial-database of the Thompsons Reuters Corporation was used to source information, which was missing from the first three sources.
- Finally, for those firms which were still not available on these data sources, an online search was done for the company's official website from which the relevant financial statements were accessed, if available.

The study was able to access the annual reports of 692 listed non-financial firms trading in Africa although there was an uneven distribution number of companies per country. The study covers the period 2008 and 2009. The list of companies included in the

study was obtained from a Bloomberg database on the 3rd of May 2010; this list formed the basis for the selection of companies included in the study.

3.2 Sample of countries

This study is a comprehensive review of derivative usage by listed companies in Africa. Information on the use of derivatives, the reasons behind the use of derivatives and the instruments used was obtained from annual financial statements of 692 firms within the African continent. Unlike the questionnaire-based survey approach where the data is reliant on the responses of companies, the financial statement review approach adopted in this study allows for a much broader coverage and eliminates to an extent the problems of low response rates and non-response bias associated with the questionnaire-based approach.

The objective of the study was to analyse the use of derivatives in every country on the African continent. However, this was not possible due to lack of information for many countries. The starting point of the study is therefore with countries in which an active stock exchange was available at that point in time. On this basis of this criterion, the initial sample consisted of 28 countries with securities exchanges. Cameroon, Libya, Algeria, Cape Verde, Rwanda and Sudan were excluded due to limited accounting disclosure despite the presence of an active securities exchange.

Mozambique had only 3 listed companies of which only 1 had financial statements but which lacked sufficient information to be considered in the final sample of countries chosen. The final list of countries is recorded in Table 11.

Table 11. Countries included in this study

Benin	Senegal	Kenya	South Africa
Ivory Coast	Tunisia	Uganda	Namibia
Burkina Faso	Egypt	Zambia	Botswana
Togo	Morocco	Malawi	Zimbabwe
Ghana	Nigeria	Tanzania	Mauritius

The countries Benin, Ivory Coast, Burkino Faso, Togo, Senegal and Ghana fall within the West African Economic Monetary Union (WAEMU) and will be grouped and referred to as WAEMU in this study.

3.3 Sample of companies

The initial number of listed companies consisted of 1,383 companies. However, 387 of these are financial services companies and were therefore excluded in line with the objective of the study to analyse derivative use by non-financial firms in Africa. This resulted in a potential population of 996 non-financial listed companies. Despite an intensive search for all annual reports, it was not possible to obtain the annual

financial statements of 304 companies and these companies were excluded from the study leaving 692 companies (70%) in the final sample.

Of the countries under review, seven countries had less than ten companies in their final sample, six countries had between twenty and fifty companies in their final sample and two countries (Egypt and South Africa) had more than 50 companies in the final sample. The companies in Egypt and South Africa therefore make up 61% of the total sample of companies in Africa. It would be expected that any regional view taken in the analysis would be dominated by activity within these two countries.

Table 12. Companies making up the final sample

Country	Listed companies	Non- financial companies	Companies in the final sample	Effective sample rate
Morocco	76	54	40	74%
Egypt	212	155	118	76%
Tunisia	54	33	25	76%
Nigeria	222	155	49	32%
Uganda	14	6	6	100%
Kenya	58	40	25	63%
Zambia	26	25	16	64%
Namibia	8	1	1	100%
Tanzania	16	10	9	90%

Botswana	21	11	6	55%
WAEMU	69	39	24	62%
Malawi	15	6	3	50%
Mauritius	84	56	22	39%
South Africa	424	328	307	94%
Zimbabwe	84	77	41	53%
Totals	1383	996	692	69%
<i>South Africa</i>	<i>424</i>	<i>328</i>	<i>307</i>	<i>94%</i>
<i>Africa(excl. SA)</i>	<i>959</i>	<i>668</i>	<i>385</i>	<i>58%</i>

A limitation of this type of study relates to the possibility that natural hedges are being used to hedge effectively any longer term risk exposure. For example, exporters of commodities may borrow in the same currency. Further, investors may view forward sales as a negative indicator as has occurred in the gold mining sector as it may be easier for investors to diversify their risks directly. In other words, investors would prefer firms to be exposed to commodity price changes. The other natural hedge may consist of taking advantage of any negative correlation between commodity price movements and changes in the value of the domestic currency. However, in any natural hedging programme, there should be some residual risk exposure and the study refers generally to the use of derivatives.

4. Results of Analysis

4.1 Derivative usage

Across the sample of 692 non-financial companies in Africa, the study found that 201 companies use derivatives and this translates to 29% of the sample population. This is presented per country in Table 13. None of the companies in Zambia, Zimbabwe and Botswana use derivatives whilst countries in which a high rate of derivative usage is recorded generally have very few companies in the sample set. This includes countries such as Namibia, Malawi and Uganda although companies in these countries are generally export orientated. The percentage of use is significantly affected by the number of companies in the final sample but the final results reflect the very low use of derivatives across Africa although there are significant differences on a regional basis.

Table 13. The number of companies using derivatives

Country	Number of companies in the final sample	Number of companies using derivatives	Percentage companies using derivatives
Morocco	40	7	17.5%
Egypt	118	2	1.7%
Tunisia	25	1	4.0%
Nigeria	49	2	4.1%
Uganda	6	2	33.3%
Kenya	25	5	20.0%
Zambia	16	0	0.0%
Namibia	1	1	100.0%
Tanzania	9	3	33.3%
Botswana	6	0	0.0%
WAEMU	24	4	16.7%
Malawi	3	2	66.7%
Mauritius	22	6	27.3%
South Africa	307	166	54.1%
Zimbabwe	41	0	0.0%
Totals	692	201	29.0%

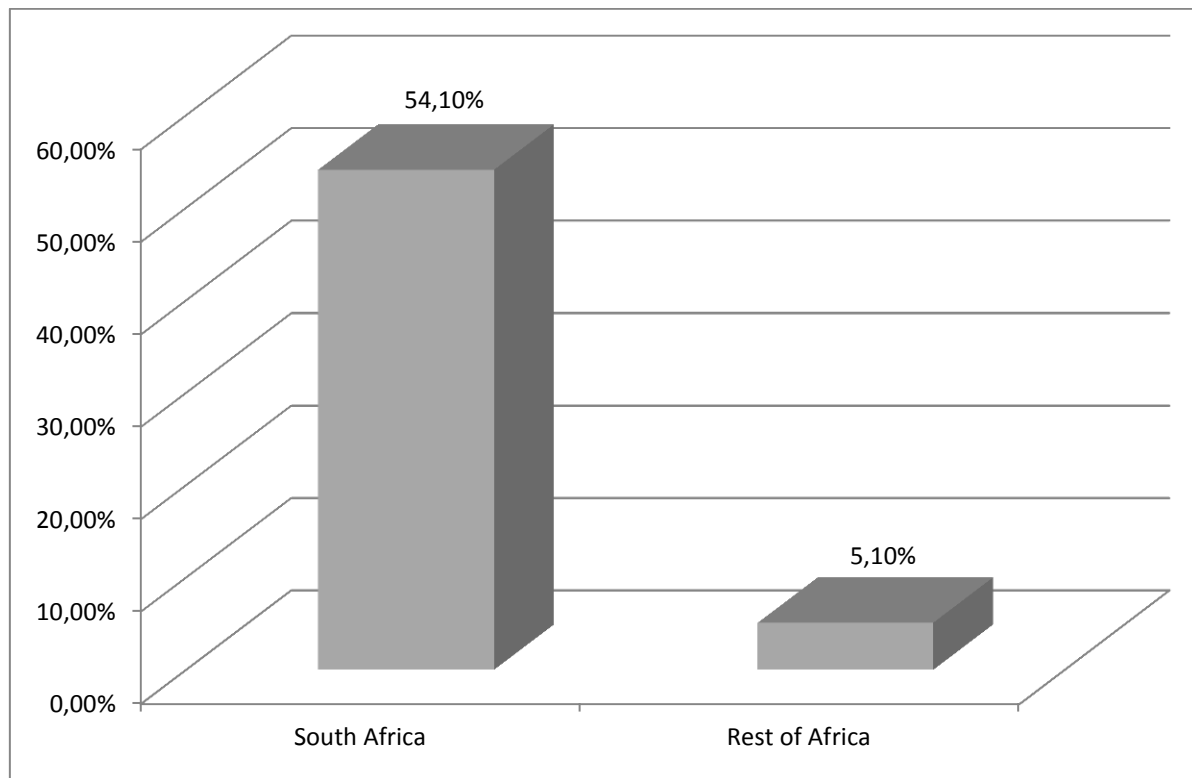
At 166, the number of companies in South Africa using derivatives makes up 82.6% of the total companies using derivatives in Africa. This study found that the percentage of companies using derivatives in South Africa is 54.1%, which is significantly higher than the percentage of companies using derivatives in the Rest of Africa (5.1%). This difference in derivative use is placed in stark contrast

in Figure 2. This study found further that the percentage of companies using derivatives for South Africa is significantly lower than that recorded by Correia *et al.* (2012) and Modack, *et al.* (2012) which reported derivative use at a rate of 90% and 93% respectively. This difference in derivative use is mostly explained by the fact that the sample of companies used in the Correia *et al.* (2012) and

Modack, *et al.* (2012) surveys were made up of the 100 largest JSE listed companies, whereas this study analysed derivative use by all listed companies in South Africa and therefore includes many smaller

companies. This further indicates that there is a positive relationship between firm size and derivative use in South Africa.

Figure 2. The percentage of companies using derivatives in South Africa & Rest of Africa



Given that the number of companies in Egypt and South Africa make up 61% of the total sample of companies in Africa, one would expect that any regional view taken in the analysis would be dominated by activity within these two countries. As is evident from table 6 and figure 3, this view is true for South Africa, but a surprisingly low number of companies in Egypt use derivatives and only 2 out of 188 companies (1.7%) use derivatives. In all Islamic countries the use of derivatives and trading in derivatives is controlled and Ameer, *et al.* (2011) reports that interest rate, foreign currency, and stock index futures do not meet the conditions set out in Islamic law. Yankson (2011) notes that although the Quran prohibits excessive risk in financial transactions, which on the face of it would render

derivatives a prohibitive class of investments, if certain pre-conditions are met even trades in seemingly high risk assets such as interest rates swaps could be permitted. However the challenge of meeting these preconditions restricts the development of the market for derivatives in countries subject to Islamic law.

This study found that only 30.4% of companies that indicated the use of derivatives hedge more than one risk and only 1 company in Africa hedges all four risks. The study found that 16 companies (8.0 % of the companies using derivatives) hedge 3 types of risk exposures whilst 44 companies (21.9%) hedge 2 types of risk and 140 companies (69.7%) hedge 1 type of risk. This is presented in Table 14.

Table 14. Concentration of derivative use in Africa

	Number of Risks hedged by companies			
	Four	Three	Two	One
Africa	1	16	44	140
Percentage	0.5%	8.0%	21.9%	69.6%
South Africa	1	14	36	115
Percentage	0.6%	8.4%	21.7%	69.3%
Africa (excl. South Africa)	0	2	8	19
Percentage	0.0%	11.4%	22.9%	65.7%

With the exception of South Africa, this study indicates that the overall percentage of companies using derivatives is extremely low across Africa and these findings are inconsistent with the results of studies of derivative use in developed economies. This may be attributed to the limited availability of active derivative markets in countries in Africa. This view is supported by Martin *et al.* (2009) who stated that the absence of clear regulations and adequate market infrastructures are perceived as major obstacles to the development of derivative markets in a country and the lack of expertise was also suggested to be a significant constraint to derivative usage (De Ceuster *et al.* 2000). The lack of derivative markets beyond South Africa and the possible advantages arising from the establishment of such markets is explained by Adelegan (2009) in an IMF study of derivatives in Africa.

In order to obtain possible reasons for the low level of derivative use in Africa, interviews were conducted with the senior partners responsible for Africa of three of the largest public accounting firms, being PWC, EY and KPMG. In response to a short questionnaire on their views for the reasons for the low level of derivative use in Africa, these three public audit and accounting firms engaged in business in Africa support the views of Martin *et al.* (2009) and Adelegan (2009) but also state that an added reason for the low level of derivative use for countries on the continent outside of South Africa is the tendency for groups to centralise risk management activities at head office level, and many of these head offices are not within the country in which business is conducted. This raises questions as to shareholder bases and risk management in that the shareholders of subsidiaries are not effectively obtaining the risk management benefits of derivative use in relation to the shareholders at the holding company level. Surprisingly, the restriction on derivative use due to capital controls is not cited as a major factor determining the intensity of derivative use in countries in Africa. However, the lack of depth in the money and capital markets in Africa is viewed as a further restriction on the intensity of derivative use. This is because duration in the money market is

generally less than one year and although the capital market may have bonds issued for periods that may extend to 5 years, trading in the secondary market is characteristically very thin. As a result, pricing off the yield curve is difficult and as such derivatives are difficult to price and if priced tend to be expensive.

4.2 Types of Risk hedged

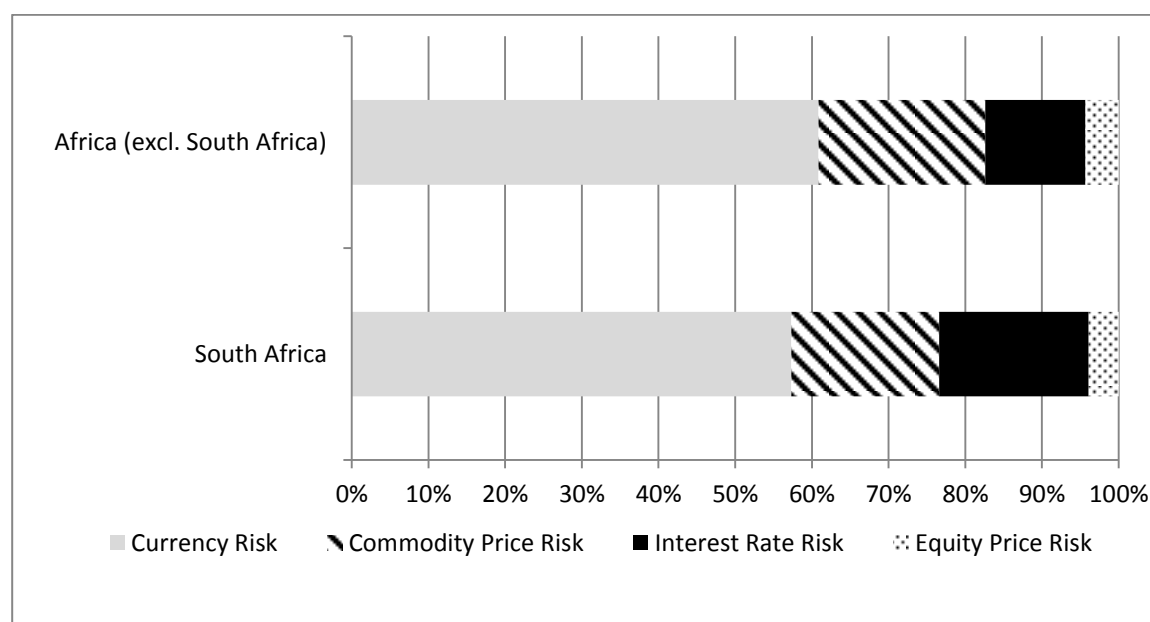
Figure 3 illustrates that derivatives are mainly used to manage currency risks. The analysis indicates that 57.8% of the use of derivatives by companies is devoted to the management of currency risks, whilst 19.6% of the use of derivatives is devoted to the management of commodity price risk and 18.6% and 4.0% of the use of derivatives is devoted to the management of interest rate risk and equity price risk, respectively. The dominance of the use of derivatives to manage currency risks relative to other forms of risk management is consistent with findings of earlier studies in more developed economies such as the USA, UK and Europe.

The use of derivatives to manage commodity price risk ranks second behind that of currency risk, and this trend contradicts the trends found in earlier studies in other regions where the use of derivatives to manage interest rate risk ranks higher than that of commodity price risk. This is mainly true for Africa (excluding South Africa) whilst for South Africa there is a slightly greater focus on hedging interest rate risk (20%) as compared to commodity price risk (19%). The studies by Correia *et al.* (2012) and Modack *et al.* (2012) indicated that a significantly greater number of South African companies were involved in the hedging of interest rate risk as compared to commodity price risk. However, their results apply to the largest 100 companies whilst this study includes all listed JSE companies and therefore includes a greater proportion of smaller listed companies.

The small number of companies per country in Africa that use derivatives, if we exclude South Africa, makes individual country analysis of little value although the major conclusion that derivative use is so low per country is an important finding. Figure 3 therefore analyses derivative use in South

Africa and Africa (excluding South Africa) as separate regions.

Figure 3. Types of risks hedged by firms in Africa



4.3 Derivative Instruments of Choice

Table 15 indicates that companies have an overwhelming preference for OTC Forwards as the main derivative instrument used to hedge risk exposure. The analysis shows that 55.2 % of derivatives used by companies in Africa are OTC Forwards and this is followed by Swaps at 25.6%, OTC Options at 14.3% and Futures at 4.9%.

This trend is consistent with the findings of studies in other regions. The low usage of futures is significant given that many African economies are driven by commodities and Ghana's use of futures was nil despite it being actively involved in the trade of cocoa, a commodity that is actively traded on the global futures market. However, this may reflect the absence of domestic derivative markets.

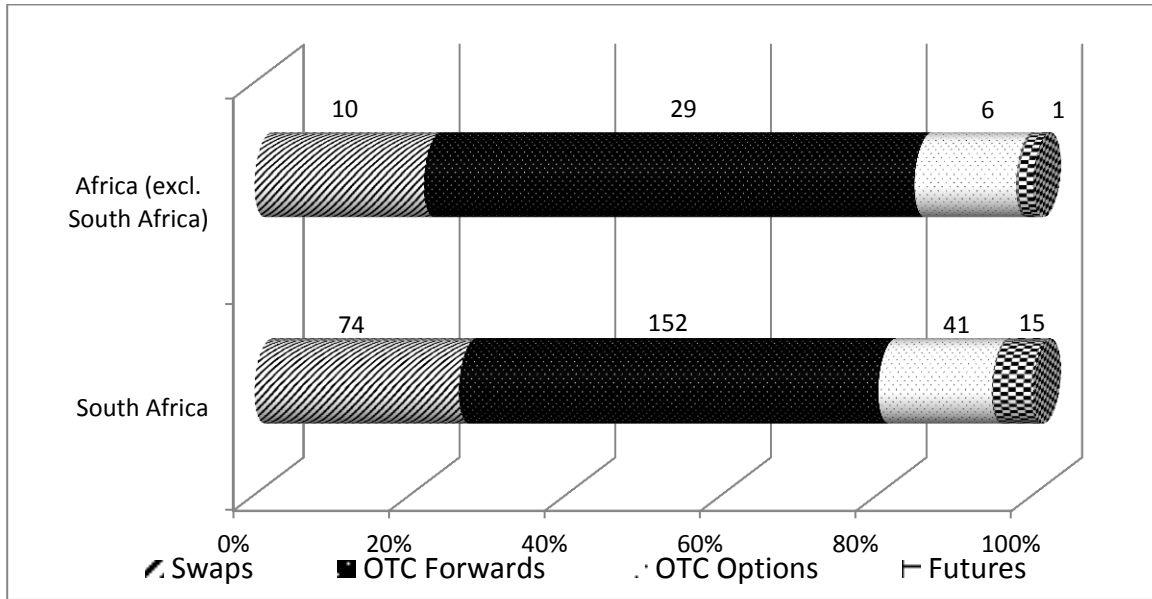
Table 15. Derivative instruments of choice

	Swaps	OTC Forwards	OTC Options	Futures
Morocco	0	5	0	0
Egypt	2	2	0	0
Nigeria	0	0	2	0
Uganda	2	1	1	0
Kenya	2	5	1	0
Namibia	1	1	0	0
Tanzania	0	1	1	1
WAEMU	0	5	0	0
Malawi	1	2	0	0
Mauritius	2	7	1	0
South Africa	74	152	41	15
Total	84	181	47	16

Table 15 confirms again the lack of derivative use beyond South Africa and in Figure 4 presents the proportion of the various derivatives employed within South Africa and Africa (excluding South Africa) as

well as the number of companies employing such instruments in South Africa and Africa (excluding South Africa).

Figure 4. Derivative instruments used by companies in Africa

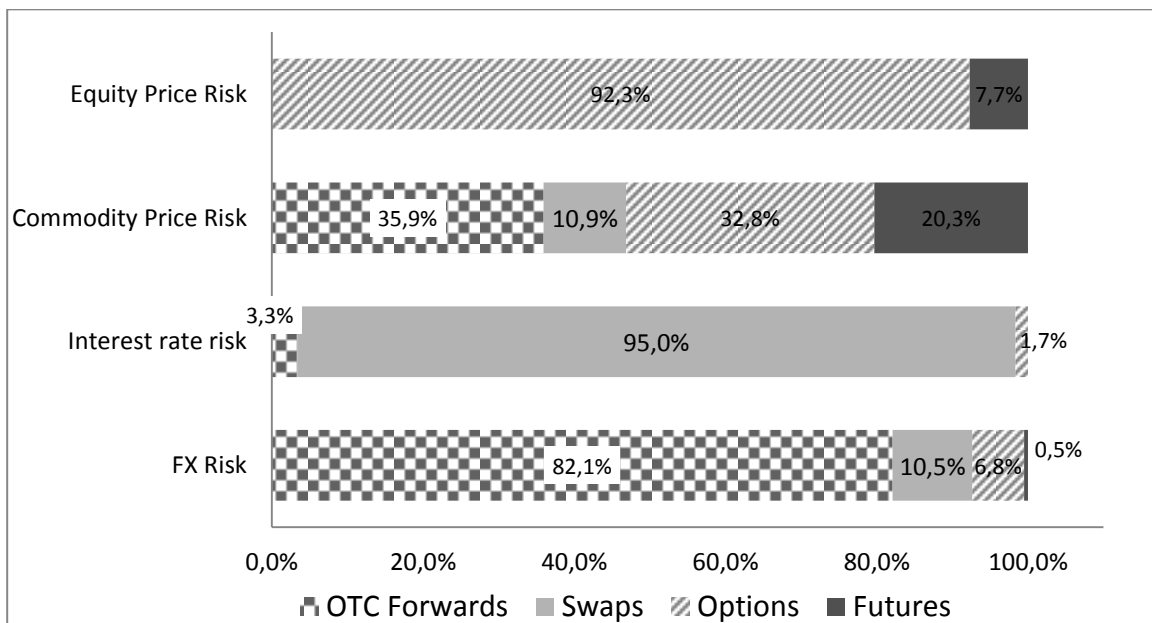


A further question refers to the derivative instruments used in relation to the type of risk exposures. This is set out in Figure 5 which illustrates the derivative instruments employed for the management of each type of risk. For the management of currency risk, OTC Forwards is the instrument of choice as 82.1% of companies that hedge currency risk employ OTC Forwards.

For the management of interest rate risk, Swaps are the preferred derivative employed and the study found that 92.3% of companies that hedge interest

rate risk use Swaps. For the management of commodity price risk, companies tend to use a wider array of derivative instruments. It was found that 35.9% of companies that hedge commodity price risk use OTC Forwards but this is closely followed by the use of OTC Options with 32.8% of companies reporting the use of OTC options to hedge commodity price risk. Finally, although very few companies hedge equity price risk, 90.9% of companies that hedge equity price risk use OTC Options.

Figure 5. The use of derivatives per type of risk exposure

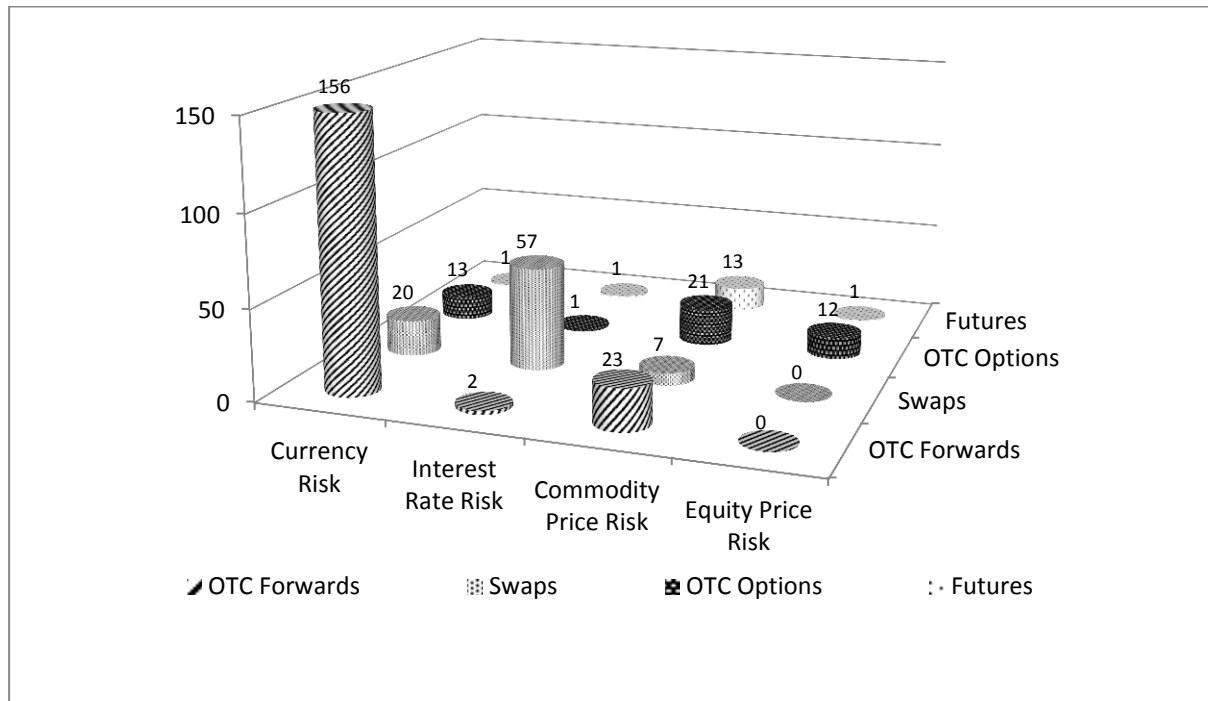


In order to place this in context in relation to the extent of derivative use per type of risk, Figure 6 sets

out the number of companies that hedge each type of risk and the type of derivative employed. This more

clearly indicates the focus on the use of OTC forwards to hedge interest rate risk. Swaps are used to hedge currency risk and the use of Swaps

Figure 6. Derivative instruments employed per type of risk

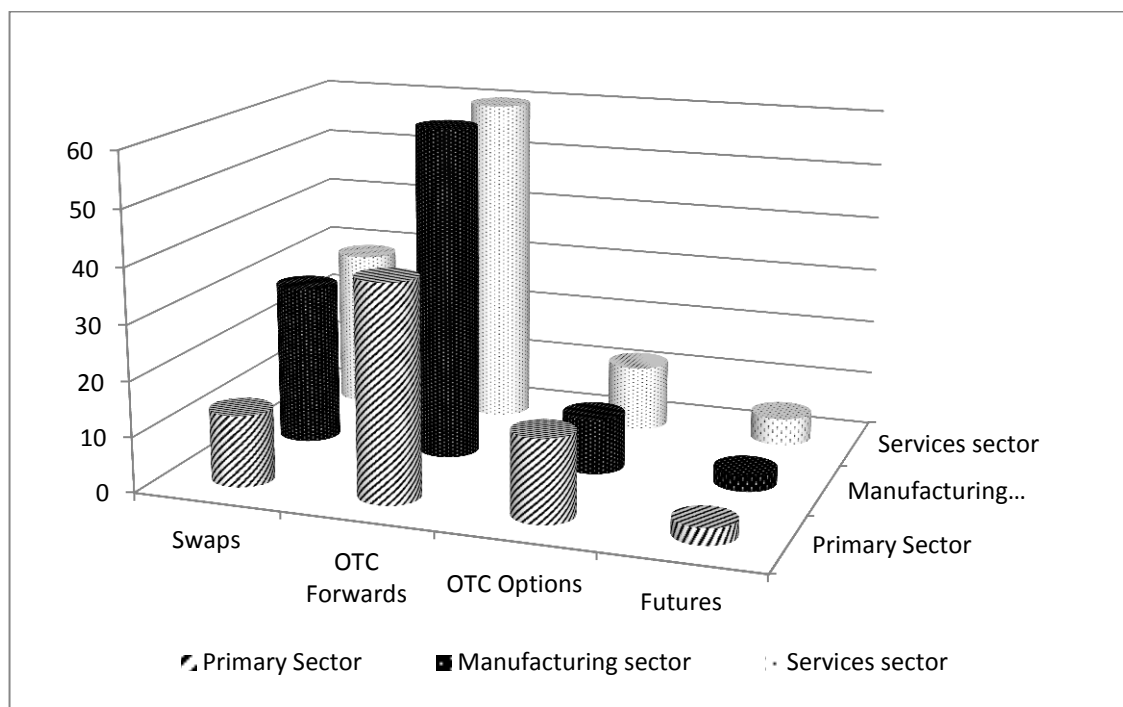


These findings are consistent with earlier studies in other regions which find that OTC Forwards and Swaps are predominantly used for the management of currency risk and interest rate risk respectively. Earlier studies show a trend toward a use of Forwards and Futures for the management of Commodity Price Risk in the USA, UK Europe and East Asia and New Zealand. The African preference for OTC Options ahead of Futures is therefore inconsistent with practices elsewhere. The results for South Africa are consistent with the findings of Correia *et al.*, (2012).

4.4 Derivative use by Sector

Of the companies that use derivatives, 41% are classified under the Manufacturing Sector, 34% under the Services Sector and 25% under the Primary Sector. This trend is consistent with that of the UK and Europe where the tendency to use derivatives is greater in the manufacturing sector than in the primary sector (see Mallin *et al.* 2001; Alkebach &

Hagelin 1999). The experience in the USA is different, here the tendency to use derivatives is greater in the primary sector than in the manufacturing sector, albeit marginally so (Bodnar *et al.* 1995, 1996 & 1998). This trend also differs from that of the countries in East Asia where a high level of derivative use is evident across all sectors. In New Zealand the level of derivative use in the Services sector is dominant (Berkman *et al.* 1997). The dominance of basic materials and manufacturing sectors is consistent with the results postulated by Bodnar *et al.* (1995, 1996 & 1998) and Phillips (1995) who found a high level of derivative use by commodity-based (agriculture, mining & refining) and manufacturing industries. Bodnar *et al.* (1995) concluded that the natural users of derivatives are those firms with exposure to commodities. The derivative use per sector and type of derivatives employed in each sector is presented in Figure 7.

Figure 7. Derivative instruments per sector

OTC Forwards makes up 79.6% of derivatives used in the Primary Sector, 83.1% in the Manufacturing sector and 87% in the Services sector. Swaps makes up 26.5% of derivatives used in the Primary sector, 34.9% in the Manufacturing sector and 42% in the Service sector. OTC Options makes up 30.6% of derivatives used in the Primary sector, 12% in the Manufacturing sector and 17.4% in the Service sector. The use of futures across all sectors is very low. The dominance of OTC Forwards and Swaps as derivative instruments to hedge risk exposures across sectors is consistent with findings in earlier studies.

5. Conclusion

This study examined the use of derivatives by 692 non-financial firms listed in 20 countries in Africa. It uses the disclosure required in terms of international financial reporting standards to determine the extent that companies use derivatives as hedging instruments. The study aimed to understand the extent to which non-financial companies in Africa make use of derivatives, the types of derivatives most commonly used, the types of risks being hedged and the most commonly used derivatives employed for each type of risk exposure. The results indicate that only 201 (29%) companies in Africa engage in the use of derivatives. However, 166 of the 201 (82%) companies using derivatives in Africa are within South Africa. If South Africa is excluded from the analysis then the average number of companies in the remainder of Africa that use derivatives is estimated to be only 5%. This is well below the levels recorded

for other countries. This low rate of derivative use is consistent with an under-developed market and trading infrastructure. Consistent with findings in similar studies for other countries, the highest percentage of derivative use is directed at the management of currency risk and for Africa this is estimated at 57.8%. The use of derivatives to manage commodity price exposure ranks second behind that of currency exposure whilst in most other studies, interest rate exposure ranked second to currency exposure as the risk most commonly hedged with derivatives. Companies were found to have an overwhelming preference for OTC Forwards (55.2%) to hedge and this is followed by Swaps (25.6%), OTC Options (14.3%) and Futures (4.9%). This trend is consistent with the findings of studies for other regions. The low usage of futures is significant given that most African economies are dominated by commodities.

The types of derivatives employed to manage the categories of risk exposures is consistent with prior studies for other regions which indicate that OTC Forwards are predominantly used for the management of currency risk and Swaps are predominantly used to hedge interest rate risk. In contrast to other studies which indicated a trend towards a use of Forwards and Futures for the management of commodity price risk in developed markets, this study found that African firms have a preference for Options ahead of Futures for the management of commodity price risk. The Manufacturing Sector is identified as the largest user of derivatives (41%) followed by the Services Sector (34%) and the Primary Sector (25%). The use of OTC Forwards is identified as the derivative

instrument of choice across all sectors and this is determined by the extent of hedging activity that is concentrated in the hedging of currency risk. The wide use of derivatives to hedge risk exposures is not available to firms in Africa outside South Africa. As derivative use as been found to add value, the lack of derivative use in Africa (outside South Africa) is not aligned to maximising the value of companies in Africa. An important conclusion from this study is the confirmation that companies in less developed countries with less liquid derivatives markets are less likely to hedge, and this applies even for large corporations.

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THE IMPACT OF CORPORATE GOVERNANCE ON FIRM PERFORMANCE IN EGYPTIAN LISTED COMPANIES

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Abstract

This paper examines the impact of corporate governance on firm performance using cross sectional data from non-financial companies listed in the Egyptian Stock Exchange. The 88 non-financial companies on EGX100 index of listed companies on the Egyptian Stock Market are studied to examine the relationship between ownership structure, board structure, audit function, control variables and firm performance by using OLS regression analysis. The results show that ownership structure has no significant effect on firm performance. The only board structure variable that has an effect on firm market performance is board independence. Firm book value performance is affected by both board independence and CEO duality. Firm size and leverage have varying effects on both market and book value performance of firms.

Keywords: Ownership Structure, Board Structure, Audit, Corporate Governance, Firm Performance, Egypt

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1. Introduction

Corporate governance has assumed a central place in the continued effort to sanitize corporate reporting and shore up public confidence in financial markets around the world. The issue seems to revolve around putting the right rules, regulations and incentives in place to ensure transparency and accountability in the management of the affairs of corporate entities (Cadbury, 1992). Interest in corporate governance has grown in the last three decades bringing the term from obscurity to the centre of attention of many academic and professional studies. This interest appears more appropriate at this time, when business executives and auditors are continually being held to higher standards of accountability and responsibility, even though corporate governance issues may be traced back to the nineteenth century with the advent of limited liability incorporation (Vinten, 1998). Corporate governance is viewed as an indispensable element of market discipline (Levitt 1999) and this is fuelling demands for strong corporate governance mechanisms by investors and other financial market participants (Blue Ribbon Committee 1999; Ramsay 2001).

Corporate Governance has received a lot of attention in recent years both in the professional and academic literature. Regulators enthusiastically recommend it and have successfully enacted corporate

governance reforms into law in some countries such as the USA (Sarbanes-Oxley Act, 2002). In other countries such UK (Combined Code of Corporate Governance, 2003) the corporate governance codes are principles of best practice with some indirect element of legislature operating through the respective stock exchange listing rules.

The term corporate governance describes the system by which companies are directed and controlled. The overall objective of good governance is to ensure sustained growth or survival of companies and the attainment of multiple goals of corporate stakeholders, that is, investors, employees, and society in general (Charkham, 1994). It is defined as the system by which companies are controlled, directed and made accountable to shareholders and other stakeholders; control being understood as including indirect influences of financial markets (Demirag, 1998). Hence control is a major element of corporate governance, both in terms of environment and organizational activities (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 1992; Public Oversight Board (POB), 1993; Cohen and Hanno, 2000).

Comparative studies of corporate governance, performance pressures, and accountability of management reveal significant variations among countries (Charkham, 1994). Some of these

differences may be traced to cultural differences (Hofstede, 2001), institutional differences (North, 1990), political structures, and ownership forms (Thomsen and Pedersen, 1995), as well as board composition and characteristics (Finkelsrein and Hambrick, 1996). Cultural differences between countries, industries, and companies can explain a great deal of the diversities in corporate governance structures and processes in different countries (Kuada and Gullestrup, 1998). For example, the extent to which corporate governance is legally regulated will depend on the degree of uncertainty avoidance in a society. To avoid uncertainty, societies may institute formal and/or informal rules, which are used as regulatory mechanism to ensure that deliberate steps are taken to guard against unacceptable future conditions. Hence, in societies where a viable coalition of stakeholders is the primary objective of corporate governance, regulations encourage long-term orientation of management decisions and professionalism in their implementation.

Despite the impact of cultural differences on corporate governance, there is evidence suggesting that most of the issues and challenges of corporate governance in a rapidly changing global business environment are similar, irrespective of geographical locations. Byrne (1996; 1997), for example, find that too few people are constantly appearing on the same boards, and consequently, attending too few board meetings, and that many board members have vested interest in the companies and hence could not devote their full attention to management and control issues that require objectivity and independence. Despite cultural differences, this is common in many other countries, and notably so in Egypt. Arguably, an emerging economy, such as Egypt is likely to require more effective and stronger governance mechanisms than their western developed counterparts if they are to become equal, full and active participants in the global financial marketplace.

The aim of this paper is to examine the effect of corporate governance on both book value and market value firm performance in Egyptian firms. The rest of the paper is organised as follows: the following section provides a brief overview of the institutional framework in Egypt, followed by the theoretical background and hypothesis development. The research methodology is provided in section 4, followed by the findings and analysis in section 5; and finally summary & conclusion are provided in section 6.

2. Institutional Framework

The corporate legal framework in Egypt has its origin in French civil law. However, Anglo-American common law concepts became more prominent in Egyptian corporate law with the drafting of the Central Depository Law in 2001 and the proposed new Capital Market Law in 2002. The main laws

governing the legal framework that impacts the concepts of corporate governance in Egypt can be divided into two main groups (UNCTAD, 2007):

(a) Laws governing incorporation of companies:

1. Companies' Law (CL 159/1981), which regulates joint stock companies, limited liability companies and partnerships limited by shares;

2. Investment Law (IL 8/1997), which endorses investment in specific industrial locations or economic sectors by offering specific income tax exemptions or tax free zones;⁴ and

3. Public Business Sector Law (PBL 203/1991), the law that governs the incorporation of public business sector companies; and

(b) Laws governing public and private sector companies listed on the Cairo Alexandria Stock Exchange (CASE):

1. Capital Market Law (CML 95/1992), the main law regulating the Egyptian financial market in terms of monitoring the market status in general and maintaining steadiness and growth; and

2. Central Depository Law (CDL 93/2000), which aims at reducing risks associated with trading physical securities, enhancing market liquidity, in addition to assuring fast securities exchange. In other words, the law maintains all registration, clearance and settlement procedures associated with trading transactions.

Egypt started engaging in a number of activities aimed at improving its corporate governance practices even before the Enron-type scandals broke. Since the early 1990s the government and business leaders in Egypt recognized that if applied properly, corporate governance should help the country realize high and sustainable rates of growth. Then following the developments around the world, regulatory authorities in Egypt attempted to respond to the need for greater transparency and accountability with regards to corporate governance disclosure. The first Egyptian Code of Corporate Governance (ECCG) introduced by the Ministry of Investment and the General Authority for Investment and Free Zones (GAFI). These guidelines are to be primarily implemented in joint-stock companies listed on the stock exchange, and companies that use the banking systems as a major source of finance. The Capital Market Authority (CMA) further contributed to the corporate governance reforms by restructuring its organization and initiating three major sectors: (a) the Corporate Finance and Corporate Governance sector; (b) The Market Regulation sector; and (c) the Market Surveillance and Enforcement sector, in addition to other central departments and units. Furthermore, a Code of Corporate Governance for State-Owned Companies was issued by the Ministry of Investment in 2006. This code is primarily based on the ECCG and the report of the OECD working group on

privatization and corporate governance of State-owned assets (UNCTAD, 2007).

3. Theoretical background and Hypothesis Development

Corporate governance is a multi-disciplinary research field and has a range of meanings and definitions depending on how one uses it and which discipline and which country one is considering. Traditional finance literature has indicated several mechanisms that help solve corporate governance problems. There is a consensus on the classification of corporate governance mechanisms to two categories: internal and external mechanisms. However, there is a dissension on the contents of each category and the effectiveness of each mechanism. In addition, the topic of corporate governance mechanisms is too vast and rich research area to the extent that no single paper can survey all the corporate governance mechanisms developed in the literature and instead the papers try to focus on some particular governance mechanisms.

Jensen (1993) criticises the existing governance mechanisms in USA, UK, Japan and Germany and outlines four basic categories of individual corporate governance mechanisms: (1) legal and regulatory mechanisms; (2) internal control mechanisms; (3) External control mechanisms; and (4) product market competition. In their survey of corporate governance, Shleifer and Vishny (1997) concentrate on: incentive contracts, legal protection for the investors against the managerial self-dealing, and the ownership by large investors.

Denies (2001) provides the following four mechanisms: (1) legal and regulatory mechanisms exist outside the firm; (2) internal control mechanisms within a firm, (which include; the board of directors; executive compensation and ownership; non executive owners; and debt); (3) external control mechanisms such as the corporate takeover market; and (4) product market competition. Then Denis and McConnell (2003) survey the international corporate governance concentrating on countries other than United States and using a dual classification of corporate governance mechanisms (They use systems as synonym to mechanisms) as follows: (1) internal governance mechanisms including: boards of directors and ownership structure and (2) external ones including: the takeover market and the legal regulatory system.

Farinha (2003) surveys two categories of governance (or disciplining) mechanisms, the first one is the external disciplining mechanisms including: takeovers threat; product market competition; managerial labour market and mutual monitoring by managers; security analysts; the legal environment; and the role of reputation. The other category is the internal disciplining mechanisms which include: large and institutional shareholders; board of directors;

insider ownership; compensation packages; debt policy; and dividend policy.

Despite the existence of different corporate governance structures, the basic building blocks of the structures are similar. They include the existence of a Company, Directors, Accountability and Audit, Directors' Remuneration, Shareholders and the AGM. Cadbury (1992), Greenbury (1995) and Hampel (1998) called for greater transparency and accountability in areas such as board structure and operation, directors' contracts and the establishment of board monitoring committees. In addition, they all stressed the importance of the non-executive directors' monitoring role.

Ownership Structure

Large shareholders and institutional investors can be seen as potential controllers of equity agency problems as their increased shareholdings can give them a stronger incentive to monitor firm performance and managerial behavior (Demsetz, 1983; Demsetz and Lehn 1985; and Shleifer and Vishny, 1986; Shleifer and Vishny, 1997, La Porta et al, 1998; La Porta et al, 1999; Claessens et al, 2000, and Denis and McConnell, 2003). This potentially helps to circumvent the free rider-problem associated with ownership dispersion. Another potential benefit relates to the potential challenge that large shareholders offer to outside raiders, thus increasing the takeover premium (Burkart, 1995).

Ownership concentration in both developed and developing countries show high concentration of ownership (La Porta et al, 1998 & 1999; Faccio et al, 2001; Lemmon and Lins, 2003; Ginglinger and L'her, 2006). It is also noted that in several countries around the world control of proportional ownership is usually achieved through pyramidal ownership structures in which one firm is controlled by another firm, which maybe itself controlled by some other entity (Lemmon and Lins, 2003).

One rather intuitive way by which equity agency costs can be reduced is by increasing the level of managers' stock ownership, which may permit a better alignment of their interests with those of shareholders. In fact, in the extreme case where the manager's share ownership is 100%, equity agency costs are reduced to zero (Jensen and Meckling, 1976). As managerial ownership increases, managers bear a large fraction of the costs of shirking, perquisite consumption and other value-destroying actions. Further, larger share ownership by managers reduces the problem of different horizons between shareholders and managers if share prices adjust rapidly to changes in firm's intrinsic value.

A limitation, however, of this mechanism as a tool for reducing agency costs is that managers may not be willing to increase their ownership of the firm because of constraints on their personal wealth. Additionally, personal risk aversion also limits the

extension of this monitoring device as the allocation of a large portion of the manager's wealth to a single firm is likely to translate into a badly diversified portfolio (Beck and Zorn, 1982). Management buyouts, whereby insiders increase dramatically their shareholdings in the firm, provide a natural field study for the effects of insider ownership in the reduction of conflicts between owners and managers.

In accordance with the proposition that larger managerial ownership reduce agency costs, Kaplan (1989) finds that following large management buyouts, firms experience significant improvements in operating performance. He interprets this evidence as suggesting that operating changes were due to improved management incentives instead of layoffs or managerial exploitation of shareholders through inside information. Smith (1990) reports similar results and notes that the amelioration observed in operating performance is not due to reductions in discretionary expenditures such as research and development, advertising, maintenance or property, plant and equipment. Macus (2008) argues that the basic issue from an agency perspective is how to avoid such opportunistic behavior. Previous studies suggest that corporate governance is an effective tool to control the opportunistic behaviours of management (Denis and McConnell, 2003; Bhagat and Bolton, 2008; Chen et al., 2009).

In a study of the effects of changes in ownership structure on performance for a sample of thrift institutions that converted from mutual to stock ownership, Cole and Mehran (1998) find that changes in performance are significantly associated with changes in insider ownership. They document that the greater the increase in insider ownership, the greater the performance improvement, which is consistent with the alignment of interests hypothesis arising from a larger insider ownership. Also consistent with that hypothesis of Subrahmanyam et al (1997) who find evidence, in a sample of successful bidders in bank acquisitions, of a positive association between bidder returns and the level of insider ownership when the latter exceeds 6%.

Research by Morck et al (1988), McConnell and Servaes (1990) and Hermalin and Weisbach (1991) is also consistent with the view that insider ownership can be an effective tool in reducing agency costs, although they report a non-monotonic relation. This functional form has been related to the observation that, within a certain ownership range, managers may use their equity position to entrench themselves against any disciplining attempts from other monitoring mechanisms.

However, some other studies find no evidence of a positive relationship between insider ownership and performance (see, for instance, Demsetz and Lehn, 1985; Loderer and Sheehan, 1989; Holderness and Sheehan, 1988; Denis and Denis, 1994; and Loderer and Martin, 1997). Moreover, the studies that find a positive relationship typically present results that have

very low explanatory power (R^2 's usually between 2% and 6%).

A possible explanation for these mixed results is that many of the studies do not properly distinguish the possibility of alignment of interests across a certain range of ownership values and of entrenchment over another range. Furthermore, these analyses usually do not take into account the possibility that several different mechanisms for alignment of interests can be used simultaneously, with substitution effects with insider ownership. It is quite conceivable that different firms may use different mixes of corporate governance devices (Rediker and Seth, 1995).

These different mixes can, however, all be optimal as a result of varying marginal costs and benefits of the several monitoring instruments available for each firm. If so, then one would not be able to observe a relationship between performance and any of these particular mechanisms.

It appears that the main conflict is between owners and managers in common law countries due to the existence of dispersed control and ownership structures. While, in civil law countries the control and ownership structures are concentrated, thus the main governance problem arises between minority and controlling shareholders. Therefore, ownership structure has greater importance in civil law countries where protection of shareholders right is weak (La Porta et al., 1998; Beck et al., 2003). The situation is more prevalent in developing countries where large concentration of ownership is more evident while the stock markets weak. In those countries there is a higher degree of economic uncertainties coupled with weak legal controls and investor protection, and frequent government intervention; all resulting in poor performance (Ahunwan, 2002; Rabelo and Vasconcelos, 2002; Tsamenyi et al; 2007).

The fact that the logical argument goes for a causal relationship between the ownership structure and firm performance on the basis of placing ownership structure as the independent variable can influence firm performance. This is the underlying assumption of several studies (Claessens and Fan, 2002; Klapper and Love, 2004; Lins, 2003; and Sung Wook, 2003; Kumar and Singh, 2013). Another line of research suggested that, contrary to the logic suggested that firm performance is the independent variable that can influence ownership structure and not the opposite (Demsetz and Lehn, 1985; Loderer and Martin, 1997; Cho, 1998). Chang (2003) reveals that the concentration of ownership, which enables owners to reduce managers' discretion, and increased ownership by managers, which aligns managers' interests with those of shareholders, improve firm performance. Krivogorsky (2006) indicates that a strong positive relation between the level of relational ownership and profitability ratios. This explains the strong reliance on the ownership structure as corporate governance mechanisms that might

significantly affect the firms' performance. This prompts the first hypothesis:

H1: There is a significant relationship between ownership structure and firm performance.

H1a: There is a significant relationship between ownership structure and book value performance.

H1b: There is a significant relationship between ownership structure and market value performance.

Board Structure

Based on the agency perspective the separation of the roles of CEO from chairman is another crucial monitoring mechanism. CEO duality is when the CEO also serves as chairman. This situation is problematic from an agency perspective as the CEO seems to get dominant influence on board decisions by chairing the group of people in charge of monitoring and evaluating his performance. This in effect results in weakening the board's independency and may result in ineffective monitoring of management. Therefore good governance will occur when the two roles of Chairman and CEO are separated (Baliga et al, 1996; Brickley et al, 1997; Coles and Hesterly, 2000; Wier and Liang, 2001; William et al. 2003).

Moreover, several studies reveal that there is negative relation between the size of the board and performance. Larger boards seem to be less efficient due to the slow pace of decision making and the difficulty in both arranging board meeting and reaching consensus. It is also argued that the CEO seems to have more dominant power when the board size is too large. (Jensen 1993; Yermack 1996; Eisenberg et al, 1998; Singh and Davidson, 2003; Cheng, 2008)

Hermalin and Weisbach (1991) find that in the US board size is negatively related to both general firm performance and the quality of decision-making. Evidence of a negative relation between board size and firm performance is also revealed in Singapore and Malaysia (Mak and Yuanto, 2003) Finland (Eisenberg et al, 1998) and UK (Carline et al, 2002).

It is not only the size of the board that seems to have a governing effect on firm performance, it is argued that the board composition in terms of the number of outside directors versus inside directors results in better performance through better monitoring. This argument is mainly based on the agency theory (Fama 1980; Demsetz and Lehn, 1985). Several studies find that the larger the number of outside directors on the board, the better the firm performance (Rosenstein and Wyatt, 1990; Weisbach, 1988; Huson, 2001).

On the other hand, some argue that based on the stewardship theory executive directors have a positive effect on corporate R&D costs and better performance based on improved strategic innovation (Donaldson, 1990; Kochar and David, 1996; Davis et al, 1997). Several studies reveal negative relation between the

number of outside directors and firm performance (Agrawal and Knoeber, 1996; Kochar and David, 1996; Bhagat and Black, 2002). Meanwhile, several other studies find no significant relation between the number of outside directors and corporate performance (Hermalin and Weisbach, 1991; Dalton et al, 1998; Vafeas and Theodorou, 1998; Liang and Wier, 1999; Lam and Lee, 2012). Hermalin and Weisbach (1991) find that in the US higher proportions of outside directors are not associated with superior firm performance, but are associated with better decisions concerning issues such as acquisitions, executive compensation, and CEO turnover. Further explanation is provided by Adams and Ferreira (2007) who suggest that CEOs may be reluctant to share information with more independent boards, thereby decreasing shareholder value.

The relationship between corporate performance and corporate governance is measured using only one of the two variables (ownership structure and board structure) in relation with the firm performance (Krivogorsky, 2006). There is a debate regarding the effect of board composition on firm performance (Dulewicz and Herbert, 2004; De Andres et al., 2005; Ehikioya, 2009). Bhagat and Black (2002) find a negative relationship between the proportion of outside directors and corporate performance. Moreover, Yermack (1996) reported evidence that a higher percentage of independent directors leads to worse performance. In addition, Klein (2002) suggests that high percentage of outside directors will have the same negative effect. On the other hand, a meta-analysis of studies in this area conducted by Dalton et al. (1998) fails to find any relationship between corporate performance and non-executive director's independence. Moreover, other studies based on data from UK companies do not show any evidence of an existing relationship between the proportion of non-executive directors and firm performance (Vafeas and Theodorou 1998; Liang and Wier, 1999). Dalton et al. (1998) point out that the empirical literature examining leadership structure in relation to firm performance fail to provide any consistent results. This leads to the second hypothesis:

H2: There is a significant relationship between board structure and firm performance.

Rechner and Dalton (1989) find no significant differences in firm performance between separated leadership structure firms and combined leadership structure firms over a five year period. However, further study of the same sample reveal that firms with separated leadership structure have higher performance than the firms with combined leadership structure measured with ROE, ROI and profit margin (Rechner and Dalton, 1991).

H2a: There is a significant relationship between board structure and book value performance.

Sundaramurthy et al. (1997) provide evidence that separating the positions will affect the shareholder wealth positively. Moreover, Coles and

Hesterly (2000) find that firms that separate CEOs and board chairs will have better stock returns than firms that do not separate the two roles. On the other hand, Baliga et al. (1996) do not find sufficient evidence to support a performance distinction between separated and combined leadership firms when the performance was measured using the market value added (MVA) and economic value added (EVA) as performance indicators.

H2b: There is a significant relationship between board structure and market value performance.

Audit Function

Auditing is an important function that contributes to a trustful relationship between the agent and the organisation's principals and other stakeholders who rely on the financial information. The audit adds to the reliability and quality of the financial reporting through scrutinizing the accounting and reporting (Porter et al., 2008; Collin et al., 2013).

Audit committees are identified as effective means for corporate governance that reduce the potential for fraudulent financial reporting (NCFRR, 1987). Audit committees oversee the organization's management, internal and external auditors to protect and preserve the shareholders' equity and interests. To ensure effective corporate governance, the audit committee report should be included annually in the organization's proxy statement, stating whether the audit committee has reviewed and discussed the financial statements with the management and the internal auditors. As a corporate governance monitor, the audit committee should provide the public with correct, accurate, complete, and reliable information, and it should not leave a gap for predictions or uninformed expectations (BRC, 1999). The BRC report provides recommendations and guiding principles for improving the performance of audit committees that should ultimately result in better corporate governance. The importance of the audit function in terms of the audit committee and audit firm is further strengthened by the Sarbanes-Oxley Act of 2002.

It is assumed that all auditors whether large international firms (i.e. Big 4) or national and local firms are professionals and apply the standards issued by professional bodies. Nonetheless, it can be assumed that audit practice in the Big 4 is more influenced by international development than in the national audit firms. The acquisition of more up-to-date practice and strength from international experience that put power behind the Big 4 demands and audit effort can lead us to assume that use of a Big Four audit firm will positively impact performance (Collin et al., 2013).

The presence of a large international audit firm (i.e., Big 4) has been considered as a significant factor in the possibility of having a good corporate governance mechanism. These firms are expected, on average, to provide a relatively high quality of auditing service (Kane & Velury, 2004). Chen et al. (2005) examine empirically the relationship between audit quality (measured by industry specialization) and the number of audit committee meetings in a year (as a signal of good corporate governance practice). They find that an association exists between the presence of an audit committee and an industry specialist audit firm. To sum up, it is possible for big audit firms to control opportunistic management behaviours, reduce agency costs, and increase the firm's value.

H3: There is a significant relationship between audit function and firm performance.

H3a: There is a significant relationship between audit function and book value performance.

H3b: There is a significant relationship between audit function and market value performance.

Control Variables

Firm size, age industry type and leverage are control variables which are proved to have an effect on firm performance and are used widely in the empirical literature of corporate governance. (for example: Klapper and Love, 2003; Bahgat and Bolton, 2008; Ehikioya, 2009; Kumar and Singh, 2013). The hypothesis to be tested is as follows:

H4: There is a significant relationship between control variables and firm performance.

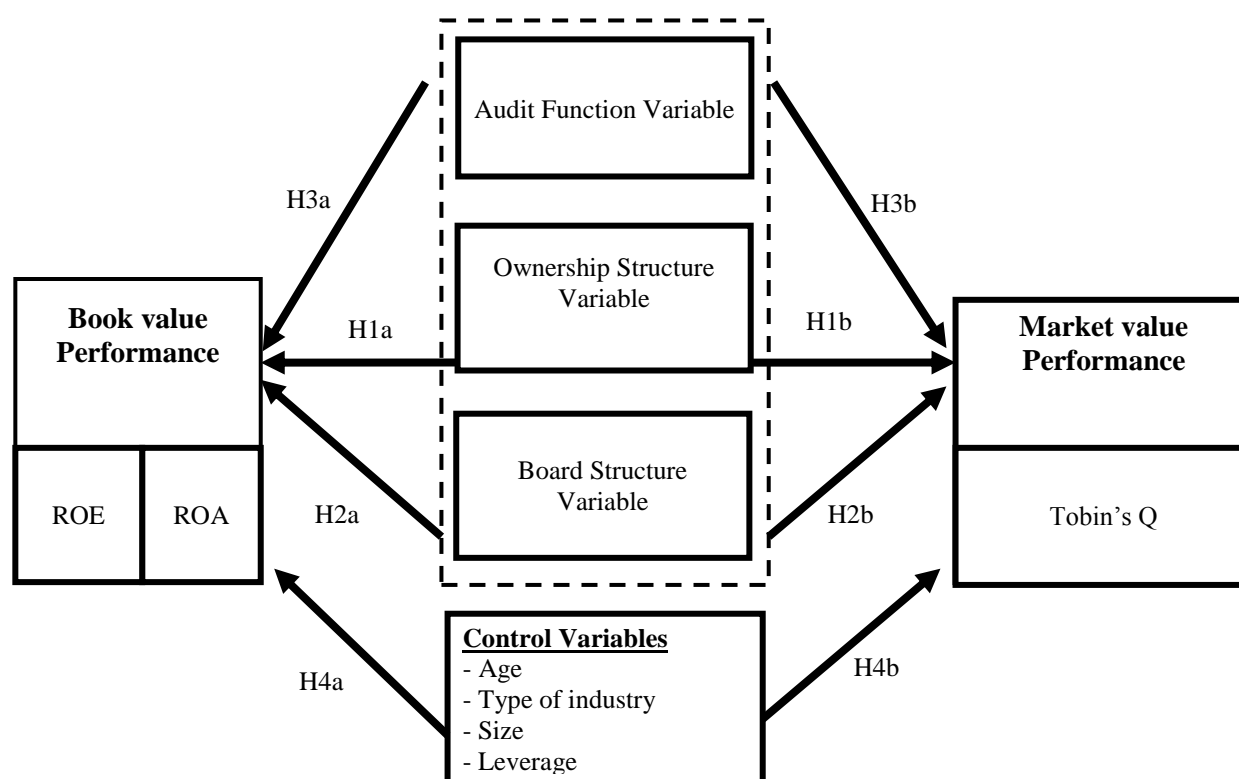
H4a: There is a significant relationship between firm size, age, industry type, leverage and book value performance.

H4b: There is a significant relationship between firm size, age, industry type, leverage and market value performance.

4. Research Methodology

The research models in figure (1) consist of corporate governance variables, control variables and firm performance. The corporate governance variables adopted in this research consists of three variables which are the audit function variable, ownership structure variable and, board structure variable. ROA and ROE are the two variables used to represent the book value performance, while Tobin's Q is the variable adopted to represent the market value performance. Finally, the age, industry type, firm size and leverage are the control variables used.

Figure 1. Research Models



The sample comprises of the top 88 firms listed on the Egyptian Stock Exchange top 100 index EGX100 for the year 2010; excluding all financial firms (including Banks). Data collected is cross

sectional for the year 2010. Data are collected from Osiris and Kompas Egypt databases.

Definition and measurement of all variables used in the research are provided in table (1).

Table 1. Definition and Measurement of Variables

Variable Groups	Symbol	Measurement
Governance Variables (Independent Variables)		
Audit function		
Audit committee	AC	takes the value of 1 if exists, 0 otherwise
Audit type	AudType	takes value of 1 if auditor is one of the big 4 audit firms, 0 otherwise
Ownership Structure		
Institutional Ownership	IOwn	takes the value of 1 if exists, 0 otherwise
Directors Ownership	DOwn	takes the value of 1 if exists, 0 otherwise
Ownership Concentration	OwnCon	Adding up all share ratios of shareholders of 5% or more
Board Structure		
Duality	Duality	takes the value of 0 if exists, 1 otherwise
Board Size	BrdSize	Total number of board members
Board independence	BIndp	Number of non-executive members on the board / Board Size
Control Variables		
Age	Age	Takes the value of 1 if the firm is old, 2 for medium age, and 3 for new firms.
Industry Type	Indtype	takes the value of 1 for manufacturing firms, 2 for

		nonfinancial services firms
Size	Size	natural log of total assets
Leverage	Leverage	Debt / Equity
Performance Variables (Dependent Variables)		
Book Value Performance		
ROE	ROE	return on equity = net income / equity
ROA	ROA	return on assets = net income / total assets
Market Value Performance		
Tobin's Q	Tobin's Q	We use Chung and Pruitt (1994) measure of Q (CPQ) as an approximation of Tobin Q, since it does not require an estimate of the market values of debt and preferred stock. C-P Q = (MV (CS) + BV (PS) + BV (LTD) + BV (INV) + BV (CL) - BV (CA)) / BV (TA)

To test the research objective outlined in section 1, regression analysis (OLS) is used to depict the effect of CG and control variables on firm performance. Four equations are used (using SPSS) to test the hypotheses as follows.

$$Tobin's\ Q = \alpha + \beta_1 BIndp + \beta_2 Duality + \beta_3 Brdsize + \beta_4 Ac + \beta_5 AudType + \beta_6 IOwn + \beta_7 DirOwn + \beta_8 OwnCon + \beta_9 Size + \beta_{10} IndType + \beta_{11} Age + \beta_{12} Leverage + \varepsilon$$

$$ROE = \alpha + \beta_1 BIndp + \beta_2 Duality + \beta_3 Brdsize + \beta_4 Ac + \beta_5 AudType + \beta_6 IOwn + \beta_7 DirOwn + \beta_8 OwnCon + \beta_9 Size + \beta_{10} IndType + \beta_{11} Age + \beta_{12} Leverage + \varepsilon$$

$$ROA = \alpha + \beta_1 BIndp + \beta_2 Duality + \beta_3 Brdsize + \beta_4 Ac + \beta_5 AudType + \beta_6 IOwn + \beta_7 DirOwn + \beta_8$$

$$OwnCon + \beta_9 Size + \beta_{10} IndType + \beta_{11} Age + \beta_{12} Leverage + \varepsilon$$

5. Findings and Analysis

Table (2) illustrates the minimum and maximum values for the models variables. The descriptive findings show the central tendency and dispersion of the indicators of the CG. The calculated means of ROE and ROA are 14.55 and 8.66, where the standard deviations as a measure of dispersion are 11.45 and 8.12 respectively. Meanwhile, the mean of Tobin's Q is 2.08 with standard deviation of 1.02. The table shows details of descriptive statistics for CG and control variables.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Tobinq	88	.34	5.35	2.0841	1.01500
ROE	88	-3.37	47.15	14.5522	11.45082
ROA	88	-2.78	34.00	8.6556	8.11681
BIndp	88	.00	1.00	.3715	.32494
Duality	88	0	1	.34	.477
BrdSize	88	3	19	8.89	3.268
AC	88	0	1	.19	.397
AudType	88	0	1	.45	.501
IOwn	88	0	1	.78	.414
DOWn	88	0	1	.47	.502
OwnCon	88	.00	1.00	.7024	.25917
Size	88	10.38	17.82	13.7101	1.80624
IndType	88	1	2	1.41	.494
Age	88	1	3	2.67	.541
Leverage	88	.00	1.87	.1804	.31527

Figure (2) shows auditor type statistics based on "big 4" and "non-big 4" audit firms in Egypt. The

mean is 0.45 where standard deviation is 0.50. The frequency for big 4 is 45.5% while for the non-big 4

is 54.5%. This means that the majority of Egyptian firm depend on the non-big 4 audit firms.

Figure 2. Audit Type

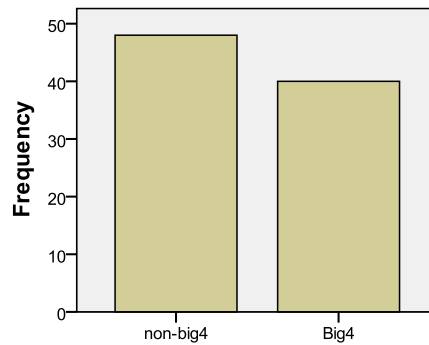
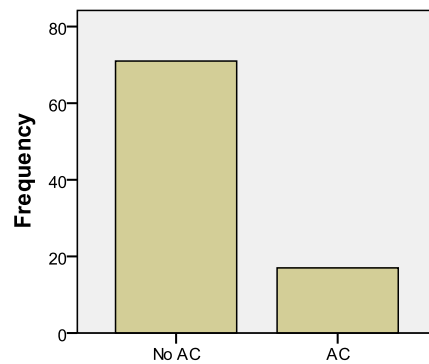


Figure (3) shows audit committee statistics based on “AC” and “non AC” in Egypt. The mean is 0.19 where standard deviation is 0.397. The frequency for firms that have AC is 19.3% while for the firms

that do not have AC is 80.7%. This means that the majority of Egyptian firms do not have on audit committee.

Figure 3. Audit committee



Pearson correlation coefficients for all variables are presented in table (3). Table (3) indicates that there is a significant correlation between Tobin’s Q and the following CG variables: audit committee, audit type, board independence and duality. Firm size and leverage are also significantly correlated with Tobin’s Q. On the other hand, the only CG variable that is significantly correlated with ROE is board independence as well as firm size and industry type. While, ROA is significantly in correlation with board independence, director ownership, industry type and leverage.

ownership (Down), and ownership concentration (OwnCon). The results reveal that the coefficients of all three ownership structure variables are insignificant with all the three dependent variables of performance (Tobin’s Q, ROE, and ROA). The results reveal that ownership concentrate in Egypt shows high concentration which is consistent with prior studies that reveal high ownership concentration in both developed and developing countries (La Porta et al, 1998 & 1999; Faccio et al, 2001; Lemmon and Lins, 2003; Ginglinger and L’her, 2006). However, such high concentration together with high institutional and director ownership as in the case of Egypt does not seem to have any significant impact on performance. Nonetheless, the results show consistency with previous findings (Demsetz and Lehn, 1985; Loderer and Sheehan, 1989; Holderness and Sheehan, 1988; Denis and Denis, 1994; and Loderer and Martin, 1997; Pathirawasam and Wickremasinghe, 2012).

Using OLS regression models to test the impact of corporate governance variables on performance in firms listed in the Egyptian stock exchange as in the equations above. Where, for equation 1 ($F = 3.951$, $p < 0.01$); equation 2 ($F = 1.876$, $p < 0.10$) and equation 3 ($F = 2.624$, $p < 0.01$); the maximum VIF for all three models is 2.070. The following results are reported in table 4.

Ownership Structure

The three variables used in this study for ownership structure are institutional ownership (IOwn), director

Table 3. Correlations

	Tobibq	ROE	ROA	AC	Aud Type	BIndp	Duality	Brd Size	IOwn	DOWn	Own Con	Age	Size	Ind Type	Leverage
Tobinq	1														
ROE	.139	1													
ROA	.374***	.853***	1												
AC	-.351***	-.044	-.197*	1											
AudType	-.223**	.011	-.052	.189*	1										
BIndp	.302**	.237**	.321***	-.071	.019	1									
Duality	.243**	.158	.106	-.170	-.031	.043	1								
BrdSize	-.010	.017	.052	.035	.130	.095	-.115	1							
IOwn	.003	.091	.150	-.163	-.076	.008	.086	.203*	1						
DOWn	-.117	-.137	-.213**	.120	.017	-.009	-.143	-.150	-.396***	1					
OwnCon	.151	.062	.125	-.133	-.084	.127	-.024	.032	.146	-.083	1				
Age	.072	.083	.034	-.182*	-.204*	-.167	.040	-.073	.089	-.317***	-.080	1			
Size	-.453***	.234**	.090	.390***	.479***	.007	-.137	.163	.040	-.088	.037	-.276***	1		
IudType	-.077	-.198*	-.256**	.295***	.122	-.072	-.013	.036	-.069	.057	-.158	-.092	.004	1	
Leverage	-.293***	.023	-.201*	.285***	.268**	.042	-.018	.062	-.113	.141	.009	-.143	.495***	.027	1

* Statistically significant at the 0.10 level

** Statistically significant at the 0.05 level

*** Statistically significant at the 0.01 level

Board Structure

The three variables used in this study for board structure are board independence (BIndp), CEO duality (Duality), and board size (BrdSize). The results show that board independence (BIndp) appears to have significant positive effect on Tobin's Q ($\beta = 0.823$, $p < 0.01$), ROE ($\beta = 8.960$, $p < 0.05$), ROA ($\beta = 7.849$, $p < 0.01$). This result is consistent with previous studies (Baysinger and Butler, 1985; Weisbach, 1988; Alonso and Gonzalez, 2006; Andres and Vallelado, 2008; O'Connell and Cramer, 2010; Muttakin et al., 2012). This supports the argument that based on agency theory a larger proportion of outside directors improves firm performance by ensuring better monitoring through effective management and reduction of conflict of interest between ownership and control.

The results show that CEO duality appears to have significant positive effect on ROE ($\beta = 4.507$, $p < 0.10$). However, the coefficients of CEO duality are insignificant in terms of Tobin's Q and ROA. The results are consistent with prior studies which report varying the impact of CEO duality on firm performance where certain industry type benefit from duality and separation of duties is better for others (Baliga et al., 1996; William et al. 2003; Elsayed, 2007; Muttakin et al., 2012). However, the results reveal that the coefficients of board size (BrdSize) are insignificant with all the three dependent variables of performance.

Audit Function

The two variables used in this study for audit function are audit committee (AC) and audit type (AudType). The results reveal that the coefficients of both variables are insignificant with all the three dependent variables of performance. Taking into consideration that most firms in Egypt have no audit committees (81%) and the majority hire local audit firms instead of one of the big 4 audit firms, it appears that this aspect of corporate governance in Egypt still have to improve. Nonetheless, performance of firms in Egypt is not significantly affected by the audit function.

Control Variables

Four variables are uses as control variables in this study, they are: firm size (size), industry type (IndType), firm age (Age), and financial leverage (Leverage). The results show that firm size (Size) appears to have significant positive effect on ROE ($\beta = 2.825$, $p < 0.01$) and ROA ($\beta = 1.540$, $p < 0.05$). This result is consistent with previous studies (Odegaard and Bohren, 2003; Klapper and Love, 2004, Arouri, 2011). However, Tobin's Q is negatively affected by firm size ($\beta = -0.208$, $p < 0.01$). Meanwhile, the results show that financial leverage (Levrage) appears to have significant negative effect on ROA ($\beta = -7.814$, $p < 0.05$). The result is consistent with prior literature (see for example, Muttakin et al., 2012). On the other hand, firm age has no significant on any of the three performance variables.

Table 4. OLS regression results

	Model 1 (Dependent Variable Tobin Q)		Model 2 (Dependent Variable ROE)		Model 3 (Dependent Variable ROA)	
	Coeff.	t-statistics	Coeff.	t-statistics	Coeff.	t-statistics
Const.	4.791	3.457***	-33.220	-1.896*	-12.438	-1.047
BIndp	.823	2.816***	8.960	2.425**	7.849	3.132***
Duality	4.791	1.650	4.507	1.765*	1.655	.955
BrdSize	.015	.500	-.056	-.148	.015	.058
Ac	-.339	-1.231	-1.018	-.292	-2.359	-.999
AudType	-.025	-.117	-2.296	-.846	-1.282	-.696
IOwn	-.259	-1.034	.378	.119	.342	.159
Down	-.281	-1.266	.625	.223	-1.125	-.592
OwnCon	.451	1.216	.022	.005	.798	.251
Size	-.208	-2.851***	2.825	3.058***	1.540	2.457**
IndType	.002	.010	-3.126	-1.237	-2.752	-1.605
Age	-.099	-.502	3.980	1.603	.897	.532
Leverage	-.257	-.738	-5.053	-1.145	-7.814	-2.611**
F-statistics	3.951		1.876		2.624	
p-value for F- test	0.000		0.051		0.006	
R-squared	0.387		0.231		0.296	
adjusted R ²	0.281		0.108		0.183	
Max VIF	2.070		2.070		2.070	

*Statistically significant at the 0.10 level

** Statistically significant at the 0.05 level

*** Statistically significant at the 0.01 level

6. Summary & Conclusion

This paper examines the effect of corporate governance on both book and market value performance in firms listed on the Egyptian stock exchange. Though Egypt enacted a Code of Corporate Governance for companies as far back as 2005; companies listed in the Egyptian stock exchange are operating under a voluntary CG reporting regime. This results in a varying corporate governance practices among companies in Egypt.

The importance of this paper is derived from the fact that it extends the previous studies in corporate governance by examining the effect of corporate governance mechanisms on firm performance among companies listed in the Egyptian Stock Exchange. Good corporate governance is critical to the investment activities in Egypt in a period of both political and economical instability when the country seeks to attract more investment particularly foreign investment. Therefore, the results of the paper provide valuable insight of the Egyptian market to those who invest in the Egyptian Stock Exchange.

The results reveal that both the ownership structure and audit function have no impact on the performance of firms operating in Egypt. Meanwhile, the only board structure variable that has an effect on firms' market performance is board independence. On the other hand, firms' book performance is affected by both the board independence and CEO duality. Firm size and leverage have varying effects on both market and book performance of firms listed in Egypt.

Though the regulatory authorities in Egypt have taken the necessary actions to have a strong financial market, the Egyptian corporate governance code is not as elaborate as corporate governance regimes in western countries. While, the code can be said to provide adequate coverage of the key disclosure issues of relevance in a market with a nascent disclosure culture, implementation is still patchy and regulators are facing the challenge of ensuring effective implementation of corporate governance, especially in the areas of transparency, disclosure and board practices.

Investors have an important role to play in the continuing efforts to improve corporate governance practices in Egypt. Shareholders in Egypt seem to be considered as financial investors with only short-term transient interest in the affairs of the company, rather than owners who are investing for the long-term. Shareholders are not exercising their ownership rights and obligations in a professional and effective manner. These include the rights of attending and voting at AGM meetings, appointing directors and approving their remuneration, approving the appointment of company auditors and their fees, being kept informed of the affairs and performance of the company etc. Therefore, investors should play a more active role in driving corporate governance reform. Investors should integrate corporate

governance factors in their investment decision process.

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GOVERNANCE OF STAKEHOLDER'S FINANCIAL RELATIONSHIPS: EVIDENCE FROM UKRAINIAN BANKING SECTOR

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Abstract

This paper makes two related contributions to corporate finance theory and stakeholder theory. First, the author intends to examine the relationship between the sustainability of stakeholders' financial relations and the efficiency of corporate governance, taking into account the lagging of decision-making in corporate governance in banks to its financial performance. Second, the author seeks to prioritize stakeholders' financial relations of the emerging stakeholder model of corporate governance at banks by analyzing two relevant dimensions of this model: contribution of valued resources to the bank and power that the stakeholders have within the bank. The findings confirm that the efficiency of bank management in the system of stakeholders' financial relationships is an absolute efficiency of corporate governance achieved solely through sustainable financial relations of "principal-agent" (where principals are individuals and agent is the apparatus of corporate governance). The results show that the role of individuals as sub-agents, enterprises as principals and sub-agents, shareholders as principals formed a negative effect.

Keywords: Financial Relations, Stakeholders, Corporate Finance, Corporate Governance, Corporate Efficiency, Bank Management

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1. Introduction

Preliminary analysis of economic theory formed an idea of causal relationships between stakeholders' financial relations of the bank and corporate governance as a part of the bank management at a qualitative level. Mathematical modeling is widely used in various fields of knowledge: mechanics, physics, medicine, biology, chemistry, economy. There are deterministic and stochastic modeling. If in quantities analyzed by deterministic models their stability is expected and random deviations are omitted attributing them only to observations and measurement errors, then the random character of variables estimated by probable methods is based in stochastic models. Here the task is to find trends that occur in random efficiency deviations of commercial banks.

Deterministic models describe patterns that appear in the separate bank of the Ukrainian banking system. Such regularities inherent in strong mechanical causality that specifically defines the behavior of each bank. It was called a dynamic pattern or pattern with solid determination. In dynamic patterns the relationship between cause and effect can be expressed quite accurately in specific mathematical formulas. Here, each set of values of the explanatory variables always corresponds to definite values of explanatory variables. This relationship is called functional. A deterministic model is the expression of functional relationships.

In the centralized planned economy were widely used deterministic models. The result was known in advance and the theory was intended for its justification. Mainly balance or optimization models were used: interbranch balance and linear programming.

Under conditions of market economy the result of the bank management is unknown beforehand and it is impossible considering the randomness. Economic phenomena and processes are the result of many simultaneously and collectively acting reasons. When considering the relationships between them the main reasons that necessarily lead to this outcome should be distinguished from secondary. Last reasons impede and distort significant effect in this respect of reasons. Moreover, the reasons may have unpredictable character. For example, in banking daily cash flows are formed influenced by certain patterns (scheduled payments), as well as unnecessary and sometimes unforeseen financial relationships of bank stakeholders, which ensure costs and revenues, receipts or payments. Thus, economic processes have a probable nature and the development of the investigated object is determined by the total impact of patterns and randomness.

To separate the essential factors acting on the bank from the minor and accidental factors, observations should be repeated and massive. Patterns that revealed under mass observations are called statistical observations. Statistical patterns are also reason-conditioned as a dynamic one, but it can be caused by a set of reasons and they are mutually

connected and act in different ways [2]. The probability of obtaining the particular result is zero. In such situations it is possible to define only an interval in which the value of studied parameters with predetermined probability falls. Detecting statistical patterns, determining interval estimates of unknown parameters and test of different hypotheses are made by methods of mathematical statistics.

Stochastic models describe patterns which are caused by the simultaneous action into the object of many factors which appear clearly only in mass observations. To the most common methods for building stochastic models we can include methods grouped under the general title - multivariate statistical analysis, in particular - correlative and regression analyzes. Detection of quantitative relations in the form of regression enables a better understanding of the nature of the phenomenon. This allows influencing the identified factors, interfering in the proper economic process in order to obtain the desired results.

Classical regression analysis describes the economic processes by means of a single regression equation. This equation is not functional, but stochastic. In this equation to each set of explanatory variables may correspond several values of explanatory variables simultaneously. The equation should contain only significant explanatory variables. Uncontrolled or unmeasured factors, as well as errors of measurement are included in the random term (random variation). It is assumed that the explanatory variables are not random and are not correlated with each other and the random component has a diagonal variance-covariance matrix with equal diagonal elements.

Often in order to describe economic processes with a single regression equation is not enough through many causes and effects. For a more adequate reflection of real relations in economic processes it is necessary to use a system of regression equations. Applications of based tests for testing the hypothesis of the form variance-covariance matrix of the random deviations showed that the calculated values of random member of regression in many cases (especially in the analysis of time series) reject the basic assumptions of the classical regression analysis. The idea of the relationship between economic variables and assumptions about the general form of variance-covariance matrix of random has led to the creation of a new type of stochastic models that became known as econometric [3].

Thus, we propose to use the linear model considering decisions of corporate governance in value added growth based on creating bank stakeholders financial relations that allows determining and estimating the importance of financial relationships of key stakeholder groups that can affect the success of the management of the banks in the system of financial relations [4]. The current model also allows considering the influence of hard managed factors of direct impact on the primary (easily managed) financial stakeholder relations, thus, determining the probability that the role of financial relations of different groups of

stakeholders do not coincide and, therefore, has a negative impact.

2. Data and empirical definitions

Let's consider the work of N banks over the period of T years. We have vector x_{ij} , consisting of $(m+1)$ factors that affect the work of i -th bank for j -th year. Bank' management performance in the system of financial relationships of their stakeholders is expressed by the corporate governance effectiveness; n banks for a period of T years we denote by the matrix F , whose values φ_{ij} responsible for bank i -th and j -th year. Values φ_i are range from one to infinity, reflecting the approach of each bank to the efficiency limit. In this case, we consider that the best option when the value of the corporate governance effectiveness is equal to one. Hence, it is necessary to find such set of vectors x_{ij} , that all values $\varphi_{ij} = 1$, where $i = 1..N$ and $j = 1..T$. Progress in solving this problem will consist of two sub-tasks:

1) building a model that will show the connection between parameter vector x_{ij} , and values of φ_{ij} matrix F ;

2) finding of the optimal values of some parameters x_{ij} , to perform condition all $\varphi_{ij} = 1$

To determine the view of the model it is necessary to analyze certain statistical information. The simplest is linear parametric model. In economics there are many examples of such models (Leontiev model, Solow model). To find the unknown parameters of the linear model the method of least squares (MLS) is used [1]. The quality of the model will be measured by the coefficient of determination (R^2). For example, let's consider bank performance for j -th year. Then the regression equation will be following

$$\vec{y} = \vec{X}\vec{a} + \vec{u}$$

$$\vec{y} = \begin{bmatrix} \varphi_{1j} \\ \varphi_{2j} \\ \vdots \\ \varphi_{nj} \end{bmatrix}, \quad \vec{u} = \begin{bmatrix} u_1 \\ u_2 \\ \vdots \\ u_n \end{bmatrix}, \quad \vec{a} = \begin{bmatrix} a_0 \\ a_1 \\ \vdots \\ a_m \end{bmatrix}, \quad \vec{X} = \begin{bmatrix} x_{10j} & x_{11j} & \dots & x_{1mj} \\ x_{20j} & x_{21j} & \dots & x_{2mj} \\ \dots & \dots & \dots & \dots \\ x_{n0j} & x_{n1j} & \dots & x_{nmj} \end{bmatrix} \quad (1)$$

Where,

φ_{ij} – value of the integral indicator of corporate governance effectiveness for i -th bank and j -th year;

u_i – random component of the model;

a_i – measured parameters of the model;

x_{ij} – factors of influence that expressed by stakeholders financial relationships of i -th bank for j -th year.

It is assumed that in linear regression models random observations should be such that the number of degrees of freedom $l = n - m - 1$ is greater than 0, and the matrix \vec{X} has full column rank $m + 1$. In this case the transposed matrix rank is also equal to $m + 1$, and the symmetric matrix of dimension $(m + 1) \times (m + 1)$

1) has a rank equal to $m + 1$, and hence, there is an inverse matrix $(\vec{X}'\vec{X})^{-1}$.

It may be noted that the system of linear equations (1) which are determined by MLS-estimator $\hat{a}_0, \hat{a}_1, \dots, \hat{a}_m$, can be written as

$$\vec{X}'\vec{X}\vec{a} = \vec{X}'\vec{y} \quad (2)$$

where, we find a column vector of unknown MLS-estimators. We have

$$\vec{a} = (\vec{X}'\vec{X})^{-1} \vec{X}'\vec{y} \quad (3)$$

So, vector estimation \vec{a} we can determine using formula (3).

The following equations (4-8) characterize vector estimation \vec{a}

$$\vec{a} = \vec{a} + (\vec{X}'\vec{X})^{-1} \vec{X}'\vec{u} \quad (4)$$

$$M(\vec{a}) = \vec{a} \quad (5)$$

$$\vec{\Sigma} = D(\vec{a}) = \sigma_u^2 (\vec{X}'\vec{X})^{-1} \quad (6)$$

$$\vec{\Sigma} = \hat{D}(\vec{a}) = \hat{\sigma}_u^2 (\vec{X}'\vec{X})^{-1} \quad (7)$$

$$\hat{\sigma}_u^2 = \frac{\vec{u}'\vec{u}}{n - m - 1}, \quad \vec{u} = \vec{y} - \vec{X}\vec{a} \quad (8)$$

Equation (4) shows that the MLS-estimators $\hat{a}_0, \hat{a}_1, \dots, \hat{a}_m$ are linear for perturbations and, therefore, have the same distribution law as the perturbation. Assuming that the disturbances are normally distributed, the mentioned quality allows us to build confidence intervals for the regression coefficients.

From the equation (5) implies fixity of MLS – estimation \vec{a} . It can be shown that the MLS – estimation \vec{a} is also effective and reasonable. Estimation efficiency means that of all possible linear fixed estimates, estimates $\hat{a}_0, \hat{a}_1, \dots, \hat{a}_m$ have minimum dispersions which are equal to the

corresponding diagonal elements of the covariance matrix $\bar{\Sigma}$ (6). The validity of estimation \bar{a} means that covariance matrix $\bar{\Sigma}$ attached to n is reduced to zero matrixes. If according to the formula (8) we have estimation $\hat{\sigma}_u^2$ disturbances dispersions σ_u^2 , then, the

$$R^2 = 1 - \frac{\sum \hat{u}_i^2}{\sum (y_i - \bar{y})^2} \tag{9}$$

According to the formula (9) R^2 is defined as a unit minus the quotient of the sum of squared errors on the sum of squared deviations from the sample average. It is known that the coefficient of determination ranges from zero to one ($0 \leq R^2 \leq 1$).

Also, we can say that the value R^2 (in percent) means that the linear model (1) explains R^2 % of the total regression dispersion, the rest ($1 - R^2$) are not specified in percentage by linear model. From the formula (4) implies the following: minimizing error function by the method of least squares is equivalent to maximizing of determination coefficient R^2 . The closer ceteris paribus value R^2 to 1, the better the estimated regression equation and thus, better quality of the obtained model.

The need to consider lags occurs while modeling many dynamic processes. Therefore, we believe it is necessary to take into account the lags in banking in the system of financial relations, including lagging of corporate governance in banks. In general, if some variable appears in the model with the delay for s periods, then it is called lag and is written with subscript $t - s$ and has a lag of length s .

During model building we define three types of lagged variables:

1. Lagged independent variable. The value of explanatory variables x_{ij} and $x_{i(j-1)}$ are closely correlated because they represent the same set of observations with a lag in one period. Therefore, in models with

$$\bar{y}_j = \bar{X}_j \bar{a}_j \tag{10}$$

This is a linear model that ignores the effects of the previous years for the value of the commercial banks performance management. It is the simplest and

is as follows

$$\bar{y}_j = \bar{X}_j \bar{a}_j + \beta_j \bar{y}_{j-1} \tag{11}$$

where β_j – a coefficient for j -th year.

For this model a lag of dependent variable y_{j-1} is typical. Lagged variable y_{j-1} means that the result of the

estimated covariance matrix can be calculated according to the formula (7).

As noted above, the quality of the regression model we will characterize by the coefficient of determination, which in case of linear regression is indicated R^2 . The meaning of determination coefficient is given by the formula 9.

lagged independent variables there is a phenomenon of multicollinearity.

2. Lagged dependent variable. In such situations, the variable ϕ_{ij} is both explicable and explanatory. Thus, explanatory variable ϕ_{ij} is stochastic.

3. Lagged residual variable. If there is dependence between values, the model has autocorrelation.

The next step will be the specification of the model. Let's consider the statistics over 6 years (2007-2012) for 50 banks which represent about 63% of the entire banking system. Banks were chosen due to limited information for analysis, however, the banks included in the sample under control both foreign and domestic capital and includes state-owned banks. For each bank we have 12 performance indicators (11 factors that characterize financial relationship of bank stakeholders and influence on the bank management, whilst the integral indicator of the corporate governance effectiveness, which characterizes the efficiency of banks activities in the system of financial relations of their stakeholders).

Primary and secondary factors that are considered easily and hard managed characterize stakeholders' financial relationship of bank on the formation of own or borrowed capital and also, financial relationships connected with the process of distribution and redistribution of financial resources in order to increase the value added of the bank are shown in Appendix A.

In order to build the model between factors x_{ij} and efficiency of corporate governance ϕ_{ij} for some j -th year we consider general linear model (10) and 5 different types of linear models with lagged variables (10-15). The first model in the general form as follows:

therefore, not always well describes the statistical information.

The second model considering the lagged variables

effectiveness of bank management is expressed by the efficiency of corporate governance of the bank this year depends on its effectiveness in the previous year.

If $\beta_j = 0$, it means that the value for the previous year does not impact on the effectiveness of corporate governance of the bank this year, and equality $\beta_j = 1$ indicates a high effect of prior to the next.

$$\vec{y}_j = \vec{X}_j \vec{a}_j + \beta_j \vec{y}_{j-1} + \beta_j^2 \vec{y}_{j-2} \tag{12}$$

In this model the length of a lag for the dependent variable is two, and the coefficient is chosen as β_j^2 . This choice is explained by a decrease in the impact factor with increasing lag length, i.e., the dependence

$$\vec{y}_j = \vec{X}_j \vec{a}_j + \alpha_j \vec{X}_{j-1} \tag{13}$$

where α_j – a coefficient for j -th year.

This model has lagged independent variable X_{j-1} . This means that the model has dependence on the values of the factors for the previous year. Moreover, the coefficient α_j must belong to the range $0 < \alpha_j < 1$. This coefficient shows the dependence power of banks corporate governance on the values of the factors for

$$\vec{y}_j = \vec{X}_j \vec{a}_j + \alpha_j \vec{X}_{j-1} + \beta_j \vec{y}_{j-1} \tag{14}$$

For this model lags of independent variable X_{j-1} , as well as dependent y_{j-1} one is typical.

$$\vec{y}_j = \vec{X}_j \vec{a}_j + \alpha_j \vec{X}_{j-1} + \beta_j \vec{y}_{j-1} + \beta_j^2 \vec{y}_{j-2} \tag{15}$$

This model is the most complex and takes into account the largest number of lagged variables, namely the lagged independent variable X_{j-1} , lagged dependent variables y_{j-1} , y_{j-2} . This means that the factors mentioned in the previous period, the result of effective management of banks expressed by the efficiency of the bank corporate governance for the previous two periods influence the effectiveness of the bank corporate governance this year.

All the models mentioned above can describe the situation that will be solved in the process. But for every year we'll choose a suitable model that would have the best quality. It is necessary for the further study of the banking sector. To optimize banking it is necessary to find the managing factor, namely, the financial relationships that have the greatest impact on value added growth of the bank and subjected to the

The third model is represented by equation 12 and considering the lagged dependent variables for two periods

of the efficiency of the bank corporate governance for a year from value for 2 years ago is less than 1 year ago.

The fourth model considering the lagged independent variable is as follows:

the previous period. If $\alpha_j = 0$, it means that the factors mentioned in the previous period have no significant effect on the effectiveness of the bank corporate governance and the equality $\alpha_j = 1$ indicates its high impact.

The fifth model is shown in equation 14.

The sixth model is represented by the following equation:

management of the agent, and setting the value to which we could increase the effectiveness of bank management in the system of stakeholders' financial relations.

3. Empirical results

Let's estimate the unknown parameters a_j for each j -th year in all three linear models using matrix MNK (3), moreover we choose coefficients in the range of $0 < \alpha_j, \beta_j < 1$ by sorting them in this range. The best model for each year will be considered the one that has the highest quality, namely, the highest value of the determination coefficient (9). As the present model has lagged variables, using statistics for 6 years we will estimate the unknown coefficients of the model only for the last 5 years.

Table 2. Values of the determination coefficient (R^2 %) for the period of 2008-2012 in accordance with the six selected models of evaluation

	2008 p.	2009 p.	2010 p.	2011 p.	2012 p.
1 model	20%	39%	28%	47%	47%
2 model	20%	50%	39%	47%	71%
3 model	-	48%	32%	47%	71%
4 model	39%	45%	56%	72%	90%
5 model	89%	58%	66%	65%	89%
6 model	-	66%	59%	72%	90%

According to the data in Table 2 the optimal model for 2008 is the fifth model as the coefficient is close to one, and in percentage is equal to 89 %. This means that in 2008 the effectiveness of the bank

corporate governance is characterized by 89% constancy financial relations of the bank stakeholders and only 11% by other factors which include directly external institutional factors and factors of institutional

influence. For 2009 we determine the sixth model as optimal one and the fifth model - for 2010; the coefficient of determination (R^2 %) herewith is amounted to 66%. This effect we consider essential because during the period of 2009-2010 the impact of external factors and sustainability of financial relations with public authorities, other financial and credit institutions at the national and international level become increasingly important at the stage of economic crisis period.

Thus, the impact of these financial relations of indirect effect explains the effectiveness of bank management in the system of financial relationships of their stakeholders in 2009 and 2010 by 44%. For 2011 and 2012 according to the coefficient of determination ($R^2 = 72\%$ in 2011 and $R^2 = 90\%$ in 2012) the fourth model is optimal. It should be noted that since 2010 the coefficient of determination increases indicating the growing importance of sustainability development of financial relationships with the stakeholders of direct influence in the post-crisis period. We can assume that exactly sustainability of financial relationships with stakeholders of direct influence provide banks' willingness to critical fluctuations in the economy and allows to avoid reinforcing negative impact of the economic crisis, which is characterized by more complex financial relationships that provide banks by financial resources and assist banks in the post-crisis reincarnation.

Choice of the appropriate model has economic justification. Thus, the effectiveness of management decisions of the agent (the system of corporate governance) will implement only after a long period of time due to the objective process of long-term creating of added value, moreover, considering the gradual development of the economy in 2008, the very meaning of the efficiency of previous decisions of

corporate governance and the quality of the existing financial relations in previous years determine the effectiveness of bank management in the system of financial relationships of their stakeholders.

Choosing the sixth model in 2009, which includes the effect of the established in the bank financial relations both - this period and prior periods, as well as the effectiveness of corporate governance last year and two years ago. This model has the largest number of lagged variables that are dependent and independent variables because of the attention in the peak of crisis period. The global financial crisis in 2009 has made adjustments in the development of each bank of the entire banking system in Ukraine and therefore, stable effectiveness of bank management in the previous periods (2007-2008) or its irregularity, negligence in financial relations between the agent and principals that form the loan and equity bank capital, ignoring the constant relations of first level agents and subagents in the analyzed period and last year made impact on the efficiency of bank management. In the following years the number of lagged variables will decrease since the post-crisis period reflects the beginning of the new stage of the banking system development.

First of all, it should be noted that the results and expectations of past pre-crisis period cannot act as a forecast basis or influence the bank management, as banks begin to operate in the new reality, changing relationships between stakeholders. Thus, to 2010 corresponds the fifth model that takes into account the interactions of bank stakeholders and the results of the bank efficiency of its activities during the crisis period. The fourth model using in 2011-2012 is treated in the need to build effective bank management exclusively on providing a stable sustainability of financial relationships of the bank stakeholders, thereby, considering their peculiarities of the previous year.

Thus, the system of equations is as follows:

$$\left\{ \begin{array}{l} \bar{y}_j = \bar{X}_j \bar{a}_j + \alpha_j \bar{X}_{j-1} + \beta_j \bar{y}_{j-1} \\ \bar{y}_j = \bar{X}_j \bar{a}_j + \alpha_j \bar{X}_{j-1} + \beta_j \bar{y}_{j-1} + \beta_j^2 \bar{y}_{j-2} \\ \bar{y}_j = \bar{X}_j \bar{a}_j + \alpha_j \bar{X}_{j-1} + \beta_j \bar{y}_{j-1} \\ \bar{y}_j = \bar{X}_j \bar{a}_j + \alpha_j \bar{X}_{j-1} \\ \bar{y}_j = \bar{X}_j \bar{a}_j + \alpha_j \bar{X}_{j-1} \end{array} \right. \quad (12)$$

We have built models and we face the problem of selecting such values of the factors x_2, x_3, x_7, x_8 and x_9 , which reflect financial relationships of the bank stakeholders in order to all values φ_{ij} be equal to 1, where $i = 1 \dots n$ and $j = 1 \dots T$. For this purpose all models received for 5 years we combine in the system of equations and solve it according to our relatively unknown factors x_2, x_3, x_7, x_8 and x_9 , which will be expressed through other factors $x_1, x_4, x_5, x_6, x_{10}$ and x_{11} . Factors x_2, x_3, x_7, x_8 and x_9 , are basic and show financial relationship of the bank stakeholders that provide the greatest impact on value added growth of the bank; they are managed factors, i.e. such relationships are subjected to regulation and are under

the direct control of the bank management. Six other parameters are free, i.e. their values, hypothetically, could be any of this kind. These parameters are more difficult to control and therefore, hypothetically, in this problem their value can be any of this kind. Each bank is trying to have the absolute efficiency with zero reserve, which indicates that this bank is on the edge of efficiency and can serve as a model for a certain bank. For banks with absolute efficiency the reserve of governance efficiency will be zero. Thus, in the proposed model values $\varphi_{ij} = 1$ and for the lagged variables we take the averaging values for all banks in a given year. We'll get 5 equations with five unknown x_2, x_3, x_7, x_8 and x_9 .

Let's create the matrix A as follows,

$$A = \begin{pmatrix} a_{12} & a_{13} & a_{17} & a_{18} & a_{19} \\ a_{22} & a_{23} & a_{27} & a_{28} & a_{29} \\ a_{32} & a_{33} & a_{37} & a_{38} & a_{39} \\ a_{42} & a_{43} & a_{47} & a_{48} & a_{49} \\ a_{52} & a_{53} & a_{57} & a_{58} & a_{59} \end{pmatrix} \quad (17)$$

The system of equations 16 is not generated in case if the matrix (17) $\det(A) \neq 0$. In this case the system is not generated, so we have a clear solution. If the system were degenerated, then it would be

necessary to reduce the number of basic variables by one and then solve the system of four equations.

Thus, according to the formula 16 the system of equations is as follows

$$\begin{cases} \bar{y}_1 = -0,11 - 14,46\bar{\alpha}_1 - 9,76\bar{\alpha}_2 - 3,66\bar{\alpha}_3 - 1,83\bar{\alpha}_4 + 1,41\bar{\alpha}_5 + 3,49\bar{\alpha}_6 + 10,36\bar{\alpha}_7 + 7,81\bar{\alpha}_8 + \\ + 0,52\bar{\alpha}_9 - 0,28\bar{\alpha}_{10} + 3,11\bar{\alpha}_{11} + 9,13\bar{\alpha}_{01} + 5,99\bar{\alpha}_{02} - 0,34\bar{\alpha}_{03} - 0,11\bar{\alpha}_{04} - 1,48\bar{\alpha}_{05} - 0,95\bar{\alpha}_{06} - \\ - 5,19\bar{\alpha}_{07} - 2,01\bar{\alpha}_{08} - 2,36\bar{\alpha}_{09} + 0,37\bar{\alpha}_{10} + 0,11\bar{\alpha}_{11} + \bar{y}_0 \\ \bar{y}_2 = -0,34 - 11,01\bar{\alpha}_1 - 7,63\bar{\alpha}_2 - 2,07\bar{\alpha}_3 - 0,33\bar{\alpha}_4 - 0,32\bar{\alpha}_5 - 1,32\bar{\alpha}_6 - 7,32\bar{\alpha}_7 - \\ - 2,34\bar{\alpha}_8 - 3,86\bar{\alpha}_9 + 0,16\bar{\alpha}_{10} + 38,94\bar{\alpha}_{11} + 12,61\bar{\alpha}_{12} + 10,79\bar{\alpha}_{13} + 6,764\bar{\alpha}_{14} + \\ + 0,02\bar{\alpha}_{15} + 1,54\bar{\alpha}_{16} + 6,48\bar{\alpha}_{17} + 3,37\bar{\alpha}_{18} + 1,52\bar{\alpha}_{19} - 0,10\bar{\alpha}_{110} - 51,69\bar{\alpha}_{111} + 0,7\bar{y}_1 + 0,49\bar{y}_0 \\ \bar{y}_3 = 0,36 - 0,73\bar{\alpha}_1 - 0,03\bar{\alpha}_2 - 5,60\bar{\alpha}_3 + 0,02\bar{\alpha}_4 + 0,03\bar{\alpha}_5 + 0,31\bar{\alpha}_6 - 4,39\bar{\alpha}_7 - 1,63\bar{\alpha}_8 + \\ + 0,06\bar{\alpha}_9 + 0,05\bar{\alpha}_{10} + 7,57\bar{\alpha}_{11} + 4,50\bar{\alpha}_{21} + 2,78\bar{\alpha}_{22} + 7,57\bar{\alpha}_{33} - 0,07\bar{\alpha}_{34} + 0,12\bar{\alpha}_{35} - 0,42\bar{\alpha}_{36} + \\ + 0,06\bar{\alpha}_{37} - 0,35\bar{\alpha}_{38} + 0,32\bar{\alpha}_{39} - 0,03\bar{\alpha}_{310} - 9,07\bar{\alpha}_{311} + 0,8\bar{y}_2 \\ \bar{y}_4 = 1,24 - 0,63\bar{\alpha}_1 - 1,47\bar{\alpha}_2 + 1,39\bar{\alpha}_3 - 0,20\bar{\alpha}_4 + 0,03\bar{\alpha}_5 + 0,27\bar{\alpha}_6 - 3,19\bar{\alpha}_7 - 0,52\bar{\alpha}_8 + \\ + 1,57\bar{\alpha}_9 - 0,20\bar{\alpha}_{10} + 6,09\bar{\alpha}_{11} + 0,32\bar{\alpha}_{41} - 0,32\bar{\alpha}_{42} - 0,72\bar{\alpha}_{43} - 0,46\bar{\alpha}_{44} + 0,33\bar{\alpha}_{45} + 0,27\bar{\alpha}_{46} + \\ + 0,82\bar{\alpha}_{47} + 1,01\bar{\alpha}_{48} - 0,35\bar{\alpha}_{49} + 0,20\bar{\alpha}_{410} - 4,07\bar{\alpha}_{411} \\ \bar{y}_5 = 1,41 + 3,57\bar{\alpha}_1 + 2,59\bar{\alpha}_2 + 20,98\bar{\alpha}_3 + 0,28\bar{\alpha}_4 - 0,33\bar{\alpha}_5 - 1,23\bar{\alpha}_6 - 16,71\bar{\alpha}_7 - 13,89\bar{\alpha}_8 + \\ + 13,11\bar{\alpha}_9 - 0,25\bar{\alpha}_{10} + 1,11\bar{\alpha}_{11} - 0,89\bar{\alpha}_{51} + 0,45\bar{\alpha}_{52} - 16,58\bar{\alpha}_{53} - 1,93\bar{\alpha}_{54} - 0,28\bar{\alpha}_{55} + 0,47\bar{\alpha}_{56} + \\ + 5,38\bar{\alpha}_{57} + 10,52\bar{\alpha}_{58} - 13,10\bar{\alpha}_{59} + 0,50\bar{\alpha}_{510} + 5,04\bar{\alpha}_{511} \end{cases} \quad (18)$$

And matrix 17 for finding the solution of our problem is

$$A = \begin{pmatrix} -9,78 & 3,66 & 10,36 & 7,81 & 0,52 \\ -7,63 & -2,07 & -7,32 & -2,34 & -3,86 \\ -0,03 & -5,60 & -4,39 & -1,63 & 0,06 \\ -1,47 & 1,39 & -3,19 & -0,52 & 1,57 \\ 2,59 & 20,98 & -16,71 & -13,89 & 13,11 \end{pmatrix} \quad (19)$$

According to the research the factors x_2, x_3, x_7, x_8 and x_9 are expressed in terms of other factors $x_1, x_4, x_5, x_6, x_{10}$ and x_{11} as follows:

$$x_9 = -0.1679277434 \cdot 10^{11} + 0.1006388300 \cdot x_1 + 0.1355219899 \cdot x_4 - 0.5200778380 \cdot x_5 - 0.2073169393 \cdot x_6 + 36997.68816 \cdot x_{10} + 778799.7172 \cdot x_{11};$$

$$x_8 = -2090253.240 - 2.205883368 \cdot x_1 - 4.322024522 \cdot x_4 + 6.677315307 \cdot x_5 + 0.8058218258 \cdot x_6 - 1607067.970 \cdot x_{10} + 11821610.50 \cdot x_{11};$$

$$x_7 = -62900933.73 + 0.3069553964 \cdot x_1 + 2.350220538 \cdot x_4 - 57.56668813 \cdot x_5 - 13.19740602 \cdot x_6 + 2056413.583 \cdot x_{10} + 54243263.42 \cdot x_{11};$$

$$x_3 = 91425293.98 + 15.44064201 \cdot x_1 + 3.461400299 \cdot x_4 + 11.88754258 \cdot x_5 + 21.63363630 \cdot x_6 - 1232007.799 \cdot x_{10} - 110439944.1 \cdot x_{11};$$

$$x_2 = -6723055.239 - 0.2304462554 \cdot x_1 + 2.105610744 \cdot x_4 - 3.185035690 \cdot x_5 - 2.880181932 \cdot x_6 + 720794.0423 \cdot x_{10} + 8742588.651 \cdot x_{11}.$$

Table 3. Effect of secondary factors on the secondary ones under the conditions of the bank optimal management through the absolute efficiency of corporate governance in it

	a	x_1	x_4	x_5	x_6	x_{10}	x_{11}
x_9	–	+	+	–	–	+	+
x_8	–	–	–	+	+	–	+
x_7	–	+	+	–	–	+	+
x_3	+	+	+	+	+	–	–
x_2	–	–	+	–	–	+	+

Thus, the conditions for the providing efficiency of the bank management in the system of financial relations of their stakeholders expressed through the effectiveness of corporate governance allow to determine the appropriate factors that are basic and easily managed by the bank, and the parameters that are hardly managed. The proposed econometric model that takes into account the lag decisions of corporate governance enables to analyze quite widely the bank activity, to identify ways of its improvement in order to increase efficiency.

Determined factors in such way allows us to analyze the impact of each of the secondary hard managed factor that characterizes financial relationships of the bank stakeholders to the primary easily managed factors under optimal bank management expressed through the effectiveness of corporate governance in it. Table 3 shows this effect.

Studies demonstrate that the efficiency of the banking system under conditions of transformation processes in Ukraine to the international financial sector is highly dependent on maintaining their own development opportunities, primarily due to the sustainability development of financial relationships of bank stakeholders.

On the influence of the primary factors the CEO can affect. Primary easily managed (controlled, regulated) financial relations are restricted by the bank and include a strategy for its development, the structural problems of production management and banking, all kinds of resources, profitability of banks, production capacity, research and development activities, competitiveness. The primary factors can take different values in solving problems affecting their secondary factors that generate many alternative solutions. Herewith, secondary factors can substantially affect the results of decisions and effective management of the banks. The results of Table 3 reflect that the impact of secondary hard managed factors on factors that are subjected to regulation by management has a different area of influence.

4. Conclusion and concluding remarks

So, we have analyzed 50 banks which constitute 60% of Ukrainian banking system, that include representatives from all four groups that are under the control of foreign and domestic capital and it allows to determine the major trends influence of financial relations on the bank management effectiveness in the system of financial relations of their stakeholders. Determining factors in such way we define that basic

financial relations, which are characterized by funds of legal entities (x_2) and loans and liabilities of individuals (x_8), funds of banks (x_1) has a negative impact. The "principal-agent" financial relations related to the formation of bank financial resources specified by features of their circulation (issued as securities) influence negatively only on loans and liabilities of individuals (x_8), i.e. on the cross-cutting financial relations "agent- subagent" deal with substitution of the agent functions completely or partly which are obtained from the "principal". Securities held for trading (x_5) positively affects the "principal-agent" financial relations (individuals' funds (x_3)) and "agent-subagent" (loans and liabilities of individuals (x_8)) only if principal or agent is acting as individuals. At the same time, specific hard managed factor, expressed as a share of equity in the banks' liabilities (x_{10}) has a negative impact on the above- mentioned group of financial relations. Financial relations that affect absolutely all the directions of the bank added value growth expressed by the individuals' funds (x_3) depend on the negative impact of the share of assets in the total assets of the banking system (x_{11}). However, the results show positive role of individuals as a bank' stakeholders in the system of "principal-agent" financial relations, since individuals are the main fighters in the case of violation of their rights as depositors.

Thus, the sustainability of the bank' stakeholders financial relations expressed by the system of corporate governance, shareholders, creditors, persons involved in active transactions related to the bank's activities that generates wealth can act as potential beneficiaries and as possible victims. Rather important is the specification of positive and negative consequences of disharmonization of financial relations for individual stakeholders groups.

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Appendix A

Indicators used in assessment of the effectiveness of banks' management in the system of financial relations.

Indicator	Financial relations of the bank's stakeholders	Characterization of the financial relationships based on modified model of "principal-agent"	Type of the factor
x_1	Funds of banks	The "principal-agent" financial relations related to formation of the bank debt capital. "Principal" acts as the banking institution.	Secondary (hard managed)
x_2	Funds of legal entities	The "principal-agent" financial relations related to formation of the bank debt capital. "Principal" act as legal entities.	Primary (easy managed)
x_3	Funds of individuals	The "principal-agent" financial relations related to formation of the bank debt capital. "Principal" act as individuals.	Primary (easy managed)
x_4	Debt securities issued by the Bank	The "agent-subagent" financial relations related to formation of the bank debt capital. "Principal" act as individuals and/or legal entities. Auxiliary tool (agency contract) is debt securities issued by the bank.	Secondary (hard managed)
x_5	Securities held for trading	The "agent-subagent" financial relations associated with substitution of the function, derived from the "principal". "Subagent" acts as individuals and/or legal entities.	Secondary (hard managed)
x_6	Funds in other banks	The "agent-subagent" financial relations associated with substitution of the function, derived from the "principal". "Subagent" acts as other banking institutions.	Secondary (hard managed)
x_7	Loans and liabilities of legal entities	The "agent-subagent" financial relations associated with substitution of the function, derived from the "principal". "Subagent" acts as legal entities.	Primary (easy managed)
x_8	Loans and liabilities of individuals	The "agent-subagent" financial relations associated with substitution of the function, derived from the "principal". "Subagent" acts as individuals.	Primary (easy managed)
x_9	Share capital	The "principal-agent" financial relations related to formation of the bank equity capital. "Principal" acts as bank' shareholders.	Primary (easy managed)
x_{10}	The share of equity in the banks' liabilities	An index that characterizes the complex nature of "principal-agent" financial relationships associated with the formation of debt and bank equity capital.	Secondary (hard managed)
x_{11}	The share of assets in the total assets of the banking system, %	An index that characterizes the bank' "agent-subagent" financial relationship to the financial relationship "agent-subagent" of Ukrainian banking system.	Secondary (hard managed)