Relating Managerial Ownership to Firm's Performance: Evidence from Banking Sector of Pakistan

Gul Pari* and Alvina Sabah Idrees**

Abstract: This study has tried to investigate relationship between managerial ownership and bank performance in banking sector of Pakistan. Data of 23 commercial banks from Pakistan for period 2007 to 2013 has been used where 2SLS is applied on panel data in order to capture the endogeneity. Three models (quadratic, dummies and piecewise linear regression) have been used to test two hypotheses (Convergence-of-interests and entrenchment hypotheses). Results confirm the presence of entrenchment effect in banking sector of Pakistan suggesting that ownership may be good governance tool which brings convergence of interest but up to certain threshold, so too much giving way of stock options could wane firm performance due to entrenchment effect. However, piecewise linear regression concluded a significant non-monotonic relationship that increased between 0% and 5%, decreased between 5% and 25%, and again increased after 25% .

Keywords: Banking sector, linear regression, governance, managerial ownership
JEL Classification: G24, C25, G32

1. Introduction

Large corporate structure has invented the publically traded firm. This invention has been spread on all over the world where millions and billions number of people handover their personal wealth to business controllers (managers). Here there is line between managers and shareholders on behalf of their different interests. While controlling the corporations, managers can take such decisions that maximize their own interest rather than investors . Jenison and Macklin (1976) are first to model this issue as agency problem.

Cost that is incurred in this case is called "agency cost". Corporations continue to evaluate alternative process in order to overcome agency

*The author is a graduate of the Department of Economics, GC University Lahore, Pakistan.
** Lecturer, Department of Economics, GC University Lahore, Pakistan.

problem. All these procedures (tools and techniques) are put under heading of corporate governance.

One famous controlling procedure, proposed by Jenison and Macklin (1976), is that manger should have share in outside equity and debt. According to them, value of firm increases as managerial stack increases in firm's future cash flow, thus aligning the interest managers with minority shareholders and increasing the firm performance. More, managerial ownership may be effective internal corporate governance tool. They identified the fraction of the equity held by the managers as a fundamental to ownership structure. However, while talking about managerial behavior, there is another side of picture proposed by Stulz (1988) and Shelfer & Vishny (1989). According to them, when managers own large share in firm, they become entrenched so yielding negative relationship with profitability at higher level of shareholding (entrenchment effect).

There is vast variety in ownership and group structure of banks in Pakistan where ownership comprises of foreign, family and some state-owned banks. Each type of ownership structure has its own merits and demerits regarding the governance. Few banks work as part of non-bank financial sector having ownership and control from them. In this case, clearness, fairness and transparency in banks regarding lending and investment decisions (especially for those concerning group companies) become a challenging task.

However, no amount of regulatory intervention can fully institutionalize corporate governance unless Boards and senior management of banks appreciate the value addition of corporate governance to their productivity and competitiveness (Akhtar, 2008). Now this study strives to answer this research question in a bit detail. Whether the Pakistani banks have room for managerial ownership just as convergence of interest tool? If so, whether entrenchment effect exists in Pakistani banking sector or not?

The relationship between managerial ownership and bank performance has been tested as it might be effective corporate governess tool. The objectives of the study are: To determine the impact of managerial shareholding on bank performance, to study whether an inverted U-shaped relationship exists between managerial ownership and bank performance, to examine the different ranges of managerial shareholding at which the relationship between managerial ownership and bank performance varies.

The organization of the paper is as follows: after the introduction (Section I), Section II presents the literature review, whereas, Section III describes the theoretical framework. In Section IV, the theoretical model is developed. The data and methodology is described in Section V. Section VI is devoted for discussion of results and interpretation; while the last Section VII concludes the paper and presents some policy recommendations and future areas for research.

2. Literature Review

Morck et al., (1988) used cross-sectional data of 371 firms listed on Fortune 500 firms in order to find relationship between managerial ownership and higher firm performance. Firm performance was primarily measured by Tobin's Q, and managerial ownership was measured as combined shareholdings of all board members having a minimum stake up to 0.2%. The study used a piecewise linear regression in order to captured non monotonic relationship and concluded a significant non-monotonic relationship that increased between 0% and 5%, decreased between 5% and 25%, and again increased after 25% .

McConnell and Servaes (1990) regressed the Tobin's Q on insider and block holder ownership in order to capture any linkage between superior firm performance and insider ownership. This study used two dissimilar cross-sectional data sets, one for 1976 and another was for 1986. 1000 COMPUSTAT firms were used for analysis. Positive relation was found for insider ownership, but it showed diminishing trend when managerial ownership becomes increased. The relationship between block

holder ownership and Q was positive but not significant. The relationship of firm performance and insider ownership showed upward slop until managerial ownership reached 40% to 50% and then sloped slightly downward. Between 0% and 5%, this study found statistically significant positive relationship for insider ownership but could not found this relationship after 5%. However, ownership structure was not endogenized in this study.

DeYoung et al., (2001) argued that sometimes owners do not have proficiency and knowledge to run business. So they hire managers from outside in order to get their knowledgeable services. This out sourcing has benefits but it also engenders agency cost. These researchers, tried to look into whether gain from these out sourcing is greater than agency cost or not. Taking the sample of 266 banks from US for time frame from 1991 to 1994, they applied OLS regression and found clear evidence for convergence of interest hypothesis (showing that hired manager caused the superior bank efficiency at lower level. However, this alignment converted into entrenchment when there was over-holding of ownership by managers, thus clearly following the pattern of inverted U-Shape relationship between managerial ownership and bank efficiency (that was taken as measure of bank performance).

Park and Jang (2010) took restaurant industry and tested the relationship between insider ownership and firm performance. This study found over all positive relationship between firm performance and managerial ownership. The time frame ranged from first quarter of 2001 to fourth quarter of 2006. 251 restaurant firms were selected where total numbers of observations were 1315. Two hypothesis (Convergence-of-interests and entrenchment hypotheses) were tested using cross-section and panel two-stage least square (2SLS) GMM estimation methods both for linear as well as non-linear models. The quadratic model explored the effect that restaurant firm performance improved/increased until insider ownership ranged between 38% and 40%, after this it decreased.

Similarly, the piece-wise regression model illustrated that insider ownership had a significant and positive effect on restaurant performance at array of 5–25% and became negative after 25% insider ownership. So according to this study, convergence-of-interests and entrenchment hypothesis for managerial ownership co-exist in the industry of restaurant. Its mean when convergence-of-interests are prominent, too much giving way of stock options and awards to managers could wane firm performance because of strong entrenchment effects.

Din and Javid (2011) from corporate sector of Pakistan investigated the relationship between managerial ownership and firm performance in the sixty non-financial firms listed on KSE 100 index for the time frame of 2000 to 2007 where panel data set was used with 2sls technique. The study found positive relationship between the corporate performance and manager's ownership concentration. When the managerial ownership was separated in three different ranges, low level (0-5%), and moderate level (5%-25%) and high concentrated (above 25%), the firm performance was positive only at low and moderate level. The ownership after 25% was showing negative relationship with performance thus supporting the entrenchment theory.

Westman (2011) investigated agency problems in European banks. It was argued that agency cost problem may differ in banks with different strategies. The study further argued that non-traditional banks are complicated to monitor as compare to conventional banks, so managerial ownership would improve firm profitability in nontraditional banks. This study used sample of banks from thirty seven (37) different European countries and applied simple OLS regression and found significant positive relationship between managerial ownership and bank performance in non-conventional banks. However this association did not appear in traditional banks where there was no opacity of activities. This study further explored positive impact of management ownership on profitability. However management ownership did not show impact on risk-adjusted profitability. This is due that management ownership induces

risk-taking behavior. It also found inverted U-shape relationship between management ownership and profitability.

3. Theoretical Framework

Most prevailing ownership structure in banking sector of Pakistan are state owned, private and foreign ownership; institutional ownership. These banks have majority/control by different welfare trusts, financial groups and investment trusts etc. In current banking industry, managerial shareholding is not dominant ownership structure. Its mean value is 7.63%. Standard deviation for this variable is 13% quite enough to show large variation in data set where minimum value is 0% and maximum is 63.41%. Most of banks have managerial equity up to 5% (124 obs.). However there are some banks how have managerial shareholding up to 25% or beyond 25 %.(57 obs.). In spite of its lower presence, importance of management and directors is not neglect able as no amount of regulatory intervention can fully institutionalize corporate governance unless Boards and senior management of banks appreciate the value addition of corporate governance to their productivity and competitiveness (Akhtar, 2008). That's why the agency cost theory seems the managerial equity holding as best ownership governance tool. So It looks interesting to explore reality whether managerial equity holding leads convergence of interest or nor? And whether it is good substitute/alternative for ownership structure or not? And most important is comparison of performance of banks having different proportionate of managerial equity holding. This study would tell overall philosophy of management in banking sector of Pakistan. Whether, they become motivated on being owner or go for wealth expropriation. If they go for convergence of interest then agency theory proposed by Jenison and Macklin (1976) becomes approved. However, in latter case, they may entrench on being owner exhibiting expropriation of wealth.

4. Theoretical Model

Model-1

Three models have been tested to capture relationship between managerial ownership and bank performance (ROA) by using 2SLS where managerial ownership is considered endogenous which is instrumented by instrumental variables.

First model is quadratic model that takes linear term of managerial ownership and square of managerial ownership in order to capture non linearity of relationship between managerial ownership and firm performance. This model determines whether there is inverted U-shaped relationship between managerial ownership or not.

Expected sign: Here, in accord with theory of entrenchment, researcher is expecting significant positive sign with linear term of managerial ownership (MAOWPER) and significantly negative sign with coefficient of quadratic term of managerial-and performance relationship (MAOWPERsq).

Here, endogenous variable (MAOWPER) is regressed over instrumental variables (no. of insiders, size-sq and second lag of independent variables). Size square is used in order to introduce non-linearity in model 1 & 3 ((Park & Jang, 2010). Main model is as follow:

$$LogF.P_{it} = \beta_1 + \beta_2 SIZE_{it} + \beta_3 BLOCKDUM_{it} + \beta_4 LogLIQUIDITYRISKi_t + \beta_5 LogCREDITRISK_{it} + \beta_6 MAOWPER*_{it} + \beta_7 MAOWPERsq_{it} + \mu2_{it}$$
$$(1)$$

Where i= 1, 2, 3…23; representing the number of cross sections/banks used in study

t =1, 2, 3…8; shows time period (number of years) used in study

Where

MAOWPER* $_{it}$ = Fitted value of MAOWPER for bank i[th] at time t[th] (obtain from Eq. (1))

LogF.P$_{it}$ = log of firm performance of bank i[th] at time t[th] (where measured by ROA

SIZE$_{it}$ = size of bank it[h] at time t[th]

BLOCKDUM$_{it}$ = presence /absence of block holder for bank i$_{th}$ at time t[th](dummy variable)

LogLIQUIDITYRISK$_{it}$ = log of liquidity risk for bank i[th] at time [th]

LogCREDITRISK$_{it}$ = log of credit risk for bank i[th] at time t[th]

MAOWPERsq$_{it}$ = square of MAOWPER for bank i[th] at time t[th]

$\mu2$ $_{it}$ = error term for bank i[th] at time t[th] measuring the effect of excluded variables

β1= intercept term

[β2, β3, β4, β5, β6, β7 are slop coefficients measuring percentage change (elasticity) where expected signs are β2>0, β3>0, β4>0, β5>0, β6>0, β7<0]

Model-2

Dummy variables model compares the expected mean performance over three groups, where two dummy variables are used DM1 and DM2. DM1 is dummy that takes the value 1 if managerial ownership is between5% to 25% otherwise it takes the 0. DM2 takes 1 if managerial ownership is above 25% otherwise it takes 0. Intercept takes the value as reference group where managerial ownership is between 0 to 5% (Park & Jang, 2010). Idea to make 5% as turning point is that SECP requires the proper disclosure if ownership holding exceeds the 5%. 25% point is introduced as beyond 20-30% hostile takeover become

impossible and management becomes entrenched after this point (Morck, et al., 1988).

$$LogF.P_{it} = \partial_1 + \partial_2 SIZE_{it} + \partial_3 BLOCKDUM_{it} + \partial_4 LogLIQUIDITYRISK_{it} + \partial_5 LogCREDITRISKi_t + \partial_6 MAOWPER*_{it} + \partial_7 DM1_{it} + \partial_8 DM2it + \mu 3_{it} \qquad (2)$$

Model-3

Third model uses three variables for managerial ownership that suppose the continuous relationship over three ranges MO1, MO2 and MO3. As this research is assuming non-linear relationship between managerial ownership and firm performance so positive relationship is expected for MO1 and MO2 and negative relationship for MO3. We take three independent variables one by one which are created by using Linear SPLINES (piecewise linear regression). Linear SPLINES allow estimating the relationship between y and x as a piecewise linear function, which is a function composed of linear segments —straight lines. One linear segment represents the function for values of x below x0; another linear segment handles values between x0and x1, and so on. The linear segments are arranged so that they join at x0, x1 and so on…which are called the knots. Here knots are introduced at 5% and 25% as explained in model 2(Din & Javid, 2011; Himmelberg, et al., 1999; McConnell & Servaes, 1990; Morck, et al., 1988; Park & Jang, 2010).

$$LogF.P_{it} = p_1 + p_2 SIZEi_t + p_3 LogLIQUIDITYRISK_{it} + p_4 LogCREDITRISK_{it} + p_5 MAOWPER*_{it} + p_6 MO1_{it} + p7MO2_{it} + p8MO3_{it} + \mu 4_{it} \qquad (3)$$

5. Data and Methodology

This study uses data of 23 banks[1] listed on KSE for time period 2006 to 2013 (179 obs.). Relationship between managerial ownership and firm performance is assumed to be endogenous which is due to Simultaneity.

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[1] See appendix 2 for list of banks included in study

This exists when two variables are determined by each other simultaneously as performance is determined by managerial ownership and managerial ownership is determined by performance. Literature review suggests this type of endogenous relationship (Demsetz & Villalonga, 2001; Drakos & Bekiris, 2010; Park & Jang, 2010; Schultz, et al., 2010).

Endogeneity test is performed in order to find whether endogenously treaded regressors in the models are actually exogenous or correlating with residual. Wooldridge's (1995) robust score test and robust regression-based test score are used in this study. Statistically significant results in both test indicate that variable is endogenous and least square would not provide consistent results so one should go for using instrument variables (2sls etc). Here managerial ownership is considered as endogenous with bank performance and is instrumented with number of insiders (number of persons who held shares including directors, management and their minor & children) and lag values all independent variables (managerial ownership, size, liquidity risk, credit risk at 2nd lag).

This study reports Wooldridge's (1995) robust score test to check validity of instruments. Statistically insignificant results indicate instruments are valid. Relevance of instruments has been checked by first stage regression with null hypothesis as 'instruments are weak.' Size, liquidity risk, credit risk and block holder dummy is used as control variables.[2]

6. Results and Interpretation

Table 1 reports the results of models with ROA as a measure of firm's performance.

Table 1: Models with ROA as a measure of firm's performance.

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[2] See appendis 1 for detail of variables

Variables	Model-1	Model-2	Model-3
MAOWPER	0.00087*** [0.0004] (0.071)		
MAOWSQPER	-0.000017*** [9.81e-06] (0.068)		
DM1		0.01638 [0.0107] (0.128)	
DM2		0.06539*** [0.0366] (0.075)	
MO1			0. .00217 * [0. .0007] (0.002)
MO2			-0.00276* [0 .0009] (0.003)
MO3			0.00071 ** [0 .0003] (0.026)
SIZE	0.00927 *	0.00878*	0.00809 *

	[0.00149] (0.000)	[0.00209] (0.000)	[0. 0013] (0.000)
LOGCREDITRISK	-0 .03827* [0.0121] (0.002)	-0.00544 [0.0126] (0.667)	-0.0288 ** [0.011] (0.013)
LOGLIQUIDITYRISK	0.02064** [0.0111] (0.063)	-.01737 [0.0118] (0.141)	0.0087 [0.010] (0.388)
BLOCKDUM	0.00060 [0.00187] (0.746)	0.00654* [0.0019] (0.001)	
Constant	-0.05575* [0 .014] (0.000)	-0.0508* [0.0184] (0.006)	-0.0451* [0.0124] (0.000)
R^2	16%	Not reported[3]	25%
First stage F-stat	3.916* (0.001)	1.65 (0.1495)	12.98* (0.000)

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[3] Because these instruments appear to be weak in model 2

Over identification test(chi-sq)	10.288^{4} (0.0675)	6.88^{5} (0.1426)	12.07^{6} (0.0603)
Endogeneity test chi-sq	3.488*** (0.0618)	6.31** (0.0120)	4.62** (0.0315)
Instrumental variables	1)No. of insider 2)Size-sq 3)2nd lag of all independent variables	1)No. of insider 2)2nd lag of all independent variables	1)No. of insider 2)Size-sq 3)2nd lag of all independent variables

Source: Authors's own

Endogeneity test was performed to test the endogeneity between managerial ownership and bank performance. The results identified that managerial ownership and bank performance was having significant endogeneity problem as value of chi-square was 3.488***, 6.31*, 4.62** respectively in all three models So 2SLS (two-stage least square regression) was an effective analysis tool for these models. Secondly, the selected instrument variables were tested for their relevance and validity. To check relevance, first stage regression was considered. Null hypothesis H0, that all instruments are irrelevant was rejected even at 1% level of significance for mode 1 and model 3. However it could not be rejected for model 2 showing that Instruments were weak in model 2.

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[4] It is insignificant at 5% level

[5] It is insignificant at 10% level

[6] It is insignificant at 5% level

Where *,**,*** show significance level at 1%,5% and 10% respectively

Values in [ ] and ( ) represent standard errors and probability respectively

For all 3 models, over identifying restriction test was insignificant at5%, 10% and 5% respectively, which means that instruments were valid in all three models.

Results for Model 1 confirm inverted u-shape relationship between managerial ownership and bank performance as both linear term and quadratic terms are significant at 10% level with positive and negative signs respectively. This model confirms the entrenchment effect in banking sector of Pakistan. Model 2 and model 3 explore this relationship at various ranges of managerial ownership. Model 2 uses dummy variables to compare managerial ownership and firm performance relationship at various level of managerial ownership (<5, 5-25, >25). Here DM1 is positive but insignificant where DM2 is significant with positive sign. Positive sign at DM2 indicate that after 25% of managerial shareholding this relationship becomes positive. These results are not consistent with model 1 which indicated inverted U-shape relationship between managerial ownership and firm performance. However these results are consistent with model 3 where MO3 is significant at 10 % with positive sign showing that after 25% of managerial shareholding this relationship becomes positive. This discrepancy between model 1 and model 2 & 3 can be well explained by magnitude of coefficients in model 3. Absolute value of MO2 is higher than MO3 [0.00276] > [0.000715] that's why MO2 force over MO3 and ultimately overall negative sign appears in model 1 with quadratic term. Another reason might be that very few observations falls in MO3 category that's why there effect fades away in model 1 that is quadratic model. However MO1 is significant with positive sign confirming linear term of model 1.

Significant positive relationship has been found between size (control variable) and profitability. This sign is according to expectations as assets are things that generate/earn cash flows for business. Size also brings economies of scale. It also reduces funding costs for banks and they become too big to fail (government strategy). This study founds negative

relationship between credit risk and bank profitability. Negative relation may be due to an increasing number of potentially default borrowers (unpaid loans) which can ultimately decrease profitability so making negative relationship with bank performance. Liquidity risk shows positive relationship with bank performance that can be explained as higher risk-higher return.

7. Conclusion and Policy Recommendations

The present study tries to explore impact of managerial ownership on bank performance in order to determine whether it could be a good internal corporate governance tool or not? Jensen and Macklin (1976) proposed linear positive relationship between managerial ownership and firm performance. However management entrenchment theory (Shleifer & Vishny, 1989; Stulz, 1988) proposed that this relationship would become negative after some point.

So this study uses quadratic model that includes both linear and nonlinear terms (model 1). Besides this, dummy variable model (model 2) and piecewise linear model (model 3) have been used to testify this relationship over various ranges of managerial ownership.

Results for model 1 confirm the presence of entrenchment effect in banking sector of Pakistan suggesting that when managers own small fraction of shares, probability for successful takeover increases, so threat of this takeover disciples the management and ultimately firm performance increases. However when managers own large fraction of shares, probability for successful takeover decreases, managers become free in determining firm policies and ultimately firm performance decreases. So based on model 1, managerial ownership is good governance tool which brings convergence of interest so managers should be awarded with stock option but up to certain threshold because much giving way of stock options could wane firm performance due to entrenchment effect.

However model 2 & 3 explore this relationship at various levels of managerial shareholding suggesting that this relationship is significantly positive beyond 25% levels of managerial shareholding. This contradiction in results with model 1 can be well explained by small magnitude of coefficients and small number of observation beyond 25% level due to which this positive relationship has been cancelled by negative effect leaving net negative effect in model 1 showed by quadratic term. This discrepancy suggests that natural knots of data should be determined to find exact relationship over various ranges of managerial ownership.

Negative relationship between credit risk and bank profitability suggests that there is need to improve quality of loans which can be possible by more tight screening of borrowers.

Future areas for research are as follow: 1) Relationship between managerial ownership on bank performance could be examined while controlling for macroeconomic variables. 2) Relationship between managerial ownership and firm performance may differ in different industries, so it could be examined in other industries separately.3) Relationship of managerial equity holding and firm performance in banking sector of Pakistan should be analyzed differently under different identity of ownership such as foreign, state owned, institutional etc.

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Appendix 1

Table 2: Variables and Their Expected Signs

S.n	Variable	Explanation
1	ROA	Net income to total assets ratio, performance measure
2	ROE	Net income to total equity ratio, also performance measure

Independent variables (Managerial ownership is endogenous variable)		
Variable	Explanation	
MAOWPER	Percentage of shares held by managers and directors	+
MAOWPERsq	Square of MAOWPER	+ with linear term ,- with quadratic term
MO1	Managerial shareholding < 5%	+
MO2	5%<= Managerial shareholding < 25%	+
MO3	Managerial shareholding >=25%	_

DM1	=1, if 5%<= Managerial shareholding <25% =0, otherwise	+
DM2	=1, if Managerial shareholding >=25% =0, otherwise	_

Control variables			
1	SIZE	Log to total assets to measure size	+
2	LogCREDITRISK	Log of Ratio of loans to total assets	+
3	LogLIQUIDITYRISK	Log of Ratio of loans to deposits	+
4	BLOCKDUM	$= \begin{bmatrix} 1, & if \text{ legal or natural person shareholding} \\ 0, & \text{otherwise} \end{bmatrix}$ BLOCKDUM	+

Instrumental variables		
1	INSIDERSNUM	Number of insiders(no. of directors & shareholders who have shares)
2	Size-sq	Square of size in model.2 & 4 in order to introduce non-linearity
3	2nd lag of independent variables	tMAOWPERlag, SIZElagt, LOGCREDITRISKlagt, LOGLIQUIDITYRISKlagt,

Appendix 2

Table 3: List of Banks Included In Study									
S. N O.	BAN K NAM E	S. N O.	BAN K NA ME	S. N O	BAN K NAM E	S. N O.	BANK NAME	S. N O.	BANK NAME
1	ALLI ED BAN K	6	BAN K OF PUN JAB	11	MCB	16	UBL	21	BANK OF KYBA R
2	ASK ARI BAN K	7	FAY SAL BAN K	12	MEE ZAN BAN K	17	SILK BANK	22	STAND ARD CHART ERED BANK
3	BAN K ALFA LAH	8	HAB IB BAN K	13	NIB	18	MY BANK [7]		
4	BAN K AL-HABI B	9	JS BAN K	14	SAM BA BAN K	19	SONE RI BANK	23	HABIB METR O POLIT

[7] My bank has been delisted from KSE in 2010-11, however prior financial statements are available making data unbalanced due to not full record of annual reports.

5	BANK ISLAMI	10	KASAB BANK[8]	15	SSUMMIT BANK	20	NATIONAL BANK		ANT BANK

[8]Kasab bank has been amalgamated with Bank Islami due to not fulfilling minimum capital requirement on *May 8th, 2015 (Friday)*
http://www.kasbbank.com/bank/Contact.aspx, http://www.dawn.com/news/1180621