

# **The Impact of Institutional Ownership and Dividend Policy on Stock Returns and Volatility: Evidence from Egypt**

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## **ABSTRACT**

This paper examines the effect of institutional ownership on stock volatility, returns, and dividend policy in Egypt. It also investigates the impact of dividend policy on the direction of the relation between institutional ownership and stock volatility and returns. Our main results show that private institutional ownership has significant and positive effect on stock volatility while it has no effect on returns. We find that private institutional ownership has negative effect on dividend payout ratio. Finally, we show that private institutional ownership significantly increases volatility for non-dividend paying stocks only because these stocks are more subject to institutional herding than dividend paying stocks.

*JEL Classification:* G32, G35

*Keywords:* Institutional Investors; Volatility; Dividend Policy; Egypt

## I. INTRODUCTION

We study the relation between institutional ownership and stock volatility, returns, and dividend policy in Egypt. We also investigate the impact of the dividend policy on the direction of the relation between institutional ownership and stock volatility and returns. We control for the firm's characteristics and financial variables. There is a general debate in literature on the direction of the relation between institutional ownership and stock volatility. Using US data for the period 1999-2003, Rubin and Smith (2009) find that dividend policy plays a crucial role in determining the direction of the relation between institutional ownership and stock volatility. The sign of the correlation between institutional ownership and volatility depends on the firm's dividend policy: institutional ownership is negatively (positively) related to volatility among non-dividend (dividend) paying stocks.

We contribute to this debate on literature by examining the effect of dividend policy on the direction of the relation between institutional ownership and stock volatility in Egypt as one of the emerging markets that have been ignored in literature. We extend the analysis of Rubin and Smith (2009) by decomposing the institutional ownership to insurance companies, employee associations, public and private banks, holdings, and companies. In addition, this paper examines the effect of dividend policy on the relation between ownership concentration, by largest three public and private blockholders, and stock volatility. We also examine the effect of dividend policy on the relationship between institutional ownership and stock returns, not only volatility.

We now try to explain in which respects Egypt, as a small emerging economy, is different than US and other developed economies and why these differences matter. The legal system in developed economies, entrenched financial structures and practices determine and shape the enactment of corporate law. For small emerging countries, the legislative environment governs the securities markets are influenced by French civil code. Common-law countries generally have the strongest, and French civil-law countries, such as Middle East and North Africa (MENA) countries, have the weakest legal protection of investors. Studying the MENA region, Sadik, Bolbol and Omran (2004) find that the political system is highly concentrated with a poor mode for national governance which has a negative effect on its corporate governance. Financial markets are underdeveloped and access to external funds is limited. In these countries, most of the controlling shareholders are individuals (in many cases related to political figures or Royal families), influential institutions or families. A single family may have controlling stakes in a number of companies whether directly or indirectly. Privatization in the MENA region has been progressing slower than other large emerging markets.

Egyptian market is part of MENA region countries which have similar characteristics and our results can only be generalized to this region. The differences between Egypt and large emerging and developed countries in legal and political systems, country factors, and market structure and development make Egypt a unique opportunity to investigate.

Our results show that private institutional ownership has significant and positive effect on stock volatility while ownership concentration by the largest three private blockholders reduces volatility. Institutional ownership has no effect on stock returns. We find that private institutional ownership has significant and negative effect on payout ratio, while ownership concentration by largest three private blockholders

increases payout ratio. Finally, we show that private institutional ownership significantly increases volatility for non-dividend paying stocks only because these stocks are more subject to institutional herding than dividend paying stocks.

The remainder of this study is organized as follows: Section II contains the literature review. Section III describes the data and sample construction. Section IV presents the empirical models. Section V provides the empirical results and a discussion for these results. Section VI concludes the study.

## II. LITERATURE REVIEW

In investigating the relationship between institutional ownership and stock volatility, most of the literature finds a positive relationship between institutional ownership and stock volatility (Sias, 1996; Xu and Malkiel, 2003). Dennis and Strickland (2002) conclude that institutional ownership has a significant and positive effect on stock volatility. However, Rubin and Smith (2009) argue that the direction of the relationship between institutional ownership and volatility depends on the company dividend policy. This relation is significantly positive for dividend-paying stocks, while it is negative for non-dividend-paying stocks. Institutional investors are shown to be better informed than individual investors (Lin et al., 2007). West (1988) finds that an increase in the information content of prices will reduce the variance of stock returns. Therefore, higher levels of institutional ownership will be associated with more informative prices and lower volatility which is called institutional sophistication hypothesis. Rubin and Smith (2009) attribute the negative relationship between volatility and institutional ownership in non-dividend paying stocks to the institutional preference hypothesis. Previous studies show that non-dividend paying is more volatile than the dividend paying stocks (Gordon, 1959; Pastor and Veronesi, 2003; West, 1988). Grinstein and Michaely (2005) show that institutions avoid investing in non-dividend paying companies despite the fact that financial markets have been increasingly dominated by non-dividend paying firms. At the same time, the institutional sector has grown dramatically. Thus, institutions have increased their holdings in non-dividend paying firms which constitute an important component of most institutional portfolios. The institutional preference hypothesis refers to the preference of the institutions to invest large proportion of their portfolios on low volatility non-dividend paying stocks. This is because institutions are fiduciaries, investing in behalf of others.

The positive relation between institutional ownership and volatility in dividend-paying stocks can be attributed to the institutional turnover hypothesis which implies that institutions turn over their portfolio more frequently than retails. This high portfolio turnover increases stock volatility (Karpoff, 1987). This high turnover might be because of exogenous shocks such as unit holders' withdrawals and infusions, or specific trading rules such as market indexing. Dividend-paying stocks are more subject to institutional herding than non-dividend stocks, indicating a higher correlation between institutional ownership and turnover for dividend paying firms than for non-dividend paying firms. Sias (2004) documents that institutional investors herd following each other into and out of the same securities.

In examining the relationship between institutional ownership and stock returns, a number of recent studies document positive correlations between aggregate changes in institutional ownership and returns measured over the same quarter or year

(Nofsinger and Sias, 1999; Wermers, 1999; Bennett, Sias, and Starks, 2003). The strong positive correlation between quarterly changes in institutional ownership and same-quarter returns is consistent with three hypotheses: (1) institutions have information that allows them to time their trades (i.e., changes in institutional ownership are positively correlated with subsequent intra quarter returns), (2) institutional investors tend to be short-term momentum traders (i.e., intra quarter institutional positive feedback trading), and (3) the buying and selling choices of institutions in aggregate have a contemporaneous effect on returns.

Most of the previous literature focuses on the analysis of the relation between institutional ownership and stock volatility and returns using a variety of control variables when testing this relation. Few literature accounts for dividend policy as an important determinant of the direction of this relationship, investigating the institutional preference hypothesis domination for non-dividend paying firms and the institutional turnover hypothesis domination for dividend paying firms. This literature that accounts for dividend policy in the institutional ownership-volatility and institutional ownership-returns relations focuses only on developed economies. It focuses mainly on stock volatility, ignoring the dividend policy effect on the relation between institutional ownership and stock returns. In addition, previous studies use the aggregate institutional ownership without decomposing it to the different types of institutions. Small emerging economies such as Egypt are ignored in literature. This paper fills this gap by examining how the dividend policy affects the direction of the relation between institutional ownership and both the stock volatility and returns in Egypt. We go beyond the literature by decomposing the institutions to private and public companies, holding companies, insurance, employee association and banks. This paper also investigates the direct effect of institutional ownership on dividend policy in Egypt.

### III. DATA AND VARIABLES

In this paper, we consider the 50 most actively traded companies out of a total of 373 companies listed in the Egyptian Stock Exchange during the period 2004 - 2007. Our sample includes small, medium and large firms to avoid any selection bias. We have 200 observations over the four years. The daily total volume of trade for these 50 most active companies represents on average 99% of the market daily total volume of trade (CASE, 2008). We collect annual financial data and daily stock prices from the Egyptian stock exchange, while the annual ownership structure data comes from Misr for Clearing, Settlement, and Central Depository. It is worth mentioning that data about ownership structure in Egypt is very limited.

#### A. Dependent Variables

Our dependent variables are risk, return and payout ratio. Return is the average daily total return calculated for a given year. Total return is calculated as  $\ln(P_t) - \ln(P_{t-1})$  where  $P_t$  is the daily price of the stock at time  $t$ . Risk measures stock volatility which is the standard deviation of the daily total return for a given year. The payout ratio is ratio of dividend to earning per share at a given year.

## **B. Independent Variables**

Our independent variables are the percentage of equity ownership held by top management, individuals, public holding companies, private holding companies, public companies, private companies, public banks, private banks, insurance companies, and employees' associations. We also calculate the ownership concentration which is composed of private and public ownership concentrations. It is the percentage of equity ownership held by the largest three private (public) blockholders who own more than 5% in a company denoted by Private L13 (Public L13) which is a common practice in literature (e.g., Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001).

## **C. Control Variables**

Risk and return may be related to different financial and firm characteristics variables that need to be controlled in our model. We measure return of assets (ROA), which is net income divided by total assets, and return on equity (ROE), which is net income divided by shareholders' equity, to control for accounting profitability (e.g., Wei and Zhang, 2006; Rubin and Smith, 2009). One of the important determinants of risk and return is leverage. We use the ratio of total debt to book value of total assets (DABOOK) and ratio of total debt to book value of total equity (DEBOOK) to control for leverage (e.g., Pastor and Veronesi, 2003). Another important control variable is the size (SIZE) measured as the natural logarithm of total assets. We use the ratio of market price per share to book value per share for common stock (M/B) as a proxy for growth options (e.g., Pastor and Veronesi, 2003; Cao et al., 2008; Rubin and Smith, 2009). Finally, we control for industry and year effect by including a dummy variable for each industry ( $D_{\text{Industry}}$ ) and year ( $D_{\text{Year}}$ ) in our sample. All variables are defined in Appendix 1.

Table 1 provides summary statistics for two subsamples: (1) non-dividend paying firms, and (2) dividend paying firms. The non-dividend paying firms represent 37% of our sample. We calculate the means and medians for risk, return, financial ratios, and ownership structure measures. We also report the t-statistics for the difference in means and Wilcoxon test for the difference in medians between the two sub-samples. There are no significant differences in stock volatility and returns between non-dividend and dividend paying stocks. Dividend paying firms have significantly higher ROA and ROE than non-dividend paying firms. The mean (median) for ROA in non-dividend is 3.5% (2.8%) versus 12% (10%) for dividend paying firms. The mean (median) for ROE is 15% (9%) for non-dividend compared to 26% (22%) for dividend paying firms. In addition, there are no significant differences at 95% confidence level in leverage ratios, firm size, and market-to-book value ratio between the two subsamples. Public institutions prefer to own equity in dividend paying stocks than non-dividend. The mean ownership ratio in dividend paying (versus non-dividend paying) firms by public holding is 16% (8%), public banks is 6% (5.8%), insurance companies is 6% (4%), and employee associations is 2% (1%). Private holding companies ownership is significantly larger in non-dividend paying firms.

**Table 1**  
Summary statistics

	Non-dividend paying stocks			Dividend paying stocks			T-test for the difference in means	Wilcoxon test for the difference in medians
	Mean	Median	No. of Obs.	Mean	Median	No. of Obs.	(Non-dividend minus dividend)	
Risk	0.034	0.0331	74	0.031	0.028	126	1.38	1.63
Return	0.001	0.0007	74	0.002	0.001	126	-1.25	-1.53
ROA	0.035	0.028	74	0.12	0.10	126	-3.80***	-4.55***
ROE	0.15	0.09	74	0.26	0.22	126	-2.83***	-3.64***
DABOOK	0.54	0.49	74	0.47	0.48	126	1.26	0.22
DEBOOK	1.03	0.88	74	1.41	1.07	126	-1.68*	-1.56
Size	6.11	6.00	74	6.07	6.00	126	0.61	0.47
Payout ratio	0.00	0.00	74	0.58	0.47	126	-6.05***	9.64***
M/B	2.02	1.15	74	2.63	1.72	126	-1.24	-1.66*
Individuals	0.02	0.00	74	0.02	0.00	126	0.24	0.18
Top Management	0.035	0.00	74	0.08	0.00	126	-1.22	-0.63
Public Holdings	0.08	0.00	74	0.16	0.00	126	-2.23**	-1.87*
Public Companies	0.031	0.00	74	0.026	0.00	126	0.25	0.18
Public Banks	0.058	0.002	74	0.060	0.01	126	-0.12	-2.22**
Insurance	0.04	0.006	74	0.06	0.02	126	-1.70*	-2.83***
Private Holdings	0.10	0.00	74	0.008	0.00	126	3.80***	1.81*
Private Companies	0.15	0.00	74	0.11	0.00	126	1.30	1.55
Private Banks	0.008	0.00	74	0.003	0.00	126	0.83	0.06
Employee	0.01	0.00	74	0.02	0.00	126	-2.11**	-1.50
Private L13	0.30	0.27	74	0.24	0.16	126	1.80*	0.89
Public L13	0.25	0.11	74	0.27	0.20	126	-0.35	-0.78

This table provides summary statistics for a sample includes 50 most actively traded companies in Egypt and 200 firm-annual observations in the period 2004-2007. The table reports the means and medians for risk, return and other firm's financial and ownership characteristics for non-dividend and dividend paying stocks. The last two columns test the hypothesis of no significant difference in means (T-statistics) and medians (Wilcoxon test) of the non-dividend and dividend paying stocks. \*, \*\* and \*\*\* denote significance at the 90%, 95% and 99% confidence level respectively. All variables are defined in Appendix 1

#### IV. EMPIRICAL MODELS

This section examines mainly the effect of a firm's financial performance, debt, ownership structure and concentration on risk, return and payout ratio of the stock. As we use panel data, the residuals in our regression are not independent as volatility is correlated across firms in a given point of time. We should adjust for this time dependency when calculating the standard errors. In addition, as many of our variables tend to persist for a given firm, we have to account for firm effect. Following previous studies (e.g., Petersen, 2009; Rubin and Smith, 2009), we use the two-dimensional clustered standard errors. Using the 50 most active companies listed in the Egyptian Stock Exchange during the period 2004 – 2007, we estimate each of the following three equations separately:

$$\begin{aligned} \text{Risk}_{it} = & \beta_{10} + \beta_{11} \text{Return}_{it} + \beta_{12} \text{Performance}_{it} + \beta_{13} \text{Debt}_{it} + \beta_{14} \text{M/B}_{it} + \beta_{15} \text{Size}_{it} \\ & + \sum_{i=1}^{10} \alpha_{1i} \text{Owner}_{it} + \sum_{i=1}^2 \gamma_{1i} \text{ConceType}_{it} + \sum_{i=1}^3 \delta_i D_{\text{Year}} + \sum_{i=1}^{11} \theta_i D_{\text{Industry}} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Return}_{it} = & \beta_{20} + \beta_{21} \text{Risk}_{it} + \beta_{22} \text{Performance}_{it} + \beta_{23} \text{Debt}_{it} + \beta_{24} \text{M/B}_{it} + \beta_{25} \text{Size}_{it} \\ & + \sum_{i=1}^{10} \alpha_{2i} \text{Owner}_{it} + \sum_{i=1}^2 \gamma_{2i} \text{ConceType}_{it} + \sum_{i=1}^3 \delta_i D_{\text{Year}} + \sum_{i=1}^{11} \theta_i D_{\text{Industry}} \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Payout Ratio}_{it} = & \beta_{30} + \beta_{31} \text{Performance}_{it} + \beta_{32} \text{Debt}_{it} + \beta_{33} \text{M/B}_{it} + \beta_{34} \text{Size}_{it} \\ & + \sum_{i=1}^{10} \alpha_{3i} \text{Owner}_{it} + \sum_{i=1}^2 \gamma_{3i} \text{ConceType}_{it} + \sum_{i=1}^3 \delta_i D_{\text{Year}} + \sum_{i=1}^{11} \theta_i D_{\text{Industry}} \end{aligned} \quad (3)$$

In equation 1, we examine the effect of institutional ownership and ownership concentration on stock volatility while controlling for different variables that literature finds that they significantly affect stock volatility. We investigate the effect of return on stock volatility where return is the average total return in a given year while risk is the standard deviation of this return. We expect a significant positive  $\beta_{11}$  because stocks with high returns are relatively more risky. Performance is measured by ROA and ROE. Wei and Zhang (2006) find that as stock prices are the discounted value of future profits, stock price volatility is driven by the uncertainty about future financial profits. Accordingly, performance in equation 1 is expected to have a significant negative coefficient ( $\beta_{12}$ ). We also examine the effect of debt measured by the ratio of total debt to book value of total assets and ratio of total debt to book value of total equity. As a firm finances its operation through debt, variance of its profitability increases which increases its stock volatility, i.e.,  $\beta_{13}$  is expected to be significantly positive. Market value divided by book value of equity (M/B) is a measure of growth options. Pastor and Veronesi, (2003) show a positive relationship between M/B and expected profitability and a negative relationship with expected stock return which is consistent with the existing literature. They also find that M/B increases with uncertainty about average profitability. We expect a significant positive  $\beta_{14}$ . Firm size is an important determinant for volatility as small firms are more concentrated in one industry, so they are more sensitive to idiosyncratic shocks. So, as the firm size increases, risk decreases, resulting in a significant and negative  $\beta_{15}$ . We examine the effect of firm's ownership structure,

which includes top management, individuals, insurance companies, and public and private holdings, banks, companies, on stock volatility. Rubin and Smith (2009) find that there is a significant positive correlation between institutional ownership and stock volatility for dividend-paying stocks because of the institutional turnover hypothesis. They also show that this relation is significant and negative for non-dividend paying stocks as a result of the institutional preference hypothesis. This indicates that  $\alpha_{1i}$  can be positive or negative based on the institutional preference. The ownership concentration ( $\gamma_{1i}$ ) might have a significant negative effect on stock volatility as there are no market makers in Egypt and the largest three blockholders may do the function of the market makers in stabilizing the stock prices.

In equation 2, we analyze the effect of institutional ownership and ownership concentration on stock returns after controlling for important firms' accounting measures and characteristics. We expect to have a positive and significant  $\beta_{21}$  because as volatility increases expected return also increases. As stock prices are the discounted value of future profits,  $\beta_{22}$  is expected to be positive and significant. Some studies show that returns increase as leverage increases (Hamada, 1972; Bhandari, 1988), while others show that they decrease in leverage (Arditti, 1967; Penman et al., 2005). Accordingly, the direction of the relationship between stock return and leverage is mixed, indicating that the sign of  $\beta_{23}$  is unclear. We can expect that stocks that are overpriced will tend to have high market-to-book ratio, whereas stocks that are underpriced will tend to have low market-to-book ratio. Fama and French (1993) have argued that the superior returns of small sized firms and firms with low market-to-book equity are a premium obtained for increased distress risk that is undiversifiable. So, we expect to have significant negative  $\beta_{24}$  and  $\beta_{25}$ . We would expect a significant and positive  $\alpha_{2i}$  as institutions ownership positively correlated with stock returns because they have information that allows them to time their trades and they use positive feedback trading strategies. Higher return correlation lowers the benefits of diversification which causes a higher investment by the controlling shareholder in his asset and a lower investment by the non-controlling shareholders. Mitton (2002) finds that the return premium associated with higher ownership concentration is largely attributable to large blockholders that are not involved with management. This implies that we may have a significant positive  $\gamma_{2i}$ .

In equation 3, we examine the direct effect of institutional ownership on dividend policy (payout ratio). Profits have long been regarded as the primary indicator of the firm's capacity to pay dividends. Pruitt and Gitman (1991) find that current and past year profits are important factors influencing dividend payments. Baker and Powell (2000) conclude from their survey of NYSE-listed firms that dividend determinants are industry specific and anticipated level of future earnings. So, we expect to have a significant and positive  $\beta_{31}$ . A firm has incentives to favor lower and not necessarily stable dividend payouts to shield its debt better from bankruptcy risks (Amihud and Murgia, 1997). Theoretical models suggest that debt and dividends are substitute devices to reduce agency or asymmetric information problems. Free cash flows, after funding all profitable projects, can be invested unprofitably by managers wishing to retain control over these funds. Both debt and dividends payments reduce this problem by reducing the amount of free cash flow under management control. As a result of this substitution effect between debt and payout ratio, we expect to have a negative  $\beta_{32}$ . Higgins (1981) indicates a direct link between growth and financing needs: rapidly

growing firms have external financing needs because working capital needs normally exceed the incremental cash flows from new sales. Higgins (1972) shows that payout ratios are negatively related to firms' need for fund to finance growth opportunities. We expect to have a negative relation between market-to-book value ratio and payout ratio (negative  $\beta_{33}$ ). It is generally recognized that larger firms have more generous payouts; thus, a positive relationship is anticipated between firm size and payout ratio. However, Barclay et al. (1995) find that larger companies have more liabilities, because debtholders have more confidence in larger firms. Therefore, larger firms would pay out low dividend in order not to borrow even more capital. Therefore, the relation between firm size and payout is not clear, indicating an unclear sign for  $\beta_{34}$ . Shleifer and Vishny (1986) argue that large institutional investors are more willing and able to monitor corporate management than are smaller and more diffuse owners. Short et al. (2002) examine three alternative dividend models and find a positive relationship between dividend payout and institutional ownership for the UK firms. Therefore, for institutional controlled firms, we expect a high dividend payout. On the other hand, institutions may prefer paying interests to themselves than distribute dividend to all shareholders. This is not in accordance with the preference of small shareholders that seek profits in short terms. Also, if managers are not monitored by these blockholders, they can divert resources to their own consumption than paying them as dividends. So, the relationship between institutional ownership and dividend policy is mixed, resulting in unclear sign for  $\alpha_{3i}$ . Faccio and Larry (2000) show that dividend payout ratios are higher in Europe, but lower in Asia, when there are multiple large shareholders, suggesting that they dampen expropriation in Europe, but exacerbate it in Asia. Maury and Pajustie (2002) find that the presence of another larger shareholder for Finnish companies affects the payout ratio negatively. However, in the context of Germany, Gugler and Yurtoglu (2003) find that larger holdings of the second largest shareholder increase the dividend payout ratio. This indicates that the relation between ownership concentration and payout ratio is mixed, so the sign of  $\gamma_{3i}$  is determined based on the blockholders' behavior.

We estimate equations 1, 2, and 3 using the whole sample size to examine the general effect of institutional ownership on stock returns, volatility, and dividend policy after controlling for firms' financial and characteristic variables. To provide a deeper analysis, we also examine the effect of dividend policy on the direction of the relationship between institutional ownership and stock returns and volatility by partitioning our sample to two subsamples: (1) non-dividend paying firms, and (2) dividend paying firms. Then, we estimate Equations 1 and 2 for each subsample.

## V. EMPIRICAL RESULTS AND ANALYSIS

We analyze the effect of the institutional ownership on stock volatility and returns. In addition, we examine the direct effect of institutional ownership on dividend policy. Then, after decomposing our sample to two sets which are non-dividend and dividend paying stocks, we examine the effect of the dividend policy on the direction of the relation between institutional ownership and stock returns and volatility. We use different regression specifications to test for the robustness of our results. We use ROA and ROE as different measures for performance, while ratio of debt to total assets and ratio of debt to total equity are used as different measures for debt.

### **A. Effect of Institutional Ownership on Stock Volatility**

The results in Table 2 show that ownership by public institutions, individuals, insurance companies and top management has no effect on stock volatility. Private institutional ownership has positive and significant effect on stock volatility. We find that ownership by private holding companies, private companies, private banks, and employee associations have significant and positive effect on volatility. This is because private institutions in Egypt turn over their portfolios more frequently than retails, increasing stock volatility (Karpoff, 1987). Private institutions herd following each others. So, the institutional turnover hypothesis explains the positive correlation between private institutional ownership and volatility. Our results also show that ownership concentration by the largest three private blockholders, which do not have to be an institution, has significant and negative effect on volatility. As market makers have not been introduced to the Egyptian Exchange, the private blockholders play this role on their own stocks. They stabilize their stocks' prices, reducing volatility. The size has a significant and negative effect on stock volatility as small firms are more concentrated in one industry, so they are more sensitive to idiosyncratic shocks. Our results show that firm's financial performance measured by ROA and ROE has negative and significant effect on stock volatility as stock prices are the discounted value of future profits. We find that leverage, measure by the ratio of debt to total assets, significantly increases volatility because financing through debt increases variance of profitability which in turn increases stock volatility. Return is positively correlated with risk, confirming that relatively high return stocks are expected to be relatively risky.

### **B. Effect of Institutional Ownership on Stock Returns**

The analysis of Table 2 shows that institutional ownership has no effect on stock returns. As risk increases, stock returns are expected to increase. We have a positive correlation between risk and return. We find that profitability has significant and positive effect on stock returns. The analysis shows that stock returns increases with the ratio of debt to total assets as shown in previous studies (Hamada, 1972; Bhandari, 1988). The firm size is also negatively correlated with stock returns as small firms are more volatile and more risk rewarded. The ratio of market-to-book equity value has significant and positive impact on stock returns. This indicates that stocks that are overpriced by having high market-to-book ratio tend to have relatively higher returns than the underpriced stocks in Egypt.

### **C. Effect of Institutional Ownership on Dividend Policy**

As can be seen from Table 2, when firm's profitability increases, payout ratio increases. Profits have long been regarded as the primary indicator of the firm's capacity to pay dividends. Ownership by top management, private holding companies, and private companies has significant and negative effect on payout ratio. This means top management and private institutions exacerbate dividend in Egypt by diverting resources to their own consumption than paying them as dividends. On the other hand, we find that the ownership concentration by the private largest three blockholders has significant and positive effect on payout ratio. Largest blockholders prefer the dividend distribution as they receive the largest share from this dividend.

**Table 2**  
Regressions analysis with all sample (Non-dividend paying and dividend paying stocks)

Equation	(1) Risk	(2) Return	(1) Risk	(2) Return	(1) Risk	(2) Return	(3) Payout
Total Return	1.059 (4.11) <sup>***</sup>		1.085 (4.24) <sup>***</sup>		1.100 (4.50) <sup>***</sup>		
Risk		0.117 (4.11) <sup>***</sup>		0.121 (4.24) <sup>***</sup>		0.132 (4.50) <sup>***</sup>	
ROE	-0.012 (-1.96) <sup>**</sup>	0.004 (2.45) <sup>**</sup>					0.822 (2.83) <sup>***</sup>
ROA			-0.031 (-2.46) <sup>**</sup>	0.011 (2.71) <sup>***</sup>	-0.033 (-3.64) <sup>***</sup>	0.004 (1.20)	
DABOOK	0.008 (2.16) <sup>**</sup>	0.001 (1.57)	0.0008 (0.15)	0.004 (2.74) <sup>***</sup>			-0.162 (-0.69)
DEBOOK					0.001 (1.28)	-0.0001 (-0.62)	
M/B	-0.0003 (-1.09)	0.0002 (2.15) <sup>**</sup>	-0.0003 (-1.15)	0.0002 (2.29) <sup>**</sup>	-0.0004 (-1.39)	0.0003 (2.70) <sup>***</sup>	0.010 (0.58)
Size	-0.004 (-3.57) <sup>***</sup>	-0.001 (-2.57) <sup>***</sup>	-0.005 (-3.95) <sup>***</sup>	-0.001 (-3.03) <sup>***</sup>	-0.004 (-4.14) <sup>***</sup>	-0.0008 (-1.89) <sup>*</sup>	-0.086 (-0.60)
Individuals	0.026 (1.28)	0.004 (0.65)	0.024 (1.17)	0.005 (0.74)	0.024 (1.19)	0.004 (0.61)	-1.809 (-1.75) <sup>*</sup>
Top Management	0.015 (0.94)	0.0003 (0.06)	0.014 (0.88)	0.0007 (0.14)	0.015 (0.97)	0.001 (0.26)	-0.265 (-3.29) <sup>***</sup>
Public Holdings	0.005 (0.50)	0.001 (0.42)	0.007 (0.67)	0.001 (0.29)	0.005 (0.57)	0.005 (1.61)	-0.593 (-1.09)
Public	0.001 (0.09)	0.003 (0.85)	0.002 (0.22)	0.002 (0.69)	0.002 (0.23)	0.002 (0.73)	-0.252 (-0.41)
Public Banks	0.010 (0.62)	-0.007 (-1.36)	0.011 (0.69)	-0.007 (-1.40)	0.013 (0.84)	-0.004 (-0.88)	0.691 (0.74)
Insurance	-0.005 (-0.36)	0.004 (0.88)	0.0004 (0.03)	0.002 (0.43)	-0.0004 (-0.03)	0.004 (0.92)	-1.254 (-1.59)
Private Holdings	0.045 (2.57) <sup>***</sup>	-0.003 (-0.56)	0.043 (2.49) <sup>**</sup>	-0.002 (-0.49)	0.042 (2.49) <sup>**</sup>	-0.001 (-0.23)	-2.488 (-2.88) <sup>***</sup>
Private Companies	0.038 (2.38) <sup>**</sup>	-0.003 (-0.56)	0.036 (2.32) <sup>**</sup>	-0.002 (-0.47)	0.037 (2.40) <sup>**</sup>	-0.001 (-0.32)	-2.828 (-3.68) <sup>***</sup>
Private Banks	0.075 (2.31) <sup>**</sup>	-0.017 (-1.56)	0.073 (2.25) <sup>**</sup>	-0.016 (-1.51)	0.075 (2.34) <sup>**</sup>	-0.016 (-1.48)	1.321 (0.80)
Employee	0.072 (2.16) <sup>**</sup>	-0.005 (-0.45)	0.062 (1.88) <sup>*</sup>	-0.001 (-0.13)	0.067 (2.03) <sup>**</sup>	-0.0007 (-0.06)	-1.376 (-0.80)
Public L13	-0.003 (-0.38)	-0.0005 (-0.18)	-0.007 (-0.74)	0.0005 (0.17)	-0.005 (-0.63)	-0.001 (-0.60)	0.005 (0.01)
Private L13	-0.037 (-2.36) <sup>**</sup>	0.006 (1.23)	-0.036 (-2.33) <sup>**</sup>	0.006 (1.15)	-0.036 (-2.40) <sup>**</sup>	0.005 (0.96)	2.418 (3.18) <sup>***</sup>
Year	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Industry	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
No. of Obs.	200	200	200	200	200	200	200
R <sup>2</sup>	0.40	0.35	0.41	0.36	0.42	0.32	0.44

Ordinary least squares regression results of Equations 1, 2 and 3 using a sample includes 50 most active companies in Egypt and 200 firm-annual observations in the period 2004-2007. The dependent variables are risk, return and payout ratio. T-statistics are reported in parentheses. \*, \*\* and \*\*\* denote significance at the 90%, 95% and 99% significance level respectively. All variables are defined in Appendix 1.

#### **D. Effect of Dividend Policy on the Relationship between Institutional Ownership and Stock Volatility and Returns**

The results in Table 3 show that dividend policy has a significant effect on the relationship between institutional ownership and stock volatility. While there is a significant positive relation between private institutional ownership and volatility for non-dividend paying firm, this relation is insignificant for dividend paying firms. On the other hand, Rubin and Smith (2009) find that institutional ownership is negatively (positively) related to volatility among non-dividend (dividend) paying stocks. So, our results contradict the institutional preference hypothesis which indicates that institutions prefer to invest in low volatility non-dividend paying companies because institutions are fiduciaries, investing in behalf of others. We have this contradiction because there is no significant difference in volatility between non-dividend paying and dividend paying firms as shown in Table 1. We find that institutions turn over their portfolio more frequently in non-dividend paying firms which increases their volatility. In Egypt, non-dividend paying stocks are more subject to institutional herding than dividend stocks, indicating a higher correlation between institutional ownership and turnover for non-dividend paying firms than for dividend paying firms. We also find that there is a significant negative correlation between ROE and volatility for dividend paying stocks, and no relation for non-dividend paying stocks. In addition, there is a significant positive correlation between ratio of debt to total assets and volatility for dividend paying stocks, and no correlation for non-dividend paying stocks. This means stock volatility in non-dividend paying firms is mainly related to the institutional herding behavior, while financial fundamentals do not play any role.

### **VI. CONCLUSIONS**

In this paper, we examine the effect of institutional ownership on stock volatility, returns, and dividend policy. The paper also investigates the effect of the dividend policy on the direction of the relationship between institutional ownership and stock volatility and returns. We control for different firm's accounting and characteristic variables. We collect daily market, annual financial and ownership structure data for the 50 most actively traded companies in the Egyptian stock market during the period 2004-2007. In examining the effect of institutional ownership on stock volatility and returns, the results show that private institutional ownership has significant and positive effect on volatility because private institutions herd following each others. Ownership concentration by the largest three private blockholders reduces stock volatility because these blockholders do the function of the market makers stabilizing their stocks. Profitability and firm size decrease volatility, while leverage increases volatility. Institutional ownership has no effect on stock returns.

In examining the effect of institutional ownership on dividend policy, the analysis finds that ownership by top management and private holdings and private companies has negative effect on payout ratio as these institutions divert resources to their own benefits. At the same time, ownership concentration by largest three private blockholders increases payout ratio as they prefer to receive dividend for their large shares.

**Table 3**  
Regressions analysis with two sub-samples: (1) non-dividend paying stocks, and (2) dividend paying stocks

	Non-dividend paying stocks		Dividend paying stocks	
	Risk	Return	Risk	Return
Total Return	0.328 (0.89)		1.209 (3.15) <sup>***</sup>	
Risk		0.066 (0.89)		0.091 (3.15) <sup>***</sup>
ROE	0.0003 (0.04)	0.002 (0.70)	-0.014 (-2.00) <sup>**</sup>	0.0002 (0.10)
DABOOK	0.008 (1.64)	0.0006 (0.25)	0.013 (2.06) <sup>**</sup>	0.0008 (0.47)
M/B	0.00009 (0.17)	0.0004 (1.94)	-0.0008 (-1.73) <sup>*</sup>	0.0001 (1.03)
Size	0.004 (5.86) <sup>***</sup>	-0.0005 (-1.04)	0.005 (6.69) <sup>***</sup>	-0.0004 (-1.53)
Individuals	0.065 (1.90) <sup>*</sup>	0.014 (0.87)	0.005 (0.20)	-0.002 (-0.39)
Top Management	0.032 (1.28)	0.005 (0.44)	0.009 (0.43)	-0.0009 (-0.15)
Public Holdings	0.012 (0.66)	0.002 (0.29)	-0.022 (-0.82)	0.001 (0.16)
Public Companies	-0.007 (-0.56)	-0.004 (-0.87)	-0.014 (-0.49)	0.001 (0.22)
Public Banks	0.006 (0.34)	-0.010 (-1.18)	-0.027 (-1.33)	-0.002 (-0.42)
Insurance	0.048 (1.65) <sup>*</sup>	-0.008 (-0.58)	-0.031 (-1.23)	0.002 (0.31)
Private Holdings	0.066 (2.76) <sup>***</sup>	0.0032 (0.26)	0.033 (1.20)	-0.005 (-0.72)
Private Companies	0.048 (2.12) <sup>**</sup>	0.004 (0.42)	0.042 (1.95) <sup>*</sup>	-0.003 (-0.63)
Private Banks	0.093 (2.74) <sup>***</sup>	-0.012 (-0.73)	0.092 (1.22)	-0.011 (-0.55)
Employee	0.045 (0.89)	0.005 (0.25)	0.102 (2.26) <sup>**</sup>	-0.008 (-0.67)
Public L13	-0.013 (-1.40)	0.0005 (0.11)	0.016 (0.62)	0.001 (0.20)
Private L13	-0.056 (-2.62) <sup>***</sup>	-0.0002 (-0.02)	-0.040 (-1.90) <sup>*</sup>	0.005 (0.96)
No. of Observations	74	74	126	126
R <sup>2</sup>	0.51	0.43	0.33	0.21

Ordinary least squares regression results of Equations 1 and 2 using two sub-samples: (1) non-dividend paying stocks, and (2) dividend paying stocks of the mean sample that includes 50 most active companies in Egypt and 200 firm-annual observations in the period 2004-2007. The dependent variables are risk and return. T-statistics are reported in parentheses. \*, \*\* and \*\*\* denote significance at the 90%, 95% and 99% significance level respectively. All variables are defined in Appendix 1.

Finally, we investigate the effect of dividend policy on the relation between institutional ownership and stock volatility and returns. Our results show that private institutional ownership has a significant and positive effect on volatility for non-dividend paying stocks only because these stocks are more subject to institutional herding than dividend paying stocks. Stock volatility in non-dividend paying firms is mainly related to the institutional herding behavior, while profitability and leverage do not play any role and the opposite is true for the dividend paying firms.

### Appendix 1 Description of variables

Variables	Descriptions
DABOOK	Ratio of total debt to total assets (book value)
DEBOOK	Ratio of total debt to total equity (book value)
Employees	Percentage of equity ownership held by employees Association in a company
Individuals	Percentage of equity ownership held by individuals in a company
Insurance	Percentage of equity ownership held by insurance companies in a company
M/B	Market price per share for common stock divided by book value per share of common stock
Payout ratio	Dividends divided by earnings per share (EPS)
Private Banks	Percentage of equity ownership held by private banks in a company
Private Companies	Percentage of equity ownership held by private companies in a company
Private Holdings	Percentage of equity ownership held by private holdings in a company
Private L13	Percentage of equity ownership held by the largest three private block holders (own more than 5%) in a company
Public Banks	Percentage of equity ownership held by public banks in a company
Public Companies	Percentage of equity ownership held by public companies in a company
Public Holdings	Percentage of equity ownership held by public holdings in a company
Public L13	Percentage of equity ownership held by the largest three public block holders (own more than 5%) in a company
Return	The average daily total return for Year $i$ calculated as $\ln(P_i) - \ln(P_{t-1})$ where $P_t$ is the daily price of the stock at time $t$
Risk	The standard deviation of the daily total return for Year $i$
Return on asset (ROA)	Net income divided by total assets
Return on equity (ROE)	Net income divided by shareholders' equity
Size	Natural logarithm of total assets
Top Management	Percentage of equity ownership held by top management of a company

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