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Sciences

**FIRM INVESTMENT, STOCK PRICES AND INFORMATION  
ASYMMETRY IN KENYA**

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**Submitted in partial fulfillment of the requirements  
for the Degree of Bachelor of Business Science in  
Financial Economics at Strathmore University**

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**DECLARATION**

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the Research Project contains no material previously published or written by another person except where due reference is made in the Research Project itself.

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## **List of Abbreviations**

<b>Abbreviation</b>	<b>Full Description</b>
EMH	Efficient Market Hypothesis
NSE	Nairobi Stock Exchange
PIN	Probability of Informed Trading
SIC	Standard Industrial Classification
OLS	Ordinary Least Squares

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# 1 INTRODUCTION

## 1.1 Background to the study

Financial markets play an important role in the production and aggregation of information. An undisputed view in economics is that asset prices incorporate information from various sources including trading itself (Grossman and Stiglitz, 1980). This information, including private information, acts as a signal to market participants which significantly influences individual and corporate investment decisions (Roll, 1986 and Dow & Gorton, 1997).

The far-reaching implication of the learning theory is that financial markets play a significant role in determining variables in the real economy. This hypothesis has sparked interest in empirically determining whether managers make optimal investment decisions using information contained in share prices (see for instance Chen, Goldstein, & Jiang, 2007). Despite the strong theoretical support for the learning theory, it poses challenges in applied settings. It is difficult to measure the informational content of prices (price informativeness) since different markets aggregate dispersed information differently. This implies that the validity of the learning theory depends on the metrics used to estimate the amount of private information in stock prices which may yield different results in different market settings.

The primary measures of private information are price nonsynchronicity and the probability of informed trading (PIN) (Roll, 1986, Chen et al., 2007 and Kong & Xiao, 2010). The researchers have been successful at establishing the relationship between share prices and investment decisions taken by firms, in the presence of information asymmetry. However, little is known regarding the feedback effect, which in this case, is the effect of the financial markets on corporate decision-making. Goldstein et al. (2017) drum for research in this area to combat the traditional approach in finance of viewing the financial market as somewhat of a “sideshow”.

In addition, while there is sufficient evidence regarding price informativeness in developed markets, literature is scant on the subject in developing and frontier markets. These markets present unique characteristics making them proper settings to examine the informational content of stock prices and its relationship with various factors (Morck et al., 2000, Kullu et al., 2019 and Ojah et al., 2020). Given that the little research in this

firms, in the presence of information asymmetry. The most compelling implication of their findings is the potential role of the financial markets in determining variables in the real economy. This concept was recently propagated by Goldstein et al. (2017) who highlight the necessity of research in this area, in combatting the traditional approach in finance of viewing the financial market as somewhat of a “sideshow”.

The question still remains as to whether there is sufficient evidence regarding price informativeness in developed markets. By establishing the stock prices are more related in developing markets than relatively advanced markets, Morck et al. (2000) highlighted the key similarities existing in developing markets. However, as pointed out by Kullu et al. (2019) these markets also present unique characteristics making them proper settings to examine the informational content of stock prices and its relationship with various factors. For example, Ojah et al. (2020) studied the link between insider trading laws and price informativeness in South Africa. Specifically, to examine whether price informativeness is improved following the establishment of the 1999 Insider trading Act.

Given that the little research in this area has been limited to developed markets, it would be enlightening to provide evidence from a frontier market such as Kenya. Capturing the nature and magnitude of the feedback effect is useful because the trading activity in the financial market produces information that is reflected in prices. The findings of this thesis may be useful to various players in the real side of the economy such as firm managers.

#### **1.4 Research objective**

The objective of this study is to determine the relationship between the stock price and a firm’s investment in the presence of information asymmetry for firms listed in the Nairobi Stock Exchange (NSE).

#### **1.5 Research questions**

This study seeks to deal with the following research questions:

1. What is the relationship between firm investment and stock price?
2. Does information asymmetry affect the responsiveness of firm investment to stock price?
3. Does information asymmetry affect the responsiveness of stock prices to firm investment?

## **2 LITERATURE REVIEW**

### **2.1 Introduction**

For a long time, the major concern that managers have had regarding a firm's stock price, has been whether the company's shares are over or undervalued. A widely agreed upon notion among researchers is that the stock market reflects the workings of the real world. Based on this notion, majority of the studies focus on the effects of firm activity on the stock market. The studies however fail to consider, to a similar extent, the potential effect of stock price movements on corporate decision-making: the feedback effect (Goldstein et al., 2016). Analyzing this feedback effect is important in informing how managers can make investment decisions based on market information and could potentially increase a firm's market value.

### **2.2 Theoretical Review**

The theories that underpin the study of information asymmetry are mainly Gradual information diffusion model, the Efficient Market hypothesis (EMH) and Signaling theory.

#### **2.2.1 Gradual Information diffusion**

Traditional asset pricing models, which predict asset returns based on publicly available information have been subject to a large body of work. These multi-factor models have performed successfully using different predictor variables however there fails to exist a theoretical consensus among researchers, on the driving force of this success. The various explanations that have emerged in explaining these anomalies are based on the acknowledgment that investors are irrational. Behavioral theories have merged as a popular alternative to traditional models whereby there is a shift from the exclusive dependence on risk in predicting stock returns and the assumption of strict rationality of investors. An example of such a model is the influential model of information diffusion regarding pricing accuracy proposed by Hong and Stein (1999). The model categorizes investors into "news-watchers" and "momentum traders" who have limited rationality and hold different subsets of information. The "news-watchers" make predictions using private information they perceive failing to consider current/past price movements. Momentum-traders rely on past price movements and apply univariate assessments of historical prices indicating that their forecasts are simple. The bounded rationality is such that each investor can respond to a portion of publicly available information and is

study highlights the implications of the theory while considering the impact information asymmetry.

### **2.3 Empirical Review**

Literature is replete of the evidence suggesting a significant positive relationship between share price and corporate investment. Researchers such as Barros (1990) have shown that share prices are positively correlated with firm investment and vice versa. However, the reason behind this positive relationship is not agreed upon. Information asymmetry has been found to play a substantial role in this relationship. In this context we may define information asymmetry as the amount of firm-specific information incorporated in stock prices. Therefore, a relatively inflated level of firm-specific information in stock prices indicates a high degree of information asymmetry.

One of the first studies on price informativeness was presented by Chen et al. (2007) who studied the effect of the amount of private information in stock prices on the responsiveness of firm investment to share price. They used a sample consisting of 68,277 firms across a 20-year period applying price non-synchronization and probability of informed trading (PIN) as measures of private information. To capture firm-specific variation, the former method entailed regressing a firm's daily stock returns in a year on the value-weighted market return, and the return of the industry portfolio.  $R^2$  from this regression indicated the percentage of the firm's returns explained by systematic factors. Thus,  $(1 - R^2)$  was defined as the fraction of a firm's stock return variation unaccounted for by systematic factors. The probability of informed trading was computed based intraday trade data in each day of the year, in which case all trades were classified as either buy or sell orders. Investment activity was estimated using two different measures. The first measure, capital expenditure, captured direct investment whereas the second measure, percentage change in book assets, accounted for a firm's acquisitions and divestiture activities. The normalized price was used as measure of share price performance.

Findings indicate a strong positive relationship between stock price and corporate investment, which was positively correlated with the level of firm-specific information in the stock price. The argument is that if there is more information contained in prices, the likelihood of information unknown to managers being incorporated in the price is

contained in stock prices. This is contrary to the view presented by Chen et al. (2007) that higher information asymmetry, indicated by a higher level of private information in prices presents an opportunity to learn new information not previously known by managers.

The difference in findings may be attributed to the different views that researchers take in assessing the information that managers rely while deciding to take on investment projects. Chen et al. (2007) make judgements based on the extent to which managers rely on new information whereas Kong and Xiao (2010) make judgements based on managers' reliance on total information in stock prices. Thus, according to the latter study, the higher the total information reflected in prices, the greater the private information which increases the responsiveness of investment to stock price. This explains why information asymmetry may obstruct managers' ability to infer from the prices as it may reduce the total information reflected in prices.

Consistent with the findings of Kong and Xiao (2010), Dasgupta et al. (2014), propose that in environments with less information asymmetry, share prices are more instructional on future events and when such events occur, there is less shock hence there is less new information incorporated in share prices. Although the hypothesis is different from previously discussed studies, the common factor is that less surprise regarding future events concerning a stock will not elicit a great reaction from investors and managers as the information released is not new to them (due to the transparency of the environment).

The reliability of the findings presented in the studies above strongly depend on the effectiveness of the information asymmetry measures. The question as to whether price nonsynchronisation is correlated with private information was first assessed by Roll (1988) who argued that new information resulting in stock price movements is incorporated into the prices in two ways. Firstly, through a general reassessment of stock values following the release of public information and secondly, through the trading activity of speculators who primarily trade on private information. He empirically assessed systematic and firm-specific factors contributing to stock price changes to establish the associated explanatory powers as measured by the average adjusted  $R^2$ . Regressions of individual monthly stock returns on either a single market index or on industry factors were conducted. Daily stock return data was used in assessing the effects of firm-specific news. To capture the release of this information, announcements of a

This supports the argument made by Dow and Rahi (2003), that different investors may possess different types of information concerning the profitability of firms, that firm managers do not have. They add that although each investor's information is often limited and does not reveal much about the investment strategy adopted by managers, the collective information possessed by all investors, may have a reasonable influence on the investment strategy. This argument presents two critical implications. Firstly, that the stock market plays an essential role in information generation and centralization. Moreover, the market through the trading activity of investors, may produce information that is new to managers which may be useful in corporate decision making.

In the Kenyan context, there is no study testing whether information asymmetry will affect managers' ability to get information from the stock and utilize it to make optimal investment decisions). Supplementary research on the investors' reaction to firm investment in this context is also limited. This study therefore contributes to the literature on information asymmetry in Kenya by determining the effect of information asymmetry on the bidirectional relationship between corporate investment and stock prices. Specifically, by highlighting whether private information held by managers will be used to make effective investment decisions and the investor responses (determining the stock price) to firm investment.

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Market capitalization (SIZE)	Market capitalization.
Value weighted return (RET)	Measured as the value-weighted market adjusted three-year cumulative return starting from the end of the investment year.
Net cash flow from operation (CF)	Referring to Kong et al. (2010), we obtain the “net cash flows generated by operating activities” item from the cashflow statement.

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### 3.2 Data analysis and model specification

As suggested by Grossman and Stiglitz (1980), the trading activities of investors will produce information that will be reflected in the market price. Moreover, the fluctuations in stock price may determine the prospects of firms. However, information asymmetry is inevitable, seeing as frictions are a common feature of all markets. When making investment decisions at a given point in time, managers and investors look to maximize their utility by making the optimal decisions using the most information they can attain. Given this scenario two broad issues arise. The first issue pertains to whether managers will refer to share prices while making investment decisions and whether information asymmetry will play a role on managers' reliance on share prices to make these decisions. The second issue, capturing the feedback effect, relates to investor reactions to firm investment in making selling/buying decisions based on corporate investment activity. Referring to Kong et al. (2010), The baseline equations for addressing these issues may be modelled as follows:

$$I_{i,t} = \alpha_t + \beta_1 Q_{i,t-1} + \beta_2 (AsyInfo_{i,t-1} \cdot Q_{i,t-1}) + \gamma Controls + \varepsilon_{i,t} \quad (1)$$

$$Q_{i,t} = \delta_t + \theta_1 I_{i,t-1} + \theta_2 (AsyInfo_{i,t-1} \cdot I_{i,t-1}) + \varphi Controls + \varepsilon_{i,t} \quad (2)$$

Where  $I_{i,t}$  is the investment of a firm  $i$  in year  $t$ .  $Q_{i,t}$  is firm  $i$ 's price and  $AsyInfo_{i,t}$  is the measure of information asymmetry. Referring to Chen et al. (2001) we use two measures of corporate investment ( $I_{i,t}$ ). The first measure, capital expenditure ( $CAPEX_{i,t}$ ), refers to the funds used by a firm to purchase, improve, or maintain long-term assets such as machinery, equipment, and infrastructure. We obtain the “capital expenditure” item from the cashflow statements and scale it by the beginning of year

$AsyInfo_{i,t}$  is the measure of information asymmetry and is computed using two measures: The first measure is firm-specific variation of stock prices ( $1 - R^2$ ), where the value of  $R^2$  is obtained by regressing a firm's monthly returns on the market returns. The second measure, price delay, measures how fast stock prices adjust to market-related information. To capture price delay, we regress a firm's monthly stock returns on contemporaneous and lagged market returns to obtain a restricted and an unrestricted  $R^2$  used as inputs for the price delay measure. Thus, the  $AsyInfo_{i,t}$  term in Equations 1 and 2 represents these two measures which are described in detail below.

### 3.2.1 Price non-synchronization ( $1 - R^2$ )

Price non-synchronization ( $1 - R^2$ ), is the fraction of the variation of a firm's stock return unaccounted for by changes in market and/or industry returns. As proposed by Roll (1988) changes in a firm's stock return may be decomposed into two components; changes caused by systematic factors and those that may be attributed to firm-related factors. The market-related variation is the degree to which a stock's return are aligned with market return and may be estimated using the following regression:

$$r_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (3)$$

Where,  $r_{i,t}$  is firm  $i$ 's monthly return at time  $t$  and  $R_{m,t}$  is the monthly market return, as measured by the market index, at time  $t$ . The coefficient  $R^2$  from the model above, explains how well the explanatory variable (market returns) explains the dependent variable (stock returns) capturing price synchronicity.  $(1 - R^2)$  therefore, measures price non-synchronicity.

### 3.2.2 Price delay

Price delay was initially proposed by Hou and Moskowitz (2005), who present several measures to estimate the average delay with which stock prices respond to information. The market return is defined as the relevant news to which stocks respond to. Referring to Kong et al. (2010) we employ the core measure which involves regressing each stock's monthly returns on contemporaneous and one month of lagged market returns. We include the stock's lagged returns in the regression to control for serial correlation in the stock's own returns. Thus, for each stock, we estimate the following:

$$r_{i,t} = \alpha_t + \gamma_i R_{m,t} + \delta_i R_{m,t-1} + \theta_i r_{i,t-1} + \mu_{i,t} \quad (4)$$

## 4 RESULTS OF EMPIRICAL TESTS

### 4.1 Descriptive statistics

Table 2 summarizes the summary statistics and correlations for all the variables of the study. The descriptive statistics and correlations between the variables are reported in panel A and panel B, respectively. The descriptive statistics table reports the number of observations, mean, standard deviation, and percentiles of each variable. This table indicates that the mean (standard deviation) of price non-synchronization is 0.97 (0.072) meaning that on average, market returns explain only about 3% of the variation in the stock return. This estimate is 11% above that reported by Chen et al. (2007), consistent with the argument presented by Roll (1988) that a significant portion of stock price movements are driven by firm-specific information.

Price delay has a mean of 0.68 and a standard deviation of 0.34. This estimate has the highest correlation with price non-synchronization, with a Pearson (Spearman) correlation coefficient of 0.61. This indicates that these measures of information asymmetry are positively correlated with the degree of information asymmetry, consistent the findings reported by Kong et al. (2010). Collectively, these findings provide evidence supporting notion that both measures effectively capture the extent to which firm-specific information is reflected in stock prices due to the degree of information asymmetry.

The correlation coefficients between the different pairs of variables are also of interest. Firstly, we find that both information asymmetry measures are negatively correlated with the size measure as documented in the literature. This is consistent with the idea that larger firms invest more in corporate finance research, reducing the level of information asymmetry between managers and investors. Further, we find that the correlation coefficient between capital expenditure and the change in the total book value of assets is relatively low at 0.037. This may be attributed to the fact that the measures reflect different aspects of corporate investment. More specifically, the change in the total book value of assets is a relatively more holistic measure of investment activity as it reflects both investment and divestment activities and considers indirect investment costs such as merging and peeling off.

## 4.2 Tests of the sensitivity of firm investment to stock price

In this section, we discuss the findings relating to the responsiveness of corporate investment to stock price performance in the presence of information asymmetry.

We find a positive relationship between capital expenditure and stock price, with a coefficient of 0.541 significant at the 10 percent level. This finding is consistent with financial economics literature that has established the positive effect of stock price performance on corporate investment activity. Our coefficient estimate is comparable to the findings of Chen et al. (2007) and Kong et al. (2010) who also report a significant positive value.

Our interest mainly lies in the value for the coefficient of the interaction term between and stock price performance and the measures of information asymmetry as this shows the responsiveness of investment to prices in the presence of information asymmetry. For the interaction term with the price non-synchronization measure in column 1, we find a coefficient of -0.498 suggesting that the sensitivity of investment to price is lower for firms whose stock prices exhibit a high firm-specific return variation. With the 25th percentile value and the median of price non-synchronization as 0.987 and 0.998 respectively, the investment-to-price sensitivity for a firm is  $0.546 [= 0.541 - (0.998 - 0.987) * (0.498)]$  at the 25th percentile level. If a firm's price non-synchronization, increases from the 25th percentile value to the 75th percentile, the investment-price sensitivity will decrease by 0.006 to 0.540. This analysis holds for Columns 1,4 and 6 as they also report a negative estimate for the interaction term. Based on these results we find that Information asymmetry has a diminishing effect on the sensitivity of investment to stock price.

The estimated coefficient for the interaction term between price delay and stock price performance is analyzed differently but yields the same conclusion. The coefficients for this interaction term reported in columns 5 and 6 are positive, which shows that price delay has a positive effect on the investment sensitivity to stock price. This supports our previous argument based on the following explanation. The greater the price delay, measured by the rate at which prices adjust to new market information, the greater the degree of information asymmetry which in turn decreases the sensitivity of investment to stock prices.

Columns 3 and 6 report the regression results considering both information asymmetry measures and all the control variables. In column 3 we find that our coefficient estimates of stock price and both the interaction terms remain consistent with previous estimations but show a decline in statistical significance. This may be attributed to the multicollinearity created using two highly correlated information asymmetry measures in the same regression creating. For example, the correlation between price delay and price non-synchronization is 0.610 thus when we include both these measures in the same regression the multicollinearity decreases the level of significance.

A further analysis of investment-price sensitivity as reported in Column 5 is necessary in addressing estimates that appear inconsistent with our conclusions. In column 5, where the change in book assets is the investment measure, we find a negative direct effect of stock price on investment of -0.288. However, the coefficient of the interaction term between price delay and stock price is 0.454 and statistically significant at the 10 percent level. Given that the mean of price delay is 0.676, the total effect of price on corporate investment is 0.0189 [= -0.288 + (0.454 \* 0.676)]. This shows that although the direct effect is negative, the total effect of stock prices on corporate investment is still positive which is consistent our previous conclusion.

Overall, the regression results of Equation 1 indicate that firstly, there is a significant positive relationship between prices and investment; secondly, information asymmetry has a negative effect on the responsiveness of investment to stock price changes. This conclusion is consistent with the findings of Kong et al. (2010) who conclude that information asymmetry has a diminishing effect on sensitivity of investment to price. Our conclusion, however, differs from the findings of Chen et al. (2007) who find a positive relationship between investment and price that increases with the level of private information incorporated in prices. They argue that managers will learn firm the private information content of stock prices and in turn, make more informed investment decisions. Relating to Kong et al. (2010), we refer to the  $R^2$  value to explain our conclusion. Without first considering the relation of  $R^2$  with either noise or information we consider the fact that a lower  $R^2$  (price synchronization) indicates greater market fluctuation (the firm-specific risk of individual stock). In addition, prices reflect investors' expectation of firm future, thus a low  $R^2$  value signifies a greater risk in the firm's future. Based on this line of reasoning, our second measure of information asymmetry, price delay, may also reflect uncertainty. We can therefore argue that managers will recognize the

Table 4: Price-investment sensitivity in the presence of information asymmetry

Variables	Independent $Q_{i,t}$ (Investment: CAPEX)			Independent $Q_{i,t}$ (Investment: $\Delta BV$ )		
	1	2	3	4	5	6
$I$	<b>0.830<sup>***</sup></b> (0.0582)	<b>0.383<sup>***</sup></b> (0.115)	<b>-8.375<sup>***</sup></b> (1.499)	<b>1.580</b> (1.702)	<b>-0.955<sup>***</sup></b> (0.285)	<b>7.024<sup>*</sup></b> (2.990)
$(1 - R^2) * I$	<b>0.121</b> (0.0664)		<b>9.846<sup>***</sup></b> (1.727)	<b>-1.588</b> (1.703)		<b>-8.590<sup>**</sup></b> (3.220)
$1 - R^2$	<b>-0.0475<sup>***</sup></b> (0.0121)		<b>-0.949<sup>***</sup></b> (0.214)	<b>1.170<sup>*</sup></b> (0.546)		<b>2.699<sup>**</sup></b> (0.970)
$I * DELAY$		<b>1.845<sup>***</sup></b> (0.246)	<b>0.423</b> (0.363)		<b>0.959<sup>***</sup></b> (0.286)	<b>1.560<sup>***</sup></b> (0.370)
$DELAY$		<b>-0.289<sup>***</sup></b> (0.0259)	<b>-0.191<sup>***</sup></b> (0.0322)		<b>-0.477<sup>***</sup></b> (0.0949)	<b>-0.916<sup>***</sup></b> (0.109)
$SIZE$			<b>-0.0295<sup>**</sup></b> (0.0106)			<b>-0.0412</b> (0.0419)
$ASSET$			<b>-0.00620</b> (0.0124)			<b>-0.327<sup>***</sup></b> (0.0423)
$1/ASSET$			<b>0.611</b> (0.378)			<b>11.99<sup>***</sup></b> (1.280)
$RET$			<b>0.000664</b> (0.00313)			<b>0.0645<sup>***</sup></b> (0.0114)
$CF$			<b>-0.0168<sup>***</sup></b> (0.00370)			<b>0.0368<sup>**</sup></b> (0.0133)
$R^2$	0.895	0.154	0.159	0.00340	0.973	0.248

Table 4 presents the results obtained from estimating Equation (2). Columns 1 and 4 report the estimation of the respective investment measures with  $(1 - R^2)$  as the measure of information asymmetry. Columns 2 and 5 repeat the same analysis but with  $DELAY$  as the measure of information asymmetry. Lastly, Columns 3 and 6 conduct the analysis with both information measures and the control variables namely firm size, book assets, inverse book assets, future returns and cashflow. The estimated coefficients are shown in bold and the standard errors are indicated in the parenthesis. \*, \*\*, and \*\*\* indicate a two-tailed test significance level of less than 1%, 5%, and 10%, respectively.

## 5 DISCUSSION OF RESULTS

Our main parameters of interest are the coefficient estimates for the of price and investment measures as well as their interactions with the two measures of information asymmetry. Relating to our conclusions in section 4, there is a positive bidirectional relationship between corporate investment and stock price performance indicated by the significant positive coefficients of investment and price in both models. The key distinction between the models arises when we introduce information asymmetry as an interaction term in our analysis. Here, we find that the responsiveness of investment to stock price decreases with the level of information asymmetry whereas the responsiveness of price to investment, increases with the level of information asymmetry.

We acknowledge that the interpretation of the results thus far, depends on whether price non-synchronization and price delay as the measures of information asymmetry, effectively capturing the degree of information asymmetry. Specifically, our reliance on these measures established by prior literature, means that the strength of our conclusions that managers learn from stock prices, and investors make informed buy/sell decisions based on firm investment, depend the extent of the effectiveness of the information asymmetry measures. Certainly, there may be other factors driving the negative correlation between information asymmetry and the investment-to-price sensitivity as well as the positive correlation between information asymmetry and the price-to-investment sensitivity. This concern motivates our robustness tests. This section reports the results of robustness tests where we group the firm-year observations into 3 quantiles based on the price non-synchronization and delay values and estimate the following equations:

$$I_{i,t} = \delta_t + \beta_1 Q_{i,t-1} + \gamma Controls + \varepsilon_{i,t} \quad (6)$$

$$Q_{i,t} = \delta_t + \theta_1 I_{i,t-1} + \varphi Controls + \varepsilon_{i,t} \quad (7)$$

Table 5 estimates equation (6), reporting the grouped tests of the sensitivity of investment to price. Panel A reports the results grouped according to the price non-synchronization measure and panel B report the results sorted by price delay. Panel A indicates that the coefficients of price, grouped with price non-synchronization, decrease progressively. This indicates that the sensitivity of investment to price decreases as information asymmetry is more prevalent, consistent with our initial regression results. Further the coefficients are all positive and

Table 5: Grouped tests of sensitivity of investment to price

Variables	Independent: CAPEX			Independent: ΔBV		
	Q1	Q2	Q3	Q1	Q2	Q3
<b>Panel A: Quantities formed by <math>(1 - R^2)</math></b>						
Q	0.155*** (-0.0254)	0.122*** (-0.0131)	0.0708*** (-0.0115)	-0.0285 (-0.0361)	-0.181*** (-0.033)	-0.137** (-0.0423)
SIZE	-0.129*** (-0.0249)	-0.0778*** (-0.0159)	0.0146 (-0.0122)	0.00425 (-0.0349)	0.132** (-0.0459)	-0.368 -0.216
1/BV	4.002*** (-0.851)	3.132*** (-0.539)	-0.286 (-0.463)	0.804 (-1.225)	75.59*** (-4.684)	-27.17 (-14.28)
RET	-0.0187*** (-0.00274)	-0.00643*** -0.00146	-0.00627*** -0.00181	-0.0036 -0.00383	-0.00621 -0.00343	0.404*** -0.0496
CF	-0.0159*** -0.00295	0.0143*** -0.00162	0.00819*** -0.0011	-0.0445*** -0.00408	-0.0212*** -0.00408	-0.363*** -0.0331
Observations	288	288	204	276	240	252
Adj. R <sup>2</sup>	0.444	0.613	0.522	0.342	0.671	0.507
<b>Panel B: Quantities formed by DELAY</b>						
Q	0.206*** -0.0232	0.0710*** -0.00981	0.0356*** -0.00767	-0.188*** -0.0208	-0.00559 -0.00468	0.343*** -0.0837
SIZE	-0.140*** -0.0214	-0.0165 -0.00991	-0.0993*** -0.0189	-0.0853*** -0.0192	-0.0491* -0.0206	-2.328*** -0.275
1/BV	33.09*** -3.711	-9.804** -3.152	3.931*** -0.623	113.9*** -3.327	43.56*** -1.875	78.49*** -9.181
RET	-0.0122* -0.00613	0.000207 -0.000574	0.000275 -0.0018	0.00733 -0.0055	0.00524* -0.00218	-0.214*** -0.0246
CF	-0.0147*** -0.00265	0.0102*** -0.00101	0.00592*** -0.00166	-0.00359 -0.00237	0.00597 -0.00396	-0.139*** -0.0174
Observations	276	216	275	276	324	215
Adj. R <sup>2</sup>	0.601	0.618	0.615	0.845	0.677	0.488

## 6 CONCLUSION

This study examines the empirical relationship between corporate investment and stock price performance in the presence of information asymmetry. Information asymmetry is measured by price non-synchronization and price delay. The results indicate that managers learn from the information contained in stock prices when making corporate investment decisions. Further when we interact the stock price measure with the respective measures of information asymmetry, we find that information asymmetry has a negative effect on the responsiveness of corporate investment to stock price. Tests on the stock price sensitivity to investment indicates that different investment measures have different effects on stock price as they reflect different aspects of investment activity. The coefficients of the interaction terms in this case show that information asymmetry has a significant positive effect on the sensitivity of stock price to investment.

On a broader scale, the significant relationship between investment and stock prices implies that financial markets may affect the real side of the economy. This effect is interpreted differently by various researchers. The empirical findings reported by Chen et al. (2007) indicate that the sensitivity of investment to stock prices increases in the level of information asymmetry implying that financial markets may improve investment efficiency by providing valuable information to managers. Conversely, Kong et al. (2010) find that sensitivity of investment to price decreases with the level of information asymmetry attributable to the notion that price non-synchronization is an indication of a firm's future risk making managers more conservative with their investment decisions. Overall, the feedback effect from prices to corporate investment in the real side of the economy as propagated by Goldstein and Guembel (2005), has significant implications for regulations regarding market transparency and information acquisition.

<b>SAMEER AFRICA PLC</b>								
CAPEX	114	0.039	0.027	0.008	0.117	0.019	0.031	0.048
BV	114	-0.075	0.155	-0.449	0.090	-0.157	-0.042	0.060
Q	114	0.781	0.273	0.587	1.582	0.634	0.672	0.769
SIZE	114	6.071	0.172	5.712	6.332	5.892	6.088	6.223
ASSET	114	6.461	0.109	6.185	6.574	6.409	6.478	6.555
1/ASSET	114	0.154	0.002	0.152	0.158	0.153	0.154	0.155
RET	114	0.762	3.603	-7.262	9.214	-0.046	0.060	1.535
CF	114	5.218	0.230	4.959	5.749	5.058	5.161	5.198
1 - R <sup>2</sup>	114	1.000	0.000	1.000	1.000	1.000	1.000	1.000
DELAY	114	0.898	0.127	0.586	1.000	0.787	0.972	0.998
<b>EXPRESS KENYA PLC</b>								
CAPEX	90	0.087	0.106	0.000	0.426	0.010	0.054	0.112
BV	90	31.895	81.999	-0.998	756.421	-0.806	1.679	50.805
Q	90	1.352	0.306	0.850	1.978	1.101	1.270	1.555
SIZE	90	5.262	0.181	5.093	5.938	5.123	5.202	5.359
ASSET	90	5.683	0.146	5.506	6.128	5.556	5.645	5.790
1/ASSET	90	0.177	0.004	0.163	0.182	0.176	0.177	0.180
RET	90	0.245	0.933	-1.703	1.498	-0.042	0.306	1.088
CF	90	4.944	0.140	4.223	5.191	4.902	4.930	4.963
1 - R <sup>2</sup>	90	0.992	0.024	0.917	1.000	0.999	1.000	1.000
DELAY	90	0.933	0.067	0.765	1.000	0.890	0.945	0.987
<b>KENYA AIRWAYS PLC</b>								
CAPEX	163	0.158	0.191	0.007	0.522	0.013	0.044	0.281
BV	163	0.125	0.218	-0.130	0.584	-0.025	0.075	0.224
Q	163	1.147	0.264	0.791	1.775	0.896	1.106	1.287
SIZE	163	7.291	0.321	6.828	7.989	7.044	7.272	7.642
ASSET	163	8.002	0.184	7.651	8.291	7.881	7.896	8.172
1/ASSET	163	0.125	0.003	0.121	0.131	0.123	0.127	0.127
RET	163	0.650	0.157	0.336	0.854	0.530	0.653	0.832
CF	163	6.742	0.251	6.084	7.203	6.596	6.812	6.886
1 - R <sup>2</sup>	163	0.809	0.101	0.655	0.938	0.748	0.774	0.927
DELAY	163	0.054	0.096	0.009	0.368	0.015	0.021	0.025

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**MARSHALLS (E.A) Ltd**

CAPEX	163	0.013	0.007	0.004	0.033	0.008	0.013	0.013
BV	163	0.634	1.496	-0.700	5.090	-0.442	0.622	0.764
Q	163	0.905	0.147	0.616	1.265	0.813	0.900	0.927
SIZE	163	5.378	0.164	5.158	5.749	5.241	5.378	5.538
ASSET	163	5.929	0.151	5.708	6.157	5.754	5.929	6.052
1/ASSET	163	0.169	0.004	0.162	0.175	0.165	0.169	0.174
RET	163	1.178	1.530	-2.528	3.803	0.418	1.214	2.335
CF	163	4.120	0.179	3.816	4.631	4.038	4.084	4.127
1 - R <sup>2</sup>	163	0.996	0.003	0.988	0.999	0.997	0.997	0.998
DELAY	163	0.839	0.086	0.580	0.955	0.819	0.845	0.899

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