# Non-linear relationship between control ownership and cumulative abnormal return: A new predictive tool for firms' performance

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## ABSTRACT

**Purpose:** The primary aim of the paper was to find out the non-linear relationship between ownership structure and the Cumulative Abnormal Return (CAR) of companies listed on the Muscat Stock Exchange (MSE) from 2013 to 2020.

**Design/Methodology/Approach:** The Cumulative Abnormal Return (CAR) has been implied to determine the accuracy and ability of investors to predict stock performance and select an investment basket.

**Findings:** The effect of Control Ownership (CO) on Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) listed companies is negative which indicates that with increasing Control Ownership (CO) of stock, stock returns will fluctuate and Cumulative Abnormal Return (CAR) will decrease. Moreover, the results of the research show that the effect of Control Ownership Squared (CO2) on the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) listed companies is positive.

**Conclusion:** The effect of the Herfindahl-Hirschman Index including institutional ownership, the Board of Directors (BOD) and the volume of stock exchanges is significant on the Cumulative Abnormal Return (CAR) of companies listed on the Muscat Stock Exchange (MSE).

**Practical Implications and Contribution to Literature:** This research indicates that by increasing Control Ownership (CO) of the stock, the fluctuations of stocks' returns and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) listed   companies will primarily decrease   but the increase in CO will increase the volatility of the corporation's Cumulative Abnormal Return (CAR). In fact, it was claimed that the relationship between CO and CAR is similar to a U-shaped parabola.

**Keywords:** *Board of Directors, Control ownership, Cumulative abnormal return, Investment, Muscat stock exchange, Ownership, Stock returns, Volatility.*

## 1. INTRODUCTION

The ownership issue is one   of the factors affecting returns. A great spectrum of the community forms potential investors in the securities market which   provides an appropriate context for the widespread presence of this spectrum. Consolidating and expanding the capital market are some of the fundamental tools for economic development.

In this regard, conducting different studies can play a significant role in attracting investors' confidence. The purpose of investing in stocks is to generate returns on investment (Vakilifard, Nikoomaram, Rostami, Salehi, & Mitran, 2010). Berle and Means (1932) and  Walid (2022) confirmed a reverse relationship between the dispersion of shareholders and the performance (Shahzad, Farrukh, Ahmed, Lin, & Kanwal, 2018) of institutions. A Few researchers challenged the results of their research later.   The aforementioned study   served as the starting point for several discussions and studies developed by researchers in different countries with different economic foundations and different levels of development.

The relationship between the ownership structure and the firm's performance has been an important area of research in corporate governance for the past two decades. Researchers have focused primarily on the interests of managers and large shareholders in corporate ownership.

These researchers explored the relationship between the ownership structure and the company's performance (Shahzad, Farrukh, & Yasmin, 2020) taking into account conflicts of interest between company managers and owners. Research has shown that investment related projects of any of the firm's point out its market value and other factors that add value. An asymmetric information approach and an agency approach are also ways to measure ownership roles. The first approach sees the ownership structure as a way to reduce the imbalance in disclosure between inside and outside the capital market.

Some of the studies (e.g. Kalgo, Nahar, and Noordin (2022)) conducted on ownership show improvements in the performance of the institutions that have changed their ownership type or have worked on privatization. Differences in managerial and regulatory motivations, political goals   and social commitments of government departments mainly lead to the expectation that the mentioned units have lower performance than those of similar institutions.

On the other hand, by having stronger incentives to gain profit and access to more information, institutional and corporate owners may have better performance (Shahzad, Raju, Farrukh, Kanwal, & Ikram, 2018). In addition, due to lower agency costs, institutions run and controlled by family based organizations should be more efficient than state institutions (Fama & Jensen, 1983; Kalgo et al., 2022). Therefore, the ownership structure can affect the company's Cumulative Abnormal Return (CAR).   Therefore, we examine the non-linear relationship between Control Ownership (CO) and Cumulative Abnormal Return (CAR) considering the volume of stock exchanges at stock exchange companies.

## 2. REVIEW OF LITERATURE

*2.1. The Effect of Ownership Structure (Concentration and Mix) on Efficiency*

The relationship between returns and ownership structure (including ownership mixes and concentrations) has been a major topic in the financial literature. For the first time, after the research was carried out, a few authors, e.g. Baatwah, Aljaaidi, Almoataz, and Salleh (2023) and Chung et al. (2022) found an inverse relationship between shareholding dispersion and institutional performance.  In 1983, the authors disputed their findings.  According to Fama's perspective, the separation of ownership and control allows the performance of individuals and organizations to be monitored more effectively by creating competition between companies. In this sense, the authors argue that changing the management of institutions from owners interested primarily in increasing wealth to managers who understand the overall performance of the institution (Habib, D'Costa, & Al-Hadi, 2023) will increase the efficiency of the institutions.

Fama and Jensen (1983) focused their attention on the costs that a high proportion of management ownership might have for a company. When the manager owns a low percentage of the company's stock, he moves under the influence of market forces and effective supervision in order to maximize the value of the institution (convergence of interest hypothesis). In contrast, when the manager controls a significant portion of the firm's stock, he may exhibit behaviors that are entirely inconsistent with the goal of maximizing the firm's stock value (entrenchment hypothesis).

Behaviors such as determining high rewards and salaries for himself, hiring relatives and friends with significant benefits  or providing the basis for a luxurious life can seriously harm the company's goals (El Khoury, Nasrallah, Harb, & Hussainey, 2022). Thus, the combination of the   convergence of interest hypothesis and the entrenchment hypothesis leads to a non-linear relationship between the management ownership ratio and the company's performance.

Figure 1 explains the linear and non-linear connections between forces along with the convergence of interest. Dai (2022) and Morck and Vishny (1988) tried to explain these two opposing forces. In this regard, Morck's research team states that "theoretical debates alone cannot provide a clear and vivid prediction of linkages among ownership and asset value (market)."
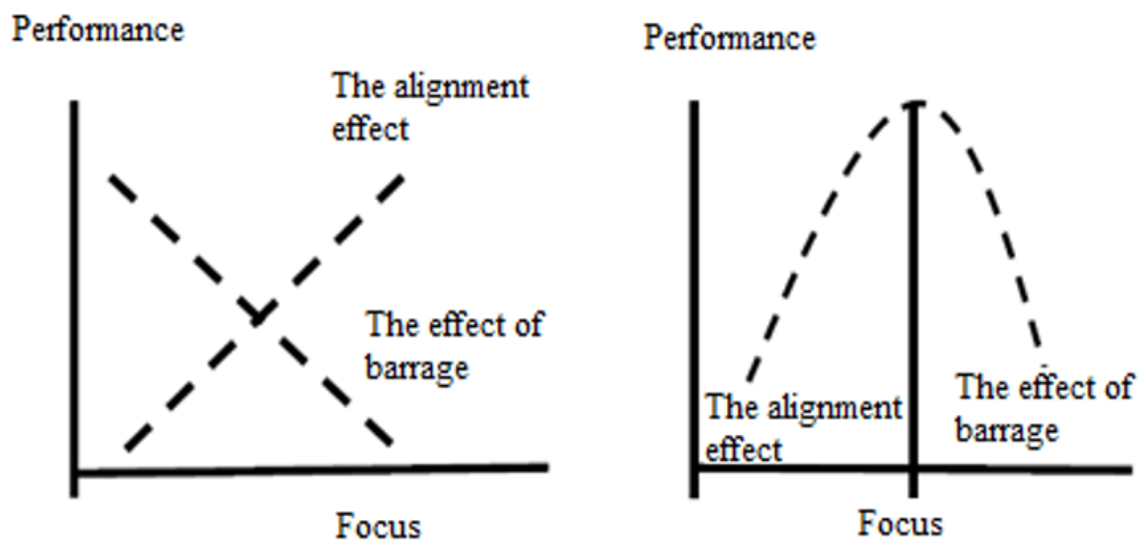
**Figure 1.** The effect of convergence of interest and entrenchment on different levels of concentration of stocks.

### 2.2. Review of Previous Studies

In a study entitled "Information asymmetry and information content of domestic transactions: evidence of the stock market in India," Chauhan, Kumar, and Chaturvedula (2016) and Bhardawaj, Bhardwaj, Bharadwaj, and Bhardwaj (2022) showed the information content of domestic exchanges is a reverse non-linear function of ownership control. In addition, other findings show that the content of domestic information exchanges is lower, especially when the company is affiliated with a business group. In a study entitled "Investing in advertising, information asymmetry and internal interests," Joseph and Wintoki (2013) and Pandey and Kumari (2022) studied this issue.

"The debate on the structure of ownership and the performance of the company" was first initiated by Berle and Means (1932). They find that ownership dispersion is negatively related to firm performance. However, Demsetz and Lehn (1985) challenged the arguments of Berle and Means (1932). They argue that in order to maximize firm value, the ownership structures of firms must be systematically different. They do not find a significant relationship between ownership structure and accounting profitability. Their results suggest that the separation of ownership and control is not evident.

In another study, Hill and Snell (1989) concluded that the ownership structure influences the investment posture and diversification strategy of a company which in turn determines its productivity. They argue that productivity is a clearer measure of efficiency than profitability as also noted in previous research by Zandi, Torabi, and Shamsudin (2020).

Xu and Wang (1999) explored the relationship between ownership structure and firm performance. The combination and concentration of capital have a significant role in explaining the performance of the company. An important result obtained by the researchers is that as the proportion of state behavior increases, labor productivity tends to decrease.

Their findings highlight the importance of large institutional ownership, the potential problems with decentralized ownership structures and the inefficiencies of state ownership. R. Morck, Stangeland, and Yeung (2000) made an important finding in this regard. The results of many similar studies were found to be consistent with the findings of Zandi et al. (2020). They find that the value of the firm increases monotonically as manager ownership increases and there is a significant positive relationship between firm value and majority shareholder ownership. However, Demsetz and Villalonga (2001) argue that there is no expected systematic relationship between firm performance and ownership structure when property is treated as an endogenous variable and lastly the ownership structure is insignificant in explaining the performance of the company. Lemmon and Lins (2003) found that the crisis had a

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negative impact on corporate investment leading to a greater likelihood that large shareholders expropriated small investors. The researchers argue that these findings are consistent with the hypothesis that ownership structure plays an important role in defining insider trading by minority shareholders. According to Minguez-Vera and Martin-Ugedo (2007), the Spanish stock market shows an insignificant relationship between large shareholders and the value of the company where McConnell and Servaes (1990) findings were also consistent. Another finding by Minguez-Vera and Martin-Ugedo (2007) is that the degree of control has a positive effect on the value of the company.

Endogenously, large shareholder ownership has a positive effect on firm value. According to the researchers, the Spanish stock market differs from other markets due to its highly concentrated ownership structure. It is concluded that individual or family investors have a favorable effect on the value of the company as large shareholders. Jelinek and Stuerke (2009) also found similar results. The structure of ownership and performance relationship has been discussed earlier in business literature" (Berle & Means, 1932). They found that ownership dispersion is negatively related to firm performance. However, Demsetz and Lehn (1985) challenged the findings. They argue that in order to maximize firm value, the ownership structures of firms must be systematically different.

Their results show no evidence of a separation of ownership and control. In another study, Hill and Snell (1989) found that the ownership structure influences the investment posture and diversification strategy of a company which in turn determines its productivity. Unlike previous researchers, they measure company efficiency by productivity rather than profitability. They argue that productivity is a more explicit measure of efficiency than profitability.

Xu and Wang (1999) described the combination and concentration of capital. A significant result remained as the proportion of state behavior increases, labor productivity tends to decrease. Their findings highlight the importance of large institutional ownership, the potential problems with decentralized ownership structures and the inefficiencies of state ownership. Morck et al. (2000) made an important finding about the existence of a relationship between firm performance and ownership among Japanese firms listed on the stock market.

It is concluded that individual or family investors have a favorable effect on the value of the company as large shareholders. Jelinek and Stuerke (2009) analyze the non-linear relationship between agency costs and management equity. They use the return on assets to measure profitability. Asset utilization rate and expense ratio are used as indicators of asset utilization efficiency and management overconsumption respectively. Their results show that management ownership has a positive non-linear effect on performance and asset utilization. However, a negative non-linear effect on expense ratios was shown. The empirical findings of this study indicate that domestic gains and benefits for companies that engage in advertising investments are significantly higher. Specifically, a long-term portfolio with a zero charge in firms that own and sell equity holders and short-term portfolios in companies with net purchases and no advertising investment produces an annual return of about 5.5%. In a study entitled "Why are abnormal returns after domestic trading higher for the countries that provide more support from their investors?" Fidrmuc, Korczak, and Korczak (2011) and Chen (2022) have studied this issue. The empirical findings of this research show a positive relationship between market response to domestic trading and the protection of shareholders across the country. This is due to the new ownership structure of the company following the sale of shares or the issuing of new shares (Zandi et al., 2020). Moreover, in this study, it was argued that the various capabilities of personal interests resulting from the control of different environments lead to a change in signals from foreign investors through domestic trading. These signals are more accurate and stronger in countries with better investor protection.

## 3. RESEARCH METHOD

The model of this research is derived from the study of Chauhan et al. (2016).

$$AR_{it} = \alpha + \beta_1 CFO_{it} + \beta_2 CFO_{it}^2 + \beta_3 HHI_{it} + \beta_4 IO_{it} + \beta_5 \%IND_{it} + \beta_6 Vol_{it} + \beta \times Controlvariabels_{it} + \varepsilon_{it}$$

where $AR_{it}$ represents CAR as a dependent variable calculated as follows:

$$AR_{it} = R_{it} - R_{mt}$$

Where AR is an abnormal return, RI is the stock return of the company, the difference between the end of the price and the beginning of the period plus the benefits including dividends at the beginning of the period and RM is the return on market shares, the difference between the end of the market and the beginning of the period. Table 1 explains the definitions and variables used in this study.

Table 1. Defining the variables used in this study.

| Definition | Variable |
|---|---|
| The percentage of shares is kept. | Control ownership (CO) |
| The company's ownership squared. | $CO^2$ |
| Percentage of shares above 5% held by insurance, retirement and banks. | Institutional ownership) I( IO) |
| Debt to total assets ratio. | Financial leverage( Lev) |
| The total market value of assets is proportional to the book value of assets. | (Price to book value) PB |
| Logarithmic of the company age. | (Age of the company) age |
| Operating profit ratio to total assets. | (Asset return rate) ROA |
| Independent directors' ratio to board size. | (Independence of the board) %IND |
| Logarithm of sales. | (Size of the company) Size |
| Relative average of absolute return on volume of transactions. | (Lack of liquidity) illiquidity |
| Stock return variance was measured using stock returns in the last three periods using Excel software. | (Variance returns) Var |
| Herfindahl-Hirschman Index, as a sum of squares of stocks sold by the company. | (Herfindahl-Hirschman )HHI(Index) |
| The Brown and Warner (1985) method is used to calculate abnormal returns. | (Calculated abnormal returns) CAR |
| Volume of stock exchanges. | The size of the exchange |

Independent variables: In the regression model, Control Ownership (CO) is considered as control ownership itself and squared $CO^2$. In this study, several other independent variables are considered including the Herfindahl-Hirschman index (HHI), Institutional Ownership (IO) and independence of the board (IND). In addition, the size of exchanges is measured using the volume of stock exchanges.

Control variables: In this study, the control variables are firm size (the natural logarithm of the total sales), firm age, Return on Assets (ROA), Leverage (Lev), Variance of Returns in the past three periods (Var), Illiquidity and the ratio of Price to Book value (PB).

This study covered all listed companies on the Muscat Stock Exchange (MSE) with records for the last seven years from 2013-2020. MSE developed in 2014 therefore; the data has been analyzed using 2013 as a base year. Tables 2 and 3 represent the descriptive statistics of the study while Table 4 presents the results regarding the normality of the dependent variables Cumulative Abnormal Return (CAR).

Table 2. Descriptive statistics-1.

| Descriptive | Institutional ownership | Lack of liquidity | Control ownership | Cumulative abnormal return |
|---|---|---|---|---|
| | IO | X5 | CO | CAR |
| Mean | 0.652 | 0.015 | 0.032 | 0.013 |
| Median | 0.000 | 2.020 | 0.000 | 0.327 |
| Maximum | 1.000 | 1.621 | 1.000 | 0.602 |
| Minimum | 0.000 | -0.631 | 0.000 | 0.041 |
| Std. dev. | 15.165 | 0.095 | 4.063 | 12.097 |
| Skewness | 0.231 | 0.096 | 0.567 | 0.045 |
| Kurtosis | 2.941 | 2.643 | 2.012 | 2.984 |

Table 3. Descriptive statistics-2.

| Descriptive | The size of exchanges | Asset return rate | Age of the company | Financial leverage | Independence of the board |
|---|---|---|---|---|---|
| | X13 | ROA | Firm age | LEV | BOARD |
| Mean | 12.486 | 10.213 | 13.941 | 0.312 | 0.693 |
| Median | 12.031 | 8.032 | 10 | 0.321 | 0.321 |
| Maximum | 18.032 | 31 | 35 | 1.032 | 0.890 |
| Minimum | 9.097 | -8.032 | 1 | 0.010 | 0.000 |
| Std. dev. | 1.012 | 0.032 | 8 | 0.902 | 0.491 |
| Skewness | 0.032 | -0.439 | 0.099 | 3.032 | -0.984 |
| Kurtosis | 2.032 | 3.052 | 0.032 | 1.412 | 3.031 |

**Table 4.** Test results of the normal distribution of dependent variables of research.

| Prob. | The statistics of Jarque–Bera | Variable |
|---|---|---|
| 0.000 | 3216.10 | Cumulative abnormal return-CAR |

## 4. ANALYSIS OF THE RESULTS

### 4.1. Testing the Normal Distribution of Dependent Variables

The results of the normal distribution after normalization regarding dependent variables are summarized in Table 5. The results of the Jarque–Bera test show that the dependent variable does not have a normal distribution. Hence, this variable was normalized using the Johnson transfer function.

**Table 5.** The results of the test of the normal distribution of dependent variables after normalization.

| Prob | The statistics of Jarque–Bera | Variable |
|---|---|---|
| 0.334 | 2.003 | Cumulative abnormal return-CAR |

According to Table 3, $H_0$ confirmed at a 95% confidence level that the dependent variables of the research have a normal distribution after the normalization process.

### 4.2. F-Limer Test

The results of the F-Limer test are shown in Table 6.

**Table 6.** The results of the F-Limer test for the regression model.

| F statistics | Significance level | Result |
|---|---|---|
| 6.321 | 0 | Regression method, panel |

According to its test results and its p- value (0.000), $H_0$ was rejected at the 95% confidence level and it is necessary to estimate the model using the panel data method.

### 4.3. Hausman Test

The results of the Hausman test for the regression model of the research hypothesis are presented in Table 7.

**Table 7.** Hausman test results for the regression model.

| Chi-square statistics | Significance level | Result |
|---|---|---|
| 384/42 | 0043/0 | Fixed effect |

According to the results of the test and its p-value (0.0043) which is more than 0.05, $H_0$ is rejected at the 95% confidence level and $H_1$ is accepted. Hence, it is pertinent to measure the model using the constant effects method.

### 4.4. Stationarity Test Results for Research Variables

It is necessary to test the stationarity of all variables used in the estimates before model estimation.

**Table 8.** The results of the stationarity of variables.

| Result | Possibility | Levine Lane and Chu's statistics | Symbol | Variable |
|---|---|---|---|---|
| I(0) | 0.000 | -46.214 | $CAR_{it}$ | Cumulative abnormal return |
| I(0) | 0.000 | -18.456 | IND | Independence of the board |
| I(0) | 0.000 | -8.498 | CO | Control ownership |
| I(0) | 0.000 | -9.328 | HHI | Herfindahl-Hirschman index |
| I(0) | 0.000 | -64.980 | LEV | Financial leverage |
| I(0) | 0.000 | -15.012 | SIZE | Size of the company |
| I(0) | 0.000 | -7.758 | ROA | Asset return rate |
| I(0) | 0.000 | -8.012 | IO | Institutional ownership |
| I(0) | 0.000 | -11.754 | Firm age | Age of the company |
| I(0) | 0.000 | -14.012 | illiquidity | Lack of liquidity |
| I(0) | 0.000 | -8.752 | PB | Price to book value |
| I(0) | 0.000 | -52.012 | M | The size of exchanges |

Table 8 explains the results abstracted through Levine Lane and Chu's statistics and indicates that all variables in the research are at a stationary level.

*4.5. The Results of the Estimation of the Model for Testing Research Hypotheses*
According to the results of the F-Limer and Hausman tests, the model above is estimated using the   panel data method as random effects   whose results are described in Table 9.

**Table 9.** The results of the estimates of the research model.

| **Dependent variable: Cumulative abnormal return** |
|---|---|---|---|---|
| **Prob** | **t statistic** | **Coeff.** | **Sym** | **Variables** |
| 0.000 | -3.588 | -0.996 | C | Intercept |
| 0.000 | -8.348 | -0.213 | CO | Control ownership |
| 0.048 | 2.054 | 0.176 | $CO^2$ | Squared control ownership |
| 0.000 | -3.691 | -0.279 | HHI | Herfindahl-Hirschman index |
| 0.003 | -2.668 | -1.425 | IO | Institutional ownership |
| 0.000 | -5.530 | -0.803 | IND | Independence of the board |
| 0.082 | 1.736 | 0.370 | M | The size of exchanges |
| 0.008 | 2.530 | 1.314 | Size | size of the company |
| 0.023 | 8.675 | 0.545 | ROA | Asset return rate |
| 0.256 | 2.866 | 0.146 | Firm age | Age of the company |
| 0.034 | 2.677 | 0.225 | Lev | Financial leverage |
| 0.025 | 2.267 | 0.065 | $Lev^2$ | Variance Returns |
| 0.013 | 3.156 | 0.044 | illiquidity | Lack of liquidity |
| 0.036 | 2.235 | 0.157 | PB | Price to book value |
| 0.597 | Mean dependent var | | 0.894 | R-squared |
| 0.471 | S.D. dependent var | | 0.834 | Adjusted R-squared |
| 2.201 | Durbin-Watson stat | | 7.456 | F-statistic |
| | | | 0.000 | Prob (F-statistic) |

The F-statistic is found to be lower than 0.05 (0.000) at the 95% confidence interval and   the study model has been found to be significant. The coefficient of determination remained at 89% which means that this percentage of change in the dependent variable is because of the independent variables. Furthermore, the Durbin-Watson statistic is between 1.5 and 2.5 (2.2), thus confirming the independence of the residuals.

# 5. DISCUSSION
The results of the research show that the effect of the independent variable Control ownership (CO) on the dependent variable Cumulative Abnormal Return (CAR) is negative and significant indicating that with an increase in Control ownership (CO), fluctuations in stock returns and the rate of Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will reduce. Furthermore, the results of the research show that the effect of the square of the independent variable Control Ownership Squared ($CO^2$) on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is positive and significant. In fact, the relationship between Control ownership (CO) and Cumulative Abnormal Return (CAR) is similar to a U-shaped parabola.

Moreover, the results of the research show that the effect of the independent variable HHI on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is negative. This indicates that with the increase in HHI and the competition between the companies, fluctuations in stock returns and Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will decrease. It is worth noting that the   results of the research show that the effect of the independent variable IO on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is negative and significant. This indicates that with the increase in IO, stock return fluctuations and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will decrease.

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The results of the research show that the effect of the independent variable (IND%) on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is negative. This indicates that with the increase in IND, stock return fluctuations and Cumulative Abnormal Return (CAR) of Muscat Stock Exchange companies will decrease.

Moreover, the results of the research show that the effect of the independent variable (volume of stock exchanges) on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is positive. This indicates that with the increase in volume of stock exchanges, stock return fluctuations and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will increase. The results of this study are consistent with those of Chauhan et al. (2016). Furthermore, the results of the research show that the controlling variables firm size and firm age on the dependent variable CAR of Muscat Stock Exchange (MSE) companies are positive indicating that with an increase in firm size and firm age, the volatility of the stock returns and Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will increase.

Moreover, the results of the research show that the controlling variable ROA on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is positive. This indicates that with an increase in ROA, the volatility of the stock returns and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will increase.

Additionally, the results of the research show that the controlling variable risk of firm return on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is positive and significant. This indicates that with an increase in the risk of the firm's return, the volatility of stock returns and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will increase.

Moreover, the results of the research show that the controlling variable illiquidity on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is positive. This indicates that with increase in company liquidity, the agency cost increases, the volatility of stock returns increases and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies increase. In addition, the results of the research show that the ratio of price to book value (BP) on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is positive. This indicates that with increase in the gap between price and book value of the company, the risk of the company, the volatility of stock returns and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies' increase. Zandi et al. (2020) proposed an index for measuring earnings per share changes that could provide a preliminary estimate of the future stock price.

### 5.1. Conclusion

The purpose of this research was to investigate the non-linear relation between the ownership structure and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies during a seven year period of research (2013-2020) using the method of econometric estimation of panel data. The results of the research show that the effect of CO variables on Cumulative Abnormal Return (CAR) is negative at the 95% level. It shows that with the increase in Control Ownership (CO), stock return fluctuations and Cumulative Abnormal Return (CAR) will decrease. Moreover, the results of the research showed that the effect of the independent variable Control Ownership squared $CO^2$ on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is positive which indicates that by increasing Control Ownership (CO) of the stock, first, the fluctuations of the stock return and the Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will decrease. The increase in Control Ownership (CO) will increase the volatility of the company's Cumulative Abnormal Return (CAR).

In fact, it was claimed that the relationship between the Control Ownership (CO) and the Cumulative Abnormal Return (CAR) is similar to a U-shaped parabola. Moreover, the results of the research show that the effect of the independent variable HHI on the dependent variable Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies is negative. This indicates that with the increase in HHI and the competition between the companies, fluctuations in stock returns and CAR of Muscat Stock Exchange (MSE) companies will decrease.

The effect of the independent variable IO on the dependent variable Cumulative Abnormal Return (CAR) is negative which indicates that with the increase in IO, stock return fluctuations and Cumulative Abnormal Return (CAR) of Muscat Stock Exchange (MSE) companies will decrease. The results of this study are consistent with those of Chauhan et al. (2016).

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