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### **The Relationship between Earnings Quality and Cash Holdings and its Impact on Companies' Financial Performance: An Empirical Study**

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# The Relationship between Earnings Quality and Cash Holdings and its Impact on Companies' Financial Performance: An Empirical Study

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## **Abstract:**

The purpose of this research is to examine the relationship between earnings quality and cash holdings and its impact on the financial performance of companies. This research used the modified Jones model to measure accruals quality as a proxy for earnings quality, cash and cash equivalents to total assets as a measure of cash holdings, and return on assets was used as an indicator of financial performance. Depending on a sample of companies listed on the Egyptian stock exchange, the results revealed that companies with lower earnings quality increase cash holdings and concluded that companies that have lower earnings quality and high cash holdings have a negative impact on financial performance.

**Keywords:** Earnings Quality - Cash Holdings - Financial Performance

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## **1. Introduction:**

Cash is the most liquid asset owned by the company. Cash in hand or readily available for investment in physical assets and distribution to investors is called cash holdings (Gill & Shah, 2012). Companies need to maintain cash-holding stability to maintain company liquidity (Khair et al., 2023). Cash holdings are the company's most liquid asset and are necessary to ensure its operations continue to run. It is important that a company's cash holdings be sufficient because there are different opinions regarding the benefits and drawbacks of firms holding large amounts of cash. The first opinion shows the drawbacks of holding a lot of cash; it will raise its opportunity cost, particularly if it has forgone investment opportunities that yield a return (La Rocca & Cambrea, 2019). The second contradictory opinion is that firms with high cash holdings can take advantage of more investment opportunities without being overly constrained by capital, as well as guarantee sufficient funds for both planned and unplanned opportunities (e.g., real estate deals, business expansion, market opportunities during the financial crisis, stock price drops due to unexpected news) (Amahalu and Ezechukwu 2017).

Also, there are other benefits of cash holding mentioned by Ferreira and Vilela (2004) which are: reducing the likelihood of financial distress; in other words, lowering the risk of financial difficulty and minimizing expenses associated with borrowing money from external sources or liquidating existing assets. According to Farinha et al. (2018), managers may need to retain higher cash reserves in order to offset any potential negative perception from investors as a result of a decline in the quality of a company's earnings. This could be brought about by the perception of higher information asymmetries and the increased cost or even unavailability of external financing in the context of lower earnings quality. As a result, managers will depend more on internal resources and build up a buffer of cash in case future investments require financing.

When a company has insufficient cash on hand or when too little cash is held by it, the company is in danger of not being able to cover its operating expenses, which would lower the performance of the business. Therefore, it's necessary that a company's cash holdings be sufficient to pay for ongoing operational expenses, meet liquidity requirements, finance future projects (if needed), and serve for contingency purposes (Doan 2020). Only having an adequate amount of cash on hand to meet these needs could enhance a company's financial performance (Anjum et al., 2020). In this vein, the topic of cash holdings has been a controversial issue in both the academic and financial communities. Lately, numerous studies have examined the relationship between cash holdings and firm performance. However, these studies show different results.

The main question of this research is: do companies with poor earnings quality hold a large amount of cash, and if yes, how will high cash holdings affect firm performance? Although there have been many studies done on this issue, this research tries to discuss first the relationship between earnings quality and cash holdings and then the effect of this relationship on the financial performance of the companies. This research will help the companies make appropriate cash holdings to improve their performance.

The rest of this research proceeds as follows: Section 2 exhibited the literature review and hypotheses development. Section 3 exhibited data and methodology. Sections 4 exhibited results which showed descriptive statistics, pearson correlation test, regression models and discussion of empirical results. Section 5 presented the conclusion.

## **2. Literature Review and Hypotheses Development**

### **2.1. Cash Holdings**

The importance of cash holdings goes back to the pioneering work of Keynes (1937), who determined some reasons, or motives, for holding cash in firms.

**Firstly, transaction motive** refers to the cash needed by the company to cover its regular operating expenses for its normal business operations and to ensure that the company is in a position to meet its daily operational requirements without external borrowing. The company

needs cash to pay salaries, dividends, interests, purchased goods, taxes, etc. (Hamad et al., 2021, p. 138).

**Secondly, the precautionary motive** refers to the tendency of the company to have an adequate amount of cash holdings to meet unexpected events or contingencies that arise in the workplace, such as rising raw material prices, employee and supplier strikes, changes in demand, etc. This motive may be the primary motivation for companies to have sufficient cash holdings, particularly since the COVID-19 epidemic (Hamad et al., 2021, p. 138; Wirianata and Viriany 2023, p.364).

**Thirdly, the speculative motive** refers to the company maintaining cash to take advantage of any attractive investment opportunities that may arise. Cash holdings are seen as a crucial source of internal capital in an environment of valuable investment opportunities, allowing businesses to take advantage of growth opportunities, to avoid higher costs of raising funds, and improve their financial flexibility (Da Cruz et al., 2019, p.88).

**Fourthly, signaling motive** considers the manager perspective and information asymmetry between managers and shareholders. **Fifthly, agency motive** refers to the separation of management and ownership. There is a clear incentive for managers (agents) to hold cash for their own interest at the expense of shareholders (principles). **Lastly, tax motive** takes into account the perspective of multinational companies, which tend to hold large cash in countries with lower taxes, and this is due to higher repatriation costs (Mihai and Radu 2015, p.347).

After taking these motivations into account, three theories tried to explain why and to what extent companies hold cash. These are the pecking order theory, the trade-off model, and the free cash flow theory. Respectively, the first two theories demonstrate a positive relationship between cash holdings and firm performance, while the last theory predicts a negative relationship.

**The pecking order theory** was proposed by Myers and Majluf (1984), who suggest that managers follow a particular order for capital financing in order to minimize the cost of information asymmetry and other related financial costs. This theory implies that internal sources of financing are usually preferred by firms over external financing sources. The directors adjust the dividend payout ratio so that the operations can be financed internally instead of selling ordinary shares to external shareholders. In this vein, they avoid the sale of ordinary shares, preventing a significant change in the number of shares (Anjum et al., 2020, p.90).

According to Myers and Majluf (1984), the safest securities should be issued first if external funding is available. To be more precise, debt is typically offered as a security first, with equity sold outside serving as a last resort. However, Myers and Majluf (1984) also contended that there is no optimal level of cash to hold and that cash should be kept aside to act as a safety or buffer between the need for investments and retaining profits (Thanh 2019, p.3).

**The trade-off theory** argues that firms need to have a target level of cash that aims to find a balance between the benefits and costs of holding cash, with the goal of maximizing shareholder

wealth (Dittmar et al. 2003, p. 112). Benefits of cash holdings include reducing the likelihood of financial distress, allowing the company to make optimal investments, and avoiding the costs related to obtaining external funding or liquidating firm assets. The cost of holding cash is the opportunity cost of holding cash when it offers less benefit than investing in an equal risk condition (Thanh 2019, p.3).

**The free cash flow theory** describes that managers have an incentive to build up cash to increase the amount of assets under their control and to gain discretionary power over the firm's investment decisions, according to Jensen's (1986) free cash flow theory. Additionally, holding cash enables management to invest in projects that best suit their own interests, which may not be optimal for shareholders (Ferreira and Vilela 2004, p. 296).

After discussing the different theories relating to why and to what extent firms hold cash, this research is trying to explain and discuss the relationship between cash holdings and earnings quality in terms of two hypotheses (the information asymmetry hypothesis and the private benefits hypothesis).

## 2.2. Earnings quality and Cash holdings

A few studies have examined how cash holdings are affected by the quality of earnings (Sun et al., 2012; Farinha et al., 2018; Mansali et al., 2019 ; and Chada and Varadharajan 2023). These studies assumed that there is a negative relationship between earnings quality and corporate cash holdings, assuming that low earnings quality increases information asymmetry by following the information asymmetry hypothesis. According to Myers and Majluf (1984), information asymmetries (lower earnings quality) between the company and external investors can increase the cost of external financing, which may incentivize managers to hold more cash in order to lessen their reliance on external funding (Farinha et al., 2018, p.240). In a similar vein, higher earnings quality lowers information asymmetry, which reduces uncertainty about future cash flows and lowers the cost of capital and hence reduces the need to hold cash and liquid assets (Chada and Varadharajan 2023, p.250).

Also, information asymmetry is likely to influence corporate cash holdings because it affects both managerial behavior and the ability of outsiders to understand that behavior. For example, higher information asymmetry might exacerbate the free cash flow problem (Jensen, 1986) because it would make it harder for outsiders to monitor and interpret managerial actions (Chung et al., 2015, p.1342).

In line with the private benefits hypothesis, firms with poor earnings quality build up their cash reserves to avoid dependence on external capital or monitoring or scrutiny by external shareholders, regulators and other stakeholders (Chada and Varadharajan 2023, p.257).

Existing literature has found a negative correlation between earnings quality and cash holdings. for example, Sun et al., (2012) used a sample of 8621 US publicly traded firms from 1980 to 2005. They show that the level and value of a firm's cash holdings are indeed influenced by the quality of its reported earnings; that is, poor earnings quality has a negative impact on the value of corporate cash holdings and a positive impact on the level of cash reserves. Also, Farinha et al., (2018) goal was to find out if a company's cash holdings are influenced by the quality of its earnings by using a sample of 9673 non-financial firm-year observations in the UK for the period 1998 to 2015. The findings supported the claim that companies with lower levels of earnings informativeness have a greater difficulty in obtaining external finance and, as a result, build up larger cash reserves as a buffer for potential future financing needs. The results also showed that earnings quality is a significant factor in determining cash holdings.

In the same vein, Mansali et al., (2019) examined how information asymmetry driven by earnings quality affects corporate cash holdings by using a sample of 741 firms listed on Euronext Paris from 2000–2015. The results indicated that firms tend to increase their cash reserves in the presence of high information asymmetry which is notably driven by low accounting quality and also, Chada and Varadharajan (2023) aimed to examine the relationship between earnings quality and corporate cash holdings by using a sample of 2,421 Indian firms from 2001 to 2019. The results showed that firms with lower earnings quality increase cash holdings in their control, to increase their private benefits and to avoid the scrutiny of the external stakeholders.

All of the previous studies showed a negative relationship between earnings quality and cash holdings. In other words, the previous studies demonstrate that companies with lower or poor earnings quality tend to increase cash holdings but these studies made in different settings so the first hypothesis is:

**H1: Companies with poor (good) earnings quality hold more (less) cash**

### **2.3. Cash Holdings and Financial Performance**

Cash holdings are important to firm performance, as this factor is a significant indicator measuring corporate financial performance (Khounq et al., 2020, p.248).

Numerous studies have been conducted in a variety of settings to examine the impact of cash holdings on financial performance. However, these studies show different results. Some studies reported a positive impact of cash holdings on financial performance and they showed that high cash holdings help firms achieve high firm performance for instance, La Rocca and Cambrea (2019) investigated the effect of cash holdings on financial performance by using a sample of 261 Italian firms for a period from 1980 to 2015, and the results show a net positive effect. They stated that the relationship is moderated by different factors, which may change the sign and intensity of the relationship. Also, Doan (2020) examined the impacts of cash holdings on the performance of firms listed in Vietnam for the period of 2008–2018 and used ROA and ROE to measure the

performance of firms. The results revealed that the proportion of cash holdings had a positive impact on the firm's performance.

In the same context, Jabbouri and Almustafa (2021) investigated the effect of cash holdings on firm performance by using data from non-financial firms listed on the stock markets of twelve MENA countries from 2004 to 2018. The results show that there is a significant positive relationship. In addition, Yilmaz and Samour (2024) examined the effect of corporate cash holdings on financial performance by using a sample of 536 non-financial firms for the 2006- 2020 period from 11 MENA region countries. The results indicated that cash holdings had a positive impact on the firm's financial performance. This implies that as firms increase their level of cash holdings, this will help improve their financial performance.

Other studies revealed a negative impact of cash holdings on financial performance. Holding excess cash reserves is likely to exacerbate the agency conflict between managers and shareholders, so the benefits of holding cash can be quickly mitigated. These studies provide evidence on how managers can use corporate resources to achieve their private interests at the expense of shareholders for example, Luo and Hachiya (2005) used a sample of Japanese non-financial firms listed on the Tokyo Stock Exchange from 1989–2002. They demonstrated that cash holdings cause agency problems and lead to worse financial performance. Also, Dittmar and Mahrt-Smith (2007) used a sample consisting of 1952 US publicly traded firms from 1990 to 2003. The results indicated a negative impact of large cash holdings on future operating performance, and this negative impact is cancelled out if the firm is well governed.

Other studies showed a nonlinear relationship between cash holdings and financial performance, like Thanh (2019), who examined the effect of cash holdings on the performance of 306 listed non-financial companies in the Vietnam stock exchange market during the period of 2008–2017. The results showed that the relationship between the cash holding ratio and a firm's performance is nonlinear. These results are consistent with the trade-off theory, in that the optimal cash holding ratio is determined by a trade-off between the marginal cost and profit margin of cash holdings. Also, Alnori (2020) investigated the relationship between corporate cash holdings and financial performance by using a sample of listed non-financial firms in Saudi Arabia over 2005–2016. The results show that this relationship is non-linear and that cash holdings play a significant role in firms' performance. Alnori (2020, p. 930) illustrated that the non-linear relationship depends on cash reserve levels; for firms with lower cash holdings, there is a positive effect of cash on performance, but the observed relationship is negative for firms with high levels of cash holdings.

In light of these conflicting results and empirical evidence, it is worthwhile exploring further the effects of cash holdings on the financial performance of companies with the hope of providing new insights, so the second hypothesis will be as follows:

## **H2: Cash holdings have a negative impact on company's financial performance**

### **2.4. Earnings Quality and Financial Performance**

Dechow et al., (2010, p.344) define earnings quality as “Higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker”.

Earnings quality measures the accuracy with which information about expected cash flows is conveyed to stakeholders (Chada and Varadharajan 2023, p. 250). High-quality reported earnings create trust between stakeholders and managers and also reduce the consequences of information asymmetry (Francis et al., 2004). On the contrary, poor earnings quality creates uncertainty about the financial performance of the firm, gives rise to suspicions, and raises the possibility that the earnings may be managed (Sun et al., 2012, p. 544). Also, it causes internal and external uncertainties that make it highly important for a firm to hold cash reserves above the norm (Mansali et al., 2019, p.1132).

Huynh (2019, p. 361) discovered that earnings quality plays an originating role within the vicious linkage where earlier earnings quality is a cause of current financial performance that in turn affects subsequent earnings quality. Also, Charitou et al., (2007) examined the relationship between earnings quality and financial performance by investigating earnings quality of firms with different financial health characteristics. They used earnings timeliness and earnings managing towards a target as proxies for earnings quality. The results revealed that the relation between earnings quality and financial health is not monotonic. Distressed firms show evidence of low level of earnings timeliness for bad news and high level for good news. They also show evidence of earnings managing towards a positive target more frequently than healthy firms. Conversely, healthy firms show evidence of high level of earnings timeliness for bad news but not for good news. In addition, Huynh (2019, p. 362) mentioned that some previous research has tried to explain the relationship between earnings quality and financial performance by examining the impact of companies' earnings quality on financial performance, showing that companies can achieve superior subsequent performance as a result of having high earnings quality. Also, Duarte et al., (2022) aimed to study the impact of earnings quality on firms' financial performance by using a sample of 237 small- and medium-sized Portuguese companies from 2010 to 2018. The results show that managers must be concerned with earnings quality especially regarding accruals quality, as it can affect positively firms' financial performance. So, the third hypothesis will be as follows:

### **H3: Poor earnings quality has a negative impact on a company's financial performance**



### 3. Data and Methodology

#### 3.1. The Sample and Data

The sample used in this research is composed of 30 non-financial companies listed on Egyptian stock Exchange. The data cover a 5-year period from 2018 to 2022. The sample excludes financial companies because the business characteristics and the financial statement formats of those companies are different than those of non-financial companies. There are different sources for collecting data of companies listed in the Egyptian Stock Market, so the required data is mainly collected from the financial statements published on the following sites:

- 1) The Egyptian Stock Exchange: <http://www.egx.com.eg/>
- 2) Mubasher: <http://www.mubasher.info/countries/eg>

The sample includes firms listed on Egyptian stock Exchange. The sample was selected based on four criteria:

- (i) Each firm registered on the Egyptian Stock Exchange.
- (ii) Each firm has financial statements available for five consecutive years.
- (iii) The data required to conduct statistical analysis must be available.
- (iv) The firm must not have achieved recurring losses, i.e., the results of its business are dominated by profits.

The research period covers financial years from 2018 to 2022. 40 firms were selected but only 30 firms, which meet the above criteria. The 30 sample firms are distributed across 11 different sectors as shown in following table:

No	Sector	No of companies	%
1	Basic resources (BASC)	2	6.66 %
2	Building Materials (BULM)	2	6.66 %
3	Healthcare and Pharmaceuticals	4	13.35%
4	Food, Beverages and Tobacco	11	36.67%
5	Shipping & Transportation Services (SHTS)	2	6.66%
6	Real Estate (REAL)	1	3.34%
7	Textile & Durables	2	6.66%
8	IT, Media & Communication Services (IMCS)	1	3.34%
9	Industrial Goods , Services and Automobiles (IGSA)	2	6.66 %
10	Facilities	1	3.34 %
11	Travel & Leisure (TRVL)	2	6.66 %
	Total	30	100 %

This table shows that the 30 sample firms are distributed over 11 sectors. Food, Beverages and Tobacco includes the highest number of sample firms, which represents 36.67 % of total research sample, followed by Healthcare and Pharmaceuticals, which represents 13.35 % of the total research sample, followed by Basic resources, Building Materials, Shipping & Transportation Services, Textile & Durables, Industrial Goods, Services and Automobiles and Travel & Leisure, that each of them represents 6.66 % of the total research sample. While Real Estate, IT, Media & Communication Services and Facilities include only one firm for each.

### 3.2. Variables and Measurements

Variable name	Abbreviation
Cash holding	CASH
Earnings Quality	DA *Discretionary accruals
Financial performance	P
Firm Size	A
Leverage	LEV

\* A higher quality of accruals means a higher quality of earnings. Accruals contain discretionary and non-discretionary accruals. Discretionary accruals represent accruals recognized through managers' discretion. In this research, discretionary accruals are used as a proxy for poor earnings quality, and this is explained in detail in the rest of the research.

#### Variables Definitions:

**Cash holdings:** the amount held by the company for transaction purposes, precautionary and asset or speculative activities, this research used the cash proportion of total assets as the following equation:

$$\text{Cash holdings}_{i,t} = \text{cash and cash equivalent}_{i,t} / \text{total assets}_{i,t}$$

**Earnings quality:** This research uses discretionary accruals as a proxy for earnings quality. If there are high discretionary accruals, it indicates poor earnings quality, and vice versa. The researchers used the modified Jones model (1995) to estimate the non-discretionary accruals.

#### Explaining earnings quality measures in detail:

Since accruals include two components; non-discretionary accruals and discretionary accruals.

Non-Discretionary Accruals are accruals in which management does not interfere in its occurring. These accruals occur as result of large demand of the firm's product that are normally

related to economic activity of the firm. Discretionary Accruals are result from manipulative actions by management.

In general, accrual-based models consist of three steps:

1- The total accruals are estimated.

2- Then, the non-discretionary accruals are estimated, which can be done with a time series or cross-sectional analysis.

3- Finally, the difference between the total accruals and the non-discretionary accruals results in the discretionary accruals. The estimated discretionary accruals are used as a proxy for poor earnings quality.

#### Step one: estimating total accruals:

Total accruals need to be computed first in order to estimate discretionary accruals. The literature offers two approaches for estimating total accruals: the balance sheet approach, the cash flow approach. This research used the cash flow approach. Under this approach, total accruals are measured as follows

$$TA_{i,t} = EBEX_{i,t} - CFO_{i,t}$$

$TA_{i,t}$  : Total accruals for firm i in period t

$EBEX_{i,t}$  : Earnings before extraordinary items for firm i for period t

$CFO_{i,t}$  : Operating cash flow for firm i for period t

**Step two and three:** after calculating total accruals, the next step is to use the modified jones model (1995) to estimate the non-discretionary accruals. This research estimated it for 4 years from 2018 to 2021.

This model presents below:

$$\frac{TA_{i,t}}{A_{i,t-1}} = B_0 \frac{1}{A_{i,t-1}} + B_1 \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} + B_2 \frac{PPE_{i,t}}{A_{i,t-1}} + \sum_{i,t}$$

$TA_{i,t}$  : Total accruals for firm i in period t

$A_{i,t-1}$  : Total assets for firm i at end of prior period t-1

$\Delta REV_{i,t}$  : Change in revenues for firm i in period t and period t-1

$\Delta REC_{i,t}$  : The change in accounts receivable for firm i in period t and period t-1.

$PPE_{i,t}$  : Gross property, plant, and equipment for firm i and period t

$B_0, B_1, B_2$  : Estimated parameters

$\Sigma_{i,t}$  : Error term for firm i in period t (The residual from this regression is the estimate of discretionary accruals).

**Firm performance:** There are many financial indicators used to assess the company's performance. To assess the overall company's performance, this research used the return on assets ratio (ROA), which shows the effective use of assets by the company. In other words, the reason for choosing this variable is that it measures the effectiveness of the economic unity in using its assets to generate profit as it indicates the management efficiency in using its assets to generate profit (Amahalu and Ezechukwu 2017, p. 95) and is measured by the ratio of net profit to total assets.

$$Firm\ performance_{i,t} = Net\ profit_{i,t} / Total\ Assets_{i,t}$$

**Firm size:** it's calculated in this research by taking the natural logarithm of the total assets of the firm for the sample period to each company.

$$Firm\ size_{i,t} = L (Total\ Assets)_{i,t}$$

**Leverage:** it is used to capture the efficiency of the capital structure of the firm. Total debt to total assets ratio is used as a proxy of leverage:

$$Leverage_{i,t} = Total\ Debt_{i,t} / Total\ Assets_{i,t}$$

## 4. Results

### 4.1. Descriptive statistics

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
DA	30	-2.6561	7.0098	.252028	1.4442569
CASH	30	.0004517	1.0989744	.180394889	.2331700243
ROA	30	-1.02326	.51708	.0790652	.26251978
A	30	7.3288702	11.0259935	9.339891209	.7674023475
LEV	30	.0229135	11.4336193	.895783839	2.0177176721
Valid N (listwise)	30				

This table provides descriptive statistics for the variables that have been incorporated in the two models that will be used to test the hypotheses. Descriptive statistics make it possible to summarize the central tendency of the data (the minimum and maximum values that each variable

can take as well as the mean and the standard deviation) of the dependent and independent variables. It shows that; the average DA is .252028, the standard deviation is 1.4442569, the minimum amount is -2.6561 and the maximum amount is 7.0098. It also shows that the mean of CASH is .180394889 with a range from .0004517 to 1.0989744. It also shows that ROA ranges from -1.02326 to .51708 with a mean of .0790652. With regards to A in the sample, it shows that A on average 9.339891209 with a standard deviation of .7674023475. The minimum and the maximum amount of LEV range from .0229135 to 11.4336193.

#### 4.2. Pearson correlation test.

This technique enables us to test the strength and direction of the relationship between variables and measures the correlation between study variables, either between the dependent and independent variables or between the independent variables themselves.

	DA	CASH	ROA	A	LEV
DA	1	.671**	-.132	-.157	-.027
CASH	.671**	1	-.060	-.197	-.023
ROA	-.132	-.060	1	.641**	-.854**
A	-.157	-.197	.641**	1	-.531**
LEV	-.027	-.023	-.854**	-.531**	1

The previous table presents the correlations between research variables with a two-tailed significance test for total research sample. It reports that DA variable is positively correlated with CASH variable and is statistically significant at .01 level which agrees with research expectation that firms with poor earnings quality (high discretionary accruals) are more likely to hold more cash and this is consistent with free cash flow theory that the management increase the amount of assets under their control and gain discretionary power over the firm's investment decisions. Finally, CASH, DA are negatively correlated with ROA variable as expected.

#### 4.3. Regression models:

Multiple regression analysis examines the relationship between a dependent variable and a group of independent variables. Further, this analysis is used to discover the significance and the predictive power of a regression model and to assess the extent of variation in the dependent variable that is explained by the independent variable variation. In other words, multiple regression analysis helps to understand the extent of the dependent variable changes when any of the independent variables are changed.

**4.3.1. First model to test the first hypothesis: earnings quality and cash holdings.** In this model, the dependent variable is cash holdings, the independent variable is the Discretionary Accruals, the control variables are the total Assets and leverage.

$$\text{CASH}_{i,t} = \alpha_0 + B_1 \text{DA}_{i,t} + B_2 \text{A}_{i,t} + B_3 \text{LEV}_{i,t} + \sum_{i,t}$$

$DA_{i,t}$ : Discretionary Accruals for firm i in period t

$CASH_{i,t}$ : Cash Holdings for firm i in period t

$A_{i,t}$ : Natural Logarithm of Total Assets for firm i in period t

$LEV_{i,t}$ : Leverage for firm i in period t

$\Sigma_{i,t}$  : Error term for firm i in period t

$B_1, B_2, B_3$  : Estimated parameters

#### 4.3.1.1 Results of the first model (H1)

##### Model 1: Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.681 <sup>a</sup>	.464	.402	.1803238265

a. Predictors: (Constant), LEV, DA, A

In model 1 summary, this table points out that values of R square and adjusted R<sup>2</sup> are high, it can be noticed that the R-square is 0.464 which means that 46.4% of the variance in cash holdings is explained by the independent variable (DA). The table also shows that the model fit the data well: the Adjusted R-Square = 40.2 %. Therefore, it can be inferred that the model is significant and should be used as a predictive or explanatory tool for the variations of the cash holdings.

The second test that needs to be done is determining whether the overall model is significant. In other words, it tells whether in general, the independent variables are able to predict together the dependent variable. The table below is the ANOVA table for this regression analysis.

##### ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.731	3	.244	7.496	.001 <sup>b</sup>
Residual	.845	26	.033		
Total	1.577	29			

a. Dependent Variable: CASH

b. Predictors: (Constant), LEV, DA, A

This table provides outcomes that tell whether the model is significant. The F-value is the part of the explained variance divided by the part of the unexplained variance of the model. The number of degrees of freedom (df) of the regression is the same as the number of the

independent variables which is 3. The number of df of the residual is the total number of cases minus df of the regression minus 1. The total number of cases is 30 companies. Therefore, the number of df of the residual is  $30-3-1 = 26$ .

The table shows that this model as a whole has a significant explanatory power since the significance is 0.001. This significance is called the P-value. The P-value has to be compared with a specified level of significance in order to determine whether the data is statistically significant. For a result to be significant, the P-value of the test has to be smaller than or equal to the acceptable significance level 5%. In this case the P-value of 0.001 is smaller than 0.05 so the model is statistically significant.

Now the model as a whole is said to be significant, the next step is to see which individual variables have a significant explaining power. The following table presents the final regression formula.

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.550	.503		1.093	.284
DA	.105	.024	.648	4.417	.000
A	-.042	.053	-.137	-.790	.437
LEV	-.009	.020	-.078	-.459	.650

a. Dependent Variable: CASH

Regarding the significance level between independent variables and the dependent variable it was found that DA has a significant relationship with CASH with a significance level of 0.000 in addition the coefficient is equal to .105 which shows a positive relationship between both variables leading to the first hypothesis of the research to be accepted.

#### 4.3.2. Second model to test the second hypothesis: Cash Holdings and Financial Performance.

$$P_{i,t} = \alpha_0 + B_1 \text{Cash}_{i,t} + B_2 A_{i,t} + B_3 \text{LEV}_{i,t} + \sum_{i,t}$$

Where

$\text{CASH}_{i,t}$ ,  $A_{i,t}$ ,  $B_1$ ,  $B_2$ ,  $B_3$ ,  $\text{LEV}_{i,t}$ ,  $\sum_{i,t}$  : defined previously

$P_{i,t}$  : Financial performance for firm i in period t

#### 4.3.2.1. Results for the second model (H2)

##### Model 2: Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883 <sup>a</sup>	.779	.754	.13019978

a. Predictors: (Constant), LEV, CASH, A

In model 2 summary, this table points out that values of R square and adjusted R<sup>2</sup> are high, it can be noticed that the R-square is 0.779 which means that 77.9% of the variance in financial performance is explained by the cash holding. The table also shows that the model fit the data well: the Adjusted R-Square = 75.4 %. Therefore, it can be inferred that the model is significant and should be used as a predictive or explanatory tool for the variations of the companies' financial performance.

##### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.558	3	.519	30.632	.000 <sup>b</sup>
	Residual	.441	26	.017		
	Total	1.999	29			

a. Dependent Variable: ROA

b. Predictors: (Constant), LEV, CASH, A

The table shows that this model as a whole has a significant explanatory power since the significance is 0.000. In this case the P-value of 0.000 is smaller than 0.05 so the model is statistically significant.

##### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.642	.371		-1.728	.096
	CASH	-.030	.107	-.027	-.284	.779
	A	.087	.038	.254	2.261	.032
	LEV	-.094	.014	-.720	-6.549	.000

a. Dependent Variable: ROA

regarding the significance level between each independent variable and the dependent variable. it was found that CASH has insignificance relationship with ROA with a significance level of 0.779 in addition the coefficient is equal to -.030 which shows a negative relationship between both variables.



**4.3.3. Third model to test the third hypothesis: Earnings Quality and Financial Performance.**

In this model, the dependent variable is the financial performance, the independent variable is the discretionary accruals, the control variables are the total assets and leverage.

$$P_{i,t} = \alpha_0 + B_1 DA_{i,t} + B_2 A_{i,t} + B_3 LEV_{i,t} + \sum_{i,t}$$

**4.3.3.1. Results for the third model (H3)**

**Model 3: Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890 <sup>a</sup>	.791	.767	.12665306

a. Predictors: (Constant), LEV, DA, A

In model 3 summary, this table points out that values of R square and adjusted R<sup>2</sup> are high, it can be noticed that the R-square is 0.791 which means that 79.1% of the variance in financial performance is explained by earnings quality. The table also shows that the model fit the data well: the Adjusted R-Square = 76.7 %. Therefore, it can be inferred that the model is significant and should be used as a predictive or explanatory tool for the variations of the companies' financial performance.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.582	3	.527	32.864	.000 <sup>b</sup>
	Residual	.417	26	.016		
	Total	1.999	29			

a. Dependent Variable: ROA

b. Predictors: (Constant), LEV, DA, A

The table shows that this model as a whole has a significant explanatory power since the significance is 0.000. In this case the P-value of 0.000 is smaller than 0.05 so the model is statistically significant.

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.579	.353		-1.637	.114
	DA	-.021	.017	-.114	-1.250	.223
	A	.080	.037	.234	2.170	.039
	LEV	-.095	.014	-.733	-6.873	.000

a. Dependent Variable: ROA

regarding the significance level between each independent variable and the dependent variable. it was found that DA has insignificance relationship with ROA with a significance level of 0.223 in addition the coefficient is equal to - .021 which shows a negative relationship between both variables.

#### **4.4. Discussion of Empirical Results**

In the first model, the first hypothesis proposed by the research is supported by the results of the Pearson correlation test and multiple regression analysis. This means that firms with low earnings quality hoard more cash. In other words, increase cash holdings under their control to increase their own benefits and to avoid the scrutiny of external stakeholders. Also, the second hypothesis proposed by the research is supported by the results of the multiple regression analysis, which led to accepting the hypothesis. This means that holding excess cash reserves is likely to heighten and exacerbate the agency conflict between managers and shareholders, so the benefits of holding cash can be quickly mitigated and lead to worse financial performance. additionally, the third hypothesis is also supported by the results of the multiple regression analysis, which led to accepting the hypothesis. This means that poor earnings quality in firms will lead to worse financial performance and affect it negatively.

#### **5. Conclusions**

Identifying the factors that influence a company's cash holdings is one of the challenging issues. There is very little evidence on how earnings quality affects cash holdings and how both items and the relation between them will affect financial performance of the companies. Firms with low earnings quality achieve private benefits from holding cash and this will affect the performance of the companies by achieving worse performance.

In future research, this empirical research could be extended by including other proxies to measure earnings quality, such as earnings persistence, value relevance and also other indicators to measure financial performance such as return on equity.

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**Appendix 1** :A List of companies used in the empirical study

<b>Number of companies</b>	<b>Name of company</b>	<b>Sector</b>
1	Abou Kir Fertilizers	Basic resources
2	Sidi Kerir Petrochemicals	Basic resources (BASC)
3	South Valley Cement Company	Building Materials (BULM)
4	Misr Beni Suef Cement	Building Materials (BULM)
5	Nozha International Hospital	Healthcare and Pharmaceuticals
6	Cairo Pharmaceuticals	Healthcare and Pharmaceuticals
7	Memphis Pharmaceuticals	Healthcare and Pharmaceuticals
8	Nile Pharmaceuticals and Chemical Industries-Nile (NIPH)	Healthcare and Pharmaceuticals
9	Cairo Oils & Soap	Food, Beverages and Tobacco
10	Extracted Oils	Food, Beverages and Tobacco (FOBT)
11	Eastern company	Food, Beverages and Tobacco (FOBT)
12	Edita food industries	Food, Beverages and Tobacco (FOBT)
13	Juhayna	Food, Beverages and Tobacco (FOBT)
14	Obour Land for Food Industries (OLFI)	Food, Beverages and Tobacco (FOBT)
15	East Delta Flour Mills	Food, Beverages and Tobacco (FOBT)
16	Middle & West Delta Flour Mills	Food, Beverages and Tobacco (FOBT)
17	North Cairo Mills	Food, Beverages and Tobacco (FOBT)
18	General Company for Silos and Storage (GSSC)	Food, Beverages and Tobacco (FOBT)
19	The Arab Dairy Products Co. Arab Dairy - Panda (ADPC)	Food, Beverages and Tobacco (FOBT)
20	Alexandria Container and Cargo Handling	Shipping & Transportation Services (SHTS)
21	United Arab Stevedoring (UASG)	Shipping & Transportation Services (SHTS)
22	Heliopolis Company for Housing and Development (HELI)	Real Estate (REAL)
23	Arab Cotton Ginning (ACGC)	Textile & Durables
24	General Company for Ceramic and Porcelain Products (PRCL)	Textile & Durables
25	Telecom Egypt (ETEL)	IT, Media & Communication Services (IMCS)
26	Delta for Printing and Packaging (DTPP)	Industrial Goods , Services and Automobiles (IGSA)
27	Elsewedy Electric Co SAE (SWDY)	Industrial Goods , Services and Automobiles (IGSA)
28	Egypt Gas (EGAS)	Facilities
29	Misr Hotels (MHOT)	Travel & Leisure (TRVL)
30	Sharm Dreams Company for Touristic Investment SAE (SDTI)	Travel & Leisure (TRVL)

**Appendix 2:** Pearson correlation test**Correlations**

		DA	CASH	ROA	A	LEV
DA	Pearson Correlation	1	.671**	-.132	-.157	-.027
	Sig. (2-tailed)		.000	.488	.407	.889
	N	30	30	30	30	30
CASH	Pearson Correlation	.671**	1	-.060	-.197	-.023
	Sig. (2-tailed)	.000		.752	.297	.903
	N	30	30	30	30	30
ROA	Pearson Correlation	-.132	-.060	1	.641**	-.854**
	Sig. (2-tailed)	.488	.752		.000	.000
	N	30	30	30	30	30
A	Pearson Correlation	-.157	-.197	.641**	1	-.531**
	Sig. (2-tailed)	.407	.297	.000		.003
	N	30	30	30	30	30
LEV	Pearson Correlation	-.027	-.023	-.854**	-.531**	1
	Sig. (2-tailed)	.889	.903	.000	.003	
	N	30	30	30	30	30

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