

**Determinants of cash dividend impact on the share price changes by using panel data analysis:**

**An empirical study in Egypt**

محددات تأثير التوزيعات النقدية على تغيرات أسعار الأسهم باستخدام تحليل بيانات البانل دراسة تطبيقية على مصر

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**Abstract**

This study used panel data analysis, aiming to investigate the impact of cash dividends on share price changes in the presence of macroeconomic factors and company performance factors. The sample has been selected from the Egyptian companies listed in the EGX100 index that continued their cash dividend policy during the study period (2017–2023). Also, this study analyzed the impact of cash dividends, macroeconomic factors, and company performance on share price changes for large and medium caps. The findings revealed that the fixed effect model outperformed all other models in the study. This explains that cash dividends have a significant positive impact on share price changes, with a model explanatory power of 0.45, while the fixed effect model's explanatory power grew to 0.95 in the presence of

company performance indicators and macroeconomic factors. Cash dividends, profitability, liquidity, and growth rate all had a significant positive impact on share price changes. Whereas the debt ratio, market risks, and exchange rate had a significant negative impact. On the other side, the results showed no significant effect of either the inflation rate or interest rates. In addition to what the study revealed, there is a significant difference in the impact of cash dividends on share price changes between large and medium caps in the presence of company performance indicators and macroeconomic variables.

**Keywords:** Panel data analysis, cash dividends, share price changes, macroeconomic factors, performance factors

#### الملخص :

استخدمت هذه الدراسة تحليل بيانات البانل ، بهدف دراسة تأثير توزيعات الأرباح النقدية على تغيرات أسعار الأسهم في ظل وجود عوامل الاقتصاد الكلي وعوامل أداء الشركة. وتم اختيار العينة من الشركات المصرية المقيدة بمؤشر **EGX100** والتي واصلت سياسة توزيع الأرباح النقدية خلال فترة الدراسة (٢٠١٧-٢٠٢٣)، كما قامت هذه الدراسة بتحليل تأثير التوزيعات النقدية وعوامل الاقتصاد الكلي وأداء الشركة على تغيرات أسعار الأسهم للشركات الكبيرة والمتوسطة. وأظهرت النتائج تفوق نموذج التأثير الثابت على جميع النماذج الأخرى في الدراسة، مما يوضح أن التوزيعات النقدية لها تأثير إيجابي كبير على تغيرات أسعار الأسهم وذلك بقدرة تفسيرية للنموذج قيمتها ٠.٤٥ في حين ارتفعت القدرة التفسيرية لنموذج التأثير الثابت إلى ٠.٩٥ في ظل وجود مؤشرات أداء الشركة وعوامل الاقتصاد الكلي، وكان للتوزيعات النقدية والربحية والسيولة ومعدل النمو تأثير إيجابي كبير على التغيرات في أسعار الأسهم، في حين كان

لنسبة الدين ومخاطر السوق وسعر الصرف تأثير سلبي كبير. وعلى الجانب الآخر، أظهرت النتائج عدم وجود تأثير معنوي سواء على معدل التضخم أو أسعار الفائدة، وبالإضافة إلى ما كشفته الدراسة فإن هناك فرقاً كبيراً في تأثير التوزيعات النقدية على تغيرات أسعار الأسهم بين الشركات الكبيرة والمتوسطة من حيث حجم رأس المال وذلك في ظل وجود مؤشرات أداء الشركة ومتغيرات الاقتصاد الكلي.

**الكلمات المفتاحية:** تحليل بيانات البائل، الأرباح النقدية، تغيرات أسعار الأسهم، عوامل الاقتصاد الكلي، عوامل الأداء

## Introduction

The dividend distribution policy determines the percentage of profits distributed to shareholders and what is retained to be reinvested as an internal source to finance more assets and achieve the company's growth goals. Therefore, the dilemma appears in the following question: Should companies retain profits to reinvest them which reflects positively on growth indicators and thus increases the share price? Or do companies distribute cash dividends to gain shareholders satisfaction and give a positive signal to them about the profitability level which may reflect positively on the share price in the market?

The following questions are the focus of this research :

1. What is the impact of cash dividends on the share price changes?
2. What are the factors determining cash dividends, whether company performance and the macro-economic factors?
3. What is the impact of cash dividends and their determinates on the share price changes?

4. Will the impact of cash dividends on the share price changes differ from large companies to medium caps in the presence of company performance indicators and macroeconomic variables?

The remainder of the paper is organized as follows: Part II Literature review. Part III the important of this study and the methodology. Part IV Data analysis and the result dissection, finally the conclusion and suggestions recommendations.

### **Literature review**

Many studies have dealt with dividends and revolved around the following issues :

First: the impact of cash dividends on stock prices

Second: the factors affecting cash dividend and share price - :

1. The impact of company performance Indicators on dividend policy and stock price
2. The impact of market risk and macroeconomic factors on dividend policy and stock price.

In this paper each of these issues will be discuss and the results that have been reached by the previous studies as follow:

**First: the impact of cash dividends on share price .**

The researchers classified the effect of dividend policy on the share price to relevant or irrelevant theory in making financial decisions.

## **Irrelevance Theory**

Modigliani-Miller Dividend Irrelevance Theory (1961) states that the dividend policy of a company is irrelevant for the market value of its shares under perfect capital markets. Therefore, the dividend policy is independent of the value of the firm, and it does not matter whether the company has high or low dividend payouts. Furthermore, (Stulz, 2000) showed that firm value is enhanced by investing in productive assets and not by the way in which income is distributed to shareholders. In addition, (Renberg & Nylander, 2013) found that a change in cash dividend does not affect stock return volatility. These results support the dividend irrelevance theory and cannot find any evidence of the signaling effect. Moreover, investors need not regard the dividend policy when diversifying their portfolios and managers need not be worried that a change in dividend policy should affect return volatility.

### **1. Relevance Theory**

“Bird in Hand” Theory is an opposing view towards Modigliani and Miller’s dividend irrelevance theory is that dividends affect the company’s value, and these assumptions are (i) There is no outside financing used; the company is entirely funded by equity. The company uses retained earnings to pay for all investments. (ii) cost of capital and the retention ratio is constant. (iii) The company has eternal life. According to the "bird in hand" theory, firm value and dividend payout are

related. As they are more certain, dividends are less risky than capital gains. As a result, investors would favor dividends over capital gains.

## **2. The signaling theory.**

The signaling theory proposes that dividend policy can be used as a device to communicate information about a firm's prospects to investors. Cash dividend announcements convey valuable information, which shareholders do not have, about management's assessment of a firm's future profitability thus reducing information asymmetry. Investors may therefore use this information in assessing a firm's share price (Al-Kuwari & Journal, 2009). found that the dividend policy serves to enhance corporate market value. However, (Farsio, Geary, & Moser, 2004) argues that empirical studies that conclude a causal relationship exists between earnings and dividends are based on short periods of time and are therefore misleading to potential investors. As a result, dividends lack the ability to predict future earnings.

(Conroy, Eades, & Harris, 2000) demonstrated that the markets can receive enough information from earnings announcements to make dividends appear as a second indicator. They additionally disclosed that dividend expectations offer additional data about potential earnings. In addition, (Baker, Veit, & Powell, 2001) showed that Dividend policy can affect the value of the firm and in turn, the wealth of

shareholders. Furthermore, (Al-Twajry, 2007), old companies pay higher dividends than new companies. (Ouma, 2012) shows that there is a strong and positive relationship between dividend payout and firm performance. Therefore, a dividend policy is relevant, and managers should devote adequate time to designing a dividend policy that will enhance firm performance and therefore shareholder value.

(Eryomin, Likhacheva, & Chernikova, 2021) analyzed and assessment of the impact of dividends on the market value of the company that listed in Moscow Exchange for the period 2013-2019. According to the regression results, dividends only benefit capitalization when the policy is based on the residual principle. Furthermore, During the pandemic, according to, European banks alter their dividend payouts because they want to signal good profitability to shareholders to address information asymmetry or because they use dividends to reduce the agency costs ((Belloni, Grodzicki, & Jarmuzek, 2022).

Some studies differentiate between the effect of dividends and the effect of retained earnings on the stock price. For example (Harkavy, 1953) was found that a direct relationship between the share price and retained earnings, as the share price changes in the same direction as the change in dividends in any period. In addition, (Friend & Puckett, 1964) show that the effect of dividends on the stock price is greater than the effect of retained earnings, and therefore

companies must increase their dividends to retain their shareholders and attract More new investors. Moreover, (Ojha, 1978) tested the effect of earnings, retained earnings, and dividends on the share prices of 14 large-sized cotton textile companies over the period 1960–1961. The findings showed that retained earnings and dividends had a significant positive impact on stock prices in each case. But the dividend effect is more pronounced than the retained earnings effect. However (Thirumalaisamy & Al Baloushi, 2017) found that reinvesting the retained earnings are more useful to investors in the long run compared to the dividends, and this will lead to an increase in the value of the company's stocks. In addition, Common stock investors prefer capital gains over dividends because taxes on capital gains can be postponed into the future. In addition, the results of (Dahmash, Alshurafat, Hendawi, Alzoubi, & Al Amosh, 2023) indicated that the retention per share indicated a negative significant effect on the firm's market value. However, there was a strong positive significant effect for dividends per share in the Jordanian exchange during the period from 2010 to 2021.

Furthermore, several studies on stock markets in developing countries analyzed the impact of dividends on share price and the share return for example, (Abu Fakhra, 2000) show that there is a significant effect of dividend distribution



on the stock value in the Egyptian market. (Jamil, 2011) found that there was statistically significant direct relationship between cash dividend and the market rate of return per share in the Palestine Stock Exchange, which recommended the necessity of companies distributing dividends. Also, (Erasmus & Sciences, 2013) examined the effect of cash dividend returns and the stability of those dividends on the returns of the market value of shares Which was conducted on 291 companies listed on the Johannesburg Financial Market in South Africa in the period between 1990 and 2010. The study concluded that dividends and their stability have a positive and significant impact on the market values of shares. Therefore, the larger the cash distributions, the greater their impact on share returns. This is consistent with the results of (S. M. Muhammad, 2019) showed that there is a significant effect of dividend distributions on the market value of the share in the Abu Dhabi Securities Market, as it was found that dividend distributions explain (76.6%) of the total changes in value. (Aldaas, 2020) was investigate the effect of cash dividend distributions on market prices of industrial companies listed at Amman stock exchange (ASE). The study found that a relatively high percentage of the variables in the stock price was explained by the profit distribution variable whereas a small percentage of change in market price was explained by the net profit variable. Therefore, he recommended that companies should

follow the policy of stable distributed profits to achieve satisfaction of shareholders on the returns of their investments.

### **The factors affecting cash dividend and share price .**

#### **1. The impact of corporate performance indicators on dividend policy**

Many studies have examined the determinants of cash dividend policy, for example the results of (Mehta & finance, 2012) indicate that dividends policy has been affected by the opportunities of investment and the size of the company. Larger and more successful companies typically pay out more dividends. The organizations with greater investments tend to pay fewer dividends (Juma'h & Pacheco, 2008) found that the opportunities of investments, and the companies' size were influencing the decision to pay dividends include the stakeholders' perceptions on dividends announcements. In addition, (Ahmed, Javid, sciences, & economics, 2009) (Kowalewski, Stetsyuk, & Talavera, 2007), (Nizar Al-Malkawi & Sciences, 2007) represent that leverage, profitability and liquidity have positive relationships to dividend policy .This result was supported by (Ullah, Bagh, Arif, & Accounting, 2019) who found that the profitability, liquidity and leverage are positively and significantly related to the dividend payout, This indicate that profitability and a good liquidity position enable the firm to pay dividend. whereas business risk and growth opportunity are negatively and significantly related to the dividend payout. This indicates that firms with high risk pay less

amount of dividend to their shareholders, because they are experiencing a high level of volatility in their earnings. Moreover, (Ager et al., 2016) showed that growing firm needs more funds to finance their growth. Consequently, they would retain a large proportion of their earnings and pay low dividends.

Hellström (2012) tested the relationship between the dividend payout ratio and six company selected factors: free cash flow, growth, leverage, profit, risk, and size. The data was collected during a period of five years, (2006 -2010). The findings show that there are some distinctions between large and medium caps. Free cash flow, growth, and risk are all significantly correlated with the dividend payout ratios of large caps. While free cash flow, leverage, risk, and size all significantly influence the dividend payout ratios of medium caps .

## **2. The impact of corporate performance indicators on stock price**

(Nirmala, Sanju, Ramachandran, & sciences, 2011; Omerhodžić, 2014) used panel data during the period 2000-2009 to infer the main factors affecting share prices in India. The results revealed that dividend, price-earnings ratio, and leverage are major determinants of share prices for all the sectors under consideration. In addition, (Khan, Meher, & Syed, 2013) examined how Malaysian stock prices were impacted by dividend policy. Their results showed that while retention ratio has a negative relationship with stock prices and

significantly explains changes in stock market prices, dividend yield, earnings per share, return on equity, and profit after tax are positively related to stock prices. These results agrees with what (Hussainey, Mgbame, & Chijoke-Mgbame, 2011) found, cash dividends negatively affect the market value of shares by using multiple regression analysis with a sample of companies listed on the UK stock market and taking into account the role of several control variables, such as the size of the company, which had a positive effect, and the debt ratio , which had a negative effect on changes in the value of the shares of those companies .

(Shah, Noreen, & Issues, 2016) studied the relationship between dividend policy (dividend payout and dividend yield) and stock price volatility (standard deviation) in Pakistan. The study has found a significant negative relationship between stock price volatility and dividend policy variables. the Study has also found significant positive relationship between control variables asset growth, long-term debt, earning volatility and earnings per share and stock price volatility in Pakistan. But the firm size and asset growth was found to be negatively related to stock price volatility.

The study of (Abu Wadi, Bashayreh, Khalaf, Abdelhadi, & Investment, 2022) showed that there was no effect between profitability ratios represented by ROA and ROE on the market value of the shares of the International Bank of Syria .

The study of (Bani Khalid Mousa, 2019) found a positive, statistically significant effect for each of the return on assets, trading ratio, working capital turnover rate, and company size on the share price. Souki. This is consistent with the results of the study by (Al-Zahir, 2003), which found that there is a significant effect of earnings per share, the percentage of total assets, the current ratio, and ROA on the market value of the share.

### **The impact of market risk and macroeconomic factors on dividend policy and stock price**

#### **1. The impact of Market risk**

Many studies in various countries have focused on analyzing the relationship between economic factors and cash dividend, and these studies have shown some differences among countries in the degree and type of this relationship, for example, (Rozeff, 1982) found a strong negative relationship between the riskiness and the dividend payouts in United States. While (Al Shabibi, Ramesh, & Economics, 2011) discovered a positive relationship between the dividend payouts and the riskiness of the company in the United Kingdom. Furthermore, (Chandra Padhan, 2007) had investigated the relationship of real economic activity with Bombay Stock exchange from April-1993 to March-2004 in Indian economy. He explored the relationship between economic activity and real stock returns and the monetary policies that drive development or performance of stock

markets, not the vice versa. In addition, (Liu, Lee, & Zhang, 2018) and (Baker, Farrelly, & Edelman, 1985) studied the impact of uncertainty and the macro and micro factors on the dividend decision of listed companies in China. They found that the rise of economic uncertainty and the economic depression will inhibit corporate dividend distribution, and that equity concentration is significantly positively correlated with the level of corporate dividend payout .

## **2. The effect of exchange rate on dividend policy and share price**

The results (Salim & Djumahir, 2022) showed that financial solvency directly affects stock prices through dividend policy, while profitability only affects stock prices. The same test results also show that the exchange rate measured using exchange rate sensitivity and interest rates measured using interest rate sensitivity cannot affect the stock price of manufacturing companies. This study suggests that managers must manage the company's profitability and solvency appropriately to achieve shareholder welfare goals. While (Mutheu, 2016) concluded that an increase in interest rates, exchange rates, inflation rates and decrease in dividend payout decreases share prices of listed Kenyan banks.

### **3. The impact of inflation and interest rate**

(Cozier & Rahman, 1988) show that there is No cause-and-effect relationship between inflation and real stock returns in Toronto Stock Exchange 1958- 1983. While The results of (Adams, McQueen, & Wood, 2004) proved the negative relationship between stock returns and inflation news, and it was also noticeable that this impact was significantly faster on larger stocks than their smaller counterpart. (Boudoukh & Richardson, 1993) found Positive Relationship between nominals. return and inflation on a long-time horizon in US and UK 1802- 1990 .

(Pilotte, 2003) had checked how inflation is impacting on both parts (dividend yield and capital gain) of the stock's yield. He found a negative relationship between capital gain yield and inflation but a positive relation between dividend yield and inflation. Furthermore, (Y. D. B. Muhammad, 2008) found a positive, statistically significant relationship between the inflation rate and stock returns, as well as between interest rates and stock returns at the 5% level. While (Khan et al., 2013) evaluates the impact of overall CPI on the dividend yield of firms in Karachi Stock Exchange. He illustrated that capital gain is affected by inflation levels and its relationship was negative in nature. In addition, dividend yield is dependent on inflationary effect. Interest rate is found to be positively related to dividend yield. However, (Eldomiaty, Saeed, Hammam,

AboulSoud, & Science, 2020) aims to examine the effect of both inflation rate and interest rate on stock prices using quarterly data on non-financial firms listed in DJIA30 and NASDAQ100 for the period 1999-2016. The stock duration model is used to calculate how sensitive stock prices are to changes in inflation and interest rates. According to the findings of cointegration regression, real interest rates and stock prices are positively correlated, inflation rates are negatively correlated with stock prices, and changes in either of these variables can have a significant impact on stock prices.

### **Part III the important of this study and the methodology**

#### **١/٣ The importance of this study**

Based on what was presented in previous studies, it can be said that the importance of this study signifies in the fact that it was not limited to study the effect of cash dividends on share price changes but examine this impact not only in the presence of corporate performance indicators, but also in the presence of economic factors and market risks. It is worth noting that most studies focused on the impact of corporate performance indicators on cash dividend and share price, while the impact of economic factors were tested in a limited number of studies and separately from the company's performance indicators. Furthermore, this study tests whether the results of the effect of



cash dividends on stock share price changes would differ between large and medium caps.

### ٢/٣ **Research problem**

Based on the foregoing, the research problem is embodied in the main question: Is the cash dividends policy impacting the share price changes of the Egyptian companies listed in the EGX100 index between 2017 and 2023 in the presence of company performance indicators and macroeconomic factors?

### ٣/٣ **Study Hypotheses**

The following hypotheses will be tested:

$H_{0-1}$  There is no statistically significant impact of macroeconomic factors, and performance factors on the cash dividends at a 5% significance level.

$H_{0-2}$ : There is no statistically significant impact of cash dividends on the share price changes at a 5% significant level.

$H_{0-3}$ : There is no statistically significant impact of cash dividends, macroeconomic factors, and performance factors on the share price changes at a 5% significance level.

$H_{0-4}$  The impact of cash dividends, company performance, and economic variables on changes in share price differ from large to medium caps.

### ٤/٣ **Population and Sample**

The population of this study is Egyptian companies that were listed in the EGX100 index, while the sample is done using a purposive sampling approach that included 22 Egyptian

companies that were listed in the EGX100 index and maintained their cash dividend policy during the study period (2017–2023), except for banks, insurance companies, and securities companies due to the different nature of their financial statements. Furthermore, performance indicators for companies were calculated using published financial statements, while data on macroeconomic variables were obtained from the Central Bank of Egypt's annual reports as well as World Bank indicators .

#### ٤/٣ The Model and the variables:

This study relies on a static panel data regression model used to capture the impact of cash dividends on share price changes in the presence of macroeconomic factors and company performance factors using data from 2017 to 2023. The panel data regression model is specified as follows:

$$\begin{aligned} \Delta \ln S.p.chan_{it} = & \beta_0 + \beta_1 * \Delta C.Divids_{it} + \\ & \beta_2 * \Delta Inf.rate_t + \beta_3 * \Delta Exc.rate_t + \beta_4 * \Delta M.risks_t + \beta_5 * \\ & \Delta Int.rate_t + \\ & \beta_6 * \Delta prof_{it} + \beta_7 * \Delta Liq_{it} + \beta_8 * \\ & \Delta D.ratio_{it} + \beta_9 * \Delta Gro.rate_{it} + \beta_{10} * \Delta Assg.rate_{it-1} + \\ & \Delta \epsilon_{it} \quad (1) \end{aligned}$$

Where  $\Delta$  is the first-differenced (difference between  $t_0$  and  $t_1$ ), and  $\beta_0$  is the intercept of the regression and  $\beta_1$  to  $\beta_{10}$  are the coefficients of variables.

$S.p.chan_{it}$  are share price changes for  $i$  company at time  $t$

$C.Divids_{it}$  are cash dividends for  $i$  company at time  $t$ ,

$Inf.rate_t$  is the inflation at time  $t$

$Exc.rate_{it}$  is the Exchange rate at time  $t$

$M.risks_{it}$  are Market risks at time  $t$ ,

$Int.rate$  is interest rate at time  $t$ ,

$prof_{it}$  is Profitability for company  $i$  at time  $t$

$Liq_{it}$  is Liquidity for company  $i$  at time  $t$

$D.ratio_{it}$  is Debt ratio for company  $i$  at time  $t$

$Gro.rate_{it}$  is Growth rate for company  $i$  at time  $t$

$Assg.rate$  is Asset growth rate for company  $i$  at time  $t$

$\varepsilon_{it}$  is error term of the regression.

#### **Part IV: Data analysis and the result dissection**

##### **Summary statistics**

Table (1) reveals that Liquidity has the highest mean value of 3.01 with a standard deviation of 1.85, while Growth rate has the smallest mean value of 0.17 with a standard deviation of 0.28 compared to all independent variables.

**Table 1 Descriptive statistics, a description of the variables, N = 120**

Variables	Type	Mean	Maximum	Minimum	Std. Deviation
Cash dividends	Quantitative	0.80	8.00	0.02	1.00
Share price changes	Quantitative	0.21	2.54	-2.89	0.98
Inflation rate	Quantitative	0.23	.14	2	.13
Exchange rate	Quantitative	0.34	1.70	-1.70	0.14
Market risks	Quantitative	0.43	1.0	0.2	0.30
Interest rate	Quantitative	0.28	0.92	-0.08	0.14
Profitability	Quantitative	0.66	33.78	-3.7	0.15
Liquidity	Quantitative	3.01	50.20	0.02	5.05
Debt ratio	Quantitative	1.54	73.41	0.05	6.64
Growth rate	Quantitative	0.17	2.15	-0.73	0.28
Asset growth rate	Quantitative	-0.34	0.43	-31.12	2.84

### **Multicollinearity Test of the Data Variables**

The study found no correlation coefficients greater than 0.70 between variables, and the variance inflation factor (VIF) was less than 3 for all variables in all the study models, indicating that there were no issues with multicollinearity or redundant variables in the sample study.

### **Testing Stationarity of Panel Data**

Table 2 reveals that research data set's stability was assessed using a Levin-Lin-Chu panel unit root test using the EViews 12 program. The test showed instability for all variables, leading to spurious regression and increased coefficient of determination values. To address this, the first difference method was employed, transforming the unstable

time series into a stable one by taking the first difference for all variables (Hadri, 2000).

**Table 2 Stationarity Tests**

Panel Unit Root Tests				
Variables	Levin, Lin and Chu t		Levin, Lin and Chu t	
	level		1st difference	
	Statistic	sig	Statistic	sig
Cash dividends	-0.37	0.69	-20.48	0.00
Share price changes	0.45	0.98	-20.39	0.00
Inflation rate	-2.69	0.00	-20.35	0.00
Exchange rate	-3.60	0.01	-12.57	0.00
market risks	0.45	0.98	-13.39	0.00
Interest rate	2.10	0.98	-13.03	0.00
profitability	-2.94	0.04	-13.26	0.00
Liquidity	-0.57	0.57	-9.86	0.00
Debt ratio	-0.77	0.44	-11.64	0.00
Growth rate	-0.40	0.69	-9.73	0.00
Asset growth rate	-2.63	0.09	-11.11	0.00

### The Results of Hypotheses Tests :

#### First hypothesis

$H_{0-1}$  There is no statistically significant impact of macroeconomic factors, and performance factors on the cash dividends at a 5% significance level.

#### Estimation of the panel models

All models used in this study were employed after accounting for the first difference in the natural logarithm of the study variables and based on the analysis of the results of the panel data for the period 2017–2023, the number of observations is 140. However, due to the presence of autocorrelation between residuals (where the Durbin Watson

statistic in the study's models was less than 1.5) (Bartels, Goodhew, & Statistics, 1981), the first difference method was used, reducing the number of study observations to 120. As a result, the program relied on analyzing the outcomes of 120 observations made between 2018 and 2023.

Table 3 displays the PRM, REM, and FEM empirical estimation results, where the results of the Fisher's statistic (F-test) indicated that the three models are statistically significant at 5%. However, FEM showed the highest F-statistic value with the highest coefficient of determination (R-squared) value of 0.80.

**Table 3 Static Impact Regression Results of Model 1**  
**Dependent Variable: Cash dividends (At significant level of 0.05)**

Model1							
Sample (adjusted): 2018- 2023.							
Periods included: 6.							
Cross-sections included: 22.							
Total panel (balanced) observations: 120							
Models		PRM		REM- impact		FEM- impact	
	Variable	Coefficient T-Statistic	P-values	Coefficient T-Statistic	P-values	Coefficient T-Statistic	P-values
	C	0.034 0.758	0.45	0.034 0.758	0.03	0.97 27.4	0.00
Macroeconomic factors	Inflation rate	1.56E-09 9.650	0.00	1.56E-09 9.650	0.00	0.001 2.55	0.01
	Exchange rate	-1.6E-09 -10.705	0.00	-1.6E-09 -10.705	0.00	-1.2E-09 -2.71	0.01
	market risks	-0.873 -3.338	0.00	-0.873 -3.338	0.00	-1.19 -7.88	0.00
	Interest rate	1.112 3.429	0.00	1.112 3.429	0.00	1.38 8.55	0.00
The performance factors	profitability	0.30 5.59	0.00	0.30 5.59	0.00	0.30 5.00	0.00
	Liquidity	0.002 0.340	0.04	0.002 0.340	0.04	0.002 1.73	0.03
	Debt ratio	-0.774 -3.740	0.00	-0.774 -3.740	0.00	-0.25 -2.10	0.04
	Growth rate	0.002 0.310	0.76	0.002 0.310	0.76	0.008 4.26	0.00
	Asset growth rate	-0.021 -2.827	0.01	-0.021 -2.827	0.01	-0.018 -8.38	0.00
R-squared		0.72		0.72		0.80	
S.E. of regression		0.62		0.62		0.54	
F- statistic		7.58		7.58		11.64	
Prob (F-statistic)		0.00		0.00		0.00	
Durbin-Watson stat		2.4		2.4		1.5	
No. of observation		120		120		120	

### Selection of the most appropriate model of Regression Data Panel

The previous table shows that the study used three panel data analysis approaches to estimate the research model: the common impact model (PRM), the fixed impact model (FEM), and the random impact model (REM). REM acknowledges interference variables across time and individuals, while FEM

accommodates individual differences. while PRM ignored time and individual dimensions (Zulfikar & STp, 2018).

Table 4 presents tests for selecting the most suitable model, with a significant level of less than 5%. Lagrange multiplier tests show REM's superiority, while the Redundant Fixed Impact Test (RFET) reveals FEM's superiority for panel data estimation. The Hausman test also confirms FEM's superiority. The results of these tests revealed that FEM is the best.

**Table 4 Selection of the most appropriate model of panel data regression**

Lagrange Multiplier Tests for Random Impacts	Test Hypothesis	Cross-section	Time	Both	Tested	Selection
	Breusch-Pagan	10.51	0.42	10.93	REM VS PRM	REM
	(p-value)	0.00	0.052	0.00		
Redundant Fixed Impact Tests	Impacts Test	Statistic	d.f.	(P-value)	FEM VS PRM	FEM
	Cross-section F	3.52	(21,89)	0.00		
Correlated Random Impacts - Hausman Test	Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	(P-value)	FEM VS REM	FEM
	Cross-section random	78.7	9	0.00		

It should be noted that all models in the study were tested to select the most appropriate model of panel data regression, which produced identical results as in model 1. This identified that FEM is the best among panel regressions in all the models of the study. The table for selecting the most appropriate model of panel data regression will not be written again in the remainder of the study because it yields the same findings as table 4.



### Evaluation of the model's validity

The panel regression model is based on several assumptions to ensure its validity in predicting and testing study hypotheses (Broad & Lynch, 2006). When the appropriate model is FEM, tests are conducted to determine the model's goodness, as shown in the table (5) as follow:

**Table 5 Model 1 Validation and Testing results**

Tests	Jarque Bera Null hypothesis the standardised residuals have a normal distribution	Heteroskedasticity Test: White Null hypothesis: Homoskedasticity	Breusch-Godfrey Serial Correlation LM Test: Null hypothesis: No serial correlation
Statistics	1.32	1.93	0.96
P value	0.52	0.053	0.36

With a probability greater than 5% According to Table (5), the standardized residuals have a normal distribution, which is supported by the Bera-Jarque test. The data is normal as a null hypothesis. The Breusch-Godfrey Serial Correlation LM Test results also support the null hypothesis of no serial correlation. Furthermore, the White Test confirms the null hypothesis of homoskedasticity.

It should be noted that all models in the study were tested for model validity and produced identical results as model 1. The standardized residuals have a normal distribution, no serial correlation between residuals exists, and the residuals are homoscedastic.

### **Analyzing the FEM 's output:**

After determining that the appropriate model is the fixed effects model (FEM), and to ensure the model's goodness, with reference to Table 3, which shows the following (Baltagi & Baltagi, 2008):

In previous Table 3, the F-test statistic results show a p-value of less than 0.05, indicating that the panel model fits the data better than the model without independent variables, and the Durbin Watson statistic ranges between 1.5 and 2.5, indicating that the fixed effects model does not have any autocorrelation of random variables.

The model's R-squared value of 0.80 indicates that the independent variables explain 80% of the variation in Egypt company's cash dividends policy, confirming its econometric significance and reliability.

Using the fixed impacts model, the panel EGLS generates more accurate estimates, highlighting significant independent variables that impact the Cash dividends of Egyptian securities companies listed on the EGX100 index, both positively and negatively, as follows:

Regarding the impact of companies' performance indicators on cash distributions, it was found that there is a significant positive impact for both profitability and liquidity indicators and the growth rate of distributed profits, which indicates that the greater the company's profitability, the

greater its ability to make cash dividends, and that the availability of a sufficient level of liquidity supports those dividends. In addition, a positive growth rate indicates a company's improvement and potential earnings growth, which could lead to increased cash dividends and share prices. Whereas both the debt ratio and the asset growth rate have a significant negative impact on cash dividends, which is consistent with the results of previous studies (Ahmed et al., 2009), Hellström 2012 and (Ullah et al., 2019).

According to economic variables, it was found that there was a positive impact of both the inflation rate and interest rates on cash dividends, which indicates that companies tend to increase dividends to compensate their shareholders for the increase in inflation rates and the rise in interest rates in that period (2017–2023), while market risks and changes in exchange rates have a significant negative impact on cash dividends at a significance level of 5%. Which indicates that increased market risks and exchange rate risks reduce cash dividend, and vice versa, which is consistent with the results of Liu et al (2018) and Baker et al.(٢٠١٦) .

### **Second hypothesis**

$H_{0-2}$ : There is no statistically significant impact of cash dividends on the share price changes at a 5% significant level.

### Estimation of the panel models

Table (6) displays the PRM, REM, and FEM empirical estimation results where results of the Fisher's statistic (F-test) indicated that the three models are statistically significant at 5%. However, the REM and FEM showed the highest F-statistic value with the highest coefficient of determination (R-squared) value of 0.45.

**Table 6 Static Impact Regression Results of Model 2**  
**Dependent Variable: share price changes (At significant level of 0.05)**

Model 2							
Sample (adjusted): 2018- 2023.							
Periods included: 6.							
Cross-sections included: 22.							
Total panel (balanced) observations: 120							
Models	PRM		REM- impact		FEM- impact		
Variable	Coefficient	P-values	Coefficient	P-values	Coefficient	P-values	
	T-Statistic		T-Statistic		T-Statistic		
C	7.8	0.68	0.02	0.58	0.02	0.00	
	8.6		1.05		1.07		
Cash dividends	3.3	0.00	0.09	0.01	0.09	0.03	
	2.6		2.30		2.32		
R-squared	0.43		0.45		0.45		
S.E. of regression	3.20		0.08		0.07		
F- statistic	3.76		3.94		3.95		
Prob (F-statistic)	0.00		0.00		0.00		
Durbin-Watson stat	1.8		2.2		2.3		
No. of observation	120		120		120		

### Analyzing the FEM 's output:

To ensure the model's goodness, with reference to Table 6, which shows:

In Table 6, the F-test statistic results show a p-value of less than 0.05, indicating that the panel model fits the data better than the model without independent variables, and the Durbin Watson statistic ranges between 1.5 and 2.5, indicating that the

fixed effects model does not have any autocorrelation of random variables.

The model's R-squared value of 0.45 indicates that the independent variables explain 45% of the variation in Egypt company's cash dividends policy, confirming its econometric significance and reliability.

To illustrate the impact of cash dividends on the share price changes of Egyptian securities companies listed on the EGX100 index, the fixed effects model was used based on the panel EGLS. The results are as follows:

Table 6 shows that cash dividends have a positive impact on the share price changes that the greater cash dividends of the company, the greater the share price changes, which mean an increase in capital gains. This is consistent with previous studies' findings.

### **Third hypothesis**

$H_{0-3}$ : There is no statistically significant impact of cash dividends, macroeconomic factors, and performance factors on the share price changes at a 5% significance level.

### **Estimation of the panel models**

Table (7) displays the PRM, REM, and FEM empirical estimation results where results of the Fisher's statistic (F-test) indicated that the three models are statistically significant at 5%. However, FEM showed the highest F-statistic value with the highest coefficient of determination (R-squared) value of 0.83.

**Table 7 Static Impact Regression Results of Model 3**

**Dependent Variable: share price changes (At significant level of 0.05)**

Model 3							
Sample (adjusted): 2018- 2023.							
Periods included: 6.							
Cross-sections included: 22.							
Total panel (balanced) observations: 120							
Models	PRM	REM- impact		FEM- impact			
Variable	Coefficient T-Statistic	P-values	Coefficient T-Statistic	P-values	Coefficient T-Statistic	P-values	
C	-4.45 -1.92	0.06	-0.18 -0.82	0.41	0.6 3.0	0.00	
Cash dividends	0.39 1.99	0.05	7.61 9.31	0.00	8.7 9.5	0.00	
Macroeconomic factors	Inflation rate	5.64E-09 5.74	0.00	6.91E-10 0.32	0.75	2.2E-09 1.9	0.06
	Exchange rate	-0.003 -0.63	0.53	-9.69 -5.56	0.00	-9.5 -6.7	0.00
	market risks	-0.08 -0.05	0.96	-6.18 -5.21	0.00	-6.3 -5.0	0.00
	Interest rate	1.70 0.93	0.16	2.8E-10 0.17	0.87	1.5E-10 0.1	0.92
The performance factors	profitability	3.14 1.43	0.36	0.08 0.04	0.97	5.8 2.7	0.01
	Liquidity	0.12 0.35	0.73	0.19 1.43	0.16	0.1 2.4	0.02
	Debt ratio	-4.07 -8.04	0.89	-0.05 -1.52	0.13	-0.7 -7.0	0.00
	Growth rate	0.09 0.14	0.00	1.57 2.44	0.02	3.6 4.1	0.00
	Asset growth rate	-0.30 -1.11	0.27	-0.004 -0.10	0.92	-0.007 -0.3	0.80
R-squared		0.61		0.89		0.95	
S.E. of regression		9.58		7.50		6.72	
F- statistic		17.21		53.22		59.98	
Prob (F-statistic)		0.00		0.00		0.00	
Durbin-Watson stat		1.9		2.3		2.2	
No. of observation		120		120		120	

**Analyzing the FEM 's output:**

To ensure the model's goodness, Table 7 shows that p-value of F-test statistic results is less than 0.05, indicating that the panel model fits the data better than the model without independent variables, and the Durbin Watson statistic ranges between 1.5 and 2.5, indicating that the fixed effects model does not have any autocorrelation of random variables.

The model's R-squared value of 0.95 indicates that the independent variables explain 95% of the variation in Egypt company's cash dividends policy, confirming its econometric significance and reliability.

The results of the fixed effects model are as follows:

Table 7 shows that cash dividends have a positive impact on the share price changes. Consequently, the greater cash dividends of the company, the greater the share price changes, which mean an increase in capital gains.

According to economic variables, it was found that the inflation rate and interest rates have insignificant impact on the share price changes. This result may be since the rise in interest rates was not proportional to the rise in the inflation rate during the study period (2017-2023) which coincided with the positive impact of the growth rate on the share price change. Therefore, the impact of inflation rate and interest rates may be neutralized which agrees With what was shown by (Eldomiaty et al., 2020) who found negative impact of high inflation on the stock return and the positive impact of the decline in interest rate for non-financial firms listed in DJIA30 and NASDAQ100 for the period 1999-2016. in addition, (Pilotte, 2003) who found a negative relationship between capital gain yield and inflation.

Moreover, this study found that there was a significant reverse effect of both the Exchange rate and market risks on

the share price changes at a significant level of 5%. Which indicates that increased market risks and increase in exchange rate risks lead to decrease the share price changes (decrease the capital gains) and vice versa.

In terms of the impact of companies' performance indicators on share price changes, the results represent that profitability, liquidity and the growth rate have positive impact on share price changes however the asset growth rate has an insignificant impact on share price changes. This may be due to the increase in dividend growth rate was at the expense of asset growth rate. Therefore, the impact of asset growth on share price changes disappeared.

### **Forth hypothesis**

$H_{0-4}$  The impact of cash dividends, company performance, and economic variables on changes in share price differ from large to medium caps.

To test the previous hypothesis, the companies were divided into medium and large caps based on their ownership rights, and then panel analysis was applied to each of them separately, with the results compared.

It should be noted that only the variables whose significance was determined in the third model were utilized in the fourth and fifth models.



### Estimation of the panel models of large caps

Table (8) displays the empirical estimation results for the PRM, REM, and FEM, with the Fisher's statistic (F-test) indicating that the three models are statistically significant at 5%. The PRM, REM, and FEM produced nearly identical results with an F-statistic value of 0.95 and a coefficient of determination (R-squared) value of 0.95.

**Table 8 Static Impact Regression Results of Model 4**  
**Dependent Variable: share price changes of large caps (At**  
**significant level of 0.05)**

Model 4							
Sample (adjusted): 2018- 2023.							
Periods included: 6.							
Cross-sections included: 11.							
Total panel (balanced) observations: 60							
Models	PRM		REM- impact		FEM- impact		
Variable	Coefficient	P-values	Coefficient	P-values	Coefficient	P-values	
	T-Statistic		T-Statistic		T-Statistic		
C	4.07	0.00	4.07	0.00	3.32	0.00	
	3.56		3.56		5.69		
Cash dividends	2.03	0.03	2.03	0.03	8.18	0.00	
	2.20		2.20		15.28		
Macroeconomic factors	Exchange rate	-2.49	0.02	-2.49	0.02	-0.09	0.01
		-2.34		-2.34		-2.61	
Market risks		-0.06	0.97	-0.06	0.97	-1.31	0.00
		-0.03		-0.03		-4.37	
The performance factors	profitability	5.83	0.01	5.83	0.01	4.64	0.00
		2.67		2.67		3.28	
Liquidity		0.21	0.66	0.21	0.66	0.65	0.03
		0.45		0.45		2.22	
Debt ratio		-6.57	0.00	-6.57	0.00	-2.30	0.00
		-7.41		-7.41		-4.26	
Growth rate		4.06	0.00	4.06	0.00	2.90	0.00
		4.08		4.08		4.77	
R-squared	0.73		0.73		0.95		
S.E. of regression	2.14		2.14		1.82		
F- statistic	23.63		23.63		61.21		
Prob (F-statistic)	0.00		0.00		0.00		
Durbin-Watson stat	1.9		1.9		2.2		
No. of observation	60		60		60		

### Estimation of the panel models of medium caps

Table (9) displays the empirical estimation results for the PRM, REM, and FEM, with the Fisher's statistic (F-test) indicating that the three models are statistically significant at 5%. The PRM, REM, and FEM produced nearly identical results with an F-statistic value of 0.73 and a coefficient of determination (R-squared) value of 0.73.

**Table 9 Static Impact Regression Results of Model 5**  
**Dependent Variable: share price changes of small -caps (At significant level of 0.05)**

Model 5 Sample (adjusted): 2018- 2023. Periods included: 6. Cross-sections included: 11. Total panel (balanced) observations: 60							
Models	Variable	PRM		REM- impact		FEM- impact	
		Coefficient T-Statistic	P-values	Coefficient T-Statistic	P-values	Coefficient T-Statistic	P-values
	C	3.65 3.62	0.00	3.65 3.62	0.00	2.59 4.25	0.00
	Cash dividends	2.1 2.4	0.02	2.1 2.4	0.02	2.1 2.4	0.02
Macroeconomic factors	Exchange rate	0.0004 0.1	0.94	0.0004 0.1	0.94	0.0004 0.1	0.94
	Market risks	-5.7 -2.6	0.01	-5.7 -2.6	0.01	-5.8 -2.7	0.01
The performance factors	profitability	6.6 8.2	0.00	6.6 8.2	0.00	6.7 8.3	0.00
	Liquidity	2.3 2.6	0.01	2.3 2.6	0.01	2.4 2.7	0.01
	Debt ratio	-0.2 -0.4	0.66	-0.2 -0.4	0.66	-0.2 -0.4	0.66
	Growth rate	3.6 3.6	0.00	3.6 3.6	0.00	3.6 3.7	0.00
R-squared		0.73		0.73		0.73	
S.E. of regression		2.12		2.12		2.11	
F- statistic		24		24		24.1	
Prob (F-statistic)		0.00		0.00		0.0	
Durbin-Watson stat		1.8		1.8		1.8	
No. of observation		60		60		60	

By Comparing the results of the statistical analysis for large and medium caps in Table (8) and (9), the results as follow :

Also, regarding the impact of the company's performance indicators, profitability, liquidity, and dividend growth had a positive impact on the change in share price and did not differ from large or medium-capitalized companies; their impact was positive.

Whereas there was a difference between large and medium companies regarding the effect of the debt ratio, as its effect was negative in large companies while it did not have a significant effect in medium companies. This may be since large corporations are looking to expand their investments by relying on loans, which is consistent with the results of previous studies (Hussainey et al., 2011).

As for the impact of economic factors on changes in the stock price, market risks had an adverse effect on both large and medium companies, while exchange rate changes had a negative impact on large companies and had no significant effect on medium companies. This may be since large caps have large investment sizes and are thus highly affected by market risks and exchange rate changes.

### **Conclusion and Recommendations**

Although varying impacts exist, Findings from the pooled, fixed, and random panel regressions affirm the following :

In accordance with Model 1, the finding showed that there is a statistically significant impact of macroeconomic factors and performance factors on cash dividends at a 5% significance level. The results indicate that there is a significant positive effect of the inflation rate and interest rates on cash dividends, which indicates that companies resorted to distributing cash dividends to compensate their shareholders for the high inflation rate and interest rates in the market. This was helped by the rise in profitability and liquidity indicators, and this is confirmed by the high growth rate of dividends.

On the other hand, it was found that there is a negative and significant effect of the debt ratio, market risks, and interest rate on cash dividends.

Based on these results, the company must maintain appropriate levels of profitability and liquidity, which enables it to maintain the rate of cash dividend for its shareholders that achieves their satisfaction and compensates them for economic and market risks.

Model 2 reveals that cash dividends have a significant impact on share price changes, with a statistically significant impact at a 5% significance level and an R-squared of 45%. However, R-squared increases from 45% to 95% when macroeconomic and performance factors are considered in Model 3. The results show that the most significant macroeconomic factors impacting share price changes are the

exchange rate and market risks with a negative impact, and the most significant company performance factors are profitability and growth rate with a positive impact and debt ratio with a negative impact. The inflation rate, interest rate, and asset growth rate had an insignificant impact on share price changes which coincided with the positive impact of the growth rate on the share price change. Therefore, the impact of inflation rate and interest rates may be neutralized .

The fourth and fifth models investigated the significant impact of cash dividends on share price changes in large and medium-cap companies, in the presence of the economic and company performance variables that were significant in model 3, at a 5% significance level, and significant of the results was proven, with the following results:

Results reveal that cash dividends have a significant impact on share price changes, with a greater impact in large caps than medium caps, as evidenced by beta coefficients and R-squared values of 95% and 73%, respectively.

As for the impact of economic variables, the study found that market risks have the most significant negative impact on large and medium caps, followed by exchange rates. Exchange rates had a significant negative impact on large companies only, and the exchange rate had an insignificant impact on medium-caps due to the small volume of its investments and transactions in the market compared to large companies.

Regarding the variables of company performance, the study found that profitability had the most significant positive impact on share price changes, followed by growth rate and liquidity in large and medium caps. However, the debt ratio had a significant negative impact in large-caps, and debt ratio was insignificant in medium caps, owing to medium caps' inability to expand investments through loans. This is the opposite of large-cap companies.

### **Future Research**

It is proposed that more research opportunities exist in specific areas by employing a variety of research designs, methodologies, and statistical analysis. Additional panel analysis methods could include new variables such as free cash flow asset utilization and retained earnings as a company's financial indicators. Whereas the new economic factors such as GDP, taxes can be considered.

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