The Effect of Cash Dividends on Firm Value of Egyptian Listed firms

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Abstract

The dividend policy is one of the main factors that affect a company's financial and investing decisions. The objective of this research is to study the effect of cash dividends on the firm value of the Egyptian listed firms. To measure this effect, the research covers the period from 2009 to 2019, utilizing panel data models to examine the effects of cash dividends and various financial and operational factors on firm value. Moreover, the study uses a sample of 36 companies listed on the Egyptian stock market (EGX). In addition, it includes a number of control variables such as firm size, cash and short−term investment, profitability, leverage, firm age, tangibility, and stock return volatility. The research uses different statistical tests and analyses such as: regression and correlation analysis, unit root tests, fixed and random effect regression models. The study reveals that there is a positive relationship between cash dividends and firm value.

Keywords: Dividends policy, cash dividends, firm value, Egyptian Stock Market.

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أثر توزيعات الأرباح النقدية على قيمة الشركات المدرجة في البورصة المصرية

الملخص

تعد سياسة توزيع الأرباح أحد العوامل الرئيسية التي تؤثر على القرارات المالية والاستثمارية للشركة. يهدف هذا البحث إلى دراسة تأثير توزيعات الأرباح النقدية على قيمة الشركات المدرجة في البورصة المصرية. لقياس هذا التأثير، يغطي البحث الفترة من 2009 إلى 2019 ، باستخدام مجموعة من نماذج البيانات لفحص آثار توزيعات الأرباح، العوامل المالية والتشغيلية المختلفة على قيمة الشركة. علاوة على ذلك، تستخدم الدراسة عينة من 36 شركة مدرجة في البورصة المصرية (EGX) . كما يتضمن عددًا من متغيرات التحكم مثل حجم الشركة، النقد والاستثمار قصير الأجل، الربحية، الرفع المالي، عمر الشركة، الملموسية، وتقلب عائد السهم . استخدم البحث اختبارات وتحليلات إحصائية مختلفة مثل: تحليل الانحدار والارتباط، اختبارات الجذر الأحادي و نماذج الانحدار ذات التأثير الثابت والعشوائي. وقد أظهرت الدراسة أن هناك علاقة إيجابية بين توزيعات الأرباح النقدية وقيمة الشركة .

الكلمات المفتاحية: سياسة توزيع الأرباح، توزيعات الارباح النقدية، قيمة الشركة، البورصة المصرية.

1. Introduction

Dividends policy is considered one of the most controversial issues in corporate finance (Akhtar, 2018). There are two kinds of dividend policy: managed and residual. In a managed dividend policy, the management aims to preserve a particular dividend payment pattern; that is, the dividend is paid at the same rate until the management determines that it can maintain a different level of dividend payments. On the other hand, the residual dividends policy uses the amount of equity left over after investment-related capital expenditures have been fulfilled to calculate dividends (Khan, et al., 2018).

Undoubtedly, dividend policy is essential for stakeholders, investors, lenders, and managers. It is significant to investors because they perceive dividends as a means of evaluating companies from an investing perspective, in addition to serving as a source of income. It is the tool the company can use to evaluate the amount of cash received. Also, an investor can do a better and more accurate analysis of a company's financial performance by knowing its dividend yield (DY) and dividend payout ratio (DPO). In addition, the payout ratio (POR) has a significant impact on future earnings growth for the organization (Singh & Tandon, 2019). Furthermore, the increase in dividend amount, as evidenced by a greater Dividend Payout Ratio (DPR) will convince investors to invest in the company's stocks, causing the stock price to rise (Utami & Gumanti, 2019). DPR is determined by a variety of factors, including investment possibilities, profitability, income tax, legal obligations, and liquidity (Ameen, 2022).

Numerous studies differentiated between dividend and dividend policy perspectives. According to their point of view, a dividend is considered the return paid to shareholders for their investment in the company. While the company's dividend policy is the technique by which it decides whether to pay a

dividend or keep its earnings to reinvest them back into the business (Kadim, et al., 2020). Throughout history, the dividend issue has been known as an "unsolved puzzle". The main reason behind considering it an unsolved puzzle is that the dividends payout ratio can differ among businesses, sectors, and countries (Utami & Gumanti, 2019).

In any stock market, dividends and capital gains are considered essential ways for accumulating wealth (Charith & Davydenko, 2021). A dividend is a decision that influences shareholders' wealth directly. This decision is made up of two important factors: the amount of the payout and the payment date. In addition, the importance of the dividend decision is determined by two things. First, an investor's income. Second, a dividend may restrict asset growth since the quantity of money reinvested in the company will fall down (Utami & Gumanti, 2019). Furthermore, the adopted policy ought to satisfy internal finance sources while also meeting the needs of the shareholders (Awwad & Razia, 2022). However, capital allocation is one of the problems that arise when planning for distributing dividends. This is because if a company's dividend payout ratio is exceptionally high, its internal funds may not be sufficient. Over-reliance on outside funding can result in issues including ownership transfer, higher risk rates and lower future earnings (Lin, et al., 2022).

This research provides an overview of cash dividends policy, theories and its effect on firm value. Furthermore, it supports this overview by an empirical study to investigate this effect.

2. Statement of the Problem

In Egypt, there is no distinction between capital gains and dividends in terms of tax benefits. By examining the relationship between payment policies and firm value especially

cash dividends, in Egypt, this research aims to study the effect of cash dividends on firm value. In addition, it sheds light on the preferable payout policy among investors. Due to the lack of any tax benefits for either policy, the Egyptian market is a particularly intriguing setting in which to research pay-out strategies. To the best of the researcher's knowledge, no study examined the effect of cash dividends and stock repurchase on firm value in the Egyptian stock market. In turn, the current study aims at covering this gap in research, especially for emerging stock markets, specifically the Egyptian case.

In the light of the above, the research problem can be formulated into the following question:

"What is the effect of cash dividends on firm value of the Egyptian listed companies"?

In other words, the main problem of this research is studying the effect of cash dividends on firm value and finding out the factors that affect the decision of adopting cash dividends payout policy. This is leading up to some secondary questions, as follows:

- What are the main determinants of cash dividends policy?
- What is the effect of cash dividends on the financial performance and value of the firm?

3. Importance of the Study

The importance of this study can be determined from two perspectives: academic and practical. The following will provide an overview of each:

3.1 Academic Importance

The research can be used as a future reference because it fills the gap between what is discussed in the literature and what is applied in this research in the Egyptian environment. It uses a panel regression model for cross sectional data to examine the impact of cash dividend pay-out policy on firm

value. Also, future researchers can use this data, and the data extracted from financial statements to conduct research on any related topic or fill other research gaps.

3.2 Practical Importance

The outcomes of this research will be helpful to managers and decision makers. It highlights the main factors that influence a firm's financial performance and value. Additionally, it helps them make the right decisions about pay-out policies and exploit the company's resources perfectly. This can improve firm performance and as a result it will enhance firm value.

4. Research Objectives

The main objective of this study is to investigate the impact of cash dividends on firm value of Egyptian listed companies.

To be more precise, this objective will help in achieving the following sub objectives:

4.1 Examine the impact of different financial and operational factors on firm value.

4.2 Investigate the relationship between cash dividends, capital structure and shareholders' wealth.

5. Research Hypotheses

As mentioned before, the objective of the research is to study the effect of cash dividends and stock repurchase on firm value. Accordingly, research hypotheses that are used to find out this effect are:

Hypothesis I: There is a positive relationship between dividend and firm value.

Hypothesis II: There is a positive relationship between stock repurchase and firm value.

6. Methodology

This section defines the database and time frame of the research.

6.1 Sample

To study the effect of cash dividends on firm value the research used a sample that contains firms adopting cash dividends payout policy. The research will cover the period from 2009 to 2019. The research covers this period because it was full of many economic and political events that affected the Egyptian economy. Furthermore, it affected the stock market and the activity of trading shares. Consequently, it affected companies' choice among cash dividends and any other payout policy.

6.2 Data

To examine the relationship between Egyptian firm value and cash payout policy, large and highly quantitative databases are required. An appropriate database should have standardized tests and assessments for validity to make sure that conclusions made based on the data are accurate. This study is based on secondary data, which means that it has been previously collected and it is available for researchers. The main data sources are the Egyptian Stock Exchange (EGX), websites and Egypt Company for Information Dissemination (EGID). The sample will cover all Egyptian non-financial firms, collected on a yearly basis for the period 2009-2019. The sample included this period and was not extended after that because 2020 was an epidemic year because of the coronavirus, which affected the Egyptian economy negatively. That is why the researcher preferred not to include this year and some years after it because Egypt has witnessed many events that affected the Egyptian market. So, results will not be reliable and accurate.

7. Literature Review

- **Study of "Akram Budagaga" (2017)**

The research studied the effect of the dividend payout policy and firm value. The sample of the research contained 44 firms listed on Istanbul Stock Exchange (ISE) during the period of

2007 to 2015. Also, the study used the residual income approach that is formulated based on ohlson's (1995) model. After testing several techniques, fixed effect regression was applied to this sample of panel data to analyze 1584 observations. The results showed a considerable positive association between dividends' payments and firm value. In addition, it revealed that book value has a significant relationship with residual income. Moreover, the study supported the theory of agency cost and contended that the dividend irrelevance theory is false for companies listed on the (ISE) (Budagaga, 2017).

- **Study of "Adam Enebrand and Tobias Magnusson" (2018)**

The study demonstrated dividends and all related issues. It showed that dividend policy affects different parties such as stakeholders. Also, it explained how managers can choose the dividend policy and the reasons behind their choice. For example, considering potential stakeholder signaling, capital structure and payouts from the corporate point of view. The research studied the relationship between firm performance and share prices and how can dividend payout policy affect them. To do so, researchers made a regression analysis for a sample of 85 firms listed on the Swedish stock exchange from 2007 to 2017. The sample was divided into two samples: the first one contained companies that yield low dividends while the second one consisted of companies that yield high dividends. Results indicated that financial performance has a greater effect on stock prices in high dividend yield firms than in low dividend yield ones. In simple words, it was found that there is a positive relationship between financial performance and stock prices for both samples (Enebrand & Magnusson, 2018).

- **Study of "Sigitas Karpavičius and Fan Yu" (2018)**

This research studied the influence of dividend payment and dividend premium on firm value. Dividend premium is defined as the difference between the average market to book ratio for the companies that pay dividends and those that do not pay dividends. The paper used a sample of selected US companies and covered the period from 1972 to 2016. Panel data regressions were made to analyse the effect of dividend payments on firm value. Findings showed that dividend payment and dividend premium is positively associated with firm value. In addition, results revealed that dividends often have a favourable short- and long-term impact on shareholders' wealth. Furthermore, the study identified some of the key factors that affect dividends premium (Karpavičius & Yu, 2018).

- **Study of "Huda Alenazi and Bernard Barbour" (2019)**

The study provided an overview of the relationship between dividend policy and firm value. Researchers defined firm value as the company's financial plan for the value of money that will be paid to shareholders in return for their investment. This value can be different depending on the company's cash flow, interest of shareholders and many other variables. The research examined the impact of dividend policy on firm value in Qatari banks. To do so, the research used a sample of five banks on Qatar stock exchange and dividend payments data was obtained from the financial reports of the last five years (Alenazi & Barbour, 2019).

- **Study of "Yousef Shahwan" (2019)**

The research aimed to determine the influence of the dividend policy on the relationship between financial disclosure and corporate value. The sample of the study consisted of 96 Jordanian industrial firms listed on Amman Stock Exchange (ASE). Furthermore, the study covered the period from 2005 to

2017. Accordingly, the researcher conducted data analysis using SPSS and results showed that generally there was a significant positive impact between all variables. In addition, it was determined that the moderating impacts of dividend policy were insignificant (Shahwan, 2019).

- **Study of "Sourav Hansda, Abhijit Sinha and Kalpataru Bandopadhyay" (2020)**

This research examined the relationship between dividend policy and firm value in the light of financial crisis. The sample contained 500 companies which were refined to 235 companies listed on Bombay Stock Exchange (BSE). The research covered the period from 2001 to 2017. Researchers applied the Generalized Model of Moments (GMM) with panel regression. The findings of the study showed that firm value was not affected by the dividend distribution policy implemented. However, the research proved that financial crisis has a significant influence on the relationship between dividend policy and firm value (Hansda, et al., 2020).

- **Study of "Mohd Ashari Bakri" (2021)**

The purpose of this study was to investigate the impact of dividend policy on firm value. In addition, it examined the influence of audit quality on the association between dividend policy and firm value. The research sample included 194 Malaysian firms listed on Malaysian Stock Exchange from 2005 to 2019. To analyze data, research used Pooled Ordinary Least Square (OLS), panel random and fixed effect regression. The findings showed that dividends are negatively correlated with firm value while audit quality has a moderating effect on the relationship between them (Bakri, 2021).

- **Study of "Rani Safitri, Rika Lidyah and Rachmania" (2022)**

The paper analyzed the relationship between dividend policy, corporate governance, profitability, and firm value. The

sample of the study included all companies listed on Indonesian Sharia Stock Index (ISSI) over the period from 2016 to 2018. The findings of the study showed that dividend policy does not affect profitability. Furthermore, it is proven that corporate governance is negatively correlated with firm value and does not impact profitability (Safitri, et al., 2022).

- **Study of "Ahmed Mohamed Ameen" (2022)**

The research investigated the relationship between dividend pay-out ratio and firm value. Also, the research highlighted the main factors that affect dividend pay-out ratio. These factors include income tax, regulations, investing opportunities, profitability, and liquidity. The researcher used a sample consisted of 129 companies listed on Egyptian Stock Exchange (EGX) from 2014 to 2019. Results indicated that dividend pay-out ratio is positively related to firm value in EGX (Ameen, 2022).

- **Study of "Hariem Abdullah, Aliya Zhakanova Isiksal and Razha Rasul" (2023)**

The research investigated the influence of dividend policy on firm value in the financial sector. Additionally, it looked at the moderating impact of the implementation of IFRS and the removal of the mandated dividend payment policy while taking the Lintner dividend smoothing model into account. This model assumes that most companies follow a partial adjustment strategy to reach their long-term goal ratio, which causes dividends to level out over time. The study used a sample of 111 listed companies on the Istanbul stock exchange during the period from 1995 to 2017. The results revealed a positive relationship between dividend policy and firm value. Also, results stated that this relationship increased more after adopting IFRS (International Financial Reporting Standards) (Abdullah, et al., 2023)

- **Study of "Ntungufhadzeni Freddy Munzhelele and Ayodeji Michael Obadire" (2023)**

The study analyzed the main factors that influence cash distributions policies such as dividends, economic value added, firm size and earnings. The analysis of this research included 52 companies listed on the Johannesburg Security Exchange (JSE) and made stock repurchase at least for 2 years from 2000 to 2019. The results showed that there is a positive association between payoff flexibility and earnings per share. on the contrary, there is a negative association between payoff flexibility, economic value added and firm size (Munzhelele & Obadire, 2023)

- **Study of "Hanan Amin Barakat" (2024)**

This study aimed to explain the relationship between dividends payments and shareholders' wealth. The research used a sample of 10 firms listed in Egyptian Stock exchange (EGX) during the period of 2017 to 2021. In addition, the research implemented Eviews 12's Generalized Method of Moments (GMM) for dynamic panel models to analyze the correlation between dividend policy and stock market prices. The study revealed that dividends payments have a positive impact on stock prices and shareholders' wealth (Barakat, 2024).

- **Study of "Caroline Bella Charist Haryono, Saparila Worokinasih and Ari Darmawan" (2024)**

This paper investigated the mediating role of dividend policy on financial performance and firm value. It included an overview of the previous studies, techniques and statistical methods used to study this relationship. This overview showed that most of the empirical studies proved that profitability, liquidity, size and leverage have a positive effect on firm value (Haryono, et al., 2024).

- **Study of "Okechukwu Enyeribe Njoku and Younghwan Lee" (2024)**

The research shed light on the relationship between dividend policy, financial performance and firm value in the Korean market. The sample included 5478 observations extracted from the Korean stock price index. The study evidenced that dividend policy is positively correlated with profitability indicators. These indicators included in the paper were: Return On Assets (ROA), Return On Equity (ROE) and Return On Sales (ROS). Intuitively, this means that dividend payment is positively related to firm value and firm performance (Njoku & Lee, 2024)

8. Cash Dividends

In history, the term "dividend" is derived from the Latin word "dividendus," which means "something divided" (Tran, 2024). A dividend is a price that a corporation pays to investors for the capital they invested in the company (Franc-Dąbrowska, et al., 2020). Another definition provided by Saini and Sharma (2022) described dividend as "money that is regularly paid by a business to its shareholders using profits, cash reserves, or even debt" (Saini & Sharma, 2022). In a broader context, a dividend is any type of property that is given to shareholders. On the contrary, dividends are described from a narrow point of view. According to this point of view, a dividend is a payment that is made in cash to the shareholders. Furthermore, companies' main sources of funds that are used in dividend payments include current net income, retained earnings and other funds. Some scholars debate that if dividends are paid from other funds, it should be called distribution, not dividends. However, regardless of the funding source, it is generally accepted to classify a cash payment as a dividend. Additionally, when a

company pays dividends, its retained earnings and cash reserves decrease (Tran, 2024).

- **Theories**
  - **A. Dividends irrelevance theory:** It is one of the main theories that discussed and tried to solve the issue of the dividend puzzle. The theory was advanced by Miller and Modigliani and stated that dividend policy and firm value are not related. This means that firm value is not impacted by the decision of dividend payment. Moreover, it is established based on three basic hypotheses: perfect certainty, perfect capital market and rational behavior. Perfect certainty means that every investor is aware of every security's potential return and has access to the same information. As a result, there is no distinction in the use of debt and equity securities as funding sources. Miller and Modigliani asserted that debt and equity securities are equivalent and can both be referred to as stocks. Also, perfect capital market assumption means that neither dividend payment nor buyers and sellers can affect share prices or firm value (Tran, 2024).
  - **B. Signaling Theory:** Signaling theory is one of the most extensively researched theories that is based on the idea of information asymmetry. The idea of this theory was demonstrated through the concept of "Lemon Market". Lemon market is an expression used to describe a situation where sellers have more information than buyers about a product or a service. Similarly, in financial markets, it means that internal parties have more information about firm value than external ones (Tran, 2024). This theory implies that managers tend to pay more dividends to give good signals and impressions to the external investors to attract them. Hence, they do

that to send an indirect message about the company's future financial performance and that investors would gain profits if they invested with them (Al-Najjar & Kilincarslan, 2019).

C. **Bird in Hand Theory:** The name of this theory comes from the proverb "a bird in the hand is worth more than two in the bush". The theory posited that investors prefer dividend payments to capital gains. In other words, dividend-paying companies bring cash inflows to shareholders, reducing the uncertainty associated with future cash flows. That is why investors prefer to guarantee receiving dividends at the present than taking the risk of waiting to receive accumulated returns in the future. Further, paying dividends will raise companies' share prices and improve firm value (Al-Najjar & Kilincarslan, 2019). Along with this, it is concluded from this theory that dividend payment is negatively associated with the risk of the firm (Ameen, 2022).

D. **Agency Cost Theory:** Agency relationship is described as an agreement in which agents provide some services on behalf of principals, who transfer decision making authority to agents. The theory highlighted the gap between ownership control and management. It is essentially created to find a solution to the disputes between agents and principals. In other words, agency problems arise from the conflict of interests between agents and principles because sometimes agents prioritize their interests over maximizing the principal's wealth (Tran, 2024). The theory argued that paying higher dividends leads to a reduction in internal cash flow that is under management's control. This helps the company to eliminate the conflict of interests between shareholders and agents because the company will rely more on

external investment that is not completely under shareholders' control. Meanwhile, this will solve agency problems and enhance firm value (Al-Najjar & Kilincarslan, 2019).

E. **Tax and Clientele Effect Theory**: Tax clientele means dividing people into groups based on their tax status or their asset preferences (Tran, 2024). This theory claimed that one of the main factors that impact investor decisions regarding cash dividends is their tax position. It affects whether they will choose a high or low dividend policy. Investors will only invest in companies whose policies best suit their tax situations. Hence, no company can raise its value by lowering taxes through its dividend policy (Al-Najjar & Kilincarslan, 2019).

F. **Pecking Order Theory:** According to this theory, firms prioritize their sources of finance. Internal parties have more knowledge about firm value, risk or prospects than external ones, such as creditors and investors. That is why external parties usually pay lower prices in newly issued shares and securities. This theory contends that firms are not likely to pay dividends to stay away from external financing. Moreover, firms don't face the problem of information asymmetry because retained earnings are transferred within the firm (Tran, 2024). Collectively, pecking order theory provides a rank for a firm's sources of finance. Internal investments have the highest priority after that comes debt, preferred stock and then external equity (Bakera, et al., 2018). The theory asserted that the higher profitability ratios the firm has, the lower borrowing ratios compared to other firms because they rely on internal capital to finance their operations (Dang, et al., 2021).

G. **Transaction Cost Theory:** This theory contended that companies should collect enough cash to fund their activities since the transaction costs of selling noncash assets are high. Also, when companies pay dividends, they may run out of cash and may have to sell their noncash assets. Hence, dividend payments are more costly than retained earnings due to transaction costs **(**Tran, 2024**).** In other words, the theory argued that after using external sources of finance with low costs to pay dividends, the company faces the burden of the increased costs since companies try to increase their external sources required for their investments. These external sources include legal expenses, underwriter fees, administrative expenses and interest payments (Al-Najjar & Kilincarslan, 2019).

H. **Life Cycle Theory:** The theory posited that companies with low profitability and high growth are less likely to pay dividends. They claim that emerging companies with low profitability have numerous investment options making them keep more earnings than paying dividends. Contrarily, mature firms have more resources since they struggle to get successful and profitable projects. They tend to collect more retained earnings, which reduces their financial performance. As a result, they are more inclined to share money to increase their economic effectiveness (Tran, 2024). Consistent with this notion, as a company grows, its capacity to create cash outperforms its ability to identify successful investment possibilities (Baker, et al., 2018).

I. **Catering Theory:** Catering theory is based on investor behavior or need (Tran, 2024). It explained that investors' decisions regarding dividends may vary with time. That is why managers should be aware of and cater

to changes in investor preferences for dividends (Al-Najjar & Kilincarslan, 2019). In other words, when investors place a premium on the shares, managers may be able to detect and cater to changes in investor demand by paying dividends. Similarly, when investors choose companies that don't pay dividends, managers may decide to stop paying them (Baker, et al., 2018)

J. **Risk-averse Theory:** This theory postulated that risk-averse investors usually prefer income from dividends to income from capital gains of stock sales. Dividends are considered less risky than prospective rewards from future capital gains. Similarly, another point of view asserted that a dividend payment made today is worth more than one unit of retained earnings that may be reinvested in new activities. Future dividends might be higher, but they could also be riskier due to the undetermined success rate of the new project and the possibility of an increase in the discount rate used to determine stock value. A low dividend raises shareholder uncertainty, causing shareholders to discount future profits at a higher rate, decreasing the company's value, and vice versa (Enebrand & Magnusson, 2018).

9. The Effect of cash Dividends on Firm Value

Firm value is described as the market value of the company that can be utilized to deliver the highest level of welfare to shareholders especially if the stock prices go up (Margono & Gantino, 2021). Similarly, firm value is defined as the company’s state of attaining public trust after operating many activities from the stage of business foundation to the present (Lismawati, et al., 2022). Also, some researchers described firm value as the selling price of a company that prospective investors believe is realistic. The major goal of the company's management is to maximize stockholder wealth by increasing

the company's stock price. As a result, by raising the company's stock price, the firm value will be maximized (Mousa & Desoky, 2019).

Miller and Modigliani show that under perfect market conditions, dividend payments have no influence on company value and that no dividend policy is preferable to another (Baker, et al., 2018). They indicated that a firm's market value is determined by its ability to generate earnings and asset risk. Also, authors argued that investors in frictionless markets and dividends are irrelevant, that is why they don't affect firm value. In summary, this irrelevant point of view can be divided into four parts. First, capital markets are free of transaction costs, taxes, short sales restrictions, and bankruptcy fees which are called "frictionless markets". Second, information is accessible to all market players. Third, all participants in the market are price takers. Finally, the firm's cash flow is not affected by its financial policies (Janesiripanich & Jansson, 2018)

On the other hand, numerous studies revealed that there is a positive relationship between dividend payout and firm value. Hence, dividend policy is considered an important factor which influences firm value (Dang, et al., 2021). Nonetheless, Baker and Wurgler stated that the relationship between dividend payment and firm value is unstable as the dividend premium changes over time. However, Kim et al. (2018) discovered a consistent association between dividends and firm value in different countries, such as Sweden (Janesiripanich & Jansson, 2018).

10. Statistical Model and Results

This part presents a comprehensive statistical and econometric analysis of the relationship between cash dividends as an independent variable and firm value as a dependent variable. Furthermore, the sample contains 36 companies listed

in Egyptian stock exchange (EGX). The analysis covers the period from 2009 to 2019, utilizing panel data models to examine the effects of various financial and operational factors on firm value. The model incorporates a range of control variables, including firm size, cash and short−term investment, profitability, leverage, firm age, tangibility, and stock return volatility. These variables have been carefully selected based on prior literature and their potential influence on firm value (Kien & Chen, 2024) (Olasiuk, et al., 2024).

10.1 Descriptive statistics for the Model

Based on the descriptive statistics provided in Table 1, which includes 36 companies over an 11-year period (2009-2019), we can observe that:

- Firm Value (V): The mean firm value across all 396 observations is 1.575, with a standard deviation of 0.630. This indicates that, on average, the market value of equity for these Egyptian firms is about 1.575 times their book value. The standard deviation suggests moderate variation in firm valuations across the sample.
- Firm Size (Size): The average firm size, measured as the natural logarithm of total assets, is 9.000 with a standard deviation of 0.588. This relatively low standard deviation indicates that most firms in the sample are clustered around a similar size, with less variation and more consistency.
- Cash and short−term investment (CashTA): On average, firms hold about 17.4% of their total assets in cash and short-term investments (mean = 0.174), with a standard deviation of 0.129. This suggests some variation in cash and short−term investment policies across firms.

Table 1: Descriptive Statistic across the different companies

year		Firm Value	Size	CashTA	PROF	LEV	AGE	TANG	VOL
2009	Min	0.868	7.573	0.008	-0.012	0.000	12.000	0.002	0.177
	Max	3.337	10.503	0.515	0.337	0.527	155.000	0.781	1.197
	Mean	1.697	8.967	0.200	0.112	0.118	41.752	0.373	0.551
	SD	0.626	0.598	0.146	0.083	0.150	24.348	0.189	0.239
2010	Min	0.910	7.508	0.001	-0.125	0.000	13.000	0.002	0.160
	Max	3.565	10.521	0.480	0.331	0.472	156.000	1.272	2.423
	Mean	1.840	8.926	0.196	0.114	0.106	41.859	0.371	0.423
	SD	0.801	0.656	0.130	0.088	0.141	24.527	0.251	0.371
2011	Min	0.620	7.521	0.002	-0.081	0.000	14.000	0.002	0.107
	Max	3.359	10.518	0.482	0.271	0.417	157.000	0.737	1.034
	Mean	1.378	8.904	0.188	0.099	0.104	46.248	0.335	0.411
	SD	0.586	0.638	0.137	0.073	0.129	26.131	0.212	0.195
2012	Min	0.740	7.545	0.000	0.000	0.000	15.000	0.002	0.142
	Max	2.660	10.510	0.417	0.208	0.439	158.000	0.762	0.850
	Mean	1.386	8.913	0.190	0.096	0.093	45.047	0.331	0.364
	SD	0.449	0.604	0.111	0.050	0.127	24.190	0.198	0.151
2013	Min	0.588	7.534	0.014	-0.022	0.000	16.000	0.002	0.111
	Max	2.947	10.514	0.559	0.340	0.420	159.000	0.728	0.830
	Mean	1.463	8.975	0.191	0.114	0.094	45.058	0.344	0.345
	SD	0.511	0.620	0.122	0.073	0.118	24.637	0.181	0.160
2014	Min	0.686	7.585	0.028	0.005	0.000	17.000	0.001	0.103
	Max	3.376	10.241	0.697	0.388	0.526	76.000	0.683	0.598
	Mean	1.681	8.918	0.186	0.127	0.102	41.674	0.304	0.336
	SD	0.653	0.527	0.117	0.073	0.123	13.231	0.161	0.127

2015	Min	0.572	8.075	0.004	-0.048	0.000	18.000	0.003	0.090
	Max	3.441	10.293	0.651	0.320	0.558	77.000	0.666	0.516
	Mean	1.542	9.046	0.180	0.102	0.107	42.136	0.300	0.343
	SD	0.556	0.454	0.123	0.070	0.118	11.664	0.137	0.091
2016	Min	0.560	7.522	0.006	-0.079	0.000	19.000	0.002	0.115
	Max	3.352	10.586	0.627	0.229	0.485	87.000	0.702	1.006
	Mean	1.542	9.036	0.163	0.104	0.115	44.623	0.312	0.393
	SD	0.580	0.577	0.128	0.059	0.120	14.637	0.165	0.168
2017	Min	0.840	7.519	0.009	-0.128	0.000	20.000	0.002	0.167
	Max	3.574	10.628	0.655	0.319	0.533	88.000	0.716	1.530
	Mean	1.873	9.075	0.146	0.126	0.111	45.936	0.296	0.470
	SD	0.730	0.609	0.150	0.085	0.126	14.573	0.184	0.262
2018	Min	0.452	7.512	0.008	-0.121	0.000	21.000	0.002	0.067
	Max	3.297	10.664	0.589	0.284	0.460	80.000	0.587	0.658
	Mean	1.595	9.084	0.146	0.129	0.099	46.285	0.265	0.336
	SD	0.662	0.591	0.138	0.084	0.111	12.116	0.143	0.109
2019	Min	0.398	7.602	0.006	-0.176	0.000	22.000	0.002	0.000
	Max	2.354	10.728	0.487	0.229	0.618	81.000	0.622	0.957
	Mean	1.326	9.151	0.131	0.075	0.120	45.300	0.282	0.329
	SD	0.495	0.593	0.107	0.084	0.135	13.076	0.142	0.169
Total	Min	0.398	7.508	0.000	-0.176	0.000	12.000	0.001	0.000
	Max	3.574	10.728	0.697	0.388	0.618	159.000	1.272	2.423
	Mean	1.575	9.000	0.174	0.109	0.106	44.174	0.319	0.391
	SD	0.630	0.588	0.129	0.076	0.126	19.205	0.182	0.209

Source: SPSS V. 29 Software

10.2 Correlation Analysis for the Model

The purpose of conducting the correlation analysis in this study was to examine the strength and direction of the linear relationships between the variables of interest. By quantifying the degree to which variables are related, this analysis provides insight into the potential associations that may exist, thus addressing specific research objectives and hypotheses. Correlation analysis is a fundamental step in exploratory research, as it helps identify variables that warrant further investigation using more complex statistical methods. The degree of linear dependency that exists between two quantitative variables may be determined by calculating this coefficient, which is a number that ranges from -1 to 1. When the value is negative, it indicates that one variable decreases as the other variable grows, and when the value is positive, it indicates that one variable increases as the other variable increases. We utilized the Spearman correlation coefficient, since it has robust results compared to the Pearson correlation coefficient in case of non-normal data as we will investigate it later in this chapter. The correlation values range from 0 to 0.3, which indicates a week correlation; r values between 0.3 and 0.7 indicate a moderate correlation; and r values between 0.7 and 1 indicate a high or strong correlation (Akoglu, 2018).It was determined that the correlation coefficients that were marked with three stars (***) were significant at a level of 0.001, which corresponds to a confidence level of 99.9%. The correlation coefficients that were marked with two stars (**) were significant at a level of 0.01, which corresponds to a confidence level of 99%. The coefficients that were marked with one star (*) were significant at a level of 0.05, which corresponds to a confidence level of 95%. Finally, the coefficients that were not marked were not significant at 0.05, which means that the P-values were greater than 0.05.

The results of the correlation analysis for the model reveal the following results:

1. Cash Dividends and Firm Value: There is a significant positive correlation ($r = 0.253$, $p < 0.001$) between cash dividends and firm value. This suggests that firms paying cash dividends tend to have higher market-to-book ratios, potentially indicating that the market values dividend-paying firms more highly. This aligns with theories suggesting dividends signal financial health and future prospects.

2. Firm Size: Firm size shows a weak negative correlation with cash dividends ($r = -0.106$, $p < 0.05$) and no significant correlation with firm value. This suggests that larger firms in the sample are slightly less likely to pay dividends. The lack of correlation with firm value indicates that size alone doesn't significantly influence market-to-book ratios in this sample.

3. Cash and short−term investment (Cash TA): Cash and short−term investment are positively correlated with both cash dividends ($r = 0.178$, $p < 0.001$) and firm value ($r = 0.099$, $p < 0.05$). This indicates that firms with higher cash reserves are more likely to pay dividends and are valued more highly by the market, possibly due to financial flexibility.

4. Profitability (PROF): Profitability shows positive correlations with both cash dividends ($r = 0.280$, $p < 0.001$) and firm value ($r = 0.381$, $p < 0.001$). This suggests that more profitable firms are more likely to pay dividends and are valued more highly by the market, which is consistent with financial theory.

5. Leverage (LEV): Leverage has a weak negative correlation with cash dividends ($r = -0.111$, $p < 0.05$) but no significant correlation with firm value. This suggests that firms with higher debt levels are slightly less likely to pay dividends, possibly due to financial constraints or debt covenants.

6. Firm Age (AGE): Interestingly, firm age shows a significant negative correlation with firm value ($r = -0.213$, $p < 0.001$) but no significant correlation with cash dividends. This suggests that older firms in the sample tend to have lower market-to-book ratios, possibly indicating that the market values growth potential in younger firms more highly.

7. Tangibility (TANG): Tangibility shows no significant correlation with either cash dividends or firm value. However, it is positively correlated with leverage ($r = 0.293$, $p < 0.001$), suggesting that firms with more tangible assets tend to have higher debt levels, possibly due to the use of these assets as collateral.

8. Volatility (VOL): Stock return volatility is positively correlated with firm value ($r = 0.221$, $p < 0.001$) but not significantly correlated with cash dividends. This positive correlation with firm value might indicate that the market assigns higher valuations to firms with higher perceived risk or growth potential.

9. Size is negatively correlated with profitability ($r = -0.198$, $p < 0.001$) and positively with leverage ($r = 0.347$, $p < 0.001$), suggesting that larger firms in the sample tend to be less profitable but more leveraged.

10. Cash and short−term investment are negatively correlated with size ($r = -0.294$, $p < 0.001$) and leverage ($r = -0.317$, $p < 0.001$), indicating that smaller firms and those with less debt tend to hold more cash.

11. Profitability is positively correlated with cash and short−term investment ($r = 0.235$, $p < 0.01$) and negatively with leverage ($r = -0.135$, $p < 0.01$), suggesting that more profitable firms hold more cash and less debt.

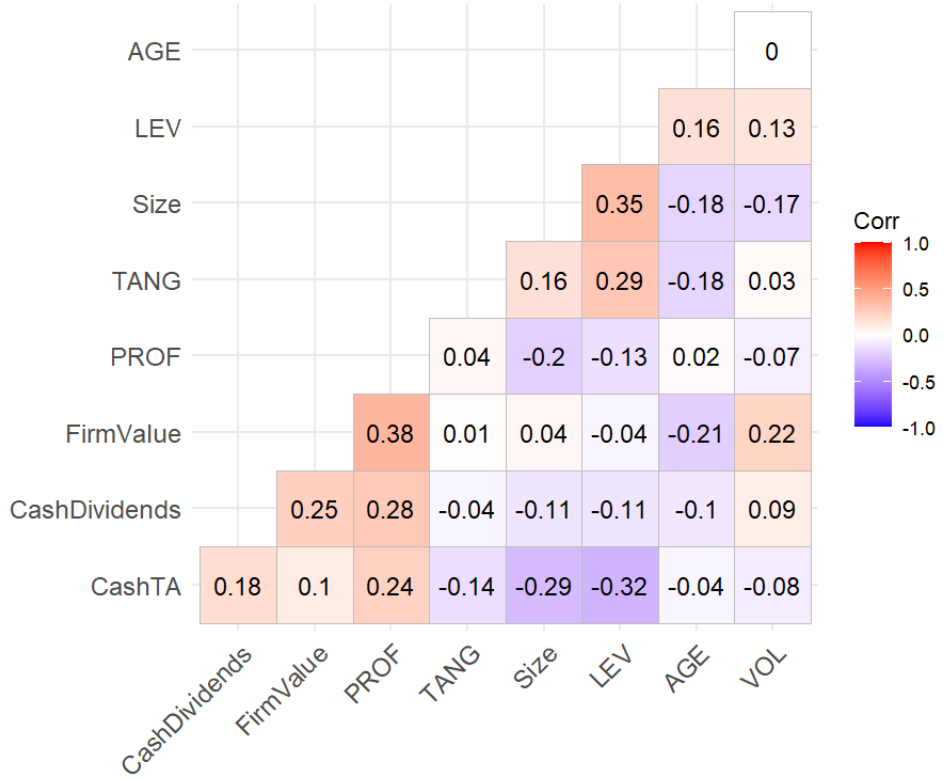

Figure 1: Visualization of correlation matrix of variables

These correlations provide valuable insights into the relationships between key variables in our model. However, it's important to note that correlation does not imply causation, and these relationships will be further explored in our panel regression analysis. Additionally, while some correlations are statistically significant, many are relatively weak, which should be considered when interpreting the results and drawing conclusions about the relationships between these variables and their impact on firm value and dividend policy.

10.3 Panel Unit Root Testing

Before proceeding with panel data regression analysis, it is crucial to examine the stationarity of the variables to avoid

spurious regression results. In panel data contexts, unit root tests are employed to determine whether the variables are stationary or contain unit roots. This study utilizes the Augmented Dickey-Fuller (ADF) test, a widely accepted method for detecting unit roots in panel data.

Table.2: Augmented Dickey-Fuller Test

	Variable	Test Statistic	P-value
Augmented Dickey–Fuller Test for variables	Firm Value	-6.102	<0.01
	Cash Dividends	-8.083	<0.01
	Size	-4.765	<0.01
	CashTA	-5.789	<0.01
	PROF	-5.409	<0.01
	LEV	-5.753	<0.01
	AGE	-6.420	<0.01
	TANG	-5.193	<0.01
	VOL	-6.866	<0.01

All variables (Firm Value, Cash Dividends, Size, CashTA, PROF, LEV, AGE, TANG, and VOL) show test statistics with p-values < 0.01. This strongly rejects the null hypothesis of a unit root at the 1% significance level, indicating that all variables in are stationary.

Table.3: Results of Pooled, Fixed Effects and Random Effects Regression for the Model

	Pooled Regression		Fixed Effects Regression		Random Effects Regression	
	Estimate	P-value	Estimate	P-value	Estimate	P-value
(Intercept)	-0.777	0.124	-	-	-0.107	0.876
Cash Dividends	0.200	0.018	0.185	0.017	0.190	0.014
Size	0.200	<0.001	-0.018	0.870	0.139	0.074
CashTA	0.214	0.364	-0.209	0.466	0.002	0.993

PROF	2.747	<0.001	2.012	<0.001	2.268	<0.001
LEV	0.160	0.548	-0.480	0.182	-0.162	0.602
AGE	-0.006	<0.001	-0.003	0.245	-0.005	0.013
TANG	-0.284	0.087	-0.452	0.053	-0.359	0.072
VOL	0.942	<0.001	0.909	<0.001	0.929	<0.001
	F(8,387)= 17.1173, P<0.001		**F(8,382)= 14.8376, P<0.001**		**Chisq(8)= 125.912, P<0.001**	

The results of pooled regression suggest that cash dividends, firm size, profitability, and stock volatility are positively associated with firm value, while firm age has a slight negative association. While fixed effects regression confirms the importance of cash dividends, profitability, and stock volatility in determining firm value. Furthermore, the random effects model highlights the importance of cash dividends, profitability, and stock volatility in positively influencing firm value. It also suggests a slight negative effect of firm age.

10.4 Model Selection

To determine the most appropriate estimation method for our panel data models, we conducted a series of specification tests: the Chow test, the Breusch-Pagan Lagrange Multiplier (LM) test, and the Hausman test. These tests help us choose between pooled OLS, fixed effects, and random effects models (Baltagi, 2021). Table 4 states the null and alternative hypotheses for each test scenario.

Table.4: Panel Data Model Selection Criteria

Test	**Null Hypothesis (H0)**	**Alternative Hypothesis (H1)**	**P-value > 0.05**	**P-value ≤ 0.05**
The Chow test	The Pooled model is appropriate (no individual-level effects)	The fixed effects model is appropriate (individual-level effects are present)	Pooled model	Fixed effects model

Breusch-Pagan LM test	The pooled model is appropriate (no individual-level effects)	The random effects model is appropriate (individual-level effects are present)	Pooled model	Random effects model
Hausman test	The random effects model is appropriate (individual-level effects are uncorrelated with the explanatory variables)	The fixed effects model is appropriate (individual-level effects are correlated with the explanatory variables)	Random effects model	Fixed effects model
Source: **Researcher's development**				

The results of each test and its implications for the model was as follows:

1. The Chow Test: The Chow test examines whether the fixed effects model is more appropriate than the pooled OLS model.

Cash Dividends model with $F(35, 352) = 5.0419$, $P < 0.001$, and the highly significant p-value (< 0.001) strongly rejects the null hypothesis that the pooled model is appropriate. This suggests the presence of individual-level effects, favoring the fixed effects model over the pooled OLS model.

2. Breusch-Pagan LM Test: This test helps decide between the random effects model and the pooled OLS model.

For the model with $\chi^2(1) = 116.33$, $P < 0.001$, and the significant result strongly suggests that the random effects model is more appropriate than the pooled OLS model, indicating the presence of individual-level effects. Hausman Test: The Hausman test helps choose between fixed effects and random effects models by examining whether the individual-level effects are correlated with the explanatory variables.

For the model with $\chi^2(8) = 12.041$, $P = 0.1494$, and the non-significant p-value (> 0.05) fails to reject the null hypothesis, suggesting that the random effects model is appropriate. This indicates that the individual-level effects are likely uncorrelated with the explanatory variables. For Model 2 with $\chi^2(1) = 16.961$, $P < 0.001$ and the significant result rejects the null hypothesis, favoring the fixed effects model. This suggests that for the stock repurchase analysis, the individual-level effects are correlated with the explanatory variables.

In conclusion, based on the test results, the random effects model is selected as the most appropriate specification. The Chow test and Breusch-Pagan LM test both indicate the presence of individual-level effects, while the Hausman test suggests these effects are uncorrelated with the explanatory variables, making the random effects model the optimal choice.

Table.5: Model Selection Results

The Chow test	Breusch-Pagan LM test	Hausman test	Selected Model
F(35, 352) = 5.0419, P < 0.001	$\chi^2(1)$= 116.33, P < 0.001	$\chi^2(8)$= 12.041, P = 0.1494	Random effects model
Fixed effects model	Random effects model	Random effects model	
Source: R Software Output			

In conclusion, based on the test result, the random effects model is selected as the most appropriate specification. The Chow test and Breusch-Pagan LM test both indicate the presence of individual-level effects, while the Hausman test suggests these effects are uncorrelated with the explanatory variables, making the random effects model the optimal choice.

10.5 Robustness Checks and Diagnostic Tests

Robustness checks and diagnostic tests are crucial steps in panel data analysis to ensure the validity and reliability of our results. These tests help verify that our model meets the underlying assumptions of panel data regression and that our findings are not artifacts of model misspecification.

In this section, researcher presents a series of diagnostic tests performed on our selected random effects model for the cash dividends analysis. We evaluate the model for heteroskedasticity, serial correlation, normality of residuals, and multicollinearity. Where issues are identified, we discuss the steps taken to address them and the implications for our analysis.

Table.6: Robustness Checks and Diagnostic Tests

	Estimate	Std. Error	t-value	P-value	VIF
(Intercept)	-0.737	0.479	-1.539	0.124	
lag_Firm Value	0.286	0.044	6.553	<0.001	1.11
Cash Dividends	0.214	0.080	2.657	0.008	1.11
Size	0.143	0.053	2.688	0.007	1.43
CashTA	0.242	0.224	1.081	0.280	1.22
PROF	2.150	0.380	5.661	<0.001	1.22
LEV	0.084	0.253	0.333	0.739	1.50
AGE	-0.004	0.001	-3.099	0.002	1.10
TANG	-0.160	0.159	-1.009	0.313	1.22
VOL	0.892	0.129	6.900	<0.001	1.07
Model Fit		Chisq(9)= 194.345, P<0.001			
Explained Variance		R-Squared: 0.335; Adj. R-Squared: 0.32			
Serial correlation (Baltagi and Li two-sided LM test)		chisq (1) = 1.8916, P=0.169			
Heteroscedasticity (studentized Breusch-Pagan test)		BP (9) = 16.952, p=0.05			
Normality of Residuals		Skewness =1.035, kurtosis = 5.228			

Source: R Software Output

The diagnostic tests indicate that the model generally meets the assumptions required for valid inference in panel data analysis. However, the Baltagi and Li two-sided LM test for serial correlation first yields a chi-square statistic of 13.545 with a p-value of 0.0002329. This result suggests that we reject the null hypothesis of no serial correlation, indicating that we have autocorrelation issue. So, we add the lagged variable " lag_FirmValue" to solve this problem.

- The Baltagi and Li two-sided LM test was then redone again and yields a chi-square statistic of 1.8916 with a p-value of 0.169. This result suggests that we fail to reject the null hypothesis of no serial correlation, indicating that the addition of the lagged dependent variable has effectively addressed the autocorrelation issue previously observed.
- The studentized Breusch-Pagan test for heteroscedasticity produces a test statistic of 16.952 with a p-value of 0.05. The Breusch-Pagan test shows a p-value $\geq$ 0.05, indicating the absence of heteroskedasticity. This suggests that the variance of the residuals is constant across all levels of the predictors.

11. Conclusion

This research provided an overview of cash dividends, definitions and theories. In simple words, the cash dividends policy is the distribution of profits to shareholders in the form of cash. Moreover, research discussed main theories of cash dividends included: Dividend irrelevance, signaling, bird in hand, agency cost, tax and clientele effect, pecking order, transaction cost, life cycle, catering, risk averse, customer effect, free cash flow and residual dividends theories.

In addition, it examined the effects of cash dividends on firm value for 36 Egyptian listed companies from 2009 to 2019, using panel data model. Analysis began with descriptive statistics and correlation analysis, providing initial insights into the relationships between variables. The researcher then conducted panel unit root tests to ensure the stationarity of our data, which is crucial for valid inference in panel data analysis. A random effects approach was employed based on model selection tests. The results showed a positive and significant relationship between cash dividends and firm value (coefficient = 0.214, p = 0.008). This finding supports the signaling hypothesis of dividend policy, suggesting that dividend payments in the Egyptian market are perceived positively by investors, potentially signaling financial health and future prospects. Other significant factors influencing firm value in this model included firm size (positive effect), profitability (strong positive effect), firm age (slight negative effect), and stock return volatility (positive effect). The model explained approximately 33.5% of the variance in firm value, indicating a moderate level of explanatory power.

12. Results and Recommendations

The research examined the impact of cash dividends on firm value in the companies listed in the Egyptian stock exchange. The sample included the panel data of 36 companies with 396 observations from the year 2009 to 2019. The study didn't include years after 2019 because the world experienced an abnormal economic conditions and recession because of Covid. The results of the study revealed that there is a positive relationship between cash dividends and firm value. This area of study can open the door for many future research topics and areas. In other words, in the age of technology, machine learning and big amounts of data the way firms can deal or plan

for dividends may differ. Also, firms are now becoming more globalized and the attention to startups, innovation and entrepreneurship has been increased and are changing the way business transactions are made every day. For example, future researchers can investigate dividend policies globally. Further, when it comes to global issues and multinational companies, it is important to know how companies can adjust their dividends policies in the presence of different currencies, regulations and tax systems. In addition, they can study dividends and firm valuation methods in the technology firms, AI fields and digital transformation. The way dividends will be measured and distributed and how will firm value measured in the world of technology and AI. This is because many firms may prefer to reinvest their money in technology. Also, new firms that support startups such as accelerators or incubators how can they apply the suitable dividends policy. Moreover, dividends policies in the case of mergers and acquisitions and their relationship with firm risk.

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