Examining the Determinants of Dividend Distribution Policy:

An Empirical Study on Egyptian Non-Financial Companies

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Abstract

There have been many theoretical and empirical attempts to explain the determinants of dividend distribution policy in firms under different conditions. In this paper it has been investigated whether ROE, ROA, financial leverage, debt to equity, firm size, and Company's industry sector affects dividends distribution policy between 2009 and 2021. Annual secondary data was obtained from EGID for 49 Egyptian listed companies in EGX 70. Econometrics panel data analysis is conducted, using two stage system generalized and Sargan–Hansen test, with the purpose of examining the impact firm size, ROA, DER, ROE, and financial leverage on dividends distribution policy. This paper's main contribution is to fill the gap of examining the robustness of

these variables studied in the research and adding new variables which is "industry sectors" on dividends distribution policy of non-financial firms listed in the Egyptian stock market.

Keywords:
Dividends, Dividends Policy, ROE, ROA, Financial Leverage, Firm Size, EGX 70 Index.

المستخلص

لقد تم تنفيذ العديد من الدراسات النظرية والعملية لتحديد العوامل المؤثرة على سياسة توزيع الأرباح في الشركات تحت مختلف الظروف. وفي هذا البحث، تم التحقق من تأثير العائد على حقوق الملكية، والعائد على الأصول، والرافعة المالية، ومعدل الدين إلى حقوق الملكية، وحجم الشركة، وقطاع الصناعة على سياسة توزيع الأرباح بين عامي ٢٠٠٩ و٢٠٢١ . تم الحصول على بيانات سنوية ثانوية من شركة مصر لنشر المعلومات (EGID) لـ ٤٩ شركة مصرية مدرجة في EGX 70 وتم إجراء تحليل قياسي للبيانات باستخدام نظام عام من مرحلتين واختبار Sargan-Hansen ، بهدف دراسة تأثير حجم الشركة، والعائد على الأصول، ومعدل الدين إلى حقوق الملكية، والعائد على حقوق الملكية، والرافعة المالية على سياسة توزيع الأرباح. وتتمثل المساهمة الرئيسية لهذا البحث في سد الفجوة في دراسة قوة هذه المتغيرات المدروسة في الأبحاث السابقة وإضافة متغير جديد وهو "قطاعات الصناعة" على سياسة توزيع الأرباح للشركات غير المالية المدرجة في سوق الأسهم المصري.

الكلمات المفتاحية:

توزيعات الأرباح، سياسة توزيع الأرباح، العائد على حقوق المساهمين، العائد على الأصول، الرافعة المالية، حجم الشركة، مؤشر EGX 70

1- Introduction

Dividend's policy is considered as a double weapon financial tool especially for financial mangers as it is a risky responsibility as distribution decision must satisfy shareholders yet not to pressure the firm's equity. Despite the importance of dividends distribution policy for companies, this topic is still considered as one of the great enigmas of financial theory that is difficult nowadays to analyze and to understand it. Investors usually face many risks and uncertainties which could be effectively predicted and in order to mitigate those risks investors need to acquire information with high quality in order to help them to see a complete picture. For instance, the companies' financials can be used as a tool for managers and investors as well, who are investing with expectations of getting a return on the capital invested; that is, dividends.

Dividend's policy has two main dimensions are to be considered: the divided stability and the dividend payout ratio (DPR). The DPR mainly depends on the firm's financial performance so if the company is performing well then it will be able to maintain the amount of distributed dividend that meets the investors' expectations. Determinants of dividends distribution policy on Egyptian nonfinancial companies will help mangers to set their policy effectively and consequently investors will be able to make investment decisions and more investment accompanied

with investment cash flows in Egypt which is a very curial aspect in any country's economy, The purpose is mainly to find out the influence of ROE, ROA, DER, FL, firm size and industry sector on dividends distribution policy of non-financial firms listed in the Egyptian stock market

2- Literature Review

Dividends leading theories are dividends irrelevance theory and bird in the hand theory. The first was originally raised by Modigliani-Miller in 1961 where they argue that firm's dividends do not affect either the company value or its cost of capital. This theory is built on a set of assumptions where it's proved that the company's value is only determined by its earnings power and its business risk mainly it depends on the income generated by its assets not on how this generated income is distributed between earnings and dividends

This theory mainly explains the investor preference where they prefer dividends rather than retained earnings, then companies should set a high dividend payout ratio in order to maximize the firm share price. This theory was originally raised by Gordon (1959) and Lintner (1956,1962) which says that investors always prefer the "cash in hand" concept rather than future promising of capital gain and wealth maximization

Researchers have conducted researchers on the organization size on stock returns (dividends)in 1981 Banz found in his research a negative relationship between firm size and stock return as small companies tends to distribute higher dividends compared to large firms.

The findings of Fama and French (1993) also supported the previous negative impact as investors seeks premium in order to compensate additional risk campaigned by holding a stock of small firm. However, Indriani (2005), Asuti (2006) proved that the firm size has a direct relationship with dividends distribution using total assets as a proxy of their research. where they found the firms that have larger total assets are more stable and has the ability to generate returns in comparison to other small companies.

Showing more consistence also Acheampong (2014) found out in his research which was conducted on firms in the Ghana stock market found that small firms tend to provide lower stock returns in comparison to bigger firms which meant to be that there is a direct relationship between firm size and stock returns.

Return on assets has been defined as the profitability of the firm that shows its ability to generate profits through its assets which measures the firm's efficiency in the use of its capital (Ghorbel and Kolsi (2011)), Mrabet and Boujjat (2016) studied a sample of 44 firm listed in Morocco where his research showed that the studied companies has a storng positive relationship with

divideds distribution while this point of view was proved also by other researches ,such as Kale and Noe (1990), Amidu (2007), Uwuigbe (2012) and Soewarno and al (2017) and al (2017) and al (2017) and al (2017) and al (2017) and al (2017) and al (2017) and al (2017)}; this relationship has evolved from the fact of that the firm which distribute more dividedns tend to be more profitable ,however Ijaiya (2013), proved the contrary in her research in the context of Nigerian companies of no significance relationship between ROA and cash dividends.

Rofez (1982) found that firms with high operating leverage which means it relies on external finance tends to provide low dividends as their will be risk on the company so distributing low dividends will help in reducing dependence on external finance. higher capital structure which is composed of high debt will let the top management prioritize liability pay of than distributing dividends while leverage ratio is mostly measured by debt-to-equity ratio.
Qurrota A'yuni stated in his research that investors should know about the firm's liability in order to estimate their investment income (dividends). For more consistency in 2005 Brigham and Ehrhardt stated that the greater the firm's leverage the lower the dividends paid.

It is commonly known that a firm with high ROE tends to distribute more dividends on its shareholders as the higher the

ROE means that the firm has sufficient profits to pay dividends and consequently the stock return will also increase. As per Brigham & Houston study in 2012 this ROE ratio shows the firms' shareholder return so the higher the ROE the higher the return and the company is in a strong position, and vice versa. This ratio indicates to what extent the company is able to generate profits from its own investments ,moreover this ratio is very attractive to investors to invest in this company consequently it will increase the capital which will have a positive effects on the dividends paid ; Susilowati & Turyanto in 2012 found that ROE has a positive significant effect on dividends distribution policy .Aziz in 2011 made a study that proved that dividends policy of any firm is directly affected by the ROE, in other words if the firm plans to distribute dividends consequently it reduces its retained earnings which will lead to lower ROE and vice versa .

Financial leverage is considered as a crucial indicator for most of the firms as it is used to indicate the voracious finance resources in order to fund the firm's operations aiming to achieve growth and maintain the firm's profitability which will be reflected on the firm's ROE. "Agency Theory" was proposed by Meckling and Jensen in 1976 that suggested a strong linkage between financial leverage and disclosures. Financial leverage method is used to enhance firm's value by reducing cost of fund (Naz etal.2011);.while in 1990 Watts and Zimmerman stated that firms

which has high percentage of financial leverage tends to use its earnings by moving them from the future to the current needs section and from another aspect financial and banking institutions depends heavily on financial reports of those firms that requests loan (Yoon and Miller ,2002).In general firms which seeks loans from financial institutions or banks are driven by increasing their income and accruals in order to increase the firms profitability ,then obtain low financing cost (DeFond and Jiambalvo, 1994)

3- Hypothesis

Firm size usually is measured by the amount of its total assets, the greater the assets the larger the firm is and well established, which enhance the firm's image in the business market in terms of experience which will attract investors as it is a signal that the company has good financial manager and there is a great probability of dividends distribution. Indriani (2005), Asuti (2006) proved that the firm size has a direct relationship with dividends distribution using total assets as a proxy of their research, where they found the firms that have larger total assets are more stable and has the ability to generate returns in comparison to other small companies. Showing more consistence also Acheampong (2014) found out in his research which was conducted on firms in the Ghana stock market found that small firms tend to provide lower stock returns in comparison to bigger

firms which meant to be that there is a direct relationship between firm size and stock returns

H1: Firm size has a positive relationship with dividends distribution.

Return on assets has been defined as the profitability of the firm that shows its ability to generate profits through its assets which measures the firm's efficiency in the use of its capital, so the higher the ROA the more the company tends to distribute dividends. Samira Anggraeini and Krisnando (2019) studied the effect of ROA on dividend policy (dividend payout ratio) in companies listed in the Indonesian stock market where they build their hypothesis on old review on previous research where they suggested that every firm aims for profits in order to continue and expand their operational activities so companies that generates high profits are usually having a very small amount of debt while ROA is considered a good indicator ;the higher this ration the higher the firm's financial performance so it can be explained that ROA has a direct relationship on dividends distribution policy.

H1: ROA has a positive relationship with dividends distribution.

Debt to equity ratio is the proxy where financial mangers use in order to know to what extend the firm relies on debt as the higher the ratio that means that the company relies on external debt

having outstanding liabilities that will defiantly have a priority whenever the company is generating profits, so the higher the DER the lower the dividends distributed by the firm. For any firm dividends distribution is considered as a cash outflow; the stronger the liquidity position of the firm the higher the chance to pay out dividends, firm's ability to earn profit is the key indicator that the company is able to pay dividends. DER shows the extent to which the firm is able to pay its long-term liabilities; the higher the ratio the lower the amount of dividends distributed. showing more consistency Suharli and Oktorina (2005) proved that leverage ratio of any firm affects the dividends paid out

H1: DER a negative relationship with dividends distribution.

Return on equity is a proxy that indicates how much the firm's net income had return on shareholders' equity and It is commonly known that a firm with high ROE tends to distribute more dividends on its shareholders as the higher the ROE means that the firm has sufficient profits to pay dividends and consequently the stock return will also increase. Brigham & Houston study in 2012 this ROE ratio shows the firms' shareholder return so the higher the ROE the higher the return and the company is in a strong position ,and vise versa ; this ratio indicates to what extent the company is able to generate profits from its own investments ,moreover this ratio is very attractive to investors to invest in this company consequently it will increase the capital which will have a positive effects on the dividends

paid ; Susilowati & Turyanto in 2012 found that ROE has a positive significant effect on dividends distribution policy.

H1: ROE has a positive relationship with dividends distribution

Financial leverage is considered as a crucial indicator for most of the firms as it is used to indicate the voracious finance resources in order to fund the firm's operations aiming to achieve growth and maintain the firm's profitability which will be reflected on the firm's ROE. Total liabilities/total asset ratio is used as a proxy of financial leverage in many studies, then it is possible to suggest the below hypothesis Hx: There is a significant relationship between firm financial leverage and EM .In general firms which seeks loans from financial institutions or banks are driven by increasing their income and accruals in order to increase the firms profitability ,then obtain low financing cost (DeFond and Jiambalvo, 1994).

H1: Financial leverage has a negative relationship with dividends distribution

4- Methodology

Firstly, data manipulation is conducted to predict the missing values of the data set under study. Secondly, the mixed effects model is used to know whether the mentioned independent variables have an effect on the dependent variable or not taking into consideration time and sector effect. Thirdly, the generalized

method of moments (GMM) is utilized for the estimation process of the mixed-effect models depends on main assumption, which is probability distribution of the error term (dependent variable) follows normal distribution. Accordingly, the following two model are estimated:

$$Divedend_{it} = \beta_0 + \beta_1 ROA_{it} + \beta_2 size_{it} + \beta_3 equity_{it} + \beta_4 leverage_{it} + \sum_i \gamma_i industry_i + \epsilon_{it}$$

$$Divedend_{it} = \beta_0 + \beta_1 ROE_{it} + \beta_2 size_{it} + \beta_3 equity_{it} + \beta_4 leverage_{it} + \sum_i \gamma_i industry_i + \epsilon_{it}$$

Where:

$Divedend_{it}$: Dividend distributed
β_0: Constant term
β_1: Variable coefficient
ROA_{it}: Return on assets
ROE_{it}: Return on Equity
$size_{it}$: Firm size
$equity_{it}$: Debt to equity
$leverage$: Financial leverage
$\gamma_i industry_i$: Industry sector
ϵ_{it}: Error term

5- Results and Discussion

In order to come out with the thesis result, the collected data was obtained from non-financial firms listed in the Egyptian stock market (EGX-70) from the period of 2009-2021;the research method is mainly quantitative while secondary data in this study are obtained from the examined companies audited financials listed on Mubasher website and some of it were o EGID Company in order to undertake the statistical tests to come out with an answer on the research questions

the research's findings were obtained by using some of the statistical tests for all of the variables such as:

- Shapiro –Wilk test (in order to test whether the depended variable follows a normal distribution trend or not.
- Winsorization process.
- GMM model.
- SYS-GMM using Sargan-Hansen test & Arellano-Bond test.
- Multi-collinearity using VIF model.
- Diagnostics tests (Over-identification test and Serial correlation test).

Model 1

From the following table, it is clear that there is no multi-

Variable	VIF
Firm Size	1.00
Financial Leverage	1.00
ROA	1.00
Debt to Equity	1.00
Mean VIF	1.00

collinearity problem as all VIF less than 10.

```
System dynamic panel-data estimation          Number of obs      =       588
Group variable: ID                            Number of groups   =        49
Time variable: Year
                                              Obs per group:
                                                           min =        12
                                                           avg =        12
                                                           max =        12

Number of instruments =    628                Wald chi2(13)      =     58.05
                                              Prob > chi2        =    0.0000
```

The table above shows that the p-value of the Wald Chi2 test equals 0.0000 which is significant (less than 0.05). This means that there is at least 1 variable of the independent variables has significant effect on cash dividend.

VARIABLES	
Cash Dividend Distributed	0.148***
	(0.0302)
ROA	0.0193**
	(0.00905)
Debt to Equity Ratio	-4.0623***
	(0.769)
Financial Leverage	-9.164
	(21.168)
Firm Size	0.00594***
	(0.00214)
Building material	3.174
	(2.478)
Contracting & Construction Engineering	1.127
	(3.205)
Food, Beverages and Tobacco	3.583
	(2.625)
Real Estate	6.846***
	(2.256)
Shipping & Transportation Services	-7.675
	(2.817)
Textile & Durables	3.241
	(2.838)
others	1.747
	(2.211)
Constant	1.55
	(3.243)
Observations	588
Number of ID	49
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

From the table above, the following can be concluded:

1- ***ROA has significant positive impact on dividend***, this with confident 95%. The p value is less than 0.05 and β coefficient equals 0.0193, this means that when the ROA increases by one unit the dividend increases by 0.0193 units given that all other independent variables are constant.
2- ***Debt to equity ratio has significant negative impact on dividend***, this with confident 95%. The p value is less than 0.05 and β coefficient equals -4.0623, this means that when the debt-to-equity ratio increases by one unit the dividend decreases by 4.0623 units given that all other independent variables are constant.
3- ***Firm size has significant positive impact on dividend***, this with confident 95%. The p value is less than 0.05 and β coefficient equals 0.00594, this means that when the firm size increases by one unit the dividend increases by 0.00594 units given that all other independent variables are constant.
4- ***Financial leverage has insignificant impact on dividend***, this with confident 95%. The p value is larger than 0.05, given that all other independent variables are constant.
5- *The* ***reference category for the industry is the basic resources industry*** and from the coefficients of the industries, it is clear that the only industry that has significant difference with the basic resource industry is ***real estate industry*** such that the average of dividend in this industry is greater than the

others, this with confident 95% and controlling or other effects.

Over-identification test

Over-identification test is used in order to make sure whether the researcher adapted the suitable statistical methods or not.

```
Sargan test of overidentifying restrictions
H0: Overidentifying restrictions are valid

        chi2(614)     =  595.0804
        Prob > chi2   =    0.7007
```

Also, according to the Sargan Hansen test there is no over-identification problem which indicate the goodness of fit of the test since that Prob > chi2 is more than 0.05

Serial correlation test

Serial correlation test is used to known whether any of the data errors are correlated errors or not.

```
Arellano-Bond test for zero autocorrelation in first-differenced errors
H0: No autocorrelation

Order        z    Prob > z
-----------------------------
   1    -2.0105     0.0444
   2    -1.1118     0.2662
-----------------------------
```

From the above table, it is clear that there is no autocorrelation problem as p-value for second lag is greater than 5%.

Model 2

From the following table, there is no multi-collinearity problem as all VIF less than 10.

Variable	VIF
ROE	1.05
Debt to Equity	1.05
Firm Size	1.00
Financial Leverage	1.00
Mean VIF	1.02

```
System dynamic panel-data estimation          Number of obs      =       588
Group variable: ID                            Number of groups   =        49
Time variable: Year
                                              Obs per group:
                                                           min =        12
                                                           avg =        12
                                                           max =        12

Number of instruments =    626                Wald chi2(13)      =     53.05
                                              Prob > chi2        =    0.0000
```

The table above shows that the p-value of the Wald Chi2 test equals 0.0000 which is significant (less than 0.05). This means that there is at least 1 variable of the independent variables has significant effect on cash dividend.

VARIABLES	
Cash Dividend Distributed	0.155***
	(0.0306)
ROA	1.344***
	(0.1527)
Debt to Equity Ratio	-4.246***
	(0.2697)
Financial Leverage	-2.96284
	(4.686)
Firm Size	0.00591***
	(0.00210)
Building material	9.984e
	(12.488)
Contracting & Construction Engineering	11.319
	(13.07)
Food, Beverages and Tobacco	3.882
	(2.623)
Real Estate	7.311***
	(2.265)
Shipping & Transportation Services	-2.046
	(2.823)
Textile & Durables	3.659
	(2.846)
others	1.946
	(2.244)
Constant	1.897
	(3.271)
Observations	588
Number of ID	49
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

From the table above, the following can be concluded:

1- ***ROE has significant positive impact on dividend***, this with confident 95%. The p value is less than 0.05 and β coefficient equals 0.155, this means that When the ROE increases by one unit the dividend increases by 0.155 units given that all other independent variables are constant.

2- ***Debt to equity ratio has significant negative impact on dividend***, this with confident 95%. The p value is less than 0.05 and β coefficient equals -4.246, this means that when the debt-to-equity ratio increases by one unit the dividend decreases by 4.246 units given that all other independent variables are constant.

3- ***Firm size has significant positive impact on dividend***, this with confident 95%. The p value is less than 0.05 and β coefficient equals 0.00591, this means that when the firm size increases by one unit the dividend increases by 0.00591 units given that all other independent variables are constant.

4- ***Financial leverage has insignificant impact on dividend***, this with confident 95%. The p value is larger than 0.05, given that all other independent variables are constant.

5- The ***reference category for the industry is the basic resources industry*** and from the coefficients of the industries, it is clear that the only industry that has significant difference with the basic resource industry is ***real estate industry*** such that the

average of dividend in this industry is greater than the others, this with confident 95% and controlling or other effects.

Overidentification test

Over-identification test is used in order to make sure whether the researcher adapted the suitable statistical methods or not.

```
Sargan test of overidentifying restrictions
H0: Overidentifying restrictions are valid

        chi2(612)     =  596.2456
        Prob > chi2   =    0.6683
```

Also, according to the Sargan Hansen test there is no overidentification problem which indicate the goodness of fit of the test.

Serial correlation test

```
Arellano-Bond test for zero autocorrelation in first-differenced errors
H0: No autocorrelation

Order         z    Prob > z
-----------------------------
    1   -1.1887     0.2346
    2   -.16166     0.8716
-----------------------------
```

From the above table, it is clear that there is no autocorrelation problem as p-value for second lag is greater than 5%.

Finally, the following table presents the hypotheses testing based on the results attained from both models:

Variable	Result
Return on Assets (ROA)	• H1 is accepted where ROA has a significant positive effect on dividends distribution with confidence level 95% • The above accepted hypothesis assures most of the previous research results which was mentioned in the literature review.
Return on Equity (ROE)	• H1 is accepted where ROE has a significant positive effect on dividends distribution with confidence level 95% • The above accepted hypothesis assures most of the previous research results which was mentioned in the literature review.
Debt to equity ratio (DER)	• H1 is accepted where DER has a significant negative effect on dividends distribution with confidence level 95%. • The above accepted hypothesis assures most of the previous research results which was mentioned in the literature review.
Firm Size	• H1 is accepted where Firm size has a significant positive effect on dividends distribution with confidence level 95%. • The above accepted hypothesis is in the opposite direction of the "Agency theory", yet this does not match with most of the previous research results which was mentioned in the literature review.
Financial Leverage (FL)	• H0 is accepted where FL has insignificant impact on dividends distribution with confidence level 95%. • The above accepted hypothesis is not consistent with the previous research results as most of the previous studies revealed that FL has a significant negative effect on dividends distribution.
Industry Sectors	• According to the "Reference Category" (basic resources industry) H1 is accepted, as the only industry that has significant difference with the basic resource industry is ***real estate industry*** such that the average of dividend in this industry is greater than the others, this with confidence level 95%. • There are no published studies used this variable; it was newly added as a contribution of this paper.

6- Conclusion

Based on the findings, this paper presented the implications related to stakeholders such as financial managers and decision makers as well as shareholders. Financial managers should focus on profitability ratios so as to control the dividend payout ratio verses the amount of earning that should be retained with respect to the company's future plans, while on the other hand potential investors should observe the determinants of dividends distribution policy in case of investing in such companies.

ROE and ROA are found to be essential indicators when it comes to attracting investors as both indicate the firm's profitability which reflects the willingness of the company to distribute dividends and the more the probability of distribution is the more attraction the investors are toward the firm's stock according to "signaling theory". In addition, investors should focus on firm size as it is indicator of the firm's stability and relevant experience in the market; the bigger the firm size the more stable the firm is which indicates that dividends will be distributed.

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